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HENRY FORD HEALTH

Henry Ford Health Publication List – September 2024

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, and PsycINFO during the month, and then imported into EndNote for formatting. There are 185 unique citations listed this month, including 111 articles and 74 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

Administration

Townsel C, Louis L, Clark C, Solomon LM, Jiang C, **Caldwell M**, and Marsh EE. Emergency Department Utilization for Hypertensive Disorders of Pregnancy and Post Partum, 2006-2020. *JAMA Netw Open* 2024; 7(9):e2433045. PMID: 39269707. Full Text

Division of Maternal Fetal Medicine, Department of Obstetrics, Gynecology and Reproductive Sciences, University of Maryland, Baltimore.
Department of Obstetrics and Gynecology, University of Michigan, Ann Arbor.
University of Michigan Medical School, Ann Arbor.
Division of Women's Health, Department of Obstetrics and Gynecology, University of Michigan, Ann Arbor.
Division of Reproductive Endocrinology and Infertility, Department of Obstetrics and Gynecology, University of Michigan, Ann Arbor.
Department of Emergency Medicine, Henry Ford Hospital, Detroit, Michigan.
Department of Women's and Gender Studies, College of Literature, Sciences, and the Arts, University of Michigan, Ann Arbor.
Michigan Institute of Clinical and Health Research, University of Michigan, Ann Arbor.

This cross-sectional study assesses emergency department (ED) admissions for hypertensive disorders of pregnancy and post partum between 2006 and 2020.

Anesthesiology

Cole NM, Kim JJ, Lumbreras-Marquez MI, Fields KG, **Mendez-Pino L**, Farber MK, Carusi DA, Toledo P, and Bateman BT. Second-Line Uterotonics for Uterine Atony: A Randomized Controlled Trial. *Obstet Gynecol* 2024; Epub ahead of print. PMID: 39326051. Full Text

Department of Anesthesia and Critical Care, University of Chicago Medicine, Chicago, Illinois; the Department of Anesthesiology, Perioperative and Pain Medicine and the Division of Maternal Fetal Medicine, Department of Obstetrics and Gynecology, Brigham and Women's Hospital, Boston, Massachusetts; the Epidemiology and Public Health Division, Universidad Panamericana School of Medicine, Mexico City, Mexico; the Department of Anesthesiology, Pain Management and Perioperative Medicine, Henry Ford Hospital, Detroit, Michigan; the Department of Anesthesiology, Perioperative Medicine and Pain Management, University of Miami Miller School of Medicine, Miami, Florida; and the Department of Anesthesiology, Perioperative and Pain Medicine, Stanford University School of Medicine, Stanford, California.

OBJECTIVE: To evaluate the comparative efficacy of two of the most commonly used second-line uterotonics-methylergonovine maleate and carboprost tromethamine. METHODS: We conducted a double-blind randomized trial at two large academic perinatal centers in patients undergoing nonemergency cesarean delivery with uterine atony refractory to oxytocin, as diagnosed by the operating obstetrician. The intervention included administration of a single dose of intramuscular methylergonovine or carboprost intraoperatively at diagnosis. The primary outcome, uterine tone on a 0-10 numeric rating scale 10 minutes after study drug administration, was rated by operating obstetricians blinded to the drug administered. Secondary outcomes included uterine tone score at 5 minutes, administration of additional uterotonic agents, other interventions for uterine atony or hemorrhage, quantitative blood loss, urine output, postpartum change in serum hematocrit, transfusion, length of hospital stay, adverse drug or transfusion reactions, and postpartum hemorrhage complications. A sample size of 50 participants per group was planned to detect a 1-point difference (with estimated within-group SD of 1.5) in the mean primary outcome with 80% power at a two-sided α level of 0.05 while accounting for potential protocol violations. RESULTS: A total of 1,040 participants were enrolled, with 100 randomized to receive one of the study interventions. Mean±SD 10-minute uterine tone scores were 7.3±1.7 after methylergonovine and 7.6±2.1 after carboprost, with an adjusted difference in means of -0.1 (95% CI, -0.8 to 0.6, P=.76). Additional second-line uterotonics were required in 30.0% of the methylergonovine arm and 34.0% in the carboprost arm (adjusted odds ratio 0.72, 95% CI, 0.27-1.89, P=.505), and geometric mean quantitative

blood loss was 756 mL (95% CI, 636-898) and 708 mL (95% CI, 619-810) (adjusted ratio of geometric means 1.06, 95% CI, 0.86-1.31, P=.588), respectively. No differences were detected in the occurrence of other interventions for uterine atony or postpartum hemorrhage. CONCLUSION: No difference was detected in uterine tone scores 10 minutes after administration of either methylergonovine or carboprost for refractory uterine atony, indicating that either agent is acceptable. CLINICAL TRIAL REGISTRATION: ClinicalTrials.gov, NCT03584854.

Anesthesiology
Zador L. Pain specialists in the management of sickle cell disease: a call to action. *Pain Manag* 2024; 1-3. Epub ahead of print. PMID: 39324565. Full Text

Director, Comprehensive Sickle Cell Pain Clinic, Director, Multidisciplinary Pain Clinic, Department of Anesthesiology, Pain Management & Perioperative Medicine, Henry Ford Health, Associate Professor of Anesthesiology, Michigan State University College of Human Medicine, Henry Ford Hospital, 2799 W. Grand Boulevard, Anesthesiology-Clara Ford Pavilion-3rd Floor, Detroit, MI 48202, USA.

Behavioral Health Services/Psychiatry/Neuropsychology
Blaney H, **Winder GS**, and Liangpunsakul S. Enhancing alcohol use disorder care in alcohol-associated liver disease: Patient perspectives and systemic barriers. *Alcohol Clin Exp Res (Hoboken)* 2024; Epub ahead of print. PMID: 39294552. Request Article

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Behavioral Health Services/Psychiatry/Neuropsychology
Gaudette J, **Kilaru S**, **Davenport A**, Hanumolu S, **Pinkney D**, **Mandava S**, **Williams A**, and **Tang XA**. Patient- vs Technologist-Controlled Mammography Compression: A Prospective Comparative Study of Patient Discomfort and Breast Compression Thickness. *J Breast Imaging* 2024; Epub ahead of print. PMID: 39235987. Full Text

Department of Radiology, Henry Ford Hospital, Detroit, MI, USA.
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Department of Psychology, Henry Ford Hospital, Detroit, MI, USA.
Department of Biostatistics, Henry Ford Hospital, Detroit, MI, USA.

OBJECTIVE: We assess whether mammographic patient-assisted compression (PAC) has an impact on breast compression thickness and patient discomfort compared with technologist-assisted compression (TAC). METHODS: A total of 382 female patients between ages 40 and 90 years undergoing screening mammography from February 2020 to June 2021 were recruited via informational pamphlet to participate in this IRB-approved study. Patients without prior baseline mammograms were excluded. The participating patients were randomly assigned to the PAC or TAC study group. Pre- and postmammogram surveys assessed expected pain and experienced pain, respectively, using a 100-mm visual analogue scale and the State-Trait Anxiety Inventory. Breast compression thickness values from the most recent mammogram were compared with the patient's recent prior mammogram. RESULTS: Between the 2 groups, there was no significant difference between the expected level of pain prior to the mammogram (P = .97). While both study groups reported a lower level of experienced pain than was expected, the difference was greater for the PAC group (P <.0001). Additionally, the PAC group reported significantly lower experienced pain during mammography compared with the TAC group (P = .014). The correlation of trait/state anxiety scores with pre- and postmammogram pain scores was weak among the groups. Lastly, the mean breast compression thickness values for standard screening mammographic views showed no significant difference in the PAC group when compared with the patient's prior mammogram.

CONCLUSION: Involving patients in compression reduces their pain independent of the patient's state anxiety during mammography while having no effect on breast compression thickness. Implementing PAC could improve the mammography experience.

Behavioral Health Services/Psychiatry/Neuropsychology
Prabhakar D. Advances in Community Engagement: An Idea for Loneliness Prevention. *Adv Psychiatry Behav Health* 2024; 4(1):xxi-xxii. PMID: Not assigned. Full Text

Behavioral Health Services/Psychiatry/Neuropsychology
Shippen NA, **Felton JW**, Stevens AE, Khaireddin M, Lejuez CW, Chronis-Tuscano A, and Meinzer MC. Longitudinal association of adolescent adhd symptoms in the trajectory of maternal depression symptoms. *J Psychopathol Behav Assess* 2024; Epub ahead of print. PMID: Not assigned. Full Text

Maternal depression is a common mental health condition that can have adverse impacts on both mothers and their offspring. Research is growing on what factors are related to maternal depression longitudinally, specifically on transactional framings of how both maternal and child mental health symptoms may potentially impact mothers. Attention-deficit/hyperactivity disorder (ADHD) is a common childhood disorder, characterized by symptoms of inattention, hyperactivity, and/or impulsivity with impacts across the lifespan. Research has demonstrated the effects of youth ADHD on caregiver well-being and how race and sex may have a potential influence on experiences of families of youth with ADHD. Less is known about how adolescent ADHD symptoms longitudinally relate to maternal depressive symptoms. The current study draws from a community sample of adolescents and their mothers. Children in the sample were approximately 12-year-olds (M = 12.07 years, SD = 0.90) at the start of study and 18 at the end (M = 18.05, SD = 0.96). Mothers completed a measure of their child's ADHD symptoms at approximately age 12 and a measure of their own depressive symptoms annually over seven years. Latent growth modeling was used to examine the intercept and slope of mothers' depression symptoms throughout their child's adolescence. The slope of maternal depressive symptoms was flat across adolescence. ADHD symptoms of hyperactivity/impulsivity (but not inattention) were significantly associated with the intercept of maternal depressive symptoms, with higher levels of hyperactivity/impulsivity symptoms predicting a higher intercept of maternal depressive symptoms, but not the slope of maternal depressive symptoms, across adolescence. The results of this study highlight associations between ADHD symptoms and maternal mental health and the longevity of its effects. Future directions and clinical implications are discussed. (PsycInfo Database Record (c) 2024 APA, all rights reserved)

Behavioral Health Services/Psychiatry/Neuropsychology
Simonetto DA, Winder GS, Connor AA, and Terrault NA. Liver transplantation for alcohol-associated liver disease. *Hepatology* 2024; Epub ahead of print. PMID: 38889100. Full Text

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Alcohol-associated liver disease (ALD) is a major cause of morbidity and mortality worldwide, and a leading indication for liver transplantation (LT) in many countries, including the United States. However, LT for ALD is a complex and evolving field with ethical, social, and medical challenges. Thus, it requires a multidisciplinary approach and individualized decision-making. Short-term and long-term patient and graft survival of patients undergoing LT for ALD are comparable to other indications, but there is a continued need to develop better tools to identify patients who may benefit from LT, improve the pretransplant and posttransplant management of ALD, and evaluate the impact of LT for ALD on the organ donation and transplantation systems. In this review, we summarize the current evidence on LT for ALD, from alcohol-associated hepatitis to decompensated alcohol-associated cirrhosis. We discuss the indications, criteria,

outcomes, and controversies of LT for these conditions and highlight the knowledge gaps and research priorities in this field.

Behavioral Health Services/Psychiatry/Neuropsychology

Winder GS, **Gill V**, **Patel S**, **Asefa H**, and **Mellinger JL**. Expert and patient cognitive interviews in the development of a novel alcohol insight scale for use in hepatology and liver transplantation. *Gen Hosp Psychiatry* 2024; Epub ahead of print. PMID: 39317622. Full Text

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Cardiology/Cardiovascular Research

Abu-Much A, Grines CL, Chen S, Batchelor WB, Zhao D, Falah B, Maini AS, Redfors B, Bellumkonda L, Bharadwaj AS, Moses JW, Truesdell AG, Zhang Y, Zhou Z, Baron SJ, Lansky AJ, **Basir MB**, **O'Neill WW**, and Cohen DJ. Clinical outcomes among patients with mitral valve regurgitation undergoing Impella-supported high-risk PCI. *Int J Cardiol* 2024; 417:132555. PMID: 39270940. Full Text

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BACKGROUND: Mitral valve regurgitation (MR) is associated with worse outcomes in patients undergoing percutaneous coronary intervention (PCI). We sought to evaluate outcomes of Impella-supported high-risk PCI (HRPCI) patients according to MR severity. METHODS: Patients from the PROTECT III study undergoing Impella-supported HRPCI were stratified into 4 groups according to MR severity: No or trace MR, mild MR, moderate MR, and severe MR. Immediate PCI-related complications, major adverse cardiovascular and cerebrovascular events (MACCE: all-cause death, myocardial infarction, stroke/transient ischemic attack, and repeat revascularization) at 90 days and death at 1-year were assessed. RESULTS: From March 2017 to March 2020, 631 patients who underwent Impella-supported HRPCI in the PROTECT III study had evaluable MR severity at baseline. Patients with severe MR had lower body mass indices, lower left ventricular ejection fractions (LVEFs), and were more frequently diagnosed with heart failure. The incidence of immediate PCI-related complications was similar between groups. Unadjusted 90-day MACCE and 1-year mortality rates were numerically higher in patients with severe MR compared to the other study groups yet without reaching statistical significance.

In multivariable analyses, there was no significant association between the presence of severe MR for 90-day MACCE or 1-year mortality compared with other degrees of MR (adj. HR = 1.71, 95% CI [0.73, 3.98], p = 0.21; adj. HR = 1.79, 95% CI [0.86, 3.74], p = 0.12, respectively). CONCLUSIONS: Impella-supported HRPCI patients with moderate or severe MR exhibited a higher prevalence of heart failure, lower LVEF, and longer hospital stays. Patients with severe MR showed numerically higher unadjusted rates of 90-day MACCE and 1-year mortality compared to other groups, however these differences did not reach statistical significance even after adjustment for potential confounders. CLINICAL TRIAL INFORMATION: Trial Name: The Global cVAD Study (cVAD) ClinicalTrial.govIdentifier:NCT04136392 URL: https://clinicaltrials.gov/ct2/show/NCT04136392?term=cvad&draw=2&rank=2.

Cardiology/Cardiovascular Research
Almajed MR, Almajed A, **Antishin S**, **Saleem A**, **Wexler B**, **Mohammed M**, **Keimig T**, **Lingam N**, **Abdul-Nour K**, and **Hudson M**. Coronary Artery Aneurysm Thrombosis in a Patient With Marfan Syndrome. *JACC Case Rep* 2024; 29(18). PMID: Not assigned. Full Text

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Coronary artery aneurysm in adults is associated with connective tissue disorders, including Marfan syndrome. Coronary artery aneurysms are at risk for thrombosis, which obstructs coronary flow and thus results in myocardial infarction. We present a case of coronary artery aneurysm thrombosis in a patient with Marfan syndrome who presented with acute coronary syndrome.

Cardiology/Cardiovascular Research
Bansal K, Gupta M, Garg M, Patel N, Truesdell AG, **Babar Basir M**, Rab ST, Ahmad T, Kapur NK, Desai N, and Vallabhajosyula S. Impact of Inpatient Percutaneous Coronary Intervention Volume on 30-Day Readmissions After Acute Myocardial Infarction-Cardiogenic Shock. *JACC Heart Fail* 2024; Epub ahead of print. PMID: 39243243. Full Text

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BACKGROUND: There are limited data on volume-outcome relationships in acute myocardial infarction (AMI) with cardiogenic shock (CS). OBJECTIVES: In this study, the authors sought to evaluate the association between hospital percutaneous coronary intervention (PCI) volume and readmission after AMI-CS. METHODS: Adult AMI-CS patients were identified from the Nationwide Readmissions Database for 2016-2019 and were categorized into hospital quartiles (Q1 lowest volume to Q4 highest) based on annual inpatient PCI volume. Outcomes of interest included 30-day all-cause, cardiac, noncardiac, and heart-failure (HF) readmissions. RESULTS: There were 49,558 AMI-CS admissions at 3,954 PCI-performing hospitals. Median annual PCI volume was 174 (Q1-Q3: 70-316). Patients treated at Q1 hospitals were on average older, female, and with higher comorbidity burden. Patients at Q4 hospitals

had higher rates of noncardiac organ dysfunction, complications, and use of cardiac support therapies. Overall, 30-day readmission rate was 18.5% (n = 9,179), of which cardiac, noncardiac, and HF readmissions constituted 56.2%, 43.8%, and 25.8%, respectively. From Q1 to Q4, there were no differences in 30-day all-cause (17.6%, 18.4%, 18.2%, 18.7%; P = 0.55), cardiac (10.9%, 11.0%, 10.6%, 10.2%; P = 0.29), and HF (5.0%, 4.8%, 4.8%, 4.8%; P = 0.99) readmissions. Noncardiac readmissions were noted more commonly in higher quartiles (6.7%, 7.4%, 7.7%, 8.5%; P = 0.001) but was not significant after multivariable adjustment. No relationship was noted between hospital PCI volume as a continuous variable and readmissions. CONCLUSIONS: In AMI-CS, there was no association between hospital annual PCI volume and 30-day readmissions despite higher acuity in the higher volume PCI centers suggestive of better care pathways for CS at higher volume centers.

Cardiology/Cardiovascular Research

Estep JD, Nicoara A, Cavalcante J, Chang SM, Cole SP, **Cowger J**, Daneshmand MA, Hoit BD, Kapur NK, Kruse E, Mackensen GB, Murthy VL, Stainback RF, and Xu B. Recommendations for Multimodality Imaging of Patients With Left Ventricular Assist Devices and Temporary Mechanical Support: Updated Recommendations from the American Society of Echocardiography. *J Am Soc Echocardiogr* 2024; 37(9):820-871. PMID: 39237244. Full Text

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Stanford Health Care, Stanford, California.
Henry Ford Health, Detroit, Michigan.
Emory University Hospital, Atlanta, Georgia.
Case Western Reserve University, Cleveland, Ohio.
Tufts Medical Center, Boston, Massachusetts.
University of Chicago, Chicago, Illinois.
University of Washington Medical Center, Seattle, Washington.
Michigan Medicine, University of Michigan, Ann Arbor, Michigan.
Texas Heart Institute, Houston, Texas.
Cleveland Clinic, Cleveland, Ohio.

Cardiology/Cardiovascular Research

Fang JX, **Giustino G**, **Apostolou D**, **Lee JC**, **Wang DD**, **Engel Gonzalez P**, **O'Neill BP**, **Frisoli TM**, **O'Neill WW**, and **Villablanca PA**. LAVA-ECMO–Supported Dual-Transcatheter Aortic and Mitral Valve-in-Valve Replacement in Cardiogenic Shock. *JACC Case Rep* 2024; 29(19). PMID: Not assigned. Full Text

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Objectives: Mechanical circulatory support is often challenging in patients with cardiogenic shock secondary to valvular heart disease because of challenging device placement, decreased efficacy, the need for a concomitant device for left ventricular unloading, or contraindications. Left atrial venoarterial-extracorporeal membranous oxygenation (LAVA-ECMO) is an emerging technique to achieve simultaneous ventricular unloading and circulatory support unaffected by valvular disease. The use of LAVA-ECMO for high-risk transcatheter valvular replacement has not been described. Key Steps: We describe the case of a patient with cardiogenic shock resulting from dual aortic and mitral bioprosthetic degeneration who was treated with LAVA-ECMO–supported dual-transcatheter aortic and mitral valve-in-valve replacement. Potential Pitfalls: Among many precautions worth mentioning, operators should be aware of the care and adjustments of the ECMO circuit required during transcatheter valvular replacement to achieve technical success without complications. The importance of a careful case

planning in a multidisciplinary heart team meeting cannot be overemphasized. Take-Home Message: LAVA ECMO enables high-risk valvular replacement in patients in valvular cardiogenic shock.

Cardiology/Cardiovascular Research
Fang JX, **Giustino G**, **Lee JC**, **O'Neill BP**, **Engel Gonzalez P**, **Frisoli TM**, Wang DD, **O'Neill WW**, and **Villablanca PA**. Direct Electrosurgical Traversal With Radiofrequency to Prevent Obstruction in Left Ventricular Outflow Tract (DETROIT). *JACC Cardiovasc Interv* 2024; 17(18):2184-2187. PMID: 39243266. Full Text

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Cardiology/Cardiovascular Research
Gupta K, **Jain V**, **Kakar TS**, **Nguyen F**, **Rangavajla G**, Merchant FM, and **Lahiri M**. Incidence of High-Grade AV Block Requiring Permanent Pacemaker Implantation After TTVR: A Meta-Analysis. *JACC Cardiovasc Interv* 2024; 17(18):2195-2196. PMID: 39322370. Full Text

Cardiology/Cardiovascular Research
Gupta K, Junaid V, **Qureshi MA**, Gupta A, Sheikh S, Dalakoti M, Virani SS, and Khoja A. Health Data Sciences and Cardiovascular Diseases in South Asia: Innovations and Challenges in Digital Health. *Curr Atheroscler Rep* 2024; Epub ahead of print. PMID: 39240492. Full Text

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PURPOSE OF REVIEW: Health data sciences can help mitigate high burden of cardiovascular disease (CVD) management in South Asia by increasing availability and affordability of healthcare services. This review explores the current landscape, challenges, and strategies for leveraging digital health technologies to improve CVD outcomes in the region. RECENT FINDINGS: Several South Asian countries are implementing national digital health strategies that aim to provide unique health account numbers for patients, creating longitudinal digital health records while others aim to digitize healthcare services and improve health outcomes. Significant challenges impede progress, including lack of interoperability, inadequate training of healthcare workers, cultural barriers, and data privacy concerns. Leveraging digital health for CVD management involves using big data for early detection, employing artificial intelligence for diagnostics, and integrating multiomics data for health insights. Addressing these challenges through policy frameworks, capacity building, and international cooperation is crucial for improving CVD outcomes in region.

Cardiology/Cardiovascular Research
Jabbar ABA, Ismayl M, Mishra A, Walters RW, Goldsweig AM, **Aronow HD**, Tauseef A, and Aboeata AS. Outcomes of Acute Myocardial Infarction in Patients with Systemic Lupus Erythematosus: A Propensity-Matched Nationwide Analysis. *Am J Cardiol* 2024; Epub ahead of print. PMID: 39312991. Full Text

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Cardiology/Cardiovascular Research
Khan JM, Babaliaros VC, Greenbaum AB, McCabe JM, Rogers T, **Eng MH**, Foerst JR, Yazdani S, Paone G, Gleason PT, Halaby RN, Bruce CG, Tian X, Stine AM, and Lederman RJ. 5-Year Outcomes of Anterior Mitral Leaflet Laceration to Prevent Outflow Obstruction. *JACC Cardiovasc Interv* 2024; 17(18):2157-2167. PMID: 39243268. Full Text

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BACKGROUND: Left ventricular outflow tract (LVOT) obstruction is a common, often fatal complication of transcatheter mitral valve replacement (TMVR). Laceration of the anterior mitral leaflet to prevent outflow obstruction (LAMPOON) was safe and effective at preventing LVOT obstruction at 30 days in the National Heart, Lung, and Blood Institute LAMPOON trial. OBJECTIVES: The authors report the 5-year outcomes of intentional anterior mitral leaflet laceration before SAPIEN 3 TMVR, in patients at risk of LVOT obstruction. METHODS: The National Heart, Lung, and Blood Institute LAMPOON trial was a prospective, multicenter, single-arm safety and feasibility study of LAMPOON and transseptal SAPIEN 3 TMVR in annuloplasty rings (valve-in-ring) or native mitral annular calcification (MAC) (valve-in-MAC). All subjects had high predicted risk for LVOT obstruction. Subjects were not excluded for excessive frailty or comorbidity. The primary endpoints were technical success and safety at 30 days. Secondary clinical and echocardiographic endpoints were assessed at 1 year and clinical follow-up at 5 years. RESULTS: Thirty

subjects were enrolled between June 2017 and June 2018, equally between the valve-in-MAC and valve-in-ring arms. At 30 days, LAMPOON was successful in all 30 subjects, with no strokes, 1 (3%) death, and 1 (3%) moderate LVOT obstruction. Eighteen (65%) survived to 1 year, and 7 (25%) survived to 5 years. Six (20%) were hospitalized for heart failure in the first year. From baseline to 1 year, there was a 24-point improvement in Kansas City Cardiomyopathy Questionnaire score and a 60-m improvement in 6-minute walk distance. There was no significant change in N-terminal pro-brain natriuretic peptide. At 1 year, LVOT gradients remained low. CONCLUSIONS: LAMPOON enabled TMVR despite the risk for LVOT obstruction. There were no long-term complications associated with LAMPOON. The selection of inoperable patients limited assessment of long-term survival following TMVR. (NHLBI DIR LAMPOON Study: Intentional Laceration of the Anterior Mitral Leaflet to Prevent Left Ventricular Outflow Tract Obstruction During Transcatheter Mitral Valve Implantation; NCT03015194).

Cardiology/Cardiovascular Research

Krittanawong C, Imoh K, Ang SP, **Qadeer YK**, Virk HUH, Alam M, Lavie CJ, and Sharma R. Temporal Trends and Outcomes of Peripheral Artery Disease and Critical Limb Ischemia in the United States. *Crit Pathw Cardiol* 2024; Epub ahead of print. PMID: 39325956. Full Text

Cardiology Division, NYU Langone Health and NYU School of Medicine, New York, NY, USA.
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INTRODUCTION: Peripheral arterial disease (PAD) is a progressive, systemic atherosclerotic disease that is associated with an increased risk of coronary artery disease (CAD), cerebrovascular disease (CVD), and critical limb ischemia (CLI). CLI represents the most severe stage of PAD, characterized by progressive endothelial dysfunction and arterial narrowing. We hypothesized that the incidence of CLI and PAD would increase over the study period and that the rates of in-hospital mortality and major amputations among patients admitted with CLI would rise correspondingly. METHODS: We utilized the National Inpatient Sample (NIS) database from year 2016 to 2021 using the ICD-10-CM codes. Patients with a primary or secondary diagnoses of PAD were initially selected and subsequently hospitalization with CLI were appropriately identified. Cochran Armitage test was used to describe the trend of outcomes across the years. All statistical analyses were conducted using the software Stata version 17.0. RESULTS: From 2016-2021, there were 2,930,639 admissions for critical limb ischemia. 65% of these patients were over the age of 60 and 35.8% of these patients were women. Most of these individuals were white (64.7%), followed by African Americans (15.8%) and Hispanics (12.6%). In-hospital mortality rates varied by revascularization method, with hybrid revascularization showing the highest rate at 2.6%, followed by endovascular revascularization at 1.8%, and surgical revascularization at 1.6%. Additionally, hospitalization costs were highest for patients undergoing hybrid revascularization ($46,257 ± $36,417), compared to endovascular ($36,924 ± $27,945) and surgical revascularization ($35,672 ± $27,127). Endovascular revascularization rates seemed to increase while surgical revascularization rates decreased during this time period. CONCLUSION: PAD is a progressive, systemic atherosclerotic disease that is associated with an increased risk of CAD, CVD, and CLI. Our data showed that the rates of PAD and CLI hospitalizations has remained relatively stable from 2016-2021, but there seems to be a trend towards doing more revascularization via an endovascular approach as compared to a surgical approach.

Cardiology/Cardiovascular Research

Montgomery CM, Ashburn NP, Snavely AC, Allen B, Christenson R, Madsen T, **McCord J**, Mumma B, Hashemian T, Supples M, Stopyra J, Wilkerson RG, and Mahler SA. Sex-specific high-sensitivity troponin T cut-points have similar safety but lower efficacy than overall cut-points in a multisite U.S. cohort. *Acad Emerg Med* 2024; Epub ahead of print. PMID: 39223791. Full Text

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BACKGROUND: Data comparing the performance of sex-specific to overall (non-sex-specific) high-sensitivity cardiac troponin (hs-cTn) cut-points for diagnosing acute coronary syndrome (ACS) are limited. This study aims to compare the safety and efficacy of sex-specific versus overall 99th percentile high-sensitivity cardiac troponin T (hs-cTnT) cut-points. METHODS: We conducted a secondary analysis of the STOP-CP cohort, which prospectively enrolled emergency department patients ≥ 21 years old with symptoms suggestive of ACS without ST-elevation on initial electrocardiogram across eight U.S. sites (January 25, 2017-September 6, 2018). Participants with both 0- and 1-h hs-cTnT measures less than or equal to the 99th percentile (sex-specific 22 ng/L for males, 14 ng/L for females; overall 19 ng/L) were classified into the rule-out group. The safety outcome was adjudicated cardiac death or myocardial infarction (MI) at 30 days. Efficacy was defined as the proportion classified to the rule-out group. McNemar's test and a generalized score statistic were used to compare rule-out and 30-day cardiac death or MI rates between strategies. Net reclassification improvement (NRI) index was used to further compare performance. RESULTS: This analysis included 1430 patients, of whom 45.8% (655/1430) were female; the mean ± SD 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 using sex-specific versus overall cut-points (70.6% [1010/1430] vs. 72.5% [1037/1430]; p = 0.003). Among rule-out patients, the 30-day cardiac death or MI rates were similar for sex-specific (2.4% [24/1010]) vs. overall (2.3% [24/1037]) strategies (p = 0.79). Among patients with cardiac death or MI, sex-specific versus overall cut-points correctly reclassified three females and incorrectly reclassified three males. The sex-specific strategy resulted in a net of 27 patients being incorrectly reclassified into the rule-in group. This led to an NRI of -2.2% (95% CI -5.1% to 0.8%). CONCLUSIONS: Sex-specific hs-cTnT cut-points resulted in fewer patients being ruled out without an improvement in safety compared to the overall cut-point strategy.

Cardiology/Cardiovascular Research

Sabra M, Kabani S, and **Maskoun W**. Role of cardiac event monitor in the detection of delayed high-grade atrioventricular block after negative electrophysiological study in patients with post-transcatheter aortic valve replacement. *Heart Rhythm O2* 2024; 5(8):587-591. PMID: 39263618. Full Text

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Cardiology/Cardiovascular Research

Simon T, Herbert BM, Brooks MM, Goodman SG, Alexander JH, Steg PG, Lopes RD, Ghafghazi S, Bouleti C, Cooper HA, McCamant EL, Bainey KR, **Aronow HD**, Abbott JD, Alsweiler C, Bertolet M, Fergusson DA, Goldsweig AM, Hébert PC, and Carson JL. Restrictive or Liberal Transfusion Strategy in Patients With Acute Myocardial Infarction and Anemia: 6-Month Mortality in the MINT Trial. *Circulation* 2024; 150(13):1064-1066. PMID: 39221566. Full Text

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Cardiology/Cardiovascular Research

Zordok M, Dani SS, Tawadros M, Lichaa HT, Kerrigan JL, **Basir B**, **Alaswad K**, Miedema M, and Megaly M. Morbidity and mortality trends in patients with inflammatory bowel disease presenting with ST elevation myocardial infarction. *Hellenic J Cardiol* 2024; Epub ahead of print. PMID: 39019329. Full Text

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Center for Health Policy and Health Services Research

Beidas RS, Linn KA, Boggs JM, Marcus SC, Hoskins K, Jager-Hyman S, Johnson C, **Maye M**, Quintana L, Wolk CB, Wright L, **Pappas C**, Beck A, Bedjeti K, Buttenheim AM, Daley MF, **Elias M**, Lyons J, Martin ML, **McArdle B**, Ritzwoller DP, Small DS, Williams NJ, Zhang S, and **Ahmedani BK**. Implementation of a Secure Firearm Storage Program in Pediatric Primary Care: A Cluster Randomized Trial. *JAMA Pediatr* 2024; Epub ahead of print. PMID: 39226027. Full Text

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Boise State University School of Social Work, Boise, Idaho.

IMPORTANCE: Increased secure firearm storage can reduce youth firearm injury and mortality, a leading cause of death for children and adolescents in the US. Despite the availability of evidence-based secure firearm storage programs and recommendations from the American Academy of Pediatrics, few pediatric clinicians report routinely implementing these programs. OBJECTIVE: To compare the effectiveness of an electronic health record (EHR) documentation template (nudge) and the nudge plus facilitation (ie, clinic support to implement the program; nudge+) at promoting delivery of a brief evidence-based secure firearm storage program (SAFE Firearm) that includes counseling about secure firearm storage and free cable locks during all pediatric well visits. DESIGN, SETTING, AND PARTICIPANTS: The Adolescent and Child Suicide Prevention in Routine Clinical Encounters (ASPIRE) unblinded parallel cluster randomized effectiveness-implementation trial was conducted from March 14, 2022, to March 20, 2023, to test the hypothesis that, relative to nudge, nudge+ would result in delivery of the firearm storage program to an additional 10% or more of the eligible population, and that this difference would be statistically significant. Thirty pediatric primary care clinics in 2 US health care systems (in Michigan and Colorado) were included, excluding clinics that were not the primary site for participating health care professionals and a subset selected at random due to resource limitations. All pediatric well visits at participating clinics for youth ages 5 to 17 years were analyzed. INTERVENTIONS: Clinics were randomly assigned in a 1:1 ratio to receive either the nudge or nudge+. MAIN OUTCOMES AND MEASURES: Patient-level outcomes were modeled to estimate the primary outcome, reach, which is a visit-level binary indicator of whether the parent received both components of the firearm storage program (counseling and lock), as documented by the clinician in the EHR. Secondary outcomes explored individual program component delivery. RESULTS: A total of 47 307 well-child visits (median [IQR] age, 11.3 [8.1-14.4] years; 24 210 [51.2%] male and 23 091 [48.8%] female) among 46 597 children and 368 clinicians were eligible to receive the firearm storage program during the trial and were included in analyses. Using the intention-to-treat principle, a higher percentage of well-child visits received the firearm storage program in the nudge+ condition (49%; 95% CI, 37-61) compared to nudge (22%; 95% CI, 13-31). CONCLUSIONS AND RELEVANCE: In this study, the EHR strategy combined with facilitation (nudge+) was more effective at increasing delivery of an evidence-based secure firearm storage program compared to nudge alone. TRIAL REGISTRATION: ClinicalTrials.gov Identifier: NCT04844021.

Center for Health Policy and Health Services Research

Chaker AN, **Rademacher AF**, **Easton M**, **Jafar Y**, **Telemi E**, **Mansour TR**, Kim E, Brennan M, **Hu J**, **Schultz L**, **Nerenz DR**, **Schwalb JM**, **Abdulhak M**, **Khalil JG**, **Easton R**, Perez-Cruet M, Aleem I, Park P, Soo T, Tong D, and **Chang V**. The impact of serum albumin levels on postoperative complications in lumbar and cervical spine surgery: an analysis of the Michigan Spine Surgery Improvement Collaborative registry. *J Neurosurg Spine* 2024; 1-11. Epub ahead of print. PMID: 39241263. Full Text

Departments of1Neurosurgery and.
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10Division of Neurosurgery, Ascension Providence Hospital, College of Human Medicine, Michigan State University, Southfield, Michigan.

OBJECTIVE: Patients with serum albumin levels < 3.5 g/dL are considered malnourished, but there is a paucity of data regarding the outcomes of patients with albumin levels > 3.5 g/dL. The objective of this study was to evaluate the effect of albumin on postoperative outcome in patients undergoing elective cervical and lumbar spine procedures. METHODS: The Michigan Spine Surgery Improvement Collaborative database was queried for lumbar and cervical fusion surgeries between January 2020 and December 2022. Patients were grouped by preoperative serum albumin levels: < 3.5 g/dL, 3.5-3.7 g/dL, 3.8-4.0 g/dL, and > 4.0 g/dL. Primary outcomes included urinary retention, ileus, dysphagia, surgical site infection (SSI), readmission within 30 and 90 days, return to the operating room, and length of stay (LOS) ≥ 4 days. Multivariate analysis was conducted to adjust for potential confounders. RESULTS: This study included 15,629 lumbar cases and 6889 cervical cases. Within the lumbar cohort, an albumin level of 3.5-3.7 g/dL was associated with an increased risk of readmission at 30 days ($p = 0.048$) and 90 days ($p = 0.005$) and an LOS ≥ 4 days ($p < 0.001$). An albumin level of 3.8-4.0 g/dL was associated with an increased risk of an LOS ≥ 4 days ($p < 0.001$). Within the cervical cohort, an albumin level of 3.5-3.7 g/dL was associated with an increased risk of SSI ($p = 0.023$), readmission at 30 days ($p < 0.002$) and 90 days ($p < 0.001$), return to the operating room ($p = 0.002$), and an LOS ≥ 4 days ($p < 0.001$). An albumin level of 3.8-4.0 g/dL was associated with an increased risk of readmission at 30 days ($p = 0.012$) and 90 days ($p = 0.001$) and an LOS ≥ 4 days ($p < 0.001$). CONCLUSIONS: This study maintains that patients with hypoalbunemia undergoing spine surgery are at risk for postoperative adverse events. However, there also exist significant associations between borderline serum albumin levels of 3.5-4.0 g/dL and increased risk of postoperative adverse events.

Center for Health Policy and Health Services Research

King DK, Ondersma SJ, McRee BG, German JS, **Loree AM**, Harlowe A, Alford DP, Sedotto RNM, and Weber MK. Using Planned and Unplanned Adaptation to Implement Universal Alcohol Screening and Brief Intervention to Prevent Alcohol-Exposed Pregnancies in Four Primary Care Health Systems. *Subst Use Addctn J* 2024; Epub ahead of print. PMID: 39305032. Full Text

Center for Behavioral Health Research and Services, University of Alaska Anchorage, Anchorage, AK, USA.
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Centers for Disease Control and Prevention, Atlanta, GA, USA.

BACKGROUND: The United States Preventive Services Task Force recommends annual alcohol screening and brief behavioral intervention (alcohol SBI) with general adult and pregnant populations. Implementation of alcohol SBI in primary care has encountered numerous barriers to adapting procedures and infrastructure to support its routine delivery. This collection of case studies describes the implementation strategies used by 4 academic health system teams that were funded by the Centers for Disease Control and Prevention to implement alcohol SBI within healthcare systems to prevent alcohol-exposed pregnancies. METHODS: We used constructs from the Framework for Reporting Adaptations and Modifications-Expanded (FRAME) to describe planned and unplanned adaptations to implementation strategies, and the SBIRT (Screening, Brief Intervention, and Referral to Treatment) Program Matrix to identify key questions, challenges, and recommendations for improving alcohol SBI implementation. Participating systems were 2 regional affiliates of a national reproductive healthcare organization, an integrated non-profit healthcare system, and an urban medical center and its affiliated network of community health centers. RESULTS: Planned adaptations included expanding the target population for brief interventions to include patients drinking at low levels who could become pregnant, modifying

workflows and systems to support routine screening, and customizing training content and logistics. Unplanned adaptations included varying site recruitment and pre-implementation awareness-building strategies to enhance local receptivity of systems with decentralized management, and pivoting from in-person to virtual training during the COVID-19 pandemic. Fewer unplanned adaptations were observed for health systems with centralized management structures and practice teams that were fully engaged in implementation planning, training, roll-out, and problem-solving. CONCLUSIONS: Unplanned adaptations were observed across the 4 cases and emphasized the importance of flexible, adaptive designs when implementing evidence-based practice in dynamic settings. Participation of the health system in planning, including decisions to modify electronic health records and workflows, supported adapting to unplanned circumstances to achieve implementation goals.

Center for Health Policy and Health Services Research
Llamocca EN, **Ahmedani BK**, **Lockhart E**, Beck AL, Lynch FL, Negriff SL, Rossom RC, Sanchez K, Sterling SA, Stults C, Waring SC, Harry ML, Yu H, Madziwa LT, and Simon GE. Use of ICD-10-CM Codes for Adverse Social Determinants of Health Across Health Systems. *Psychiatr Serv* 2024; Epub ahead of print. PMID: 39308169. Full Text

Center for Health Policy and Health Services Research, Henry Ford Health, Detroit (Llamocca, Ahmedani, Lockhart); Center for Suicide Prevention and Research, Abigail Wexner Research Institute, Nationwide Children's Hospital, Columbus, Ohio (Llamocca); Institute for Health Research, Kaiser Permanente Colorado, Aurora (Beck); Center for Health Research, Kaiser Permanente Northwest, Portland, Oregon (Lynch); Department of Research and Evaluation, Kaiser Permanente Southern California, Pasadena (Negriff); HealthPartners Institute, Bloomington, Minnesota (Rossom); Baylor Scott & White Research Institute, Dallas (Sanchez); Division of Research, Kaiser Permanente Northern California, Oakland (Sterling); Palo Alto Medical Foundation Research Institute, Sutter Health, Palo Alto, California (Stults); Institute of Rural Health, Essentia Health, Duluth, Minnesota (Waring, Harry); Department of Population Medicine, Harvard Medical School, and Harvard Pilgrim Health Care Institute, Harvard Pilgrim Health System, Boston (Yu); Health Research Institute, Kaiser Permanente Washington, Seattle (Madziwa, Simon).

OBJECTIVE: This study investigated ICD-10-CM codes for adverse social determinants of health (SDoH) across 12 U.S. health systems by using data from multiple health care encounter types for diverse patients covered by multiple payers. METHODS: The authors described documentation of 11 SDoH ICD-10-CM code categories (e.g., educational problems or social environmental problems) between 2016 and 2021; assessed changes over time by using chi-square tests for trend in proportions; compared documentation in 2021 by gender, age, race-ethnicity, and site with chi-square tests; and compared all patients' mental health outcomes in 2021 with those of patients with documented SDoH ICD-10-CM codes by using exact binomial tests and one-proportion z tests. RESULTS: Documentation of any SDoH ICD-10-CM code significantly increased, from 1.7% of patients in 2016 to 2.7% in 2021, as did that for all SDoH categories except educational problems. Documentation was often more prevalent among female patients and those of other or unknown gender than among male patients and among American Indian or Alaska Native, Black or African American, and Hispanic individuals than among those belonging to other race-ethnicity categories. More educational problems were documented for younger patients, and more social environmental problems were documented for older patients. Psychiatric diagnoses and emergency department visits and hospitalizations related to mental health were more common among patients with documented SDoH codes. CONCLUSIONS: SDoH ICD-10-CM code documentation was infrequent and differed by population subgroup. Differences may reflect documentation practices or true SDoH prevalence variation. Standardized SDoH documentation methods are needed in health care settings.

Center for Health Policy and Health Services Research
Pellecchia M, **Maye M**, Tomczuk L, Zhong N, Mandell DS, and Stahmer AC. Brief Report: A Scoping Review of Caregiver Coaching Strategies Within Caregiver-Mediated Interventions for Autism. *Infants Young Child* 2024; 37(4):336-350. PMID: Not assigned. Full Text

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Caregiver-mediated interventions for young autistic children are increasingly considered standard of care. These interventions share two sets of components: strategies to improve children's communication, behavior, and development; and procedures to coach caregivers to implement those strategies. To date, no review has examined how caregiver coaching is described in caregiver-mediated intervention manuals. We assessed how caregiver coaching is described in caregiver-mediated intervention manuals for young autistic children. We conducted a scoping review to identify publicly available manuals that are designed to support providers in their practice; target core or co-occurring symptoms that affect young autistic children; and were tested as caregiver-mediated interventions in randomized controlled trials. We identified 11 publicly available manuals that met inclusion criteria. Manuals were coded using a summative content analysis to identify the presence and frequency of descriptions of caregiver coaching. The content analysis highlighted a wide range in the descriptions of caregiver coaching. Many intervention manuals did not include specific descriptions of caregiver coaching. Intervention developers should include explicit information about how to coach caregivers. Implementation strategies that specifically target caregiver coaching can serve as critical supports to increase the use of coaching in early intervention.

Center for Health Policy and Health Services Research
Shaff J, Atkin AL, **Kahn G**, and Wilcox HC. Examination of the psychometric properties of the Ethnic Identity Scale (EIS) and Multicultural Identity Integration Scale (MULTIIS) in a multiracial population in the United States. *J Couns Psychol* 2024; Epub ahead of print. PMID: 39250270. Full Text

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Ethnic identity is theorized to be a critical aspect of human development and is shown to be associated with health and well-being. The Ethnic Identity Scale is a widely used measure that assesses key aspects of ethnic identity development (Umaña-Taylor et al., 2004). The Multicultural Identity Integration Scale (MULTIIS) is a measure that has been more recently developed to assess key aspects of identity integration for individuals with multicultural identities (Yampolsky et al., 2016). Despite the ongoing utilization of these instruments, a comprehensive psychometric evaluation within Multiracial populations has yet to be established in extant literature. Addressing this gap, the present study aims to examine the internal consistency, factor structure, and other psychometric characteristics of the Ethnic Identity Scale and MULTIIS within a sample of 1,012 Multiracial adults in the United States. The majority of the sample identified as female (67.5%, n = 683), straight (80.1%, n = 798), having attained less than a college degree (62.3%, n = 627), and having a household income less than $60,000 (57.4%, n = 552). The majority of participants (55%, n = 557) were classified as having White and non-White racial/ethnic backgrounds, 45.0% (n = 455) as non-White. Findings suggest the Ethnic Identity Scale fits the data poorly by all measures, despite supporting the three-factor structure recommended in the original study; the MULTIIS fits the data acceptably by all measures and supports both a three-factor first-order and eight-factor second-order structure recommended in the original study. Analyses of the MULTIIS three-factor first-order model's measurement invariance across race, gender, educational attainment, and household income identified variance for specific latent factors. Overall, the MULTIIS performed acceptably; however, studies relying on the MULTIIS should account for differential measurement. Implications for clinical, scientific, and public health practice are discussed. (PsycInfo Database Record (c) 2024 APA, all rights reserved).

Center for Health Policy and Health Services Research

Vanderziel A, Anthony JC, Barondess D, Kerver JM, and Alshaarawy O. Estimating the effects of prenatal cannabis exposure on birth outcomes. *Am J Addict* 2024; Epub ahead of print. PMID: 39234978. Full Text

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BACKGROUND AND OBJECTIVES: Prenatal cannabis use prevalence in the United States has increased. Relaxation of state-level cannabis policy may be contributing to the diminished risk perception of using cannabis. The main psychoactive constituent of cannabis, delta-9-tetrahydrocannabinol, crosses the placenta, interacting with functional cannabinoid receptors in the fetus. Here, we assess the association between prenatal cannabis exposure (PCE) and a set of birth outcomes. METHODS: Using the Michigan Archive for Research on Child Health, a prospective pregnancy cohort, we linked prenatal survey data with neonatal data from state-archived birth records. Recruitment occurred in 23 clinics across Michigan. Pregnant participants with live birth records between October 2017 and January 2022, after exclusion for missing data on cannabis use, birth outcomes, and covariates, were included in the final analytic sample (n = 584). Analyses involved generalized linear models. RESULTS: An estimated 15% (95% confidence interval [CI]: 12%, 18%) of participants reported using cannabis during pregnancy. Covariate-adjusted models revealed an association between PCE and birth size (ß = -0.3; 95% CI: -0.5, -0.003). DISCUSSION AND CONCLUSIONS: Findings suggest a relationship between PCE and smaller birth size. Clinicians should follow guidelines outlined by the American College of Obstetricians and Gynecologists when counseling pregnant patients on cannabis use. SCIENTIFIC SIGNIFICANCE: We detected a significant association between PCE and birth size. Most studies focus only on the extremes of birth size, however, use of z-scores allow for assessment of the sex-specific birth weight-for-gestational age distribution, increasing the accuracy of detecting an effect of cannabis exposure on birth size.

Clinical Quality and Safety

Suleyman G, **Hussain B**, and **Dabaja AA**. Letter to the Editor: Use of Catheterization Algorithms to Manage Acute Urinary Retention; What is the Evidence? *Urology* 2024; Epub ahead of print. PMID: 39306304. Full Text

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Clinical Quality and Safety

Tam S, **Al-Antary N**, **Adjei Boakye E**, **Springer K**, **Poisson LM**, **Su WT**, **Grewal J**, **Zatirka T**, **Ryan M**, **Movsas B**, and **Chang SS**. Differences in Patient-Reported Outcome Measures in Patients With Cancer Six Months Before Death. *JCO Oncol Pract* 2024; Epub ahead of print. PMID: 39250724. Full Text

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PURPOSE: Patient-reported outcome measures (PROMs) provide a direct report of the patient's perspective, complementary to clinician assessment. Currently, understanding the real-time changes in PROM scores near the end of life remains limited. This study evaluated differences in mean PROM scores between patients with cancer within 6 months before death compared with surviving patients with cancer. METHODS: This retrospective case-control study uses the National Institutes of Health's Patient-

Reported Outcomes Measurement Information System computer adaptive testing instruments to assess pain interference, physical function, fatigue, and depression. Patients dying within 6 months of PROM completion were selected as cases and matched to controls 1:3 by age at PROM completion, sex, cancer disease site, and cancer stage at diagnosis. Generalized estimating equation models assessed the difference in mean PROM score in cases compared with controls. RESULTS: A total of 461 cases and 1,270 controls from September 2020 to January 2023 were included. After adjustment for ethnicity, Charlson Comorbidity Index, and census tract median household income, significant differences in mean scores were demonstrated. Physical function domain showed the largest difference, with cases averaging 6.52 points lower than controls (95% CI, -8.25 to -4.80). Fatigue and pain interference domains showed a rise in PROMs scores by 4.83 points (95% CI, 2.94 to 6.72) and 4.33 points (95% CI, 2.53 to 6.12), respectively. CONCLUSION: Compared with controls, patients dying within 6 months of PROM completion demonstrated worse PROM scores in the four domains assessed. These findings suggest the utility of routinely collected PROMs as a real-time indicator of the terminal stage of life among patients with cancer to allow for earlier intervention with supportive oncology services.

Dermatology

Artz C, **Masood M**, and **Mohammad TF**. Diffuse Facial Leukoderma Secondary to Localized Use of Hydroquinone. *Cureus* 2024; 16(8):e67751. PMID: 39318952. Full Text

Disorders of hyperpigmentation are extremely common, and hydroquinone remains one of the most common treatments for hyperpigmentation. Adverse events reported with hydroquinone use include acneiform eruptions, ochronosis, and irritant dermatitis; leukoderma has been reported in rare instances. Largely, these cases report leukoderma localized to the site of application. However, we report a case of diffuse facial leukoderma with only localized use of hydroquinone. With appropriate and prompt treatment, this leukoderma can respond to vitiligo treatment algorithms.

Dermatology

Gelfand JM, Armstrong AW, **Lim HW**, Feldman SR, Johnson SM, Claiborne WCC, Kalb RE, Jakus J, Mangold AR, Flowers RH, Bhutani T, Durkin JR, Bagel J, Fretzin S, Sheehan MP, Krell J, Reeder M, Kaffenberger J, Kartono F, Takeshita J, Bridges AM, Fielding E, Nehal US, Schaecher KL, Howard LM, Eakin GS, Báez S, Bishop BE, Fitzsimmons RC, Jr., Papadopoulos M, Song WB, Linn KA, Hubbard RA, Shin DB, and Callis Duffin K. Home- vs Office-Based Narrowband UV-B Phototherapy for Patients With Psoriasis: The LITE Randomized Clinical Trial. *JAMA Dermatol* 2024; Epub ahead of print. PMID: 39319513. Full Text

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IMPORTANCE: Office-based phototherapy is cost-effective for psoriasis but difficult to access. Home-based phototherapy is patient preferred but has limited clinical data, particularly in patients with darker skin. OBJECTIVE: To compare the effectiveness of home- vs office-based narrowband UV-B phototherapy for psoriasis. DESIGN, SETTING, AND PARTICIPANTS: The Light Treatment Effectiveness study was an investigator-initiated, pragmatic, open-label, parallel-group, multicenter, noninferiority randomized clinical trial embedded in routine care at 42 academic and private clinical dermatology practices in the US. Enrollment occurred from March 1, 2019, to December 4, 2023, with follow-up through June 2024. Participants were 12 years and older with plaque or guttate psoriasis who were candidates for home- and office-based phototherapy. INTERVENTIONS: Participants were randomized to receive a home narrowband UV-B machine with guided mode dosimetry or routine care with office-based narrowband UV-B for 12 weeks, followed by an additional 12-week observation period. MAIN OUTCOMES AND MEASURES: The coprimary effectiveness outcomes were Physician Global Assessment (PGA) dichotomized as clear/almost clear skin (score of ≤1) at the end of the intervention period and Dermatology Life Quality Index (DLQI) score of 5 or lower (no to small effect on quality of life) at week 12. RESULTS: Of 783 patients enrolled (mean [SD] age, 48.0 [15.5] years; 376 [48.0%] female), 393 received home-based phototherapy and 390 received office-based phototherapy, with 350 (44.7%) having skin phototype (SPT) I/II, 350 (44.7%) having SPT III/IV, and 83 (10.6%) having SPT V/VI. A total of 93 patients (11.9%) were receiving systemic treatment. At baseline, mean (SD) PGA was 2.7 (0.8) and DLQI was 12.2 (7.2). At week 12, 129 patients (32.8%) receiving home-based phototherapy and 100 patients (25.6%) receiving office-based phototherapy achieved clear/almost clear skin, and 206 (52.4%) and 131 (33.6%) achieved DLQI of 5 or lower, respectively. Home-based phototherapy was noninferior to office-based phototherapy for PGA and DLQI in the overall population and across all SPTs. Home-based phototherapy, compared to office-based phototherapy, was associated with better treatment adherence (202 patients [51.4%] vs 62 patients [15.9%]; P < .001), lower burden of indirect costs to patients, and more episodes of persistent erythema (466 of 7957 treatments [5.9%] vs 46 of 3934 treatments [1.2%]; P < .001). Both treatments were well tolerated with no discontinuations due to adverse events. CONCLUSIONS AND RELEVANCE: In this randomized clinical trial, home-based phototherapy was as effective as office-based phototherapy for plaque or guttate psoriasis in everyday clinical practice and had less burden to patients. TRIAL REGISTRATION: ClinicalTrials.gov Identifier: NCT03726489.

Dermatology
Karim MS, Karim HS, and **Rambhatla PV**. Myeloproliferative disorder associated with alopecia universalis. *JAAD Case Rep* 2024; 52:46-48. PMID: 39286822. Full Text

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Dermatology
Kwa M, Ravi M, Elhage K, **Schultz L**, and **Lim HW**. The risk of ultraviolet exposure for melanoma in Fitzpatrick skin types I-IV: A 20-year systematic review with meta-analysis for sunburns. *J Eur Acad Dermatol Venereol* 2024; Epub ahead of print. PMID: 39230206. Full Text

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Within the last two decades, no studies have comprehensively reviewed the risk of varying types of ultraviolet (UV) exposure on melanoma in fairer skinned individuals. Our research objective was to determine whether or not there was a change in the risk of UV exposure with development of melanoma in Fitzpatrick skin types I-IV based on more recent data over the past 20 years. We performed a systematic review from January 2002 to December 2021 analysing UV exposure and melanoma risk in Fitzpatrick type I-IV individuals. Out of 19,852 studies, 26 met inclusion criteria. Data spanned subjects from national and multinational cohorts (USA, Europe, Australia, Asia and South America). Twenty studies (77%, 20/26) identified a significant association between UV exposure and melanoma incidence. Sunburn was the most commonly assessed risk factor. Sunburn studies encompassed 3417 melanoma and found positive significant odds ratios (OR [95% CI]) in 11 out of 13 studies, ranging from 1.23 [1.01-1.49] to 8.48 [4.35-16.54]. Pooled analysis of the risk of melanoma with sunburn history found an unadjusted odds ratio of 1.66 [1.40-1.97] and adjusted odds ratio of 1.23 [1.04-1.46]. Cumulative sun exposure, measured as number of hours of sun exposure or calculated UV flux, was the second most common risk factor, encompassing 913 melanomas with positive significant ORs ranging from 1.1 [1.0-1.2] to 5.2 [2.1-12.5]. For other forms of UV exposure, a majority of studies showed an association with UV index (6/9), outdoor leisure activity (3/3) and left-sided laterality (1/1). Overall, UV exposure should continue to be considered a modifiable risk factor for melanoma in individuals of fairer skin.

Dermatology

Lamberg O, **Pandher K**, and **Matthews NH**. Nivolumab-induced hidradenitis suppurativa: a case report. *Dermatol Online J* 2024; 30(4). PMID: Not assigned. Full Text

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We present a 44-year-old man with metastatic clear cell renal cell cancer undergoing treatment with nivolumab immunotherapy. Three months post-initiation, he developed symmetric recurrent nodules and boils in intertriginous areas, diagnosed as stage II hidradenitis suppurativa of the groin and gluteal cleft. The progressive course, lesion symmetry and location, worsening with nivolumab infusions, and biopsy findings supported the diagnosis. Hidradenitis suppurativa pathogenesis involves immune dysregulation marked by elevated IL17 and neutrophil-dominated inflammation [1]. Immune checkpoint inhibitors, including anti-PD1 agents like nivolumab, are linked to immune-related adverse events related to widespread T cell activation, potentially increasing IL17 signaling associated with HS [2,3]. Clinicians should be aware of, and observant for anti-PD1-induced HS, a rare immune-related adverse event, in patients undergoing immune checkpoint inhibitor therapy.

Dermatology

Ma MS, Zafar FS, Goldman MP, Munavalli GS, Zimmet SE, Nguyen TH, Mishra V, Cartee TV, Mann M, Hsu JT, Silapunt S, Weiss RA, Weiss MA, Haq M, Ahmed A, Koza E, Shi VJ, Dave L, Yi M, Kang BY, Cahn B, Bae YSC, Kole LC, Friedmann DP, Chow ML, Minkis K, Stücker M, Schlick CA, Hoss E, Hu JC, Kibbi N, Saikaly SK, Greywal T, Hooper D, Vashi NA, **Boucher A**, Ward KH, Neuhaus IM, Ghareeb E, Luke J, Karen JK, Suggs A, Lucas J, Decker A, Brieva JC, Yoo SS, Suozzi K, and Alam M. Development of an Objective Structured Assessment of Technical Skills (OSATS) for Sclerotherapy. *J Am Acad Dermatol* 2024; Epub ahead of print. PMID: 39288871. Full Text

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Dermatology

Silverberg JI, **Gold LS**, Desai S, Golant A, DiRuggiero D, Fenske DC, Li A, Dawson Z, Muñoz Maldonado Y, Ho K, Callahan K, and Simpson EL. Disease burden and patient characteristics associated with systemic therapy utilization among adults with atopic dermatitis: data from CorEvitas Atopic Dermatitis Registry. *J Dermatolog Treat* 2024; 35(1):2396382. PMID: 39322226. Full Text

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BACKGROUND: The decision to initiate advanced systemics in patients with atopic dermatitis (AD) is complex. OBJECTIVES: To explore disease burden and clinical characteristics of patients with moderate-to-severe AD and identify characteristics associated with initiating new systemics. METHODS: Data from prospective, longitudinal, non-interventional CorEvitas AD Registry were evaluated. Differences in demographic and clinical characteristics, comorbidities, disease severity (vIGA-AD(™); body surface area (BSA); Eczema Area and Severity Index (EASI); SCORing AD [SCORAD]), and patient-reported outcomes (PROs) were assessed between systemic and non-systemic therapy groups. RESULTS: Of 883 patients, 673 were newly prescribed systemics and 210 were not. Non-systemic therapy group had higher than expected rates of severe disease at enrollment based on vIGA-AD = 4 (39%), mean BSA involvement (31%), and mean EASI (19). PROs for non-systemic therapy group indicated elevated burden from AD on quality of life and poor disease control. SCORAD, peak pruritus in the past 24 h, history of biologics, and facial pallor, were significantly associated with initiation of systemics at enrollment. CONCLUSION: While disease burden likely influences the initiation of systemic therapy, many patients with significant burden are not treated with systemics for unclear reasons. Further research is needed to identify other factors, beyond disease severity, that influence this decision.

Dermatology

Yin Q, Wolkerstorfer A, Lapid O, Qayumi K, Alam M, Al-Niaimi F, Artzi O, van Doorn MBA, Goutos I, Haedersdal M, Hsu CK, Manuskiatti W, Monstrey S, Mustoe TA, Ogawa R, **Ozog D**, Park TH, Pötschke J, Rossi A, Tan ST, Téot L, Wood FM, Yu N, Gibbs S, Niessen FB, and van Zuijlen PPM. KECORT Study: An International e-Delphi Study on the Treatment of KEloids Using Intralesional CORTicosteroids in Clinical Practice. *Am J Clin Dermatol* 2024; Epub ahead of print. PMID: 39298112. Full Text

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BACKGROUND: Intralesional corticosteroid administration (ICA) is a first-line keloid treatment. However, it faces significant variability in current clinical and scientific practice, which hinders comparability of treatment results. OBJECTIVES: The aim of the study was to reach consensus on different aspects of ICA using hypodermic needles in keloids among an international group of dermatologists and plastic surgeons specialized in keloid treatment to provide consensus-based clinical treatment recommendations for all physicians treating keloids. METHODS: The keloid expert panel of 12 dermatologists and 11 plastic surgeons rated 30 statements. Two online e-Delphi rounds were held, both with a response rate of 100%. Fifteen (65%) keloid experts participated in the final consensus meetings. Consensus was defined as ≥ 75% of the participants choosing agree or strongly agree on a 7-point Likert scale. RESULTS: Consensus was reached on treatment goals, indication for ICA, triamcinolone acetonide (TAC) 40 mg/mL as the preferred corticosteroid administered at a maximum of 80 mg per month and at intervals of 4 weeks, minimizing pain during ICA, the use of 1 mL syringes and 25 or 27 Gauge needles, blanching as endpoint of successful infiltration, caution of not injecting subcutaneously, and the option of making multiple passes in very firm keloids prior to infiltration. Consensus could not be reached on TAC dosing, methods of prior local anesthesia, and location of injection. CONCLUSIONS: This e-Delphi study provides important clinical treatment recommendations on essential aspects of ICA in keloids. By implementing these recommendations, uniformity of ICA in keloid treatment will increase and better treatment results may be achieved.

Dermatology

Young AT, **Lu K**, **Dai A**, **Hamzavi I**, **Huggins RH**, **Adrianto I**, **Zhou L**, and **Mi QS**. Infliximab shows superior drug survival among biologics for hidradenitis suppurativa: a cohort study. *J Am Acad Dermatol* 2024; Epub ahead of print. PMID: 39299517. Full Text

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Diagnostic Radiology

Almajed MR, Almajed A, **Antishin S**, **Saleem A**, **Wexler B**, **Mohammed M**, **Keimig T**, **Lingam N**, **Abdul-Nour K**, and **Hudson M**. Coronary Artery Aneurysm Thrombosis in a Patient With Marfan Syndrome. *JACC Case Rep* 2024; 29(18). PMID: Not assigned. Full Text

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Coronary artery aneurysm in adults is associated with connective tissue disorders, including Marfan syndrome. Coronary artery aneurysms are at risk for thrombosis, which obstructs coronary flow and thus results in myocardial infarction. We present a case of coronary artery aneurysm thrombosis in a patient with Marfan syndrome who presented with acute coronary syndrome.

Diagnostic Radiology

Garner HW, Slanetz PJ, Swanson JO, **Griffith BD**, DeBenedectis CM, Gould JE, Holm TL, Retrouvey M, Paladin AM, and Rozenshtein A. What Program Directors Think About Resident Recruitment: Results of the 2023 Spring Survey of the Association of Program Directors in Radiology (APDR) Part I. *Acad Radiol* 2024; Epub ahead of print. PMID: 39327139. Full Text

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RATIONALE AND OBJECTIVES: The Association of Program Directors in Radiology (APDR) administers an annual survey to assess issues and experiences related to residency program management and education. Our purpose is to provide the response data from the 2023 survey and discuss its insights on the impact of COVID-19 on resident recruitment (Part I) and education (Part II), which can be used to facilitate planning and resource allocation for the evolving needs of programs and their leadership. In Part I, we consider the effects of ERAS preference signaling, the virtual interview format, and the potential of a universal interview release date. MATERIALS AND METHODS: An observational, cross-sectional study of the APDR membership was performed using a web-based survey consisting of 45 questions, 23 of which pertain to virtual recruitment and are discussed in Part I of a two-part survey analysis. All active APDR members (n = 393) were invited to participate in the survey. RESULTS: The response rate was 32% (124 of 393). 83% reported that signaling increased the likelihood of an interview offer. 96% reported only offering virtual interviews; however, 59% intended to offer virtual-only interviews in the future. 53% would adhere to a universal interview release date but an additional 44% would do so depending on the

agreed date, Results were tallied using Qualtrics software and qualitative responses were tabulated or summarized as comments. CONCLUSIONS: Virtual recruitment is expected to continue for many programs and most respondents would accept a universal interview release date. Preference signaling and geographic signaling are considered positive additions to the application process.

Diagnostic Radiology
Garner HW, Slanetz PJ, Swanson JO, **Griffith BD**, DeBenedectis CM, Gould JE, Holm TL, Retrouvey M, Paladin AM, and Rozenshtein A. What Program Directors Think About Resident Education: Results of the 2023 Spring Survey of the Association of Program Directors in Radiology (APDR) Part II. *Acad Radiol* 2024; Epub ahead of print. PMID: 39327135. Full Text

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RATIONALE AND OBJECTIVES: The Association of Program Directors in Radiology (APDR) administers an annual survey to assess issues and experiences related to residency program management and education. Response data from the 2023 survey provides insights on the impact of COVID-19 on resident recruitment (Part I) and education (Part II), which can be used to facilitate planning and resource allocation for the evolving needs of programs and their leadership. MATERIALS AND METHODS: An observational, cross-sectional study of the APDR membership was performed using a web-based survey consisting of 45 questions, 12 of which pertain to resident education in the post-pandemic era and are discussed in Part II of a two-part survey analysis. All active APDR members (n = 393) were invited to participate in the survey. RESULTS: The response rate was 32% (124 of 393). Results were tallied using Qualtrics software and qualitative responses were tabulated or summarized as comments. CONCLUSIONS: The primary challenges to resident education are faculty burnout, rising case volumes, and remote instruction. However, most program leaders report that in-person readouts are much more common than remote readouts. The ability to offer both in-person and remote AIRP sessions is viewed positively. Most program leaders require Authorized User certification, although many do not think all residents need it. Assessment of procedural competence varies by the type of procedure and is similar to graduates' self-assessment of competence.

Diagnostic Radiology
Gaudette J, **Kilaru S**, **Davenport A**, Hanumolu S, **Pinkney D**, **Mandava S**, **Williams A**, and **Tang XA**. Patient- vs Technologist-Controlled Mammography Compression: A Prospective Comparative Study of Patient Discomfort and Breast Compression Thickness. *J Breast Imaging* 2024; Epub ahead of print. PMID: 39235987. Full Text

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OBJECTIVE: We assess whether mammographic patient-assisted compression (PAC) has an impact on breast compression thickness and patient discomfort compared with technologist-assisted compression (TAC). METHODS: A total of 382 female patients between ages 40 and 90 years undergoing screening mammography from February 2020 to June 2021 were recruited via informational pamphlet to participate in this IRB-approved study. Patients without prior baseline mammograms were excluded. The participating patients were randomly assigned to the PAC or TAC study group. Pre- and postmammogram surveys assessed expected pain and experienced pain, respectively, using a 100-mm visual analogue scale and the State-Trait Anxiety Inventory. Breast compression thickness values from the most recent mammogram were compared with the patient's recent prior mammogram. RESULTS: Between the 2 groups, there was no significant difference between the expected level of pain prior to the mammogram (P = .97). While both study groups reported a lower level of experienced pain than was expected, the difference was greater for the PAC group (P <.0001). Additionally, the PAC group reported significantly lower experienced pain during mammography compared with the TAC group (P = .014). The correlation of trait/state anxiety scores with pre- and postmammogram pain scores was weak among the groups. Lastly, the mean breast compression thickness values for standard screening mammographic views showed no significant difference in the PAC group when compared with the patient's prior mammogram. CONCLUSION: Involving patients in compression reduces their pain independent of the patient's state anxiety during mammography while having no effect on breast compression thickness. Implementing PAC could improve the mammography experience.

Diagnostic Radiology

Hayden N, **Gilbert S**, **Poisson LM**, **Griffith B**, and **Klochko C**. Performance of GPT-4 with Vision on Text- and Image-based ACR Diagnostic Radiology In-Training Examination Questions. *Radiology* 2024; 312(3):e240153. PMID: 39225605. Full Text

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Background Recent advancements, including image processing capabilities, present new potential applications of large language models such as ChatGPT (OpenAI), a generative pretrained transformer, in radiology. However, baseline performance of ChatGPT in radiology-related tasks is understudied. Purpose To evaluate the performance of GPT-4 with vision (GPT-4V) on radiology in-training examination questions, including those with images, to gauge the model's baseline knowledge in radiology. Materials and Methods In this prospective study, conducted between September 2023 and March 2024, the September 2023 release of GPT-4V was assessed using 386 retired questions (189 image-based and 197 text-only questions) from the American College of Radiology Diagnostic Radiology In-Training Examinations. Nine question pairs were identified as duplicates; only the first instance of each duplicate was considered in ChatGPT's assessment. A subanalysis assessed the impact of different zero-shot prompts on performance. Statistical analysis included χ(2) tests of independence to ascertain whether the performance of GPT-4V varied between question types or subspecialty. The McNemar test was used to evaluate performance differences between the prompts, with Benjamin-Hochberg adjustment of the P values conducted to control the false discovery rate (FDR). A P value threshold of less than.05 denoted statistical significance. Results GPT-4V correctly answered 246 (65.3%) of the 377 unique questions, with significantly higher accuracy on text-only questions (81.5%, 159 of 195) than on image-based questions (47.8%, 87 of 182) (χ(2) test, P < .001). Subanalysis revealed differences between prompts on text-based questions, where chain-of-thought prompting outperformed long instruction by 6.1% (McNemar, P = .02; FDR = 0.063), basic prompting by 6.8% (P = .009, FDR = 0.044), and the original prompting style by 8.9% (P = .001, FDR = 0.014). No differences were observed between prompts on image-based questions with P values of .27 to >.99. Conclusion While GPT-4V demonstrated a level of competence in text-based questions, it showed deficits interpreting radiologic images. © RSNA, 2024 See also the editorial by Deng in this issue.

Diagnostic Radiology

Sriwastwa A, Aziz YN, Weiss K, Buse R, Zhang B, Demel SL, **Ali A**, Voleti S, Wang LL, and Vagal AS. Performance of An Automated Algorithm in Large and Medium Vessel Occlusion Detection: A Real-World Experience. *AJNR Am J Neuroradiol* 2024; Epub ahead of print. PMID: 39326885. Full Text

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BACKGROUND AND PURPOSE: Fast, accurate detection of large (LVO) and medium vessel occlusion (MeVO) is critical for triage and management of acute ischemic stroke. Multiple AIbased software products are commercially available. However, their strengths and limitations for detection of vessel occlusion in the context of expanding indications for mechanical thrombectomy are not entirely understood. We aimed to investigate the performance of a fully automated commercial detection algorithm to identify large and medium vessel occlusions in Code Stroke patients. MATERIALS AND METHODS: We utilized a single-center, institutional, retrospective registry of all consecutive code stroke patients with CTA and automated processing using Viz.ai presenting at a comprehensive stroke center between March 2020 and February 2023. LVO was categorized as anterior LVO (aLVO), defined as occlusion of the intracranial internal cerebral artery or M1-middle cerebral artery (MCA), and posterior LVO (pLVO), defined as occlusion of the basilar artery or V4-vertebral artery. MeVO was defined as occlusion of the M2-MCA, A1/A2-anterior cerebral artery, or P1/P2-posterior cerebral artery. Reports from 12 board-certified radiologists were considered the gold standard. We analyzed the performance of the automated algorithm using STARD guidelines. Our primary outcome was accuracy of anterior LVO (aLVO) by the software. Secondary outcomes were accuracy of the software to detect three additional categories: all LVO (aLVO and pLVO), aLVO with M2-MCA, and aLVO with MeVO. RESULTS: Of 3,590 code stroke patients, 3,576 were technically sufficient for analysis by the automated software (median age 67 years; 51% female; 68% White), of which 616 (17.2%) had vessel occlusions. The respective sensitivity and specificity for all four pre-specified categories were: aLVO: 91% (87-94%), 93% (92-94%); all LVO: 73% (68-77%), 92% (91-93%); aLVO with M2-MCA:74% (70-78%), 93% (92-94%); aLVO with all MeVO: 65% (61-69%), and 93% (92-94%). CONCLUSIONS: The automated algorithm demonstrated high accuracy in identifying anterior LVO with lower performance for pLVO and MeVO. It is crucial for acute stroke teams to be aware of the discordance between automated algorithm results and true rates of LVO and MeVO for timely diagnosis and triage. ABBREVIATIONS: LVO = large vessel occlusion; aLVO = anterior large vessel occlusion; pLVO = posterior large vessel occlusion; MeVO = medium vessel occlusion; EVT= endovascular thrombectomy; AI = artificial intelligence; ACA = anterior cerebral artery; PCA = posterior cerebral artery; BA = basilar artery; VA = vertebral artery.

Emergency Medicine

Chaudhry F, **Small E**, Korzeniewski SJ, Benyas D, Ross L, Hill AB, Vahia A, McNaughton C, Levy P, and **Miller J**. Emergency Department Blood Pressure Treatment and Outcomes in Adults Presenting with Severe Hypertension. *West J Emerg Med* 2024; 25(5):680-689. PMID: 39319798. Full Text

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BACKGROUND: Patients who present to the emergency department (ED) with severe hypertension defined as a systolic blood pressure (SBP) ≥180 millimeters of mercury (mm Hg) or diastolic (DBP) ≥120 (mm Hg) without evidence of acute end-organ damage are often deemed high risk and treated acutely in the ED. However, there is a dearth of evidence from large studies with long-term follow-up for the assessment of major adverse cardiovascular events (MACE). We conducted the largest study to date of patients presenting with severe hypertension to identify predictors of MACE and examine whether blood pressure at discharge is associated with heightened risk. METHODS: We enrolled ED patients with a SBP of 180-220 mm Hg but without signs of end-organ damage and followed them for one year. The primary outcome was MACE within one year of discharge. Secondarily, we performed a propensity-matched analysis to test whether SBP ≤160 mm Hg at discharge was associated with reduced MACE at 30 days. RESULTS: A total of 12,044 patients were enrolled. The prevalence of MACE within one year was 1,865 (15.5%). Older age, male gender, history of cardiovascular disease, cerebrovascular disease, diabetes, smoking, presentation with chest pain, altered mental status, dyspnea, treatment with intravenous and oral hydralazine, and oral metoprolol were independent predictors for one-year MACE. Additionally, discharge with an SBP ≤160 mm Hg was not associated with 30-day MACE-free survival after propensity matching (hazard ratio 0.99, 95% confidence interval 0.78-1.25, P = 0.92). CONCLUSION: One-year MACE was relatively common in our cohort of ED patients with severe hypertension without acute end-organ damage. However, discharge blood pressure was not associated with 30-day or one-year MACE, suggesting that BP reduction in and of itself is not beneficial in such patients.

Emergency Medicine

Miller J, Grahf D, Nassereddine H, Nehme J, **Rammal JA**, **Ross J**, Rose K, **Hrabec D**, **Tirgari S**, and **Lewandowski C**. Cross-Sectional Study of Thiamine Deficiency and Its Associated Risks in Emergency Care. *West J Emerg Med* 2024; 25(5):675-679. PMID: 39319797. Full Text

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BACKGROUND: Growing data indicates that thiamine deficiency occurs during acute illness in the absence of alcohol use disorder. Our primary objective was to measure clinical factors associated with thiamine deficiency in patients with sepsis, diabetic ketoacidosis, and oncologic emergencies. METHODS: This was an analysis of pooled data from cross-sectional studies that enrolled adult emergency department (ED) patients at a single academic center with suspected sepsis, diabetic ketoacidosis, and oncologic emergencies. We excluded patients who had known alcohol use disorder or who had received ED thiamine treatment prior to enrollment. Investigators collected whole blood thiamine levels in addition to demographics, clinical characteristics, and available biomarkers. We defined thiamine deficiency as a whole blood thiamine level below the normal reference range and modeled the adjusted association between this outcome and age. RESULTS: There were 269 patients, of whom the average age was 57 years; 46% were female, and 80% were Black. Fifty-five (20.5%) patients had thiamine deficiency. In univariate analysis, age >60 years (odds ratio [OR] 2.5, 95% confidence interval [CI], 1.3-4.5), female gender (OR 1.9, 95% CI 1.0-3.4), leukopenia (OR 4.9, 95% CI 2.3-10.3), moderate anemia (OR 2.8, 95% CI 1.5-5.3), and hypoalbuminemia (OR 2.2, 95% CI 1.2-4.1) were associated with thiamine deficiency. In adjusted analysis, thiamine deficiency was significantly higher in females (OR 2.1, 95% CI 1.1-4.1), patients >60 years (OR 2.0, 95% CI 1.0-3.8), and patients with leukopenia (OR 5.1, 95% CI 2.3-11.3). CONCLUSION: In this analysis, thiamine deficiency was common and was associated with advanced age, female gender, and leukopenia.

Emergency Medicine

Townsel C, Louis L, Clark C, Solomon LM, Jiang C, **Caldwell M**, and Marsh EE. Emergency Department Utilization for Hypertensive Disorders of Pregnancy and Post Partum, 2006-2020. *JAMA Netw Open* 2024; 7(9):e2433045. PMID: 39269707. Full Text

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This cross-sectional study assesses emergency department (ED) admissions for hypertensive disorders of pregnancy and post partum between 2006 and 2020.
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Endocrinology and Metabolism

Sharma S, Shankar V, Rajender S, Mithal A, **Rao SD**, and Chattopadhyay N. Impact of anti-fracture medications on bone material and strength properties: a systematic review and meta-analysis. *Front Endocrinol (Lausanne)* 2024; 15:1426490. PMID: 39257899. Full Text

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BACKGROUND AND AIMS: Reduced bone mineral density (BMD) and microarchitectural deterioration contribute to increased fracture risk. Although the effects of anti-fracture medications (AFMs) on BMD are well-documented, their impact on bone material properties (BMPs) remains poorly characterized. Accordingly, we conducted a systematic review and meta-analysis to evaluate the effects of AFMs on BMPs. Based on data availability, we further categorized AFMs into anti-resorptives, bisphosphonates alone, and strontium ranelate subgroups to perform additional analyses of BMPs in osteoporotic patients. METHODS: We did a comprehensive search of three databases, namely, PubMed, Web of Science, and Google Scholar, using various permutation combinations, and used Comprehensive Meta-Analysis software to analyze the extracted data. RESULTS: The 15 eligible studies (randomized and non-randomized) compared the following: (1) 301 AFM-treated patients with 225 on placebo; (2) 191 patients treated with anti-resorptives with 131 on placebo; (3) 86 bisphosphonate-treated patients with 66 on placebo; and (4) 84 strontium ranelate-treated patients with 70 on placebo. Pooled analysis showed that AFMs significantly decreased cortical bone crystallinity [standardized difference in means (SDM) -1.394] and collagen maturity [SDM -0.855], and collagen maturity in cancellous bone [SDM -0.631]. Additionally, anti-resorptives (bisphosphonates and denosumab) significantly increased crystallinity [SDM 0.387], mineral-matrix ratio [SDM 0.771], microhardness [SDM 0.858], and contact hardness [SDM 0.952] of cortical bone. Anti-resorptives increased mineral-matrix ratio [SDM 0.543] and microhardness [SDM 0.864] and decreased collagen maturity [SDM -0.539] in cancellous bone. Restricted analysis of only bisphosphonate-treated studies showed a significant decrease in collagen maturity [SDM -0.650] in cancellous bone and an increase in true hardness [SDM 1.277] in cortical bone. In strontium ranelate-treated patients, there was no difference in BMPs compared to placebo. CONCLUSION: Collectively, our

study suggests that AFMs improve bone quality, which explains their anti-fracture ability that is not fully accounted for by increased BMD in osteoporosis patients.

Endocrinology and Metabolism

Yu K, **Athimulam S**, Saini J, Kaur RJ, Xue Q, McKenzie TJ, Singh RJ, Grebe S, and Bancos I. Serum steroid profiling in the diagnosis of adrenocortical carcinoma: a prospective cohort study. *J Clin Endocrinol Metab* 2024; Epub ahead of print. PMID: 39231247. Full Text

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CONTEXT: Guidelines suggest performing urine steroid profiling in patients with indeterminate adrenal tumors to make a noninvasive diagnosis of adrenocortical carcinoma (ACC). However, urine steroid profiling is not widely available. OBJECTIVE: To determine the accuracy of clinically available serum 11-deoxycortisol, 17OH-progesterone, and 17OH-pregnenolone in diagnosing ACC. METHODS: We conducted a prospective single-center cohort study of patients with adrenal masses evaluated between 2015-2023. Serum was analyzed by liquid chromatography-mass spectrometry for 17OH-pregnenolone, 17OH-progesterone, 11-deoxycortisol. Reference standard for adrenal mass included histopathology, imaging characteristics, imaging follow up of 2 years, or clinical follow up of 5 years. Localized Generalized Matrix Learning Vector Quantization (LGMLVQ) analysis was used to develop serum steroid score and assessed with area under receiver operating curve (AUROC). RESULTS: Of 263 patients with adrenal masses, 44 (16.7%) were diagnosed with ACC, 161 (61%) with adrenocortical adenomas (ACAs), 27 (10%) with other adrenal malignancies, and 31 (12%) with other. Hounsfield unit (HU) ≥ 20 was demonstrated in all ACCs, in all but one other adrenal malignancy, and in 58 (31%) ACAs. All 3 steroids were higher in patients with ACCs vs non-ACCs, including when comparing ACCs with functioning ACAs, and with ACAs with HU ≥ 20 ($P<0.0001$ for all). LGMLVQ analysis yielded a serum steroid score that discriminated between ACC and non-ACC groups with a mean threshold fixed AUROC of 0.823. CONCLUSIONS: We showed that measurements of 11-deoxycortisol, 17OH-progesterone, and 17OH-pregnenolone could be valuable in diagnosing ACC. After appropriate validation, serum steroid score could be integrated in clinical practice.

Family Medicine

Szymanski R, **Abraham M**, **Childs W**, **Le K**, **Velez C**, **Vaughn I**, **Lamerato L**, and **Budzynska K**. Factors associated with receiving an obesity diagnosis and obesity-related treatment for patients with obesity class II and III within a single integrated health system. *Prev Med Rep* 2024; 46:102879. PMID: 39309697. Full Text

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OBJECTIVES: The prevalence and associated adverse effects of obesity on health and healthcare cost make it a primary public health concern. However, individuals with the physiological features of obesity may be underdiagnosed and undertreated. We aimed to determine the prevalence of obesity diagnoses and obesity-related treatments in an integrated health system and determine the factors associated with receiving an obesity diagnosis and treatment for this indication. METHODS: This retrospective cross-sectional study of data from the Henry Ford Health electronic health record included adult patients with a body mass index (BMI) indicating clinical evidence of class II and III (severe) obesity in 2017 and who received treatment through 2019. The primary outcome was prevalence of obesity diagnosis and obesity-

related treatment. Logistic regression evaluated the patient-level factors associated with odds of having obesity diagnosis and treatment. RESULTS: Among 64,741 patients meeting the clinical definition of definition of severe obesity, only 40.7 % were clinically diagnosed with obesity, and 23.5 % received an obesity-related intervention. Patients with BMI≥40 kg/m(2) (class III) were more likely to be diagnosed with obesity than those with BMI 35-39.9 kg/m(2) (class II) (odds ratio [OR] 5.84; 95 % CI, 5.62-6.07). Patients with a diagnosis of obesity (OR 2.92; 95 % CI, 2.80-3.05), Black patients (OR 1.46; 95 % CI, 1.40-1.53), and female patients (OR 1.47; 95 % CI, 1.41-1.54) were more likely to be offered obesity-related treatment. CONCLUSIONS: Severe obesity may be underdiagnosed in patients who have BMI 35-39.9 kg/m(2) and 1 comorbidity.

Gastroenterology
Obri MS, **Samad M**, **Alhaj S**, **Chaudhary A**, **Rehman S**, **Ramzi Almajed M**, **Rose C**, **Schultz L**, **Harris K**, and **Suresh S**. Timing of Endoscopic Intervention for Esophageal Food Impaction and Its Impact on Patient Outcomes. *Dig Dis Sci* 2024; Epub ahead of print. PMID: 39298049. Full Text

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INTRODUCTION: Esophageal food impaction (EFI) is a common complaint of patients presenting to the emergency department. EFI requires urgent evaluation by the gastroenterology service and often necessitates esophagogastroduodenoscopy (EGD) for management. Timing of EGD in patients with EFI that does not improve with medical management remains a point of contention. We aim to evaluate outcomes of EFI in the context of time to intervention. METHODS: A retrospective cohort study was performed among patients who presented to a multicenter health system with EFI between 2018 and 2022. Patients with EFI that did not resolve after medical management and required EGD were included. Outcome analysis evaluated rates of complications and hospitalizations. RESULTS: Two hundred eighty sis unique patient presentations were included. 175 (61.2%) of patients underwent EGD within six hours of presentation, 59 (20.6%) underwent EGD six to twelve hours after presentation, and 52 (18.2%) underwent EGD beyond twelve hours after presentation. Complication rates did not differ between patients depending on timing of EGD (p = 1.000). Admission rates were higher among patients in whom EGD was performed longer after presentation (p = 0.003). Complication rates were higher among patients with advanced age (p = 0.037), prior impaction (p = 0.004), and those who have not received glucagon (p = 0.007). CONCLUSION: Timing of EGD after presentation in patients with EFI was not associated with a difference in complication rates. Delayed intervention was associated with a higher rate of hospitalization which should be taken into consideration when assessing the cost of EFI to the healthcare system.

Gastroenterology
Tao MH, **Lin CH**, **Lu M**, and **Gordon SC**. Accelerated Phenotypic Aging Associated with Hepatitis C Infection: Results from the U.S. National Health and Nutrition Examination Surveys 2015-2018. *J Gerontol A Biol Sci Med Sci* 2024; Epub ahead of print. PMID: 39297494. Full Text

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BACKGROUND: Chronic hepatitis C virus (HCV) infection is associated with early onset of chronic diseases, and increased risk of chronic disorders. Chronic viral infections have been linked to accelerated biological aging based on epigenetic clocks. In this study, we aimed to investigate the association between HCV infection and clinical measures of biological aging among 8,306 adults participating the 2015-2018 waves of the National Health and Nutrition Examination Survey (NHANES). METHODS: NHANES 2015-2018 participants aged 20 years and older who had complete data on clinical blood markers and HCV related tests were included in the current study. We estimated biological age using two

approaches including Phenotypic Age (PhenoAge) and allostatic load (AL) score based on nine clinical biomarkers. RESULTS: After adjusting for demographic and other confounding factors, HCV antibody-positivity was associated with advanced PhenoAge (β = 2.43, 95% confidence interval (CI), 1.51-3.35), compared with HCV antibody-negativity. Additionally, both active HCV infection (HCV RNA (+)) and resolved infection were associated with greater PhenoAge acceleration. The positive association with AL score was not statistically significant. We did not observe any significant interactions of potential effect modifiers, including smoking and use of drug/ needle injection, with HCV infection on measures of biological aging. CONCLUSIONS: Our findings suggest that HCV infection is independently associated with biological aging measured by phenotypic age in the US general population. Further studies are warranted to confirm the findings.

Gastroenterology

Winder GS, **Gill V**, **Patel S**, **Asefa H**, and **Mellinger JL**. Expert and patient cognitive interviews in the development of a novel alcohol insight scale for use in hepatology and liver transplantation. *Gen Hosp Psychiatry* 2024; Epub ahead of print. PMID: 39317622. Full Text

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Hematology-Oncology

Bannoura SF, Aboukameel A, Yar Khan H, Uddin MH, Jang H, Beal E, Thangasamy A, Shi Y, Kim S, Wagner KU, Beydoun R, El-Rayes BF, **Philip PA**, Mohammad RM, Saif MW, Al-Hallak MN, Pasche BC, and Azmi AS. RCC1 regulation of subcellular protein localization via Ran GTPase drives pancreatic ductal adenocarcinoma growth. *Cancer Lett* 2024; 217275. Epub ahead of print. PMID: 39321913. Full Text

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Pancreatic ductal adenocarcinoma (PDAC) is a highly lethal malignancy, with limited therapeutic options. Here, we evaluated the role of regulator of chromosome condensation 1 (RCC1) in PDAC. RCC1 functions as a guanine exchange factor for GTP-binding nuclear protein Ran (Ran) GTPase and is involved in nuclear cytoplasmic transport. RCC1 RNA expression is elevated in PDAC tissues compared to normal pancreatic tissues and correlates with poor prognosis. RCC1 silencing by RNAi and CRISPR-Cas9 knockout (KO) results in reduced proliferation in 2-D and 3-D cell cultures. RCC1 KD reduced migration and clonogenicity, enhanced apoptosis, and altered cell cycle progression in human PDAC and murine cells from LSL-Kras(G12D/+); LSL-Trp53(R172H/+); Pdx1-Cre (KPC) tumors. Mechanistically, RCC1 KO shows widespread transcriptomic alterations including regulation of PTK7, a co-receptor of the Wnt signaling pathway. RCC1 KD disrupted subcellular Ran localization and the Ran gradient. Nuclear and cytosolic proteomics revealed altered subcellular proteome localization in Rcc1 KD KPC-tumor-derived cells, and the alteration of several metabolic biosynthesis pathways. In vivo, RCC1 KO cells show reduced tumor growth potential when injected as sub-cutaneous xenografts. Finally, RCC1 knockdown sensitized PDAC cells to gemcitabine chemotherapy treatment. This study reveals the role of RCC1 in pancreatic cancer as a novel molecular vulnerability that could be exploited to enhance therapeutic response.

Hematology-Oncology
Carpenter ES, **Vendramini-Costa DB**, Hasselluhn MC, Maitra A, Olive KP, Cukierman E, Pasca di Magliano M, and Sherman MH. Pancreatic Cancer-Associated Fibroblasts: Where do we go from here? *Cancer Res* 2024; Epub ahead of print. PMID: 39283867. Full Text

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Pancreatic ductal adenocarcinoma is a deadly disease and is projected to become the second leading cause of cancer-related death by 2030. A major hallmark is the exuberant host response comprising the tumor microenvironment, of which cancer-associated fibroblasts (CAFs) are a prevalent component. Despite the gains in understanding of their heterogeneity and functionality from CAF studies in recent years, there are many unanswered questions surrounding this diverse population of cells. Here we summarize the views of several experts in the field, focusing on the current understanding of CAFs and challenges to address.

Hematology-Oncology
Florez N, Patel SP, Wakelee H, Bazhenova L, Massarelli E, Salgia R, Stiles B, Peters S, Malhotra J, **Gadgeel SM**, Nieva JJ, Afkhami M, Hirsch FR, Gubens M, Cascone T, Levy B, Sabari J, Husain H, Ma PC, Backhus LM, Iyengar P, Lee P, Miller R, Sands J, and Kim E. Proceedings of the 1st biannual bridging the gaps in lung cancer conference. *Oncologist* 2024; Epub ahead of print. PMID: 39237103. Full Text

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Lung cancer is the leading cause of cancer death in the US and globally. The mortality from lung cancer has been declining, due to a reduction in incidence and advances in treatment. Although recent success in developing targeted and immunotherapies for lung cancer has benefitted patients, it has also expanded the complexity of potential treatment options for health care providers. To aid in reducing such complexity, experts in oncology convened a conference (Bridging the Gaps in Lung Cancer) to identify current knowledge gaps and controversies in the diagnosis, treatment, and outcomes of various lung cancer scenarios, as described here. Such scenarios relate to biomarkers and testing in lung cancer, small cell lung cancer, EGFR mutations and targeted therapy in non-small cell lung cancer (NSCLC), early-stage NSCLC, KRAS/BRAF/MET and other genomic alterations in NSCLC, and immunotherapy in advanced NSCLC.

Hematology-Oncology

Mandal S, Balraj K, Kodamana H, Arora C, **Clark JM**, **Kwon DS**, and Rathore AS. Weakly supervised large-scale pancreatic cancer detection using multi-instance learning. *Front Oncol* 2024; 14:1362850. PMID: 39267824. Full Text

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INTRODUCTION: Early detection of pancreatic cancer continues to be a challenge due to the difficulty in accurately identifying specific signs or symptoms that might correlate with the onset of pancreatic cancer. Unlike breast or colon or prostate cancer where screening tests are often useful in identifying cancerous development, there are no tests to diagnose pancreatic cancers. As a result, most pancreatic cancers are diagnosed at an advanced stage, where treatment options, whether systemic therapy, radiation, or surgical interventions, offer limited efficacy. METHODS: A two-stage weakly supervised deep learning-based model has been proposed to identify pancreatic tumors using computed tomography (CT) images from Henry Ford Health (HFH) and publicly available Memorial Sloan Kettering Cancer Center (MSKCC) data sets. In the first stage, the nnU-Net supervised segmentation model was used to crop an area in the location of the pancreas, which was trained on the MSKCC repository of 281 patient image sets with established pancreatic tumors. In the second stage, a multi-instance learning-based weakly supervised classification model was applied on the cropped pancreas region to segregate pancreatic tumors from normal appearing pancreas. The model was trained, tested, and validated on images obtained from an HFH repository with 463 cases and 2,882 controls. RESULTS: The proposed deep learning model, the two-stage architecture, offers an accuracy of 0.907 ± 0.01, sensitivity of 0.905 ± 0.01, specificity of 0.908 ± 0.02, and AUC (ROC) 0.903 ± 0.01. The two-stage framework can automatically differentiate pancreatic tumor from non-tumor pancreas with improved accuracy on the HFH dataset. DISCUSSION: The proposed two-stage deep learning architecture shows significantly enhanced performance for predicting the presence of a tumor in the pancreas using CT images compared with other reported studies in the literature.

Hematology-Oncology

Nakisa A, Sempere LF, Chen X, Qu LT, Woldring D, **Crawford HC**, and Huang X. Tumor-Associated Carbohydrate Antigen 19-9 (CA 19-9), a Promising Target for Antibody-Based Detection, Diagnosis, and Immunotherapy of Cancer. *ChemMedChem* 2024; Epub ahead of print. PMID: 39230966. Full Text

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Carbohydrate antigen 19-9 (CA 19-9) also known as sialyl Lewis A is a tetrasaccharide overexpressed on a wide range of cancerous cells, which has been detected at elevated levels in sera of patients with various types of malignancies, most prominently pancreatic ductal adenocarcinoma. After its identification in 1979, multiple studies have highlighted the significant roles of CA 19-9 in cancer progression, including facilitating extravasation and eventually metastases, proliferation of cancer cells, and suppression of the immune system. Therefore, CA 19-9 has been considered an attractive target for cancer diagnosis, prognosis, and therapy. This review discusses the synthesis of CA 19-9 antigen, elicitation of antibodies through vaccination, development of anti-CA 19-9 monoclonal antibodies, and their applications as imaging tracers and therapeutics for a variety of CA 19-9-positive cancer.

Hematology-Oncology

Swain M, **Miller M**, Cannella C, Doe S, **Petersen L**, and **Bensenhaver J**. A Retrospective Study of Fertility Counseling and Preservation Rates for Women of Reproductive Age With Breast Care After Integrating a Fertility Specialist Into a Multidisciplinary Tumor Board. *Clin Breast Cancer* 2024; Epub ahead of print. PMID: 39327216. Full Text

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INTRODUCTION: Many breast centers have adopted multidisciplinary tumor boards to discuss and develop treatment plans for patients diagnosed with breast cancer. This study aims to determine whether adding a fertility specialist to tumor board will improve fertility counseling and utilization in breast cancer patients METHODS: A retrospective study of reproductive age patients diagnosed with breast cancer between January 1, 2012, and January 31, 2020, before and after integrating a designated fertility specialist into a comprehensive multidisciplinary care (cMDC) tumor board. Rates of fertility counseling and preservation were assessed for patients treated before (pre-cMDC) and after (post-cMDC) tumor board enhancement. Associations of race/ethnicity, age, chemotherapy, hormone receptor status, insurance type, parity, stage, site of treatment, and home county with fertility care rates were assessed in the post-cMDC group. RESULTS: Of 306 patients diagnosed with breast cancer, 117 (38%) were in the pre-cMDC and 189 (62%) were in the post-cMDC tumor board group. Significantly more patients in the post-cMDC tumor board group were offered fertility counseling than patients in the pre-cMDC tumor board group (23.3% (44) vs. 0.9% (1); $P < .001$). However, rate of fertility preservation did not differ significantly between groups. CONCLUSION: Integrating a fertility specialist within a cMDC tumor board may help improve rates of fertility counseling among breast cancer patients but may not improve preservation rates.

Hematology-Oncology

Tam S, **Al-Antary N**, **Adjei Boakye E**, **Springer K**, **Poisson LM**, **Su WT**, **Grewal J**, **Zatirka T**, **Ryan M**, **Movsas B**, and **Chang SS**. Differences in Patient-Reported Outcome Measures in Patients With Cancer Six Months Before Death. *JCO Oncol Pract* 2024; Epub ahead of print. PMID: 39250724. Full Text

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PURPOSE: Patient-reported outcome measures (PROMs) provide a direct report of the patient's perspective, complementary to clinician assessment. Currently, understanding the real-time changes in PROM scores near the end of life remains limited. This study evaluated differences in mean PROM scores between patients with cancer within 6 months before death compared with surviving patients with cancer. METHODS: This retrospective case-control study uses the National Institutes of Health's Patient-Reported Outcomes Measurement Information System computer adaptive testing instruments to assess pain interference, physical function, fatigue, and depression. Patients dying within 6 months of PROM completion were selected as cases and matched to controls 1:3 by age at PROM completion, sex, cancer disease site, and cancer stage at diagnosis. Generalized estimating equation models assessed the difference in mean PROM score in cases compared with controls. RESULTS: A total of 461 cases and 1,270 controls from September 2020 to January 2023 were included. After adjustment for ethnicity, Charlson Comorbidity Index, and census tract median household income, significant differences in mean scores were demonstrated. Physical function domain showed the largest difference, with cases averaging 6.52 points lower than controls (95% CI, -8.25 to -4.80). Fatigue and pain interference domains showed a rise in PROMs scores by 4.83 points (95% CI, 2.94 to 6.72) and 4.33 points (95% CI, 2.53 to 6.12), respectively. CONCLUSION: Compared with controls, patients dying within 6 months of PROM completion demonstrated worse PROM scores in the four domains assessed. These findings suggest the utility of routinely collected PROMs as a real-time indicator of the terminal stage of life among patients with cancer to allow for earlier intervention with supportive oncology services.

Hematology-Oncology

Winder GS, **Gill V**, **Patel S**, **Asefa H**, and **Mellinger JL**. Expert and patient cognitive interviews in the development of a novel alcohol insight scale for use in hepatology and liver transplantation. *Gen Hosp Psychiatry* 2024; Epub ahead of print. PMID: 39317622. Full Text

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Hospital Medicine

Dobry P, Edwin SB, Haymart B, Barnes GD, **Kaatz S**, Ali MA, and Giuliano C. Treatment of Atrial Fibrillation and Venous Thromboembolism with Factor Xa Inhibitors in Severely Obese Patients. *J Thromb Haemost* 2024; Epub ahead of print. PMID: 39243861. Full Text

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BACKGROUND: A paucity of data exists to support the use of factor Xa inhibitors in severely obese patients with a weight ≥ 150kg or BMI ≥ 50 kg/m(2). OBJECTIVES: The purpose of this study is to evaluate whether factor Xa inhibitors are as safe and effective as warfarin for the treatment of atrial fibrillation (AF) and/or venous thromboembolism (VTE) in individuals with a BMI ≥ 50 kg/m(2) and/or weight ≥ 150 kg. PATIENTS / METHODS: This was a multicenter retrospective cohort study of severely obese adult patients with AF and/or VTE treated with a factor Xa inhibitor or warfarin. The primary effectiveness outcome was a composite odds of stroke, systemic embolism or VTE; the primary safety outcome was odds of major bleeding. Secondary outcomes included incidence of stroke or systemic embolism, VTE, major bleeding, clinically relevant non-major bleeding, all-cause mortality, change in anticoagulation and total number of hospital encounters. Outcomes were assessed for 12 months following initiation of study drug. RESULTS: A total of 1,736 patients were included. The mean weight and

BMI of the overall cohort was 164.4 kg and 54.6 kg/m(2), respectively. There was no difference in odds of stroke, systemic embolism or VTE (OR 1.005, 95% CI 0.6 - 1.68) or major bleeding (OR 0.9, 95% CI 0.47 - 1.7) between groups. CONCLUSIONS: These data suggest that apixaban and rivaroxaban are safe and effective alternatives to warfarin for the treatment of AF and/or VTE in individuals with a BMI ≥ 50 kg/m(2) and/or weight ≥ 150 kg.

Hospital Medicine

Gupta K, **Jain V**, **Kakar TS**, **Nguyen F**, **Rangavajla G**, Merchant FM, and **Lahiri M**. Incidence of High-Grade AV Block Requiring Permanent Pacemaker Implantation After TTVR: A Meta-Analysis. *JACC Cardiovasc Interv* 2024; 17(18):2195-2196. PMID: 39322370. Full Text

Infectious Diseases

Boutzoukas AE, Mackow N, Giri A, Komarow L, Hill C, Chen L, Doi Y, Satlin MJ, Arias C, Wang M, Mora Moreo L, **Herc E**, Cober E, Weston G, Patel R, Bonomo RA, Fowler V, and van Duin D. Increased mortality in hospital- compared to community-onset carbapenem-resistant enterobacterales infections. *J Antimicrob Chemother* 2024; Epub ahead of print. PMID: 39236214. Full Text

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BACKGROUND: The CDC reported a 35% increase in hospital-onset (HO) carbapenem-resistant Enterobacterales (CRE) infections during the COVID-19 pandemic. We evaluated patient outcomes following HO and community-onset (CO) CRE bloodstream infections (BSI). METHODS: Patients prospectively enrolled in CRACKLE-2 from 56 hospitals in 10 countries between 30 April 2016 and 30 November 2019 with a CRE BSI were eligible. Infections were defined as CO or HO by CDC guidelines, and clinical characteristics and outcomes were compared. The primary outcome was desirability of outcome ranking (DOOR) 30 days after index culture. Difference in 30-day mortality was calculated with

95% CI. RESULTS: Among 891 patients with CRE BSI, 65% were HO (582/891). Compared to those with CO CRE, patients with HO CRE were younger [median 60 (Q1 42, Q3 70) years versus 65 (52, 74); P<0.001], had fewer comorbidities [median Charlson comorbidity index 2 (1, 4) versus 3 (1, 5); P=0.002] and were more acutely ill (Pitt bacteraemia score ≥4: 47% versus 32%; P<0.001). The probability of a better DOOR outcome in a randomly selected patient with CO BSI compared to a patient with HO BSI was 60.6% (95% CI: 56.8%-64.3%). Mortality at 30-days was 12% higher in HO BSI (192/582; 33%) than CO BSI [66/309 (21%); P<0.001]. CONCLUSION: We found a disproportionately greater impact on patient outcomes with HO compared to CO CRE BSIs; thus, the recently reported increases in HO CRE infections by CDC requires rigorous surveillance and infection prevention methods to prevent added mortality.

Infectious Diseases
Singh H, **Sheth R**, **Bhatia M**, **Muhammad A**, **Bachour C**, **Metcalf D**, and **Kak V**. Clinical predictors of hospital-acquired bloodstream infections: A healthcare system analysis. *Spartan Med Res J* 2024; 9(3):123414. PMID: 39280116. Full Text

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INTRODUCTION: This study was performed to identify patient factors associated with hospital-acquired bloodstream infections (HABSI) to guide blood culture collection and empiric antibiotic therapy. METHODS: A retrospective case-control study reviewed the medical records of 350 patients admitted to our health system from September 2017 to April 2020. The patients were 18 years and older and had at least one set of new positive non-contaminant blood cultures collected after 48 hours of admission, defined as HABSI. We developed clinical variables through a literature review associated with it. Univariate relationships between each variable and bacteremia were evaluated by chi-square test. A predictive model was developed through stepwise multivariate logistic regression. RESULTS: The univariate analysis and stepwise regression analysis showed that temperature >100.4° F (OR: 1.9, CI 1.1 to 3.4), male sex (OR: 1.8, CI 1.0 to 3.0), and platelet count <150,000/µL (OR: 1.8, CI 1.0 to 3.2) were statistically associated with a positive blood culture. CONCLUSIONS: This model helps identify patients with clinical characteristics associated with the likelihood of HABSI. This model can help guide the appropriate initiation of empiric antibiotics in clinical situations and assist with antibiotic stewardship.

Internal Medicine
Almajed MR, Almajed A, **Antishin S**, **Saleem A**, **Wexler B**, **Mohammed M**, **Keimig T**, **Lingam N**, **Abdul-Nour K**, and **Hudson M**. Coronary Artery Aneurysm Thrombosis in a Patient With Marfan Syndrome. *JACC Case Rep* 2024; 29(18). PMID: Not assigned. Full Text

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Coronary artery aneurysm in adults is associated with connective tissue disorders, including Marfan syndrome. Coronary artery aneurysms are at risk for thrombosis, which obstructs coronary flow and thus results in myocardial infarction. We present a case of coronary artery aneurysm thrombosis in a patient with Marfan syndrome who presented with acute coronary syndrome.

Internal Medicine
Gupta K, Junaid V, **Qureshi MA**, Gupta A, Sheikh S, Dalakoti M, Virani SS, and Khoja A. Health Data Sciences and Cardiovascular Diseases in South Asia: Innovations and Challenges in Digital Health. *Curr Atheroscler Rep* 2024; Epub ahead of print. PMID: 39240492. Full Text

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PURPOSE OF REVIEW: Health data sciences can help mitigate high burden of cardiovascular disease (CVD) management in South Asia by increasing availability and affordability of healthcare services. This review explores the current landscape, challenges, and strategies for leveraging digital health technologies to improve CVD outcomes in the region. RECENT FINDINGS: Several South Asian countries are implementing national digital health strategies that aim to provide unique health account numbers for patients, creating longitudinal digital health records while others aim to digitize healthcare services and improve health outcomes. Significant challenges impede progress, including lack of interoperability, inadequate training of healthcare workers, cultural barriers, and data privacy concerns. Leveraging digital health for CVD management involves using big data for early detection, employing artificial intelligence for diagnostics, and integrating multiomics data for health insights. Addressing these challenges through policy frameworks, capacity building, and international cooperation is crucial for improving CVD outcomes in region.

Internal Medicine
Hayes SA, Bhatia-Lin AL, **Campbell J**, and Baugh A. A Syndemic Model: COPD, Multimorbidity, and Poverty. *Chronic Obstr Pulm Dis* 2024; 11(5):437-443. PMID: 39326401. Full Text

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Internal Medicine
Miller J, Grahf D, Nassereddine H, Nehme J, **Rammal JA**, **Ross J**, Rose K, **Hrabec D**, **Tirgari S**, and **Lewandowski C**. Cross-Sectional Study of Thiamine Deficiency and Its Associated Risks in Emergency Care. *West J Emerg Med* 2024; 25(5):675-679. PMID: 39319797. Full Text

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Henry Ford Health and Michigan State Health Sciences, Department of Internal Medicine, Detroit, Michigan.
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BACKGROUND: Growing data indicates that thiamine deficiency occurs during acute illness in the absence of alcohol use disorder. Our primary objective was to measure clinical factors associated with thiamine deficiency in patients with sepsis, diabetic ketoacidosis, and oncologic emergencies. METHODS: This was an analysis of pooled data from cross-sectional studies that enrolled adult emergency department (ED) patients at a single academic center with suspected sepsis, diabetic ketoacidosis, and oncologic emergencies. We excluded patients who had known alcohol use disorder or who had received ED thiamine treatment prior to enrollment. Investigators collected whole blood thiamine levels in addition to demographics, clinical characteristics, and available biomarkers. We defined thiamine

deficiency as a whole blood thiamine level below the normal reference range and modeled the adjusted association between this outcome and age. RESULTS: There were 269 patients, of whom the average age was 57 years; 46% were female, and 80% were Black. Fifty-five (20.5%) patients had thiamine deficiency. In univariate analysis, age >60 years (odds ratio [OR] 2.5, 95% confidence interval [CI], 1.3-4.5), female gender (OR 1.9, 95% CI 1.0-3.4), leukopenia (OR 4.9, 95% CI 2.3-10.3), moderate anemia (OR 2.8, 95% CI 1.5-5.3), and hypoalbuminemia (OR 2.2, 95% CI 1.2-4.1) were associated with thiamine deficiency. In adjusted analysis, thiamine deficiency was significantly higher in females (OR 2.1, 95% CI 1.1-4.1), patients >60 years (OR 2.0, 95% CI 1.0-3.8), and patients with leukopenia (OR 5.1, 95% CI 2.3-11.3). CONCLUSION: In this analysis, thiamine deficiency was common and was associated with advanced age, female gender, and leukopenia.

Internal Medicine

Obri MS, **Samad M**, **Alhaj S**, **Chaudhary A**, **Rehman S**, **Ramzi Almajed M**, **Rose C**, **Schultz L**, **Harris K**, and **Suresh S**. Timing of Endoscopic Intervention for Esophageal Food Impaction and Its Impact on Patient Outcomes. *Dig Dis Sci* 2024; Epub ahead of print. PMID: 39298049. Full Text

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INTRODUCTION: Esophageal food impaction (EFI) is a common complaint of patients presenting to the emergency department. EFI requires urgent evaluation by the gastroenterology service and often necessitates esophagogastroduodenoscopy (EGD) for management. Timing of EGD in patients with EFI that does not improve with medical management remains a point of contention. We aim to evaluate outcomes of EFI in the context of time to intervention. METHODS: A retrospective cohort study was performed among patients who presented to a multicenter health system with EFI between 2018 and 2022. Patients with EFI that did not resolve after medical management and required EGD were included. Outcome analysis evaluated rates of complications and hospitalizations. RESULTS: Two hundred eighty sis unique patient presentations were included. 175 (61.2%) of patients underwent EGD within six hours of presentation, 59 (20.6%) underwent EGD six to twelve hours after presentation, and 52 (18.2%) underwent EGD beyond twelve hours after presentation. Complication rates did not differ between patients depending on timing of EGD (p = 1.000). Admission rates were higher among patients in whom EGD was performed longer after presentation (p = 0.003). Complication rates were higher among patients with advanced age (p = 0.037), prior impaction (p = 0.004), and those who have not received glucagon (p = 0.007). CONCLUSION: Timing of EGD after presentation in patients with EFI was not associated with a difference in complication rates. Delayed intervention was associated with a higher rate of hospitalization which should be taken into consideration when assessing the cost of EFI to the healthcare system.

Internal Medicine

Singh H, Beriwal N, Minhas JS, and **Robinson C**. Subacute combined degeneration from nitrous oxide abuse. *Radiol Case Rep* 2024; 19(12):5600-5604. PMID: 39296751. Full Text

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Nitrous oxide is an anesthetic medication which can also be recreationally abused in the form of whippet canisters. Its prolonged abuse can interfere with Vitamin B12 metabolism and lead to its functional deficiency. We report a case of a 30-year-old male who presented with generalized weakness and was found to have subacute combined degeneration (SCD) of the spinal cord. His laboratory workup showed low Vitamin B12 with elevated homocysteine and methylmalonic Co-A levels, and further questioning revealed prolonged nitrous oxide abuse. Nitrous oxide causes functional inactivation of methylcobalamin by rendering it unable to function as a coenzyme for methionine synthase enzyme. This leads to the

decreased production of methionine and subsequent production of myelin. This case describes nitrous oxide abuse as an important etiology to be considered in patients presenting with weakness and myeloneuropathy and describes important imaging findings.

Internal Medicine
Singh H, **Sheth R**, **Bhatia M**, **Muhammad A**, **Bachour C**, **Metcalf D**, and **Kak V**. Clinical predictors of hospital-acquired bloodstream infections: A healthcare system analysis. *Spartan Med Res J* 2024; 9(3):123414. PMID: 39280116. Full Text

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INTRODUCTION: This study was performed to identify patient factors associated with hospital-acquired bloodstream infections (HABSI) to guide blood culture collection and empiric antibiotic therapy. METHODS: A retrospective case-control study reviewed the medical records of 350 patients admitted to our health system from September 2017 to April 2020. The patients were 18 years and older and had at least one set of new positive non-contaminant blood cultures collected after 48 hours of admission, defined as HABSI. We developed clinical variables through a literature review associated with it. Univariate relationships between each variable and bacteremia were evaluated by chi-square test. A predictive model was developed through stepwise multivariate logistic regression. RESULTS: The univariate analysis and stepwise regression analysis showed that temperature >100.4° F (OR: 1.9, CI 1.1 to 3.4), male sex (OR: 1.8, CI 1.0 to 3.0), and platelet count <150,000/µL (OR: 1.8, CI 1.0 to 3.2) were statistically associated with a positive blood culture. CONCLUSIONS: This model helps identify patients with clinical characteristics associated with the likelihood of HABSI. This model can help guide the appropriate initiation of empiric antibiotics in clinical situations and assist with antibiotic stewardship.

Internal Medicine
Tamr A, Kabbani D, and Weinberger JJ. Rifabutin-Induced Thrombocytopenia in a Patient With Uncontrolled HIV: A Case Report. *Cureus* 2024; 16(8):e66339. PMID: 39247045. Full Text

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Uncontrolled HIV is associated with a wide range of hematologic abnormalities through direct suppressive effects, opportunistic infections, tumor marrow infiltration, or antiretroviral, antimicrobial, or antitumor therapy. We present a patient with a history of uncontrolled HIV presenting with acute severe thrombocytopenia shortly after starting treatment for disseminated Mycobacterium avium complex (MAC). While the thrombocytopenia was resistant to transfusion and intravenous immunoglobulin (IVIG), it mildly improved with dexamethasone after holding home medications. Etiologies for this patient's thrombocytopenia include uncontrolled HIV infection and medication-induced, likely secondary to rifabutin. We propose a possible combined effect of both factors. Clinicians should be aware of the increased risk of severe, acute medication-induced thrombocytopenia in patients with uncontrolled HIV, given their baseline susceptibility to hematologic abnormalities.

Neurology
Al-Hader R, **Nofar J**, **Mohamedelkhair A**, Affan M, **Schultz LR**, and **Cerghet M**. A Comprehensive Characterization of Patients with Spinal Cord Neurosarcoidosis: A Single Center Cross-Sectional Study of Clinical Outcomes. *J Clin Med* 2024; 13(17). PMID: 39274281. Full Text

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Background/Objective: To describe the clinical features and radiological outcomes of patients with spinal cord neurosarcoidosis, treatments, and long-term follow-up for this rare disorder. Methods: A cross-sectional, retrospective medical chart review was performed for all patients with spinal cord neurosarcoidosis treated at a single center between 01/1995 and 12/2020. Radiological imaging, laboratory test results, the type of immunosuppressive therapy, and function test scores were reviewed. Results: We assessed 39 patients with spinal cord neurosarcoidosis (23 men, 16 women, mean age at presentation 46.4 years, SD 10.2 years). The mean (SD) duration of spinal cord neurosarcoidosis at data abstraction was 9.8 (6.3) years. There were 24 patients (62%) with extensive intramedullary lesions, 8 (21%) with multiple patchy intramedullary lesions, 12 (31%) with leptomeningeal involvement, and 7 (18%) with nerve root enhancement. The cervical spine was the most commonly affected region in 33 patients (85%). The most common presenting symptoms were paresthesia/neuropathic pain in 20 (51%) and weakness of extremities in 15 (38%) patients. Most patients (n = 37; 95%) had been treated with corticosteroids at symptom onset, and methotrexate was the most used immunosuppressive therapy (n = 19; 49%). Of 34 patients with follow-up magnetic resonance imaging (MRI) available, the median time to improvement per MRI was 10.8 months (95% CI, 6.1-17.0 months). Of 31 patients with MRI enhancement at presentation, 18 (58%) had complete enhancement resolution at follow-up, with a median time to resolution of 51.8 months (95% CI, 24.9-83.4 months). Patients had significantly lower pyramidal (p = 0.004) and sensory functional (p = 0.031) systems scores from presentation to the last clinic visit. Conclusions: Because spinal cord neurosarcoidosis is challenging to diagnose and no set treatment guidelines exist, clarifying patients' clinical parameters and responses to various treatments is needed to improve timely and efficient care. The incidence of spinal cord involvement in sarcoidosis in our cohort was higher than intracranial involvement and most patients had a long extensive intramedullary lesion. We also observed that most patients with spinal cord neurosarcoidosis improved clinically and radiologically after treatment; however, the resolution of MRI enhancement after immunosuppressive therapy may take years. Prospective studies of neurosarcoidosis will be crucial to address questions about effective treatment and long-term prognosis.

Neurology

Boland AC, Wind A, and **Alkhoujah M**. Unusual Presentation of Propionic Acidemia Mimicking Botulism in an Infant: A Case Report and Literature Review. *Cureus* 2024; 16(8):e66870. PMID: 39280525. Full Text

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Propionic acidemia (PA) is a rare metabolic disorder stemming from genetic mutations, often causing hyperammonemia, acidosis, and basal ganglia issues. Its symptoms range from vomiting to neurological abnormalities, with severe cases presenting in neonates. Neurological complications including stroke-like episodes are common, requiring immediate attention. An eight-month-old boy with PA presented to the emergency department with respiratory distress, cough, and lethargy. Initial evaluation showed acidemia and elevated ammonia levels. He tested positive for rhinovirus and was diagnosed with acute viral bronchiolitis. While his respiratory symptoms improved, he developed neurological deficits, including hypotonia and weakness. Neurology consultations explored possible diagnoses such as botulism or acute inflammatory demyelinating polyneuropathy (AIDP). Imaging revealed basal ganglia abnormalities consistent with PA progression. Due to aspiration risk, he was transferred to the pediatric intensive care unit for supportive care. Despite unremarkable lumbar puncture and MRI results, new metabolic brain changes were noted, particularly in the basal ganglia. He was managed for weakness and feeding difficulties due to a metabolic stroke. After adjusting nutritional support and discussing long-term feeding options, he was discharged on day 29 with a nasogastric tube due to his inability to meet caloric goals orally. Neurological complications in PA, such as basal ganglia abnormalities and stroke-like episodes, are well-documented. Our case illustrates how an acute respiratory illness can obscure underlying neurological deficits, leading to delayed diagnosis. Symptoms resembling other conditions, such as descending hypotonia in our case, broaden the differential diagnosis to include botulism toxicity and AIDP. This report demonstrates the variety of clinical features patients with PA can present with and the importance of working up a metabolic crisis in addition to conditions with overlapping symptoms.

Neurology

Niemi KJ, Sunikka J, **Soltanian-Zadeh H**, **Davoodi-Bojd E**, Rahmim A, Kaasinen V, and Joutsa J. Rest Tremor in Parkinson's Disease Is Associated with Ipsilateral Striatal Dopamine Transporter Binding. *Mov Disord* 2024; Epub ahead of print. PMID: 39225564. Full Text

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BACKGROUND: The cardinal motor symptoms of Parkinson's disease (PD) include rigidity, bradykinesia, and rest tremor. Rigidity and bradykinesia correlate with contralateral nigrostriatal degeneration and striatal dopamine deficit, but association between striatal dopamine function and rest tremor has remained unclear. OBJECTIVE: The aim of this study was to investigate the possible link between dopamine function and rest tremor using Parkinson's Progression Markers Initiative dataset, the largest prospective neuroimaging cohort of patients with PD. METHODS: Clinical, [(123)I]N-ω-fluoropropyl-2β-carbomethoxy-3β-(4-iodophenyl)nortropane ([(123)I]FP-CIT) single photon emission computed tomography (SPECT), and structural magnetic resonance imaging data from 354 early PD patients and 166 healthy controls were included in this study. We employed a novel approach allowing nonlinear registration of individual scans accurately to a standard space and voxelwise analyses of the association between motor symptoms and striatal dopamine transporter (DAT) binding. RESULTS: Severity of both rigidity and bradykinesia was negatively associated with contralateral striatal DAT binding ($P(FWE) < 0.05$ [FWE, family-wise error corrected]). However, rest tremor amplitude was positively associated with increased ipsilateral DAT binding ($P(FWE) < 0.05$). The association between rest tremor and binding remained the same controlling for Hoehn & Yahr stage, Movement Disorder Society Unified Parkinson's Disease Rating Scale (MDS-UPDRS) part III score, bradykinesia-rigidity score, or motor phenotype. The association between rest tremor and binding was independent of bradykinesia-rigidity and replicated using 2-year follow-up data ($P(FWE) < 0.05$). CONCLUSION: In agreement with the existing literature, we did not find a consistent association between rest tremor and contralateral dopamine defect. However, our results demonstrate a link between rest tremor and increased or less decreased ipsilateral DAT binding. Our findings provide novel information about the association between dopaminergic function and parkinsonian rest tremor. © 2024 The Author(s). Movement Disorders published by Wiley Periodicals LLC on behalf of International Parkinson and Movement Disorder Society.

Neurology

Silbergleit AK, and **LeWitt PA**. "Tip-of-the-Tongue" Phenomenon in Parkinson's Disease: A Hidden Gem. *J Parkinsons Dis* 2024; 14(6):1147-1148. PMID: 39240649. Full Text

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Neurology

Wang L, **Lu X**, **Szalad A**, **Liu XS**, **Zhang Y**, **Wang X**, **Golembieski WA**, **Powell B**, **McCann M**, **Lu M**, **Chopp M**, and **Zhang ZG**. Schwann cell-derived exosomes ameliorate peripheral neuropathy induced by ablation of dicer in Schwann cells. *Front Cell Neurosci* 2024; 18:1462228. PMID: 39285940. Full Text

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BACKGROUND: MicroRNAs (miRNAs) in Schwann cells (SCs) mediate peripheral nerve function. Ablating Dicer, a key gene in miRNA biogenesis, in SCs causes peripheral neuropathy. Exosomes from healthy SCs (SC-Exo) ameliorate diabetic peripheral neuropathy in part via miRNAs. Thus, using transgenic mice with conditional and inducible ablation of Dicer in proteolipid protein (PLP) expressing SCs (PLP-cKO), we examined whether SC-Exo could reduce peripheral neuropathy in PLP-cKO mice. METHODS: PLP-cKO mice at the age of 16 weeks (8 week post-Tamoxifen) were randomly treated with SC-Exo or saline weekly for 8 weeks. Age-and sex-matched wild-type (WT) littermates were used as controls. Peripheral neurological functions, sciatic nerve integrity, and myelination were analyzed. Quantitative RT-PCR and Western blot analyses were performed to examine miRNA and protein expression in sciatic nerve tissues, respectively. RESULTS: Compared to the WT mice, PLP-cKO mice exhibited a significant decrease in motor and sensory conduction velocities, thermal sensitivity, and motor coordination. PLP-cKO mice exhibited substantial demyelination and axonal damage of the sciatic nerve. Treatment of PLP-cKO mice with SC-Exo significantly ameliorated the peripheral neuropathy and sciatic nerve damage. PLP-cKO mice showed a substantial reduction in a set of Dicer-related miRNAs known to regulate myelination, axonal integrity, and inflammation such as miR-138, -146a and - 338 in the sciatic nerve. In addition, PLP-cKO mice exhibited significant reduction of myelin forming proteins, early growth response 2 (EGR2) and sex determining region Y-box10 (Sox10), but significantly increased myelination inhibitors, Notch1, c-Jun, and Sox2 and the axonal growth inhibitor phosphatase and tens in homolog (PTEN). However, SC-Exo treatment reversed the PLP-cKO altered miRNAs and proteins. CONCLUSION: This study demonstrates that exogenous SC-Exo ameliorate peripheral neuropathy induced by Dicer ablation in PLP expressing SCs. The therapeutic benefit may be mediated by the SC-Exo altered miRNAs and their targeted genes.

Neurosurgery

Chaker AN, **Rademacher AF**, **Easton M**, **Jafar Y**, **Telemi E**, **Mansour TR**, Kim E, Brennan M, **Hu J**, **Schultz L**, **Nerenz DR**, **Schwalb JM**, **Abdulhak M**, **Khalil JG**, **Easton R**, Perez-Cruet M, Aleem I, Park P, Soo T, Tong D, and **Chang V**. The impact of serum albumin levels on postoperative complications in lumbar and cervical spine surgery: an analysis of the Michigan Spine Surgery Improvement Collaborative registry. *J Neurosurg Spine* 2024; 1-11. Epub ahead of print. PMID: 39241263. Full Text

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OBJECTIVE: Patients with serum albumin levels < 3.5 g/dL are considered malnourished, but there is a paucity of data regarding the outcomes of patients with albumin levels > 3.5 g/dL. The objective of this study was to evaluate the effect of albumin on postoperative outcome in patients undergoing elective cervical and lumbar spine procedures. METHODS: The Michigan Spine Surgery Improvement Collaborative database was queried for lumbar and cervical fusion surgeries between January 2020 and

December 2022. Patients were grouped by preoperative serum albumin levels: < 3.5 g/dL, 3.5-3.7 g/dL, 3.8-4.0 g/dL, and > 4.0 g/dL. Primary outcomes included urinary retention, ileus, dysphagia, surgical site infection (SSI), readmission within 30 and 90 days, return to the operating room, and length of stay (LOS) ≥ 4 days. Multivariate analysis was conducted to adjust for potential confounders. RESULTS: This study included 15,629 lumbar cases and 6889 cervical cases. Within the lumbar cohort, an albumin level of 3.5-3.7 g/dL was associated with an increased risk of readmission at 30 days ($p = 0.048$) and 90 days ($p = 0.005$) and an LOS ≥ 4 days ($p < 0.001$). An albumin level of 3.8-4.0 g/dL was associated with an increased risk of an LOS ≥ 4 days ($p < 0.001$). Within the cervical cohort, an albumin level of 3.5-3.7 g/dL was associated with an increased risk of SSI ($p = 0.023$), readmission at 30 days ($p < 0.002$) and 90 days ($p < 0.001$), return to the operating room ($p = 0.002$), and an LOS ≥ 4 days ($p < 0.001$). An albumin level of 3.8-4.0 g/dL was associated with an increased risk of readmission at 30 days ($p = 0.012$) and 90 days ($p = 0.001$) and an LOS ≥ 4 days ($p < 0.001$). CONCLUSIONS: This study maintains that patients with hypoalbunemia undergoing spine surgery are at risk for postoperative adverse events. However, there also exist significant associations between borderline serum albumin levels of 3.5-4.0 g/dL and increased risk of postoperative adverse events.

Neurosurgery
Enam SA, Park KB, Mushtaq N, Raghib MF, Mustansir F, Shah MM, Bajwa MH, Faisal M, Dewan MC, Khan T, and **Rock JP**. Global neuro-oncology: what lies ahead for low- and middle-income countries? *J Pak Med Assoc* 2024; 74(3 (Supple-3)):S16-s23. PMID: 39262062. Request Article

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Over the past few decades, the global healthcare community has achieved remarkable success in controlling many communicable diseases across various regions. However, non-communicable diseases now constitute a significant portion of disease morbidity and mortality, particularly in low- and middle-income countries (LMICs). Among these, cancer, in particular, is witnessing a notable increase in incidence in many LMICs. Among cancers, neurological tumours bear significant impact in terms of long-term disability, escalating costs of comprehensive multidisciplinary care, and often encounter resource-related and systemic delays in care leading to worse outcomes. This opinion paper discusses key concepts in developing global neuro-oncology care, with specific case examples from Pakistan to illustrate methods for improving care in these underserved regions. Additionally, it outlines strategic approaches and potential solutions to address these challenges, aiming to provide a roadmap for enhancing neuro-oncology care in LMICs.

Neurosurgery
Foresi B, **Air E**, and Pannullo S. Letter to the Editor Regarding "The Accreditation Council for Graduate Medical Education (ACGME) Twenty-Year Trends in Diversity, Equity, and Inclusion (DEI) in the USA: How does Neurological Surgery compare?". *World Neurosurg* 2024; 189:525-526. PMID: 39252358. Full Text

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Neurosurgery

Kapural L, Kim B, Eidt J, Petersen EA, **Schwalb JM**, Slavin KV, and Mekhail N. Long-Term Treatment of Chronic Postamputation Pain With Bioelectric Nerve Block: Twelve-Month Results of the Randomized, Double-Blinded, Cross-Over QUEST Study. *Neuromodulation* 2024; Epub ahead of print. PMID: 39320284. Full Text

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OBJECTIVE: The multicenter, randomized, double-blinded, active-sham controlled trial (high-freQUEncy nerve block for poST amputation pain [QUEST]) was conducted to show the safety and efficacy of a novel, peripherally placed high-frequency nerve block (HFNB) system in treating chronic postamputation pain (PAP) in patients with lower limb amputations. The primary outcomes from QUEST were reported previously. This study presents the long-term, single-cross-over, secondary outcomes of on-demand HFNB treatment for chronic PAP. MATERIALS AND METHODS: After the three-month randomized period, subjects in the active-sham group were crossed over to receive therapy for 12 months. Subjects self-administered HFNB therapy as needed and reported their pain (numerical rating scale [NRS]; range, 1-10) before and 30 and 120 minutes after each treatment. Pain medication use was reported throughout the study. Pain-days per week and quality of life (QOL) were assessed using the Brief Pain Inventory (BPI). Adverse events (AEs) were recorded for all subjects implanted for 12 months. RESULTS: Of 180 subjects implanted in QUEST, 164 (91%) were included in the cross-over period, and 146 (82%) completed follow-up. By month 12, average NRS pain in the combined cohort was reduced by 2.3 ± 2.2 points (95% CI, 1.7-2.8; $p < 0.0001$) 30 minutes after treatment and 2.9 ± 2.4 points (95% CI, 2.2-3.6; $p < 0.0001$) 120 minutes after treatment. Mean pain-days per week were significantly reduced (-3.5 ± 2.7 days; $p < 0.001$), and subject daily opioid use was reduced by 6.7 ± 29.0 morphine equivalent dose from baseline to month 12 ($p = 0.013$). Mean BPI-interference scores (QOL) improved by 2.7 ± 2.7 points from baseline ($p < 0.001$). The incidence of nonserious AEs and serious AEs was 72% (130/180) and 42% (76/180), respectively; serious device-related AEs occurred in 15 of 180 subjects (8%). CONCLUSION: Overall, HFNB delivered directly to the damaged peripheral nerve provided sustained, on-demand relief of acute PAP exacerbations, reduced opioid utilization, and improved QOL for patients with lower limb amputations with chronic PAP.

Obstetrics, Gynecology and Women's Health Services

Swain M, **Miller M**, Cannella C, Doe S, **Petersen L**, and **Bensenhaver J**. A Retrospective Study of Fertility Counseling and Preservation Rates for Women of Reproductive Age With Breast Care After Integrating a Fertility Specialist Into a Multidisciplinary Tumor Board. *Clin Breast Cancer* 2024; Epub ahead of print. PMID: 39327216. Full Text

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INTRODUCTION: Many breast centers have adopted multidisciplinary tumor boards to discuss and develop treatment plans for patients diagnosed with breast cancer. This study aims to determine whether adding a fertility specialist to tumor board will improve fertility counseling and utilization in breast cancer patients METHODS: A retrospective study of reproductive age patients diagnosed with breast cancer between January 1, 2012, and January 31, 2020, before and after integrating a designated fertility specialist into a comprehensive multidisciplinary care (cMDC) tumor board. Rates of fertility counseling and preservation were assessed for patients treated before (pre-cMDC) and after (post-cMDC) tumor board enhancement. Associations of race/ethnicity, age, chemotherapy, hormone receptor status, insurance type, parity, stage, site of treatment, and home county with fertility care rates were assessed in the post-cMDC group. RESULTS: Of 306 patients diagnosed with breast cancer, 117 (38%) were in the pre-cMDC and 189 (62%) were in the post-cMDC tumor board group. Significantly more patients in the post-cMDC tumor board group were offered fertility counseling than patients in the pre-cMDC tumor board group (23.3% (44) vs. 0.9% (1); P < .001). However, rate of fertility preservation did not differ significantly between groups. CONCLUSION: Integrating a fertility specialist within a cMDC tumor board may help improve rates of fertility counseling among breast cancer patients but may not improve preservation rates.

Ophthalmology and Eye Care Services

Hicks PM, Lu MC, Woodward MA, Niziol LM, **Darnley-Fisch D**, Heisler M, Resnicow K, Musch DC, Mitchell J, Mehdipanah R, **Imami NR**, and Newman-Casey PA. Relationship between Neighborhood-Level Social Risk Factor Measures and Presenting Glaucoma Severity Utilizing Multilevel Modeling. *Ophthalmol Sci* 2025; 5(1). PMID: Not assigned. Full Text

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Purpose: The neighborhood and built environment social determinant of health domain has several social risk factors (SRFs) that are modifiable through policy efforts. We investigated the impact of neighborhood-level SRFs on presenting glaucoma severity at a tertiary eye care center. Design: A cross-sectional study from August 2012 to May 2022 in the University of Michigan electronic health record (EHR). Participants: Patients with a diagnosis of any open-angle glaucoma with ≥1 eye care visit at the University of Michigan Kellogg Eye Center and ≥1 reliable visual field (VF). Methods: Participants who met inclusion criteria were identified by International Classification of Diseases ninth and tenth revision codes (365.x/H40.x). Data extracted from the EHR included patient demographics, address, presenting mean deviation (MD), and VF reliability. Addresses were mapped to SRF measures at the census tract, block group, and county levels. Multilevel linear regression models were used to estimate the fixed effects of each SRF on MD, after adjusting for patient-level demographic factors and a random effect for neighborhood. Interactions between each SRF measure with patient-level race and Medicaid status were tested for an additive effect on MD. Main Outcome Measures: The main outcome measure was the effect of SRF on presenting MD. Results: In total, 4428 patients were included in the analysis who were, on average, 70.3 years old (standard deviation = 11.9), 52.6% self-identified as female, 75.8% self-identified as White race, and 8.9% had Medicaid. The median value of presenting MD was −4.94 decibels (dB) (interquartile range = −11.45 to −2.07 dB). Neighborhood differences accounted for 4.4% of the variability in presenting MD. Neighborhood-level measures, including worse area deprivation (estimate, β = −0.31 per 1-unit increase; P < 0.001), increased segregation (β = −0.92 per 0.1-unit increase in Theil's H index; P < 0.001), and increased neighborhood Medicaid (β = −0.68; P < 0.001) were associated with worse presenting MD. Significant interaction effects with race and Medicaid status were found in several neighborhood-level SRF measures. Conclusions: Although patients' neighborhood SRF measures accounted for a minority of the variability in presenting MD, most neighborhood-level SRFs are modifiable and were associated with clinically meaningful differences in presenting MD. Policies that aim to reduce neighborhood inequities by addressing allocation of resources could have lasting impacts on vision outcomes. Financial Disclosure(s): Proprietary or commercial disclosure may be found in the Footnotes and Disclosures at the end of this article.

Orthopedics/Bone and Joint Center

Abbas MJ, Markel DC, Hallstrom BR, Zheng HT, and **Charters MA**. The Impact of Surgeon Volume on Unicompartmental Knee Arthroplasty Survivorship: A Michigan Arthroplasty Registry Collaborative Quality Initiative Database Analysis. *J Arthroplasty* 2024; Epub ahead of print. PMID: 39147075. Full Text

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BACKGROUND: The utilization of unicompartmental knee arthroplasty (UKA) has remained low when compared to total knee arthroplasty (TKA), possibly due to higher rates of revision and reoperation. This study aimed to quantify surgeon UKA case-volumes and measure the effect of surgeon volume on early revision. We hypothesized that surgeons who have high case volumes would have lower revision rates compared to medium- and low-volume surgeons. METHODS: Primary UKAs were performed between February 2012 and November 2021, and associated revisions were identified utilizing the Michigan Arthroplasty Registry Collaborative Quality Initiative. Surgeon information, including total cases and annual UKA volume, was collected. Case volume per year was stratified as High (≥ 35 cases per year), Medium (15 to 34 cases per year), and low (< 15 cases per year). RESULTS: There were a total of 15,542 UKAs performed. Of these, 701 (4.5%) were revised, and 412 (58.8%) revisions occurred within 2 years. Of the 287 surgeons who performed an UKA in the registry, 237 (82.6%) were low-volume surgeons, 36 (12.5%) were medium-volume, and 14 (4.9%) were high-volume. High-volume surgeons were more likely to operate on older patients ($P < 0.01$), Medicare patients ($P < 0.01$), and patients who had American Society of Anesthesiologists scores of III and IV ($P < 0.01$). High-volume surgeons had significantly lower 5-year revision rates compared to medium and low-volume surgeons (high: 4.3% (95% confidence interval: 3.7 to 4.9), medium: 5.2% (4.4 to 6.1), low: 7.2% (6.4 to 8.0); $P < 0.001$). In comparison, the 5-year revision rate for TKA in Michigan was 3.0% (95% confidence interval: 2.9 to 3.1). CONCLUSIONS: When UKAs were performed by high-volume surgeons in the state of Michigan, there was better survivorship when compared to low-and medium-volume surgeons. High-volume surgeons were more likely to perform UKA on older patients, Medicare patients, and patients who had American Society of Anesthesiologists scores of III and IV. The revision rate for the high-volume surgeons still exceeded the 5-year revision rate for TKA in Michigan.

Orthopedics/Bone and Joint Center

Cunningham AK, and Yang CKK. Intra-Articular Steroids for Adhesive Capsulitis. *Am Fam Physician* 2024; 110(3):307-308. PMID: 39283857. Full Text

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Orthopedics/Bone and Joint Center

Raja H, Wesemann L, **Charters MA**, and **North WT**. The Conversion of Unicompartmental Knee Arthroplasty to Total Knee Arthroplasty with Non-CT Based Robotic Assistance: A Novel Surgical Technique and Case Series. *J Knee Surg* 2024; Epub ahead of print. PMID: 39317202. Full Text

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INTRODUCTION: Robotic-assisted devices help provide precise component positioning in conversion of unicompartmental knee arthroplasty (UKA) to total knee arthroplasty (TKA). A few studies offer surgical techniques for CT-based robotic-assisted conversion of UKA to TKA, however no studies to date detail this procedure utilizing a non-CT based robotic assisted device. This paper introduces a novel technique

employing a non-CT based robotic assisted device (ROSA® Knee System, Zimmer Biomet, Warsaw, IN) for converting UKA to TKA with a focus on its efficacy in gap balancing. CASE: We present three patients (ages 46 to 66) who were evaluated for conversion of UKA to TKA for aseptic loosening, stress fracture, and progressive osteoarthritis. Each patient underwent robotic-assisted conversion to TKA. Postoperative assessments at 6 months revealed improved pain, function, and radiographic stability. TECHNIQUE: Preoperative planning included biplanar long leg radiographs to determine the anatomic and mechanical axis of the leg. After arthrotomy with a standard medial parapatellar approach, infrared reflectors were pinned into the femur and tibia, followed by topographical mapping of the knee with the UKA in-situ. The intraoperative software was utilized to evaluate flexion and extension balancing and plan bony resections. Then, the robotic arm guided placement of the femoral and tibial guide pins and the UKA components were removed. After bony resection of the distal femur and proximal tibia, the intraoperative software was used to reassess the extension gap, and plan posterior condylar resection to have the flexion gap match the extension gap. CONCLUSION: The use of a non-CT based robotic assisted device in conversion of UKA to TKA is a novel technique and a good option for surgeons familiar with robotic-assisted arthroplasty, resulting in excellent outcomes at 6 months.

Otolaryngology – Head and Neck Surgery

A IG, **Gilbert M**, **Lin CH**, **Keller CE**, **Gardner GM**, **Mayerhoff R**, and **Siddiqui F**. Treatment Outcomes in Patients with Carcinoma In Situ of the Larynx. *Laryngoscope* 2024; Epub ahead of print. PMID: 39323321. Full Text

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OBJECTIVE: To compare survival endpoints in patients with laryngeal carcinoma in situ (L-CIS) who received definitive radiotherapy (RT) versus other modalities as first-line treatment and after disease recurrence. METHODS: This is a retrospective study of patients with L-CIS treated between June 2001 and December 2021. Survival outcomes (recurrence-free (RFS), invasion-free (IFS), laryngectomy-free (LFS), and overall survival (OS)) were compared between patients who had first-line RT versus non-RT modalities and for patients with recurrent disease who underwent second-line RT. RESULTS: A total of 85 patients with L-CIS were included (73 men [85.9%] and 12 [14.1%] women, median age of 65 [IQR: 55-74] years). Of these, 42 had first-line RT (49.4%) and 43 (50.6%) had non-RT treatment. After median follow-up of 4.8 (IQR: 2.8-9) years, patients in the first-line RT group had improved 2-year (94.2% [95% confidence interval (CI): 86.7-100] versus 41.7% [CI: 29.3-59.5]) and 5-year (90.6% [CI: 80.9-100] versus 27.5% [CI: 16.4-48.2]) RFS relative to non-RT recipients ($p < 0.001$). OS and IFS were similar between groups. However, patients in the RT group had worse 2-year (94% [CI: 87-100] versus 98% [CI: 93-100]) and 5-year (82% [CI: 68-99] versus 98% [CI: 93-100]; $p = 0.013$) LFS. All 35 patients with recurrent L-CIS were successfully cured with second-line treatments (12 received RT [34.3%]), and no differences in any survival endpoints were seen in these patients based on first-line and second-line treatments. CONCLUSION: Although first-line RT for L-CIS led to improved recurrence-free survival compared with other modalities, second-line RT may be a particularly valuable option for recurrent CIS. LEVEL OF EVIDENCE: 3 Laryngoscope, 2024.

Otolaryngology – Head and Neck Surgery

Tam S, **Al-Antary N**, **Adjei Boakye E**, **Springer K**, **Poisson LM**, **Su WT**, **Grewal J**, **Zatirka T**, **Ryan M**, **Movsas B**, and **Chang SS**. Differences in Patient-Reported Outcome Measures in Patients With Cancer Six Months Before Death. *JCO Oncol Pract* 2024; Epub ahead of print. PMID: 39250724. Full Text

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PURPOSE: Patient-reported outcome measures (PROMs) provide a direct report of the patient's perspective, complementary to clinician assessment. Currently, understanding the real-time changes in PROM scores near the end of life remains limited. This study evaluated differences in mean PROM scores between patients with cancer within 6 months before death compared with surviving patients with cancer. METHODS: This retrospective case-control study uses the National Institutes of Health's Patient-Reported Outcomes Measurement Information System computer adaptive testing instruments to assess pain interference, physical function, fatigue, and depression. Patients dying within 6 months of PROM completion were selected as cases and matched to controls 1:3 by age at PROM completion, sex, cancer disease site, and cancer stage at diagnosis. Generalized estimating equation models assessed the difference in mean PROM score in cases compared with controls. RESULTS: A total of 461 cases and 1,270 controls from September 2020 to January 2023 were included. After adjustment for ethnicity, Charlson Comorbidity Index, and census tract median household income, significant differences in mean scores were demonstrated. Physical function domain showed the largest difference, with cases averaging 6.52 points lower than controls (95% CI, -8.25 to -4.80). Fatigue and pain interference domains showed a rise in PROMs scores by 4.83 points (95% CI, 2.94 to 6.72) and 4.33 points (95% CI, 2.53 to 6.12), respectively. CONCLUSION: Compared with controls, patients dying within 6 months of PROM completion demonstrated worse PROM scores in the four domains assessed. These findings suggest the utility of routinely collected PROMs as a real-time indicator of the terminal stage of life among patients with cancer to allow for earlier intervention with supportive oncology services.

Otolaryngology – Head and Neck Surgery

Tataryn RW, and **Craig JR**. Dental Evaluation: Endodontic and Periodontal. *Otolaryngol Clin North Am* 2024; Epub ahead of print. PMID: 39244462. Full Text

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Endodontic and periodontal disease are distinct etiologies that can lead to odontogenic sinusitis (ODS). Apical periodontitis and periodontitis are both polymicrobial infections but with different pathogens affecting different parts of the tooth and alveolar bone. Diagnosing both conditions requires specific clinical examination in addition to radiographic assessment. Understanding the terminology and pathophysiology of these conditions and how they are identified should improve diagnostic and therapeutic outcomes, as well as future ODS research.

Pathology and Laboratory Medicine

A IG, **Gilbert M**, **Lin CH**, **Keller CE**, **Gardner GM**, **Mayerhoff R**, and **Siddiqui F**. Treatment Outcomes in Patients with Carcinoma In Situ of the Larynx. *Laryngoscope* 2024; Epub ahead of print. PMID: 39323321. Full Text

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OBJECTIVE: To compare survival endpoints in patients with laryngeal carcinoma in situ (L-CIS) who received definitive radiotherapy (RT) versus other modalities as first-line treatment and after disease recurrence. METHODS: This is a retrospective study of patients with L-CIS treated between June 2001 and December 2021. Survival outcomes (recurrence-free (RFS), invasion-free (IFS), laryngectomy-free (LFS), and overall survival (OS)) were compared between patients who had first-line RT versus non-RT modalities and for patients with recurrent disease who underwent second-line RT. RESULTS: A total of 85 patients with L-CIS were included (73 men [85.9%] and 12 [14.1%] women, median age of 65 [IQR:

55-74] years). Of these, 42 had first-line RT (49.4%) and 43 (50.6%) had non-RT treatment. After median follow-up of 4.8 (IQR: 2.8-9) years, patients in the first-line RT group had improved 2-year (94.2% [95% confidence interval (CI): 86.7-100] versus 41.7% [CI: 29.3-59.5]) and 5-year (90.6% [CI: 80.9-100] versus 27.5% [CI: 16.4-48.2]) RFS relative to non-RT recipients ($p < 0.001$). OS and IFS were similar between groups. However, patients in the RT group had worse 2-year (94% [CI: 87-100] versus 98% [CI: 93-100]) and 5-year (82% [CI: 68-99] versus 98% [CI: 93-100]; $p = 0.013$) LFS. All 35 patients with recurrent L-CIS were successfully cured with second-line treatments (12 received RT [34.3%]), and no differences in any survival endpoints were seen in these patients based on first-line and second-line treatments. CONCLUSION: Although first-line RT for L-CIS led to improved recurrence-free survival compared with other modalities, second-line RT may be a particularly valuable option for recurrent CIS. LEVEL OF EVIDENCE: 3 Laryngoscope, 2024.

Pathology and Laboratory Medicine

Mohanty SK, Lobo A, Jha S, Sangoi AR, Akgul M, Trpkov K, Hes O, Mehra R, Hirsch MS, Moch H, Smith SC, Shah RB, Cheng L, Amin MB, Epstein JI, Parwani AV, Delahunt B, Desai S, Przybycin CG, Manini C, Luthringer DJ, Sirohi D, Jain D, Midha D, Jain E, Maclean F, Giannico GA, Paner GP, Martignoni G, Al-Ahmadie HA, McKenney J, Srigley JR, Lopez JI, Kunju LP, Browning L, Aron M, Picken MM, Tretiakova M, Zhou M, Sable M, Kuroda N, Pattnaik N, **Gupta NS**, Rao P, Fine SW, Mishra P, Adhya AK, Kulkarni BN, Dixit M, Baisakh MR, Arora S, Sancheti S, Menon S, Wobker SE, Tickoo SK, Kaushal S, Soni S, Kandukuri S, Sharma S, Mitra S, Reuter VE, Malik V, Rao V, Chen YB, and Williamson SR. Acceptance of emerging renal oncocytic neoplasms: a survey of urologic pathologists. *Virchows Arch* 2024; Epub ahead of print. PMID: 39287823. Full Text

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Oncocytic renal neoplasms are a major source of diagnostic challenge in genitourinary pathology; however, they are typically nonaggressive in general, raising the question of whether distinguishing different subtypes, including emerging entities, is necessary. Emerging entities recently described include eosinophilic solid and cystic renal cell carcinoma (ESC RCC), low-grade oncocytic tumor (LOT), eosinophilic vacuolated tumor (EVT), and papillary renal neoplasm with reverse polarity (PRNRP). A survey was shared among 65 urologic pathologists using SurveyMonkey.com (Survey Monkey, Santa Clara, CA, USA). De-identified and anonymized respondent data were analyzed. Sixty-three participants completed the survey and contributed to the study. Participants were from Asia (n = 21; 35%), North America (n = 31; 52%), Europe (n = 6; 10%), and Australia (n = 2; 3%). Half encounter oncocytic renal neoplasms that are difficult to classify monthly or more frequently. Most (70%) indicated that there is enough evidence to consider ESC RCC as a distinct entity now, whereas there was less certainty for LOT (27%), EVT (29%), and PRNRP (37%). However, when combining the responses for sufficient evidence currently and likely in the future, LOT and EVT yielded > 70% and > 60% for PRNRP. Most (60%) would not render an outright diagnosis of oncocytoma on needle core biopsy. There was a dichotomy in the routine use of immunohistochemistry (IHC) in the evaluation of oncocytoma (yes = 52%; no = 48%). The most utilized IHC markers included keratin 7 and 20, KIT, AMACR, PAX8, CA9, melan A, succinate dehydrogenase (SDH)B, and fumarate hydratase (FH). Genetic techniques used included TSC1/TSC2/MTOR (67%) or TFE3 (74%) genes and pathways; however, the majority reported using these very rarely. Only 40% have encountered low-grade oncocytic renal neoplasms that are deficient for FH. Increasing experience with the spectrum of oncocytic renal neoplasms will likely yield further insights into the most appropriate work-up, classification, and clinical management for these entities.

Pathology and Laboratory Medicine
Yavas A, **Ozcan K**, Adsay NV, Balci S, Tarcan ZC, Hechtman JF, Luchini C, Scarpa A, Lawlor RT, Mafficini A, Reid MD, Xue Y, Yang Z, Haye K, Bellizzi AM, Vanoli A, Benhamida J, Balachandran V, Jarnagin W, Park W, O'Reilly EM, Klimstra DS, and Basturk O. SWI/SNF Complex-Deficient Undifferentiated Carcinoma of the Pancreas: Clinicopathologic and Genomic Analysis. *Mod Pathol* 2024; 37(11):100585. PMID: 39094734. Full Text

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Inactivating alterations in the SWItch/Sucrose NonFermentable (SWI/SNF) Chromatin Remodeling Complex subunits have been described in multiple tumor types. Recent studies focused on SMARC subunits of this complex to understand their relationship with tumor characteristics and therapeutic opportunities. To date, pancreatic cancer with these alterations has not been well studied, although isolated cases of undifferentiated carcinomas have been reported. Herein, we screened 59 pancreatic undifferentiated carcinomas for alterations in SWI/SNF complex-related (SMARCB1 [BAF47/INI1], SMARCA4 [BRG1], SMARCA2 [BRM]) proteins and/or genes using immunohistochemistry and/or next-generation sequencing. Cases with alterations in SWI/SNF complex-related proteins/genes were compared with cases without alterations, as well as with 96 conventional pancreatic ductal adenocarcinomas (PDAC). In all tumor groups, mismatch repair and PD-L1 protein expression were also evaluated. Thirty of 59 (51%) undifferentiated carcinomas had a loss of SWI/SNF complex-related protein expression or gene alteration. Twenty-seven of 30 (90%) SWI-/SNF-deficient undifferentiated carcinomas had rhabdoid morphology (vs 9/29 [31%] SWI-/SNF-retained undifferentiated carcinomas; $P < .001$) and all expressed cytokeratin, at least focally. Immunohistochemically, SMARCB1 protein expression was absent in 16/30 (53%) cases, SMARCA2 in 4/30 (13%), and SMARCA4 in 4/30 (13%); both SMARCB1 and SMARCA2 protein expressions were absent in 1/30 (3%). Five of 8 (62.5%) SWI-/SNF-deficient undifferentiated carcinomas that displayed loss of SMARCB1 protein expression by immunohistochemistry were found to have corresponding SMARCB1 deletions by next-generation sequencing. Analysis of canonical driver mutations for PDAC in these cases showed KRAS (2/5) and TP53 (2/5) abnormalities. Median combined positive score for PD-L1 (E1L3N) was significantly higher in the undifferentiated carcinomas with/without SWI/SNF deficiency compared with the conventional PDACs ($P < .001$). SWI-/SNF-deficient undifferentiated carcinomas were larger ($P < .001$) and occurred in younger patients ($P < .001$). Patients with SWI-/SNF-deficient undifferentiated carcinoma had worse overall survival compared with patients with SWI-/SNF-retained undifferentiated carcinoma ($P = .004$) and PDAC ($P < .001$). Our findings demonstrate that SWI-/SNF-deficient pancreatic undifferentiated carcinomas are frequently characterized by rhabdoid morphology, exhibit highly aggressive behavior, and have a negative prognostic impact. The ones with SMARCB1 deletions appear to be frequently KRAS wild type. Innovative developmental therapeutic strategies targeting this genomic basis of the SWI/SNF

complex and the therapeutic implications of EZH2 inhibition (NCT03213665), SMARCA2 degrader (NCT05639751), or immunotherapy are currently under investigation.

Pediatrics

Beidas RS, Linn KA, Boggs JM, Marcus SC, Hoskins K, Jager-Hyman S, Johnson C, **Maye M**, Quintana L, Wolk CB, Wright L, **Pappas C**, Beck A, Bedjeti K, Buttenheim AM, Daley MF, **Elias M**, Lyons J, Martin ML, **McArdle B**, Ritzwoller DP, Small DS, Williams NJ, Zhang S, and **Ahmedani BK**. Implementation of a Secure Firearm Storage Program in Pediatric Primary Care: A Cluster Randomized Trial. *JAMA Pediatr* 2024; Epub ahead of print. PMID: 39226027. Full Text

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IMPORTANCE: Increased secure firearm storage can reduce youth firearm injury and mortality, a leading cause of death for children and adolescents in the US. Despite the availability of evidence-based secure firearm storage programs and recommendations from the American Academy of Pediatrics, few pediatric clinicians report routinely implementing these programs. OBJECTIVE: To compare the effectiveness of an electronic health record (EHR) documentation template (nudge) and the nudge plus facilitation (ie, clinic support to implement the program; nudge+) at promoting delivery of a brief evidence-based secure firearm storage program (SAFE Firearm) that includes counseling about secure firearm storage and free cable locks during all pediatric well visits. DESIGN, SETTING, AND PARTICIPANTS: The Adolescent and Child Suicide Prevention in Routine Clinical Encounters (ASPIRE) unblinded parallel cluster randomized effectiveness-implementation trial was conducted from March 14, 2022, to March 20, 2023, to test the hypothesis that, relative to nudge, nudge+ would result in delivery of the firearm storage program to an additional 10% or more of the eligible population, and that this difference would be statistically significant. Thirty pediatric primary care clinics in 2 US health care systems (in Michigan and Colorado) were included, excluding clinics that were not the primary site for participating health care professionals and a subset selected at random due to resource limitations. All pediatric well visits at participating clinics for youth ages 5 to 17 years were analyzed. INTERVENTIONS: Clinics were randomly assigned in a 1:1 ratio to receive either the nudge or nudge+. MAIN OUTCOMES AND MEASURES: Patient-level outcomes were modeled to estimate the primary outcome, reach, which is a visit-level binary indicator of whether the parent received both components of the firearm storage program (counseling and lock), as documented by the clinician in the EHR. Secondary outcomes explored individual program component delivery. RESULTS: A total of 47 307 well-child visits (median [IQR] age, 11.3 [8.1-14.4] years; 24 210 [51.2%] male and 23 091 [48.8%] female) among 46 597 children and 368 clinicians were eligible to receive the firearm storage program during the trial and were included in analyses. Using the intention-to-treat principle, a higher percentage of well-child visits received the firearm storage program in the nudge+ condition (49%; 95% CI, 37-61) compared to nudge (22%; 95% CI, 13-31). CONCLUSIONS AND RELEVANCE: In this study, the EHR strategy combined with facilitation (nudge+) was more effective at increasing delivery of an evidence-based secure firearm storage program compared to nudge alone. TRIAL REGISTRATION: ClinicalTrials.gov Identifier: NCT04844021.

Pharmacy

Lobkovich AM, Mohammad I, Ouahab W, and Wilhelm SM. Evaluating the impact of a decision-making game on empathy development in pharmacy students from the dual perspectives of the patient and pharmacist. *Curr Pharm Teach Learn* 2024; 16(12):102187. PMID: 39236449. Full Text

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INTRODUCTION: Doctor of Pharmacy programs are charged with developing students' empathy by the 2016 Accreditation Council for Pharmacy Education (ACPE) Standard 3 and the 2022 Curriculum Outcomes and Entrustable Professional Activities (COEPA). Although empathy is essential to optimal patient care, its subjective nature makes it challenging to teach and therefore literature is lacking on best teaching practices. The authors of this paper describe a novel simulated approach to elicit and assess empathy in a pharmacy classroom. This study evaluated the impact of a decision-making game in a pharmacy skills lab course on the development of students' empathy using a validated empathy scale. METHODS: This is a cohort-based quality improvement project in which third year pharmacy students participated in a 3-h classroom empathy game experience that simulated a month in a patient's life including issues related to the cycle of poverty. Prior to the game, students completed a voluntary, anonymous baseline demographics survey. They also completed a pre- and post-survey of the validated empathy tool, the Kiersma-Chen Empathy Scale (KCES-R), to assess change in the empathy score following the decision-making game. Students also provided narrative comments in the post-survey. Statistical tests used included descriptive statistics for demographic data, Shapiro-Wilk test of normality, and Wilcoxon Signed-Rank test for survey scores (SPSS Version 29). RESULTS: Pharmacy students ($n = 37$) showed an overall increase in composite KCES-R scores after participating in the empathy game class session ($z = -5.071$, $p < 0.001$). The scores of each of the 14 KCES-R items also increased after the learning experience ($p < 0.05$). Students' narrative comments were all positive and indicated that the activity offered new insights on self-perceived empathy development. CONCLUSION: The empathy game simulation was a successful approach to increase empathy scores in third-year pharmacy students.

Pharmacy

Tkachuk S, Ready E, Chan S, Hawkes J, Janzen Cheney T, Kapler J, Kreutzwiser D, Akagi L, Coombs M, Giguere P, Hughes C, Kelly D, Livingston S, Martel D, **Naccarato M**, Nhean S, Pozniak C, Ramsey T, Robinson L, Smith J, Swidrovich J, Symes J, Yoong D, and Tseng A. Role of the pharmacist caring for people at risk of or living with HIV in Canada. *Can Pharm J (Ott)* 2024; 157(5):218-239. PMID: 39310805. Full Text

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Podiatry

Loder BG, **Lucas J**, and **Bergeron M**. Third generation versus fourth generation percutaneous hallux valgus correction: A radiographic analysis of outcomes. *J Foot Ankle Surg* 2024; Epub ahead of print. PMID: 39299484. Full Text

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Percutaneous hallux valgus correction is gaining popularity with foot and ankle surgeons. Various studies have found that the percutaneous approach has increased patient satisfaction and outcomes. The technique of the procedure has some variability with the geometry of the distal osteotomy being the most scrutinized. As of this publication, there has been no comparative studies on the geometry of the distal metatarsal osteotomy. This is a retrospective study of 50 patients who underwent percutaneous correction of a hallux valgus deformity with either a percutaneous transverse or modified chevron osteotomy. The two groups were compared radiographically, preoperatively, and postoperatively using both the intermetatarsal and hallux valgus angles. There is no difference in radiographic outcomes when comparing pre and post-operative IM and HAV angles, and it is the surgeon's comfort levels with a particular geometry of the osteotomy that should determine the approach.

Public Health Sciences

Al-Hader R, **Nofar J**, **Mohamedelkhair A**, Affan M, **Schultz LR**, and **Cerghet M**. A Comprehensive Characterization of Patients with Spinal Cord Neurosarcoidosis: A Single Center Cross-Sectional Study of Clinical Outcomes. *J Clin Med* 2024; 13(17). PMID: 39274281. Full Text

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Background/Objective: To describe the clinical features and radiological outcomes of patients with spinal cord neurosarcoidosis, treatments, and long-term follow-up for this rare disorder. Methods: A cross-sectional, retrospective medical chart review was performed for all patients with spinal cord neurosarcoidosis treated at a single center between 01/1995 and 12/2020. Radiological imaging, laboratory test results, the type of immunosuppressive therapy, and function test scores were reviewed. Results: We assessed 39 patients with spinal cord neurosarcoidosis (23 men, 16 women, mean age at

presentation 46.4 years, SD 10.2 years). The mean (SD) duration of spinal cord neurosarcoidosis at data abstraction was 9.8 (6.3) years. There were 24 patients (62%) with extensive intramedullary lesions, 8 (21%) with multiple patchy intramedullary lesions, 12 (31%) with leptomeningeal involvement, and 7 (18%) with nerve root enhancement. The cervical spine was the most commonly affected region in 33 patients (85%). The most common presenting symptoms were paresthesia/neuropathic pain in 20 (51%) and weakness of extremities in 15 (38%) patients. Most patients (n = 37; 95%) had been treated with corticosteroids at symptom onset, and methotrexate was the most used immunosuppressive therapy (n = 19; 49%). Of 34 patients with follow-up magnetic resonance imaging (MRI) available, the median time to improvement per MRI was 10.8 months (95% CI, 6.1-17.0 months). Of 31 patients with MRI enhancement at presentation, 18 (58%) had complete enhancement resolution at follow-up, with a median time to resolution of 51.8 months (95% CI, 24.9-83.4 months). Patients had significantly lower pyramidal (p = 0.004) and sensory functional (p = 0.031) systems scores from presentation to the last clinic visit. Conclusions: Because spinal cord neurosarcoidosis is challenging to diagnose and no set treatment guidelines exist, clarifying patients' clinical parameters and responses to various treatments is needed to improve timely and efficient care. The incidence of spinal cord involvement in sarcoidosis in our cohort was higher than intracranial involvement and most patients had a long extensive intramedullary lesion. We also observed that most patients with spinal cord neurosarcoidosis improved clinically and radiologically after treatment; however, the resolution of MRI enhancement after immunosuppressive therapy may take years. Prospective studies of neurosarcoidosis will be crucial to address questions about effective treatment and long-term prognosis.

Public Health Sciences

Aris IM, Wu AJ, Lin PD, Zhang M, Farid H, Hedderson MM, Zhu Y, Ferrara A, Chehab RF, Barrett ES, Carnell S, Camargo CA, Jr., Chu SH, Mirzakhani H, Kelly RS, Comstock SS, Strakovsky RS, O'Connor TG, Ganiban JM, Dunlop AL, Dabelea D, Breton CV, Bastain TM, Farzan SF, Call CC, Hartert T, Snyder B, **Santarossa S**, **Cassidy-Bushrow AE**, O'Shea TM, McCormack LA, Karagas MR, McEvoy CT, Alshawabkeh A, Zimmerman E, Wright RJ, McCann M, Wright RO, Coull B, Amutah-Onukagha N, Hacker MR, James-Todd T, and Oken E. Neighborhood Food Access in Early Life and Trajectories of Child Body Mass Index and Obesity. *JAMA Pediatr* 2024; Epub ahead of print. PMID: 39283628. Full Text

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IMPORTANCE: Limited access to healthy foods, resulting from residence in neighborhoods with low food access, is a public health concern. The contribution of this exposure in early life to child obesity remains uncertain. OBJECTIVE: To examine associations of neighborhood food access during pregnancy or early childhood with child body mass index (BMI) and obesity risk. DESIGN, SETTING, AND PARTICIPANTS: Data from cohorts participating in the US nationwide Environmental Influences on Child Health Outcomes consortium between January 1, 1994, and March 31, 2023, were used. Participant inclusion required a geocoded residential address in pregnancy (mean 32.4 gestational weeks) or early childhood (mean 4.3 years) and information on child BMI. EXPOSURES: Residence in low-income, low-food access neighborhoods, defined as low-income neighborhoods where the nearest supermarket is more than 0.5 miles for urban areas or more than 10 miles for rural areas. MAIN OUTCOMES AND MEASURES: BMI z score, obesity (age- and sex-specific BMI ≥95th percentile), and severe obesity (age- and sex-specific BMI ≥120% of the 95th percentile) from age 0 to 15 years. RESULTS: Of 28 359 children (55 cohorts; 14 657 [51.7%] male and 13 702 [48.3%] female; 590 [2.2%] American Indian, Alaska Native, Native Hawaiian, or Other Pacific Islander; 1430 [5.4%] Asian; 4034 [15.3%] Black; 17 730 [67.2%] White; and 2592 [9.8%] other [unspecified] or more than 1 race; 5754 [20.9%] Hispanic and 21 838 [79.1%] non-Hispanic) with neighborhood food access data, 23.2% resided in low-income, low-food access neighborhoods in pregnancy and 24.4% in early childhood. After adjusting for individual sociodemographic characteristics, residence in low-income, low-food access (vs non-low-income, low-food access) neighborhoods in pregnancy was associated with higher BMI z scores at ages 5 years (β, 0.07; 95% CI, 0.03-0.11), 10 years (β, 0.11; 95% CI, 0.06-0.17), and 15 years (β, 0.16; 95% CI, 0.07-0.24); higher obesity risk at 5 years (risk ratio [RR], 1.37; 95% CI, 1.21-1.55), 10 years (RR, 1.71; 95% CI, 1.37-2.12), and 15 years (RR, 2.08; 95% CI, 1.53-2.83); and higher severe obesity risk at 5 years (RR, 1.21; 95% CI, 0.95-1.53), 10 years (RR, 1.54; 95% CI, 1.20-1.99), and 15 years (RR, 1.92; 95% CI, 1.32-2.80). Findings were similar for residence in low-income, low-food access neighborhoods in early childhood. These associations were robust to alternative definitions of low income and low food access and additional adjustment for prenatal characteristics associated with child obesity. CONCLUSIONS: Residence in low-income, low-food access neighborhoods in early life was associated with higher subsequent child BMI and higher risk of obesity and severe obesity. We encourage future studies to examine whether investments in neighborhood resources to improve food access in early life would prevent child obesity.

Public Health Sciences

Chaker AN, **Rademacher AF**, **Easton M**, **Jafar Y**, **Telemi E**, **Mansour TR**, Kim E, Brennan M, **Hu J**, **Schultz L**, **Nerenz DR**, **Schwalb JM**, **Abdulhak M**, **Khalil JG**, **Easton R**, Perez-Cruet M, Aleem I, Park P, Soo T, Tong D, and **Chang V**. The impact of serum albumin levels on postoperative complications in lumbar and cervical spine surgery: an analysis of the Michigan Spine Surgery Improvement Collaborative registry. *J Neurosurg Spine* 2024; 1-11. Epub ahead of print. PMID: 39241263. Full Text

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OBJECTIVE: Patients with serum albumin levels < 3.5 g/dL are considered malnourished, but there is a paucity of data regarding the outcomes of patients with albumin levels > 3.5 g/dL. The objective of this study was to evaluate the effect of albumin on postoperative outcome in patients undergoing elective cervical and lumbar spine procedures. METHODS: The Michigan Spine Surgery Improvement Collaborative database was queried for lumbar and cervical fusion surgeries between January 2020 and December 2022. Patients were grouped by preoperative serum albumin levels: < 3.5 g/dL, 3.5-3.7 g/dL, 3.8-4.0 g/dL, and > 4.0 g/dL. Primary outcomes included urinary retention, ileus, dysphagia, surgical site infection (SSI), readmission within 30 and 90 days, return to the operating room, and length of stay (LOS) ≥ 4 days. Multivariate analysis was conducted to adjust for potential confounders. RESULTS: This study included 15,629 lumbar cases and 6889 cervical cases. Within the lumbar cohort, an albumin level of 3.5-3.7 g/dL was associated with an increased risk of readmission at 30 days ($p = 0.048$) and 90 days ($p = 0.005$) and an LOS ≥ 4 days ($p < 0.001$). An albumin level of 3.8-4.0 g/dL was associated with an increased risk of an LOS ≥ 4 days ($p < 0.001$). Within the cervical cohort, an albumin level of 3.5-3.7 g/dL was associated with an increased risk of SSI ($p = 0.023$), readmission at 30 days ($p < 0.002$) and 90 days ($p < 0.001$), return to the operating room ($p = 0.002$), and an LOS ≥ 4 days ($p < 0.001$). An albumin level of 3.8-4.0 g/dL was associated with an increased risk of readmission at 30 days ($p = 0.012$) and 90 days ($p = 0.001$) and an LOS ≥ 4 days ($p < 0.001$). CONCLUSIONS: This study maintains that patients with hypoalbunemia undergoing spine surgery are at risk for postoperative adverse events. However, there also exist significant associations between borderline serum albumin levels of 3.5-4.0 g/dL and increased risk of postoperative adverse events.

Public Health Sciences

Chuang SC, Hsiung CA, **Tao MH**, Wu IC, Cheng CW, Tseng WT, Lee MM, Chang HY, and Hsu CC. The Association between Dietary Inflammatory Patterns and the Incidence of Frailty and Its Reversal in Older Adults: A Community-Based Longitudinal Follow-Up Study in Taiwan. *Nutrients* 2024; 16(17). PMID: 39275178. Full Text

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Dietary patterns related to inflammation have garnered great interest in disease prevention. The aims of this study were to evaluate whether a proinflammatory diet affects the incidence of frailty and its reversal in a prospective follow-up study. Data were taken from 5663 community-dwelling individuals ≥ 55 years old in Taiwan. The energy-adjusted dietary inflammatory index (DII) and the Empirical Dietary Inflammatory Patterns-Healthy Aging Longitudinal Study in Taiwan (EDIP-HALT) at baseline were calculated using a food frequency questionnaire. Frailty was assessed with Fried's criteria in 2008-2013 and 2013-2020. Associations with changes in frailty status were assessed with multinominal logistic regressions and adjusted for major confounders. Higher EDIP-HALST scores (proinflammatory) were associated with higher odds of frailty among baseline robust participants in men (OR = 2.44, 95% CI = 1.42-4.21, p-(trend) < 0.01) and broadline associated in women (OR = 1.96, 95% CI = 0.96-3.98, p-(trend) = 0.05), but associated with lower odds of reversing back to robust among baseline prefrail participants. However, the later association was only observed in women, and the relationships were stronger in the middle tertile (second vs. first tertile, OR = 0.40, 95% CI = 0.25-0.65). A pro-inflammatory diet pattern was associated with higher odds of frailty onset in baseline robust participants and lower odds of reversal in baseline prefrail female participants.

Public Health Sciences

Finati M, **Corsi NJ**, **Stephens A**, **Chiarelli G**, **Cirulli GO**, **Davis M**, **Tinsley S**, Sood A, Buffi N, Lughezzani G, Salonia A, Briganti A, Montorsi F, Bettocchi C, Carrieri G, **Rogers C**, and **Abdollah F**. The Impact of Radical Prostatectomy Versus Radiation Therapy on Cancer-Specific Mortality for Nonmetastatic Prostate Cancer: Analysis of an Other-Cause Mortality Matched Cohort. *Clin Genitourin Cancer* 2024; 22(6):102201. PMID: 39243664. Full Text

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INTRODUCTION: Studies comparing radical prostatectomy (RP) to radiation therapy (RT) have consistently shown that patients undergoing RT have a higher risk of other-cause mortality (OCM) compared to RP, signifying poor health status of the former patients. We aimed to evaluate the impact of RP versus RT on cancer-specific mortality (CSM) over a cohort with equivalent OCM risk. PATIENTS AND METHODS: The SEER database was queried to identify patients with nonmetastatic PCa between 2004 and 2009. Patients were matched based on their calculated 10-year OCM risk and further stratified for D'Amico Risk Score and Gleason Grade. A Cox-regression model was used to calculate the 10-year OCM risk. Propensity-score based on the calculated OCM risk were used to match RP and RT patients. Cumulative incidence curves and Competing-risk regression analyses were used to examine the impact of treatment on CSM in the matched cohort. RESULTS: We identified 55,106 PCa patients treated with RP and 36,674 treated with RT. After match, 6,506 patients were equally distributed for RT versus RP, with no difference in OCM rates (P = .2). The 10-year CSM rates were 8.8% versus 0.6% (P = .01) for RT versus RP in patients with unfavorable-intermediate-risk (Gleason Score 4 + 3) and 7.9% versus 3.9% (P = .003) for high-risk disease. There was no difference in CSM among RT and RP patients for favorable-

intermediate-risk (Gleason Score 3 + 4) and low-risk disease. CONCLUSIONS: In a matched cohort of PCa patients with comparable OCM between the 2 arms, RP yielded a more favorable CSM rate compared to RT only for unfavorable-intermediate- and high-risk groups.

Public Health Sciences

Finati M, **Stephens A**, **Chiarelli G**, **Cirulli GO**, **Tinsley S**, **Wang Y**, Sood A, Buffi N, Lughezzani G, Salonia A, Briganti A, Montorsi F, Busetto GM, Carrieri G, **Rogers C**, and **Abdollah F**. Radical cystectomy versus trimodal therapy for muscle-invasive bladder cancer: Analysis of an other-cause mortality matched cohort. *Urol Oncol* 2024; Epub ahead of print. PMID: 39242301. Full Text

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OBJECTIVE: Comparative effectiveness studies comparing trimodal therapy (TMT) to radical cystectomy (RC) are typically hindered by selection bias where TMT is usually reserved to patients with poor overall health status. We developed a novel approach by matching patients based on their calculated other-cause mortality (OCM) risk. Using this homogeneous cohort, we tested the impact of TMT vs RC on cancer-specific mortality (CSM). MATERIALS AND METHODS: The Surveillance, Epidemiology and End Results (SEER) 2004-2018 database was queried to identify patients diagnosed with cT2-4N0M0 muscle-invasive bladder cancer (MIBC). A Fine-Gray competing-risk regression model calculating the 5-year OCM risk was used to create a 1:1 propensity-score matched-cohort of patients treated with RC or TMT. Cumulative incidence and competing-risk regression analyses tested the impact of treatment type (RC vs TMT) on CSM. Patients were further stratified according to clinical T stage (cT2 vs cT3-4) in sensitivity analyses. RESULTS: We identified 6,587 patients (76%) treated with RC and 2,057 (24%) with TMT. The median follow-up was 3.0 years. In the unmatched-cohort, 5-year OCM and CSM rates were 14% and 40% for RC vs 23% and 47% in TMT group, respectively (all $P < 0.001$). Our matched-cohort included 4,074 patients, equally distributed for treatment type, with no difference in 5-year OCM (HR: 0.98, 95% CI: 0.86-1.11, $P = 0.714$). In clinical-stage specific sensitivity analyses, 5-year CSM rate was significantly worse for cT2N0M0 patients treated with TMT (HR: 1.52, 95% CI: 1.21-1.91, $P < 0.001$) than those treated with RC. For cT3-4N0M0 patients, there was no difference in CSM among the 2 approaches (HR: 0.98, 95% CI: 0.63-1.52, $P = 0.900$). CONCLUSIONS: Our findings demonstrate an oncologic advantage of RC over TMT for cT2 MIBC patients. Conversely, we did not find a cancer-specific survival difference for cT3-T4 MIBC patients, regardless of treatment.

Public Health Sciences

Fridman I, Carter-Bawa L, **Neslund-Dudas CM**, and Elston Lafata J. The feasibility and equity of text messaging to determine patient eligibility for lung cancer screening. *Am J Manag Care* 2024; 30(9):440-444. PMID: 39302267. Full Text

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OBJECTIVES: Text messaging could be effective for determining patient eligibility for lung cancer screening (LCS). We explored people's willingness to share their tobacco use history via text message among diverse groups. STUDY DESIGN: Cross-sectional survey. METHODS: In 2020, we conducted a cross-sectional survey asking respondents about cellular phone usage, smoking habits, sociodemographic characteristics, and the likelihood of responding to a text message from their health care provider's office about tobacco use. We used χ^2 and analysis of variance tests for comparisons. RESULTS: Among 745 respondents, 90% used text messaging casually. Overall, 54% never smoked, 33% currently smoked, and 13% previously smoked. Six percent were LCS eligible, and 20% used both cigarettes and e-cigarettes (dual users). Current smokers were significantly younger, less likely to be female, and more likely to use text messaging. LCS-eligible respondents were older and less likely to have a high income. Dual users were younger, less likely to report female gender and live in rural areas, and more likely to have a college education and high income. Most respondents (83%) indicated they were likely to respond to text message inquiries regarding smoking status. Middle-aged respondents (mean age, 37 years) were significantly more willing to report smoking status than younger or older respondents (91% vs 84% and 84%, respectively). Respondents with no college education (83% vs 88%) or with a low income vs a middle or high income (81% vs 86% and 88%, respectively) were significantly less willing to report smoking status via text messages. CONCLUSIONS: Text messaging showed promise for evaluating smoking history and for simplifying the process of identifying LCS-eligible individuals. However, achieving equity in identifying eligibility for LCS requires the implementation of multimodal strategies.

Public Health Sciences

Gaudette J, **Kilaru S**, **Davenport A**, Hanumolu S, **Pinkney D**, **Mandava S**, **Williams A**, and **Tang XA**. Patient- vs Technologist-Controlled Mammography Compression: A Prospective Comparative Study of Patient Discomfort and Breast Compression Thickness. *J Breast Imaging* 2024; Epub ahead of print. PMID: 39235987. Full Text

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OBJECTIVE: We assess whether mammographic patient-assisted compression (PAC) has an impact on breast compression thickness and patient discomfort compared with technologist-assisted compression (TAC). METHODS: A total of 382 female patients between ages 40 and 90 years undergoing screening mammography from February 2020 to June 2021 were recruited via informational pamphlet to participate in this IRB-approved study. Patients without prior baseline mammograms were excluded. The participating patients were randomly assigned to the PAC or TAC study group. Pre- and postmammogram surveys assessed expected pain and experienced pain, respectively, using a 100-mm visual analogue scale and the State-Trait Anxiety Inventory. Breast compression thickness values from the most recent mammogram were compared with the patient's recent prior mammogram. RESULTS: Between the 2 groups, there was no significant difference between the expected level of pain prior to the mammogram ($P = .97$). While both study groups reported a lower level of experienced pain than was expected, the difference was greater for the PAC group ($P < .0001$). Additionally, the PAC group reported significantly lower experienced pain during mammography compared with the TAC group ($P = .014$). The correlation of trait/state anxiety scores with pre- and postmammogram pain scores was weak among the groups. Lastly, the mean breast compression thickness values for standard screening mammographic views showed no significant difference in the PAC group when compared with the patient's prior mammogram.

CONCLUSION: Involving patients in compression reduces their pain independent of the patient's state anxiety during mammography while having no effect on breast compression thickness. Implementing PAC could improve the mammography experience.

Public Health Sciences
Ghanem AI, **Gilbert M**, **Lin CH**, **Keller CE**, **Gardner GM**, **Mayerhoff R**, and **Siddiqui F**. Treatment Outcomes in Patients with Carcinoma In Situ of the Larynx. *Laryngoscope* 2024; Epub ahead of print. PMID: 39323321. Full Text

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OBJECTIVE: To compare survival endpoints in patients with laryngeal carcinoma in situ (L-CIS) who received definitive radiotherapy (RT) versus other modalities as first-line treatment and after disease recurrence. METHODS: This is a retrospective study of patients with L-CIS treated between June 2001 and December 2021. Survival outcomes (recurrence-free (RFS), invasion-free (IFS), laryngectomy-free (LFS), and overall survival (OS)) were compared between patients who had first-line RT versus non-RT modalities and for patients with recurrent disease who underwent second-line RT. RESULTS: A total of 85 patients with L-CIS were included (73 men [85.9%] and 12 [14.1%] women, median age of 65 [IQR: 55-74] years). Of these, 42 had first-line RT (49.4%) and 43 (50.6%) had non-RT treatment. After median follow-up of 4.8 (IQR: 2.8-9) years, patients in the first-line RT group had improved 2-year (94.2% [95% confidence interval (CI): 86.7-100] versus 41.7% [CI: 29.3-59.5]) and 5-year (90.6% [CI: 80.9-100] versus 27.5% [CI: 16.4-48.2]) RFS relative to non-RT recipients ($p < 0.001$). OS and IFS were similar between groups. However, patients in the RT group had worse 2-year (94% [CI: 87-100] versus 98% [CI: 93-100]) and 5-year (82% [CI: 68-99] versus 98% [CI: 93-100]; $p = 0.013$) LFS. All 35 patients with recurrent L-CIS were successfully cured with second-line treatments (12 received RT [34.3%]), and no differences in any survival endpoints were seen in these patients based on first-line and second-line treatments. CONCLUSION: Although first-line RT for L-CIS led to improved recurrence-free survival compared with other modalities, second-line RT may be a particularly valuable option for recurrent CIS. LEVEL OF EVIDENCE: 3 Laryngoscope, 2024.

Public Health Sciences
Hayden N, **Gilbert S**, **Poisson LM**, **Griffith B**, and **Klochko C**. Performance of GPT-4 with Vision on Text- and Image-based ACR Diagnostic Radiology In-Training Examination Questions. *Radiology* 2024; 312(3):e240153. PMID: 39225605. Full Text

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Background Recent advancements, including image processing capabilities, present new potential applications of large language models such as ChatGPT (OpenAI), a generative pretrained transformer, in radiology. However, baseline performance of ChatGPT in radiology-related tasks is understudied. Purpose To evaluate the performance of GPT-4 with vision (GPT-4V) on radiology in-training examination questions, including those with images, to gauge the model's baseline knowledge in radiology. Materials and Methods In this prospective study, conducted between September 2023 and March 2024, the September 2023 release of GPT-4V was assessed using 386 retired questions (189 image-based and 197 text-only questions) from the American College of Radiology Diagnostic Radiology In-Training Examinations. Nine question pairs were identified as duplicates; only the first instance of each duplicate was considered in ChatGPT's assessment. A subanalysis assessed the impact of different zero-shot prompts on performance. Statistical analysis included $\chi(2)$ tests of independence to ascertain whether the performance of GPT-4V varied between question types or subspecialty. The McNemar test was used to

evaluate performance differences between the prompts, with Benjamin-Hochberg adjustment of the P values conducted to control the false discovery rate (FDR). A P value threshold of less than.05 denoted statistical significance. Results GPT-4V correctly answered 246 (65.3%) of the 377 unique questions, with significantly higher accuracy on text-only questions (81.5%, 159 of 195) than on image-based questions (47.8%, 87 of 182) (χ(2) test, P < .001). Subanalysis revealed differences between prompts on text-based questions, where chain-of-thought prompting outperformed long instruction by 6.1% (McNemar, P = .02; FDR = 0.063), basic prompting by 6.8% (P = .009, FDR = 0.044), and the original prompting style by 8.9% (P = .001, FDR = 0.014). No differences were observed between prompts on image-based questions with P values of .27 to >.99. Conclusion While GPT-4V demonstrated a level of competence in text-based questions, it showed deficits interpreting radiologic images. © RSNA, 2024 See also the editorial by Deng in this issue.

Public Health Sciences

Kwa M, Ravi M, Elhage K, **Schultz L**, and **Lim HW**. The risk of ultraviolet exposure for melanoma in Fitzpatrick skin types I-IV: A 20-year systematic review with meta-analysis for sunburns. *J Eur Acad Dermatol Venereol* 2024; Epub ahead of print. PMID: 39230206. Full Text

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Within the last two decades, no studies have comprehensively reviewed the risk of varying types of ultraviolet (UV) exposure on melanoma in fairer skinned individuals. Our research objective was to determine whether or not there was a change in the risk of UV exposure with development of melanoma in Fitzpatrick skin types I-IV based on more recent data over the past 20 years. We performed a systematic review from January 2002 to December 2021 analysing UV exposure and melanoma risk in Fitzpatrick type I-IV individuals. Out of 19,852 studies, 26 met inclusion criteria. Data spanned subjects from national and multinational cohorts (USA, Europe, Australia, Asia and South America). Twenty studies (77%, 20/26) identified a significant association between UV exposure and melanoma incidence. Sunburn was the most commonly assessed risk factor. Sunburn studies encompassed 3417 melanoma and found positive significant odds ratios (OR [95% CI]) in 11 out of 13 studies, ranging from 1.23 [1.01-1.49] to 8.48 [4.35-16.54]. Pooled analysis of the risk of melanoma with sunburn history found an unadjusted odds ratio of 1.66 [1.40-1.97] and adjusted odds ratio of 1.23 [1.04-1.46]. Cumulative sun exposure, measured as number of hours of sun exposure or calculated UV flux, was the second most common risk factor, encompassing 913 melanomas with positive significant ORs ranging from 1.1 [1.0-1.2] to 5.2 [2.1-12.5]. For other forms of UV exposure, a majority of studies showed an association with UV index (6/9), outdoor leisure activity (3/3) and left-sided laterality (1/1). Overall, UV exposure should continue to be considered a modifiable risk factor for melanoma in individuals of fairer skin.

Public Health Sciences

Obri MS, **Samad M**, **Alhaj S**, **Chaudhary A**, **Rehman S**, **Ramzi Almajed M**, **Rose C**, **Schultz L**, **Harris K**, and **Suresh S**. Timing of Endoscopic Intervention for Esophageal Food Impaction and Its Impact on Patient Outcomes. *Dig Dis Sci* 2024; Epub ahead of print. PMID: 39298049. Full Text

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INTRODUCTION: Esophageal food impaction (EFI) is a common complaint of patients presenting to the emergency department. EFI requires urgent evaluation by the gastroenterology service and often necessitates esophagogastroduodenoscopy (EGD) for management. Timing of EGD in patients with EFI that does not improve with medical management remains a point of contention. We aim to evaluate outcomes of EFI in the context of time to intervention. METHODS: A retrospective cohort study was

performed among patients who presented to a multicenter health system with EFI between 2018 and 2022. Patients with EFI that did not resolve after medical management and required EGD were included. Outcome analysis evaluated rates of complications and hospitalizations. RESULTS: Two hundred eighty sis unique patient presentations were included. 175 (61.2%) of patients underwent EGD within six hours of presentation, 59 (20.6%) underwent EGD six to twelve hours after presentation, and 52 (18.2%) underwent EGD beyond twelve hours after presentation. Complication rates did not differ between patients depending on timing of EGD (p = 1.000). Admission rates were higher among patients in whom EGD was performed longer after presentation (p = 0.003). Complication rates were higher among patients with advanced age (p = 0.037), prior impaction (p = 0.004), and those who have not received glucagon (p = 0.007). CONCLUSION: Timing of EGD after presentation in patients with EFI was not associated with a difference in complication rates. Delayed intervention was associated with a higher rate of hospitalization which should be taken into consideration when assessing the cost of EFI to the healthcare system.

Public Health Sciences

Szymanski R, **Abraham M**, **Childs W**, **Le K**, **Velez C**, **Vaughn I**, **Lamerato L**, and **Budzynska K**. Factors associated with receiving an obesity diagnosis and obesity-related treatment for patients with obesity class II and III within a single integrated health system. *Prev Med Rep* 2024; 46:102879. PMID: 39309697. Full Text

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OBJECTIVES: The prevalence and associated adverse effects of obesity on health and healthcare cost make it a primary public health concern. However, individuals with the physiological features of obesity may be underdiagnosed and undertreated. We aimed to determine the prevalence of obesity diagnoses and obesity-related treatments in an integrated health system and determine the factors associated with receiving an obesity diagnosis and treatment for this indication. METHODS: This retrospective cross-sectional study of data from the Henry Ford Health electronic health record included adult patients with a body mass index (BMI) indicating clinical evidence of class II and III (severe) obesity in 2017 and who received treatment through 2019. The primary outcome was prevalence of obesity diagnosis and obesity-related treatment. Logistic regression evaluated the patient-level factors associated with odds of having obesity diagnosis and treatment. RESULTS: Among 64,741 patients meeting the clinical definition of definition of severe obesity, only 40.7 % were clinically diagnosed with obesity, and 23.5 % received an obesity-related intervention. Patients with BMI≥40 kg/m(2) (class III) were more likely to be diagnosed with obesity than those with BMI 35-39.9 kg/m(2) (class II) (odds ratio [OR] 5.84; 95 % CI, 5.62-6.07). Patients with a diagnosis of obesity (OR 2.92; 95 % CI, 2.80-3.05), Black patients (OR 1.46; 95 % CI, 1.40-1.53), and female patients (OR 1.47; 95 % CI, 1.41-1.54) were more likely to be offered obesity-related treatment. CONCLUSIONS: Severe obesity may be underdiagnosed in patients who have BMI 35-39.9 kg/m(2) and 1 comorbidity.

Public Health Sciences

Tam S, **Al-Antary N**, **Adjei Boakye E**, **Springer K**, **Poisson LM**, **Su WT**, **Grewal J**, **Zatirka T**, **Ryan M**, **Movsas B**, and **Chang SS**. Differences in Patient-Reported Outcome Measures in Patients With Cancer Six Months Before Death. *JCO Oncol Pract* 2024; Epub ahead of print. PMID: 39250724. Full Text

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PURPOSE: Patient-reported outcome measures (PROMs) provide a direct report of the patient's perspective, complementary to clinician assessment. Currently, understanding the real-time changes in

PROM scores near the end of life remains limited. This study evaluated differences in mean PROM scores between patients with cancer within 6 months before death compared with surviving patients with cancer. METHODS: This retrospective case-control study uses the National Institutes of Health's Patient-Reported Outcomes Measurement Information System computer adaptive testing instruments to assess pain interference, physical function, fatigue, and depression. Patients dying within 6 months of PROM completion were selected as cases and matched to controls 1:3 by age at PROM completion, sex, cancer disease site, and cancer stage at diagnosis. Generalized estimating equation models assessed the difference in mean PROM score in cases compared with controls. RESULTS: A total of 461 cases and 1,270 controls from September 2020 to January 2023 were included. After adjustment for ethnicity, Charlson Comorbidity Index, and census tract median household income, significant differences in mean scores were demonstrated. Physical function domain showed the largest difference, with cases averaging 6.52 points lower than controls (95% CI, -8.25 to -4.80). Fatigue and pain interference domains showed a rise in PROMs scores by 4.83 points (95% CI, 2.94 to 6.72) and 4.33 points (95% CI, 2.53 to 6.12), respectively. CONCLUSION: Compared with controls, patients dying within 6 months of PROM completion demonstrated worse PROM scores in the four domains assessed. These findings suggest the utility of routinely collected PROMs as a real-time indicator of the terminal stage of life among patients with cancer to allow for earlier intervention with supportive oncology services.

Public Health Sciences

Tao MH, Chuang SC, Wu IC, Chan HT, Cheng CW, Chen HL, Lee MM, Chang HY, Hsiung CA, and Hsu CC. Cross-sectional and longitudinal associations of magnesium intake and cognition in the Healthy Aging Longitudinal Study in Taiwan. *Eur J Nutr* 2024; Epub ahead of print. PMID: 39240315. Full Text

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PURPOSE: Previous cross-sectional studies have shown that higher magnesium intake is associated with better cognitive function, particularly in individuals with sufficient vitamin D status. The aim of this study was to evaluate the longitudinal associations between magnesium intake and cognitive impairment in a community-based cohort study in Taiwan. METHODS: The study population included 5663 community-dwelling adults aged ≥ 55 years old recruited from 2009 to 2013 and followed up from 2013 to 2020. Magnesium intake was evaluated from a validated food frequency questionnaire at baseline. Cognitive performance was measured at baseline and follow-up for participants' Mini-Mental Status Examination (MMSE), Digit Symbol Substitution Test (DSST), and Clock-Drawing Test (CDT), and impairment was defined as MMSE < 24, DSST < 21, and CDT < 3, respectively. Multivariate logistic regression models were used to examine the associations and were stratified by sex and plasma vitamin D levels (≥ 50 or < 50 nmol/L). RESULTS: Higher baseline magnesium intake was associated with lower odds of a poor performance on the MMSE in both men and women (4th vs. 1st. quartile: OR = 0.43, 95% CI = 0.23-0.82, p(trend) < 0.01 in men and OR = 0.53, 95% CI = 0.29-0.97, p(trend) = 0.12 in women) and on the DSST in men (OR = 0.23, 95% CI = 0.09-0.61, p(trend) < 0.01) at follow-up. Inverse associations between baseline magnesium intake and a poor performance on the MMSE or DSST were observed in men regardless of vitamin D status. CONCLUSION: Our study suggested that higher magnesium intake was associated with the development of cognitive impairment in men in a median follow-up period of 6 years.

Public Health Sciences

Tao MH, **Lin CH**, **Lu M**, and **Gordon SC**. Accelerated Phenotypic Aging Associated with Hepatitis C Infection: Results from the U.S. National Health and Nutrition Examination Surveys 2015-2018. *J Gerontol A Biol Sci Med Sci* 2024; Epub ahead of print. PMID: 39297494. Full Text

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BACKGROUND: Chronic hepatitis C virus (HCV) infection is associated with early onset of chronic diseases, and increased risk of chronic disorders. Chronic viral infections have been linked to accelerated biological aging based on epigenetic clocks. In this study, we aimed to investigate the association between HCV infection and clinical measures of biological aging among 8,306 adults participating the 2015-2018 waves of the National Health and Nutrition Examination Survey (NHANES). METHODS: NHANES 2015-2018 participants aged 20 years and older who had complete data on clinical blood markers and HCV related tests were included in the current study. We estimated biological age using two approaches including Phenotypic Age (PhenoAge) and allostatic load (AL) score based on nine clinical biomarkers. RESULTS: After adjusting for demographic and other confounding factors, HCV antibody-positivity was associated with advanced PhenoAge (β = 2.43, 95% confidence interval (CI), 1.51-3.35), compared with HCV antibody-negativity. Additionally, both active HCV infection (HCV RNA (+)) and resolved infection were associated with greater PhenoAge acceleration. The positive association with AL score was not statistically significant. We did not observe any significant interactions of potential effect modifiers, including smoking and use of drug/ needle injection, with HCV infection on measures of biological aging. CONCLUSIONS: Our findings suggest that HCV infection is independently associated with biological aging measured by phenotypic age in the US general population. Further studies are warranted to confirm the findings.

Public Health Sciences

Trendowski MR, Watza D, Lusk CM, Lonardo F, Ratliff V, Wenzlaff AS, Mamdani H, **Neslund-Dudas C**, Boerner JL, Schwartz AG, and Gibson HM. Evaluation of the Immune Response within the Tumor Microenvironment in African American and Non-Hispanic White Patients with Non-Small Cell Lung Cancer. *Cancer Epidemiol Biomarkers Prev* 2024; 33(9):1220-1228. PMID: 38953893. Request Article

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BACKGROUND: African Americans have higher incidence and mortality from lung cancer than non-Hispanic Whites, but investigations into differences in immune response have been minimal. Therefore, we compared components of the tumor microenvironment among African Americans and non-Hispanic Whites diagnosed with non-small cell lung cancer based on PDL1 or tertiary lymphoid structure (TLS) status to identify differences of translational relevance. METHODS: Using a cohort of 280 patients with non-small cell lung cancer from the Inflammation, Health, Ancestry, and Lung Epidemiology study (non-Hispanic White: n = 155; African American: n = 125), we evaluated PDL1 tumor proportion score (<1% vs. ≥1%) and TLS status (presence/absence), comparing differences within the tumor microenvironment based on immune cell distribution and differential expression of genes. RESULTS: Tumors from African Americans had a higher proportion of plasma cell signatures within the tumor microenvironment than non-Hispanic Whites. In addition, gene expression patterns in African American PDL1-positive samples suggest that these tumors contained greater numbers of γδ T cells and resting dendritic cells, along with fewer CD8+ T cells after adjusting for age, sex, pack-years, stage, and histology. Investigation of differential expression of B cell/plasma cell-related genes between the two patient populations revealed that two immunoglobulin genes (IGKV2-29 and IGLL5) were associated with decreased mortality risk in African Americans. CONCLUSIONS: In the first known race-stratified analysis of tumor microenvironment components in lung cancer based on PDL1 expression or TLS status, differences within the immune cell composition and transcriptomic signature were identified that may have therapeutic implications. IMPACT:

Future investigation of racial variation within the tumor microenvironment may help direct the use of immunotherapy.

Public Health Sciences

Wang L, **Lu X**, **Szalad A**, **Liu XS**, **Zhang Y**, **Wang X**, **Golembieski WA**, **Powell B**, **McCann M**, **Lu M**, **Chopp M**, and **Zhang ZG**. Schwann cell-derived exosomes ameliorate peripheral neuropathy induced by ablation of dicer in Schwann cells. *Front Cell Neurosci* 2024; 18:1462228. PMID: 39285940. Full Text

Department of Neurology, Henry Ford Hospital, Detroit, MI, United States.
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BACKGROUND: MicroRNAs (miRNAs) in Schwann cells (SCs) mediate peripheral nerve function. Ablating Dicer, a key gene in miRNA biogenesis, in SCs causes peripheral neuropathy. Exosomes from healthy SCs (SC-Exo) ameliorate diabetic peripheral neuropathy in part via miRNAs. Thus, using transgenic mice with conditional and inducible ablation of Dicer in proteolipid protein (PLP) expressing SCs (PLP-cKO), we examined whether SC-Exo could reduce peripheral neuropathy in PLP-cKO mice. METHODS: PLP-cKO mice at the age of 16 weeks (8 week post-Tamoxifen) were randomly treated with SC-Exo or saline weekly for 8 weeks. Age-and sex-matched wild-type (WT) littermates were used as controls. Peripheral neurological functions, sciatic nerve integrity, and myelination were analyzed. Quantitative RT-PCR and Western blot analyses were performed to examine miRNA and protein expression in sciatic nerve tissues, respectively. RESULTS: Compared to the WT mice, PLP-cKO mice exhibited a significant decrease in motor and sensory conduction velocities, thermal sensitivity, and motor coordination. PLP-cKO mice exhibited substantial demyelination and axonal damage of the sciatic nerve. Treatment of PLP-cKO mice with SC-Exo significantly ameliorated the peripheral neuropathy and sciatic nerve damage. PLP-cKO mice showed a substantial reduction in a set of Dicer-related miRNAs known to regulate myelination, axonal integrity, and inflammation such as miR-138, -146a and - 338 in the sciatic nerve. In addition, PLP-cKO mice exhibited significant reduction of myelin forming proteins, early growth response 2 (EGR2) and sex determining region Y-box10 (Sox10), but significantly increased myelination inhibitors, Notch1, c-Jun, and Sox2 and the axonal growth inhibitor phosphatase and tens in homolog (PTEN). However, SC-Exo treatment reversed the PLP-cKO altered miRNAs and proteins. CONCLUSION: This study demonstrates that exogenous SC-Exo ameliorate peripheral neuropathy induced by Dicer ablation in PLP expressing SCs. The therapeutic benefit may be mediated by the SC-Exo altered miRNAs and their targeted genes.

Pulmonary and Critical Care Medicine

Lee Adawi Awdish R, Berry LL, and Bosslet GT. "Relative Value Units" Belie Real Value. *Chest* 2024; 166(3):579-581. PMID: 39260946. Full Text

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Pulmonary and Critical Care Medicine

Miller J, Grahf D, Nassereddine H, Nehme J, **Rammal JA**, **Ross J**, Rose K, **Hrabec D**, **Tirgari S**, and **Lewandowski C**. Cross-Sectional Study of Thiamine Deficiency and Its Associated Risks in Emergency Care. *West J Emerg Med* 2024; 25(5):675-679. PMID: 39319797. Full Text

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BACKGROUND: Growing data indicates that thiamine deficiency occurs during acute illness in the absence of alcohol use disorder. Our primary objective was to measure clinical factors associated with thiamine deficiency in patients with sepsis, diabetic ketoacidosis, and oncologic emergencies. METHODS: This was an analysis of pooled data from cross-sectional studies that enrolled adult emergency department (ED) patients at a single academic center with suspected sepsis, diabetic ketoacidosis, and oncologic emergencies. We excluded patients who had known alcohol use disorder or who had received ED thiamine treatment prior to enrollment. Investigators collected whole blood thiamine levels in addition to demographics, clinical characteristics, and available biomarkers. We defined thiamine deficiency as a whole blood thiamine level below the normal reference range and modeled the adjusted association between this outcome and age. RESULTS: There were 269 patients, of whom the average age was 57 years; 46% were female, and 80% were Black. Fifty-five (20.5%) patients had thiamine deficiency. In univariate analysis, age >60 years (odds ratio [OR] 2.5, 95% confidence interval [CI], 1.3-4.5), female gender (OR 1.9, 95% CI 1.0-3.4), leukopenia (OR 4.9, 95% CI 2.3-10.3), moderate anemia (OR 2.8, 95% CI 1.5-5.3), and hypoalbuminemia (OR 2.2, 95% CI 1.2-4.1) were associated with thiamine deficiency. In adjusted analysis, thiamine deficiency was significantly higher in females (OR 2.1, 95% CI 1.1-4.1), patients >60 years (OR 2.0, 95% CI 1.0-3.8), and patients with leukopenia (OR 5.1, 95% CI 2.3-11.3). CONCLUSION: In this analysis, thiamine deficiency was common and was associated with advanced age, female gender, and leukopenia.

Pulmonary and Critical Care Medicine

Shojaee S, Pannu J, Yarmus L, Fantin A, MacRosty C, Bassett R, Jr., **Debiane L**, DePew ZS, Faiz SA, Jimenez CA, Avasarala SK, Vakil E, DeMaio A, Bashoura L, Keshava K, Ferguson T, Adachi R, Eapen GA, Ost DE, Bashour S, Khan A, Shannon V, Sheshadri A, Casal RF, Evans SE, Pew K, Castaldo N, Balachandran DD, Patruno V, Lentz R, Pai C, Maldonado F, Roller L, Ma J, Zaveri J, Los J, Vaquero L, Ordonez E, Yermakhanova G, Akulian J, Burks C, **Almario RR**, **Sauve M**, Pettee J, Noor LZ, Arain MH, and Grosu HB. Gravity- vs Wall Suction-Driven Large-Volume Thoracentesis: A Randomized Controlled Study. *Chest* 2024; Epub ahead of print. PMID: 39029784. Full Text

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BACKGROUND: Prior studies have found no differences in procedural chest discomfort for patients undergoing manual syringe aspiration or drainage with gravity after thoracentesis. However, whether gravity drainage could protect against chest pain due to the larger negative-pressure gradient generated by wall suction has not been investigated. RESEARCH QUESTION: Does wall suction drainage result in more chest discomfort compared with gravity drainage in patients undergoing large-volume thoracentesis? STUDY DESIGN AND METHODS: In this multicenter, single-blinded, randomized controlled trial, patients with large free-flowing effusions of ≥ 500 mL were assigned at a 1:1 ratio to wall

suction or gravity drainage. Wall suction was performed with a suction system attached to the suction tubing and with vacuum pressure adjusted to full vacuum. Gravity drainage was performed with a drainage bag placed 100 cm below the catheter insertion site and connected via straight tubing. Patients rated chest discomfort on a 100-mm visual analog scale before, during, and after drainage. The primary outcome was postprocedural chest discomfort at 5 min. Secondary outcomes included measures of postprocedure chest discomfort, breathlessness, procedure time, volume of fluid drained, and complication rates. RESULTS: Of the 228 patients initially randomized, 221 were included in the final analysis. The primary outcome of procedural chest discomfort did not differ significantly between the groups (P = .08), nor did the secondary outcomes of postprocedural discomfort and dyspnea. Similar volumes were drained in both groups, but the procedure duration was longer in the gravity arm by approximately 3 min. No differences in rate of pneumothorax or reexpansion pulmonary edema were noted between the two groups. INTERPRETATION: Thoracentesis via wall suction and gravity drainage results in similar levels of procedural discomfort and dyspnea improvement. CLINICAL TRIAL REGISTRY: ClinicalTrials.gov; No.: NCT05131945; URL: www. CLINICALTRIALS: gov.

Radiation Oncology

Amini A, Zaha VG, Hamad E, Woodard PK, Rimner A, Chang JY, Chun SG, Donington J, Edelman MJ, Gubens MA, Higgins KA, Iyengar P, Juloori A, **Movsas B**, Ning MS, Park HS, Rodrigues G, Wolf A, and Simone CB, 2nd. American Radium Society™ Appropriate Use Criteria on Cardiac Toxicity Prevention and Management After Thoracic Radiotherapy. *J Thorac Oncol* 2024; Epub ahead of print. PMID: 39313150. Request Article

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PURPOSE: The multidisciplinary American Radium Society (ARS) Thoracic Committee was assigned to create Appropriate Use Criteria (AUC) on cardiac toxicity prevention and management for patients undergoing radiotherapy. METHODS AND MATERIALS: A systematic review of the current literature was conducted. Case variants of patients with thoracic malignancies undergoing radiation were created based on presence or absence cardiovascular risk factors and treatment-related risks assessed by dose exposure to the heart/cardiac substructures. Modified Delphi methodology was used by to evaluate the variants and procedures, with ≤3 rating points from median defining agreement/consensus. RESULTS: 6 variants were evaluated. The panel felt patients with cardiac comorbidities at high risk for radiation-related cardiac toxicity should undergo a prescreening cardiac focused history and physical (H&P) exam, electrocardiogram (EKG), cardiac imaging including an echocardiogram, and referral to a cardiologist/cardio-oncologist. Recommendations for those without cardiac comorbidities at low risk for cardiac toxicity were to undergo a baseline history and physical examination only. Conversely, those without cardiac comorbidities but at high risk for radiation-related cardiac toxicity were recommended to undergo a prescreening EKG, in addition to a H&P exam. For patients with cardiac comorbidities at low risk for cardiac toxicity, the panel felt prescreening and post-screening tests may be appropriate. CONCLUSIONS: The ARS Thoracic AUC panel has developed multidisciplinary consensus guidelines for

cardiac toxicity prevention, surveillance, and management after thoracic radiotherapy based on cardiac comorbidities at presentation and risk of radiation-related cardiac toxicity.

Radiation Oncology
Ghanem AI, **Gilbert M**, **Lin CH**, **Keller CE**, **Gardner GM**, **Mayerhoff R**, and **Siddiqui F**. Treatment Outcomes in Patients with Carcinoma In Situ of the Larynx. *Laryngoscope* 2024; Epub ahead of print. PMID: 39323321. Full Text

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OBJECTIVE: To compare survival endpoints in patients with laryngeal carcinoma in situ (L-CIS) who received definitive radiotherapy (RT) versus other modalities as first-line treatment and after disease recurrence. METHODS: This is a retrospective study of patients with L-CIS treated between June 2001 and December 2021. Survival outcomes (recurrence-free (RFS), invasion-free (IFS), laryngectomy-free (LFS), and overall survival (OS)) were compared between patients who had first-line RT versus non-RT modalities and for patients with recurrent disease who underwent second-line RT. RESULTS: A total of 85 patients with L-CIS were included (73 men [85.9%] and 12 [14.1%] women, median age of 65 [IQR: 55-74] years). Of these, 42 had first-line RT (49.4%) and 43 (50.6%) had non-RT treatment. After median follow-up of 4.8 (IQR: 2.8-9) years, patients in the first-line RT group had improved 2-year (94.2% [95% confidence interval (CI): 86.7-100] versus 41.7% [CI: 29.3-59.5]) and 5-year (90.6% [CI: 80.9-100] versus 27.5% [CI: 16.4-48.2]) RFS relative to non-RT recipients ($p < 0.001$). OS and IFS were similar between groups. However, patients in the RT group had worse 2-year (94% [CI: 87-100] versus 98% [CI: 93-100]) and 5-year (82% [CI: 68-99] versus 98% [CI: 93-100]; $p = 0.013$) LFS. All 35 patients with recurrent L-CIS were successfully cured with second-line treatments (12 received RT [34.3%]), and no differences in any survival endpoints were seen in these patients based on first-line and second-line treatments. CONCLUSION: Although first-line RT for L-CIS led to improved recurrence-free survival compared with other modalities, second-line RT may be a particularly valuable option for recurrent CIS. LEVEL OF EVIDENCE: 3 Laryngoscope, 2024.

Radiation Oncology
McNair HA, Milosevic MF, **Parikh PJ**, and van der Heide UA. Future of Multidisciplinary Team in the Context of Adaptive Therapy. *Semin Radiat Oncol* 2024; 34(4):418-425. PMID: 39271276. Full Text

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The implementation and early adoption of online adaptive radiotherapy (oART) has required the presence of clinicians, physicists and radiation therapists (RTT) at the treatment console. The impact on each of them is unique to their profession and must be considered for safe and efficient implementation. In the short term future, widespread adoption will depend on the development of innovative workflows, and rethinking of traditional roles and responsibilities may be required. For the future, technologies such as artificial intelligence promise to change the workflow significantly in terms of speed, automation and decision-making. However, overall communication within the team will persist in being one of the most important aspects.

Radiation Oncology

Park HS, Rimner A, Amini A, Chang JY, Chun SG, Donington J, Edelman MJ, Gubens MA, Higgins KA, Iyengar P, Juloori A, **Movsas B**, Nemeth Z, Ning MS, Rodrigues G, Wolf A, and Simone CB, 2nd. Appropriate Use Criteria (AUC) for Non-Small Cell Lung Cancer in a Central/Ultra-Central Location: Executive Summary of the American Radium Society's Systematic Review and Guidelines. *J Thorac Oncol* 2024; Epub ahead of print. PMID: 39271016. Full Text

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City of Hope Atlanta, Newnan, GA.
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INTRODUCTION: Definitive radiation therapy is considered standard therapy for medically inoperable early-stage non-small cell lung cancer (NSCLC). However, for patients with tumors located near to structures like the proximal tracheobronchial tree, esophagus, heart, spinal cord, and brachial plexus, the optimal management regimen is controversial. The objective was to develop expert multidisciplinary consensus guidelines on the management of medically inoperable NSCLC located in a central or ultra-central location relative to critical organs-at-risk. MATERIALS AND METHODS: Case variants regarding centrally and ultra-centrally located lung tumors were developed by the 15-member multidisciplinary American Radium Society (ARS) Thoracic Appropriate Use Criteria (AUC) expert panel. A comprehensive review of the English medical literature was performed from 1/1/46 to 12/31/23 to inform consensus guidelines. Modified Delphi methodology was used by the panel to evaluate the variants and procedures, with ≤3 rating points from median defining agreement/consensus. The guideline was then approved by the ARS Executive Committee and released for public comment per established ARS procedures. RESULTS: The Thoracic ARS AUC Panel identified 90 relevant references and obtained consensus in all variants. Radiotherapy alone was considered appropriate, with additional immunotherapy to be considered primarily in the clinical trial setting. Hypofractionated radiotherapy in 8-18 fractions was considered appropriate for ultra-central lesions near proximal tracheobronchial tree, upper trachea, and esophagus. For other ultra-central lesions near heart, great vessels, brachial plexus, and spine, or for non-ultra-central but still central lesions, 5-fraction SBRT was also considered an appropriate option. Intensity-modulated radiotherapy was considered appropriate and 3D-conformal radiotherapy inappropriate for all variants. Other treatment planning techniques to decrease the risk of overdosing critical organs-at-risk were also considered. DISCUSSION: The ARS Thoracic AUC panel has developed multidisciplinary consensus guidelines for various presentations of stage I NSCLC in a central or ultra-central location.

Radiation Oncology

Summerfield N, Morris E, Banerjee S, He Q, **Ghanem AI**, Zhu S, Zhao J, Dong M, and Glide-Hurst C. Enhancing Precision in Cardiac Segmentation for Magnetic Resonance-Guided Radiation Therapy Through Deep Learning. *Int J Radiat Oncol Biol Phys* 2024; 120(3):904-914. PMID: 38797498. Full Text

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PURPOSE: Cardiac substructure dose metrics are more strongly linked to late cardiac morbidities than to whole-heart metrics. Magnetic resonance (MR)-guided radiation therapy (MRgRT) enables substructure visualization during daily localization, allowing potential for enhanced cardiac sparing. We extend a publicly available state-of-the-art deep learning framework, "No New" U-Net, to incorporate self-distillation (nnU-Net.wSD) for substructure segmentation for MRgRT. METHODS AND MATERIALS: Eighteen (institute A) patients who underwent thoracic or abdominal radiation therapy on a 0.35 T MR-guided linear accelerator were retrospectively evaluated. On each image, 1 of 2 radiation oncologists delineated reference contours of 12 cardiac substructures (chambers, great vessels, and coronary arteries) used to train (n = 10), validate (n = 3), and test (n = 5) nnU-Net.wSD by leveraging a teacher-student network and comparing it to standard 3-dimensional U-Net. The impact of using simulation data or including 3 to 4 daily images for augmentation during training was evaluated for nnU-Net.wSD. Geometric metrics (Dice similarity coefficient, mean distance to agreement, and 95% Hausdorff distance), visual inspection, and clinical dose-volume histograms were evaluated. To determine generalizability, institute A's model was tested on an unlabeled data set from institute B (n = 22) and evaluated via consensus scoring and volume comparisons. RESULTS: nnU-Net.wSD yielded a Dice similarity coefficient (reported mean ± SD) of 0.65 ± 0.25 across the 12 substructures (chambers, 0.85 ± 0.05; great vessels, 0.67 ± 0.19; and coronary arteries, 0.33 ± 0.16; mean distance to agreement, <3 mm; mean 95% Hausdorff distance, <9 mm) while outperforming the 3-dimensional U-Net (0.583 ± 0.28; P <.01). Leveraging fractionated data for augmentation improved over a single MR simulation time point (0.579 ± 0.29; P <.01). Predicted contours yielded dose-volume histograms that closely matched those of the clinical treatment plans where mean and maximum (ie, dose to 0.03 cc) doses deviated by 0.32 ± 0.5 Gy and 1.42 ± 2.6 Gy, respectively. There were no statistically significant differences between institute A and B volumes (P >.05) for 11 of 12 substructures, with larger volumes requiring minor changes and coronary arteries exhibiting more variability. CONCLUSIONS: This work is a critical step toward rapid and reliable cardiac substructure segmentation to improve cardiac sparing in low-field MRgRT.

Radiation Oncology

Tam S, **Al-Antary N**, **Adjei Boakye E**, **Springer K**, **Poisson LM**, **Su WT**, **Grewal J**, **Zatirka T**, **Ryan M**, **Movsas B**, and **Chang SS**. Differences in Patient-Reported Outcome Measures in Patients With Cancer Six Months Before Death. *JCO Oncol Pract* 2024; Epub ahead of print. PMID: 39250724. Full Text

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PURPOSE: Patient-reported outcome measures (PROMs) provide a direct report of the patient's perspective, complementary to clinician assessment. Currently, understanding the real-time changes in PROM scores near the end of life remains limited. This study evaluated differences in mean PROM scores between patients with cancer within 6 months before death compared with surviving patients with cancer. METHODS: This retrospective case-control study uses the National Institutes of Health's Patient-Reported Outcomes Measurement Information System computer adaptive testing instruments to assess pain interference, physical function, fatigue, and depression. Patients dying within 6 months of PROM completion were selected as cases and matched to controls 1:3 by age at PROM completion, sex, cancer disease site, and cancer stage at diagnosis. Generalized estimating equation models assessed the

difference in mean PROM score in cases compared with controls. RESULTS: A total of 461 cases and 1,270 controls from September 2020 to January 2023 were included. After adjustment for ethnicity, Charlson Comorbidity Index, and census tract median household income, significant differences in mean scores were demonstrated. Physical function domain showed the largest difference, with cases averaging 6.52 points lower than controls (95% CI, -8.25 to -4.80). Fatigue and pain interference domains showed a rise in PROMs scores by 4.83 points (95% CI, 2.94 to 6.72) and 4.33 points (95% CI, 2.53 to 6.12), respectively. CONCLUSION: Compared with controls, patients dying within 6 months of PROM completion demonstrated worse PROM scores in the four domains assessed. These findings suggest the utility of routinely collected PROMs as a real-time indicator of the terminal stage of life among patients with cancer to allow for earlier intervention with supportive oncology services.

Radiation Oncology

Yousif A, Mulla ZD, Pudar J, **Elshaikh M**, **Khalil-Moawad R**, and **Elshaikh MA**. First-degree family history of cancers in patients with stage I endometrial carcinoma. Prevalence and prognostic impact. *Arch Gynecol Obstet* 2024; Epub ahead of print. PMID: 39327297. Full Text

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BACKGROUND: We aimed to study the impact of first-degree family history on patients with endometrial cancer. METHODS: We conducted a retrospective chart review from January 1990 to June 2016, comparing stage I endometrial cancer patients with and without a sporadic family history of cancers. We collected the patients' demographic information, tumor characteristics, and treatment plans. During the follow-up period, patient information on tumor recurrence and survival was collected. The chi-square test was used to assess the associations between categorical variables. The Cox proportional hazards regression model was used to estimate multivariate-adjusted hazard ratios (95% confidence interval (CI)). RESULTS: Among the 1737 patients with stage I endometrial cancer, 709 had a positive first-degree family history of cancers and 1028 had negative family history (FH) of cancers. Patients with positive FH were more likely to be older, have stage IB disease, and receive adjuvant radiotherapy; however, the difference was not statistically significant. At 5 years follow up, patients with a positive family history had longer time to recurrence (TTR) than their negative FH counterparts. Maternal family history of cancer was the most common, followed by a sister's history of cancer, paternal history, brother's history, and offspring history of cancer. Breast, endometrial, and colon cancers are the most common cancers among first-degree relatives. CONCLUSION: Endometrial cancer patients with sporadic first-degree FH of cancers share similar demographics and tumor characteristics compared to their counterpart with slightly increased likelihood to be older, with stage IB disease and have a longer TTR compared to their negative counterpart.

Research Administration

Niemi KJ, Sunikka J, **Soltanian-Zadeh H**, **Davoodi-Bojd E**, Rahmim A, Kaasinen V, and Joutsa J. Rest Tremor in Parkinson's Disease Is Associated with Ipsilateral Striatal Dopamine Transporter Binding. *Mov Disord* 2024; Epub ahead of print. PMID: 39225564. Full Text

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BACKGROUND: The cardinal motor symptoms of Parkinson's disease (PD) include rigidity, bradykinesia, and rest tremor. Rigidity and bradykinesia correlate with contralateral nigrostriatal degeneration and striatal dopamine deficit, but association between striatal dopamine function and rest tremor has remained unclear. OBJECTIVE: The aim of this study was to investigate the possible link between dopamine function and rest tremor using Parkinson's Progression Markers Initiative dataset, the largest prospective neuroimaging cohort of patients with PD. METHODS: Clinical, [(123)I]N-ω-fluoropropyl-2β-carbomethoxy-3β-(4-iodophenyl)nortropane ([(123)I]FP-CIT) single photon emission computed tomography (SPECT), and structural magnetic resonance imaging data from 354 early PD patients and 166 healthy controls were included in this study. We employed a novel approach allowing nonlinear registration of individual scans accurately to a standard space and voxelwise analyses of the association between motor symptoms and striatal dopamine transporter (DAT) binding. RESULTS: Severity of both rigidity and bradykinesia was negatively associated with contralateral striatal DAT binding ($P(FWE) < 0.05$ [FWE, family-wise error corrected]). However, rest tremor amplitude was positively associated with increased ipsilateral DAT binding ($P(FWE) < 0.05$). The association between rest tremor and binding remained the same controlling for Hoehn & Yahr stage, Movement Disorder Society Unified Parkinson's Disease Rating Scale (MDS-UPDRS) part III score, bradykinesia-rigidity score, or motor phenotype. The association between rest tremor and binding was independent of bradykinesia-rigidity and replicated using 2-year follow-up data ($P(FWE) < 0.05$). CONCLUSION: In agreement with the existing literature, we did not find a consistent association between rest tremor and contralateral dopamine defect. However, our results demonstrate a link between rest tremor and increased or less decreased ipsilateral DAT binding. Our findings provide novel information about the association between dopaminergic function and parkinsonian rest tremor.

Rheumatology

Singh H, Beriwal N, Minhas JS, and **Robinson C**. Subacute combined degeneration from nitrous oxide abuse. *Radiol Case Rep* 2024; 19(12):5600-5604. PMID: 39296751. Full Text

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Nitrous oxide is an anesthetic medication which can also be recreationally abused in the form of whippet canisters. Its prolonged abuse can interfere with Vitamin B12 metabolism and lead to its functional deficiency. We report a case of a 30-year-old male who presented with generalized weakness and was found to have subacute combined degeneration (SCD) of the spinal cord. His laboratory workup showed low Vitamin B12 with elevated homocysteine and methylmalonic Co-A levels, and further questioning revealed prolonged nitrous oxide abuse. Nitrous oxide causes functional inactivation of methylcobalamin by rendering it unable to function as a coenzyme for methionine synthase enzyme. This leads to the decreased production of methionine and subsequent production of myelin. This case describes nitrous oxide abuse as an important etiology to be considered in patients presenting with weakness and myeloneuropathy and describes important imaging findings.

Sleep Medicine

Dauvilliers Y, **Roth T**, Bogan R, Thorpy MJ, Morse AM, Roy A, and Gudeman J. Efficacy of once-nightly sodium oxybate (FT218) on daytime symptoms in individuals with narcolepsy with or without concomitant alerting agent use: A post hoc analysis from the phase 3 REST-ON trial. *Sleep Med* 2024; 124:209-216. PMID: 39321628. Full Text

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OBJECTIVE/BACKGROUND: Extended-release, once-nightly sodium oxybate (ON-SXB) significantly improved narcolepsy symptoms in participants in the phase 3, randomized, double-blind, placebo-controlled REST-ON trial. This post hoc analysis of REST-ON data evaluated ON-SXB efficacy in participants with or without concomitant alerting agent use. PATIENTS/METHODS: Participants with narcolepsy aged >16 years were randomized 1:1 to ON-SXB (week 1: 4.5 g, weeks 2-3: 6 g, weeks 4-8: 7.5 g, weeks 9-13: 9 g) or placebo. Primary endpoints in this post hoc analysis included change from baseline in mean sleep latency on the Maintenance of Wakefulness Test (MWT), Clinical Global Impression-Improvement (CGI-I) rating, and number of weekly cataplexy episodes. The secondary endpoints were change from baseline in the Epworth Sleepiness Scale (ESS) score and in objective and subjective disrupted nighttime sleep parameters. Post hoc analyses assessed participants with and without alerting agent use across 6-, 7.5-, and 9-g doses. RESULTS: In the modified intent-to-treat population, 119 (63 %) were (ON-SXB, n = 66; placebo, n = 53) and 71 (37 %) were not (ON-SXB, n = 31; placebo, n = 40) taking alerting agents. Regardless of alerting agent use, treatment with ON-SXB resulted in significant improvements vs placebo (all doses, $P < 0.05$) for MWT, CGI-I, and number of weekly cataplexy episodes. Significant improvements in ESS (all doses, $P < 0.05$) with ON-SXB vs placebo were observed in the alerting agent use cohort. Directional improvements in ESS were reported with all doses in the no alerting agent use group. CONCLUSIONS: Regardless of concomitant alerting agent use, ON-SXB improved daytime and nighttime narcolepsy symptoms vs placebo.

Surgery

Alam W, **Wisely J**, and **Nasser H**. Perioperative outcomes of same-day discharge laparoscopic Roux-en-Y gastric bypass using the MBSAQIP database. *Surg Endosc* 2024; Epub ahead of print. PMID: 39289228. Full Text

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BACKGROUND: There has been a rising trend of outpatient bariatric surgery, particularly accelerated by the COVID-19 pandemic. The aim of this study was to evaluate the safety and outcomes of same-day discharge laparoscopic Roux-en-Y gastric bypass (LRYGB) using the MBSAQIP database. METHODS: In this retrospective study, the MBSAQIP was queried for patients undergoing non-revisional LRYGB between 2020 and 2021. Two cohorts were established: same-day discharge (SDD; length of stay = 0 days) and next-day discharge (POD1; length of stay = 1 day), with the latter serving as a control group. Univariate analysis and multivariate logistic regression were employed to compare outcomes between cohorts. RESULTS: A total of 48,408 patients underwent LRYGB, with 1,918 (4.0%) SDD and 46,490 (96.0%) POD1. The two cohorts were similar in mean age (SDD 44.2 ± 11.3 years vs POD1 44.0 ± 11.3 years; p = 0.61) and female sex (SDD 83.8% vs POD1 83.1%; p = 0.43). However, the POD1

cohort had a higher preoperative body mass index (45.4 ± 7.3 vs 44.9 ± 7.3 kg/m2; p < 0.01). Preoperative anticoagulation and obstructive sleep apnea were more prevalent in the POD1 group. There was no difference in overall 30-day overall complication rates (SDD 2.0% vs POD1 2.3%; p = 0.51), reintervention, reoperations, mortality, and emergency department visits between the two cohorts. Readmissions were lower in the SDD cohort (2.9% vs 4.0%; p = 0.02), whereas the need for outpatient intravenous hydration was higher in the SDD cohort (6.7% vs 3.6%; p < 0.01). This finding remained significant even after adjustment for confounders. CONCLUSION: Same-day LRYGB is safe and feasible, with comparable complication rates to next-day discharge. Notably, SDD is associated with lower readmission rate and higher need for outpatient intravenous hydration, possibly reflecting rigorous bariatric protocols and thorough patient follow-up. Further investigations are warranted to elucidate the selection criteria and optimize postoperative care for outpatient LRYGB.

Surgery

Barry CL, Jones AT, Rubright JD, Ibáñez B, **Abouljoud MS**, Berman RS, Berry C, Dent DL, and Buyske J. Analysis of Surgeon and Program Characteristics Associated with Success on American Board of Surgery Exam Outcomes. *J Am Coll Surg* 2024; Epub ahead of print. PMID: 39264054. Full Text

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BACKGROUND: Existing research exploring predictors of success on American Board of Surgery (ABS) exams focused on either resident or residency program characteristics, but limited studies focus on both. This study examines relationships between both resident and program characteristics and ABS Qualifying (QE) and Certifying Exam (CE) outcomes. STUDY DESIGN: Multilevel logistic regression was used to analyze the relationship between resident and program characteristics and ABS QE and CE 1st attempt pass and eventual certification. Resident characteristics were gender, IMG status, and prior performance, measured by 1st attempt USMLE Step 2 CK and Step 3 scaled scores. Program characteristics were size, %female, %International Medical Graduate (IMG), and program type. The sample included surgeons with QE and CE data from 2007-2019 and matched USMLE scores. RESULTS: Controlling for other variables, prior medical performance positively related to all ABS exam outcomes. The relationships between USMLE scores and success on ABS exams varied but were generally strong. Other resident characteristics that predicted ABS exam outcomes were gender and IMG (QE 1st attempt pass). The only program characteristic that significantly predicted ABS outcomes was %IMG (QE and CE 1st attempt pass). Despite statistical significance, gender, IMG, and %IMG translated to small differences in predicted probabilities of ABS exam success. CONCLUSION: This study highlights resident and program characteristics that predict success on ABS exams. USMLE scores consistently and strongly related to ABS exam success, providing evidence that USMLE scores relate to future high-stakes consequences like board certification. After controlling for prior performance, gender, IMG, and program %IMG significantly related to ABS exam success, but effects were small.

Surgery

Blaney H, **Winder GS**, and Liangpunsakul S. Enhancing alcohol use disorder care in alcohol-associated liver disease: Patient perspectives and systemic barriers. *Alcohol Clin Exp Res (Hoboken)* 2024; Epub ahead of print. PMID: 39294552. Request Article

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Surgery
Chang D, Yang S, Molena D, and **Okereke I**. Discussion to: Effect of cardiothoracic surgery mentorship on underrepresented high school students. *J Thorac Cardiovasc Surg* 2024; 168(1):e2-e3. PMID: 37791940. Full Text

Surgery
Loder BG, **Lucas J**, and **Bergeron M**. Third generation versus fourth generation percutaneous hallux valgus correction: A radiographic analysis of outcomes. *J Foot Ankle Surg* 2024; Epub ahead of print. PMID: 39299484. Full Text

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Percutaneous hallux valgus correction is gaining popularity with foot and ankle surgeons. Various studies have found that the percutaneous approach has increased patient satisfaction and outcomes. The technique of the procedure has some variability with the geometry of the distal osteotomy being the most scrutinized. As of this publication, there has been no comparative studies on the geometry of the distal metatarsal osteotomy. This is a retrospective study of 50 patients who underwent percutaneous correction of a hallux valgus deformity with either a percutaneous transverse or modified chevron osteotomy. The two groups were compared radiographically, preoperatively, and postoperatively using both the intermetatarsal and hallux valgus angles. There is no difference in radiographic outcomes when comparing pre and post-operative IM and HAV angles, and it is the surgeon's comfort levels with a particular geometry of the osteotomy that should determine the approach.

Surgery
Magyar CTJ, Li Z, Aceituno L, Claasen M, **Ivanics T**, Choi WJ, Rajendran L, Sayed BA, Bucur R, Rukavina N, Selzner N, Ghanekar A, Cattral M, and Sapisochin G. Temporal evolution of living donor liver transplantation survival-A United Network for Organ Sharing registry study. *Am J Transplant* 2024; Epub ahead of print. PMID: 39163907. Full Text

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Living donor liver transplantation (LDLT) is a curative treatment for various liver diseases, reducing waitlist times and associated mortality. We aimed to assess the overall survival (OS), identify predictors for mortality, and analyze differences in risk factors over time. Adult patients undergoing LDLT were selected from the United Network for Organ Sharing database from inception (1987) to 2023. The Kaplan-Meier method was used for analysis, and multivariable Cox proportional hazard models were conducted. In total, 7257 LDLT recipients with a median age of 54 years (interquartile range [IQR]: 45-61 years), 54% male, 80% non-Hispanic White, body mass index of 26.3 kg/m(2) (IQR: 23.2-30.0 kg/m(2)), and model for end-stage liver disease score of 15 (IQR: 11-19) were included. The median cold ischemic time was 1.6 hours (IQR: 1.0-2.3 hours) with 88% right lobe grafts. The follow-up was 4.0 years (IQR: 1.0-9.2 years). The contemporary reached median OS was 17.0 years (95% CI: 16.1, 18.1 years), with the following OS

estimates: 1 year 95%; 3 years 89%; 5 years 84%; 10 years 72%; 15 years 56%; and 20 years 43%. Nine independent factors associated with mortality were identified, with an independent improved OS in the recent time era (adjusted hazards ratio: 0.53; 95% CI: 0.39, 0.71). The median center-caseload per year was 5 (IQR: 2-10), with observed center-specific improvement of OS. LDLT is a safe procedure with excellent OS. Its efficacy has improved despite an increase of risk parameters, suggesting its limits are yet to be met.

Surgery
Mandal S, Balraj K, Kodamana H, Arora C, **Clark JM**, **Kwon DS**, and Rathore AS. Weakly supervised large-scale pancreatic cancer detection using multi-instance learning. *Front Oncol* 2024; 14:1362850. PMID: 39267824. Full Text

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INTRODUCTION: Early detection of pancreatic cancer continues to be a challenge due to the difficulty in accurately identifying specific signs or symptoms that might correlate with the onset of pancreatic cancer. Unlike breast or colon or prostate cancer where screening tests are often useful in identifying cancerous development, there are no tests to diagnose pancreatic cancers. As a result, most pancreatic cancers are diagnosed at an advanced stage, where treatment options, whether systemic therapy, radiation, or surgical interventions, offer limited efficacy. METHODS: A two-stage weakly supervised deep learning-based model has been proposed to identify pancreatic tumors using computed tomography (CT) images from Henry Ford Health (HFH) and publicly available Memorial Sloan Kettering Cancer Center (MSKCC) data sets. In the first stage, the nnU-Net supervised segmentation model was used to crop an area in the location of the pancreas, which was trained on the MSKCC repository of 281 patient image sets with established pancreatic tumors. In the second stage, a multi-instance learning-based weakly supervised classification model was applied on the cropped pancreas region to segregate pancreatic tumors from normal appearing pancreas. The model was trained, tested, and validated on images obtained from an HFH repository with 463 cases and 2,882 controls. RESULTS: The proposed deep learning model, the two-stage architecture, offers an accuracy of 0.907 ± 0.01, sensitivity of 0.905 ± 0.01, specificity of 0.908 ± 0.02, and AUC (ROC) 0.903 ± 0.01. The two-stage framework can automatically differentiate pancreatic tumor from non-tumor pancreas with improved accuracy on the HFH dataset. DISCUSSION: The proposed two-stage deep learning architecture shows significantly enhanced performance for predicting the presence of a tumor in the pancreas using CT images compared with other reported studies in the literature.

Surgery
Nasser H. Comment on: The long-term impact of bariatric surgery on psoriasis symptoms and severity: a prospective observational study. *Surg Obes Relat Dis* 2024; Epub ahead of print. PMID: 39242240. Full Text

Department of Surgery, Henry Ford Jackson Hospital, Jackson, Michigan.

Surgery
Pansuriya S, and Hain J. Malignant transformation of persistent perineal sinuses in two patients with Crohn's disease. *Surg Open Dig Adv* 2024; 16. PMID: Not assigned. Full Text

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Surgery
Simonetto DA, Winder GS, Connor AA, and Terrault NA. Liver transplantation for alcohol-associated liver disease. *Hepatology* 2024; Epub ahead of print. PMID: 38889100. Full Text

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Alcohol-associated liver disease (ALD) is a major cause of morbidity and mortality worldwide, and a leading indication for liver transplantation (LT) in many countries, including the United States. However, LT for ALD is a complex and evolving field with ethical, social, and medical challenges. Thus, it requires a multidisciplinary approach and individualized decision-making. Short-term and long-term patient and graft survival of patients undergoing LT for ALD are comparable to other indications, but there is a continued need to develop better tools to identify patients who may benefit from LT, improve the pretransplant and posttransplant management of ALD, and evaluate the impact of LT for ALD on the organ donation and transplantation systems. In this review, we summarize the current evidence on LT for ALD, from alcohol-associated hepatitis to decompensated alcohol-associated cirrhosis. We discuss the indications, criteria, outcomes, and controversies of LT for these conditions and highlight the knowledge gaps and research priorities in this field.

Surgery

Winder GS, **Gill V**, **Patel S**, **Asefa H**, and **Mellinger JL**. Expert and patient cognitive interviews in the development of a novel alcohol insight scale for use in hepatology and liver transplantation. *Gen Hosp Psychiatry* 2024; Epub ahead of print. PMID: 39317622. Full Text

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Urology

Boynton DN, Mirza M, Van Til M, **Butaney M**, Noyes SL, Seifman B, Jafri M, Ghani KR, **Rogers CG**, and Lane BR. Renal Mass Biopsy is Associated With Fewer Radical Nephrectomies for Benign or Indolent Disease, Particularly for T1b Renal Masses. *Urol Pract* 2024; Epub ahead of print. PMID: 39302182. Full Text

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INTRODUCTION: How renal mass biopsy (RMB) impacts patient management with T1 renal masses (T1RM) is unclear. We explore the association between RMB and utilization of active surveillance (AS), nephron-sparing interventions (NSI), and radical nephrectomy (RN). METHODS: Data were analyzed retrospectively using the MUSIC-KIDNEY registry. Treatment received was analyzed using a fitted mixed-effects multinomial logistic-regression model. RESULTS: Of 4062 patients, 19.6% underwent RMB. Factors associated with RMB included younger age, higher Charlson comorbidity score, tumor size > 2.0 cm and higher complexity tumors. AS was selected by 88%, 68%, and 27% of patients with benign, indeterminate, and malignant RMB findings. Non-malignant pathology at surgery was significantly ($P < .0001$) more common without RMB (vs after RMB): 14.8% vs 7.2% of PN and 10.2% vs 1.7% of RN. Patients with T1bRM managed without or with RMB, AS was chosen by 22% vs 34%, NSI by 31% vs 35%, and RN by 47% vs 32% ($P = .0027$). An interaction between tumor stage (T1a vs T1b) and RMB remained in multivariable analyses accounting for practice-level variation and other confounding variables. The risk-adjusted RN rate for T1bRM was 41.4% without RMB vs 27.8% with RMB; 7.4 RMB

are needed to avoid one RN (number needed to treat) for benign or indolent disease. CONCLUSIONS: Treatments received by T1RM patients undergoing RMB are different than when RMB is omitted, based on RMB results and several confounders. T1RM patients benefit from reduction in intervention for non-malignant disease, particularly when RN is planned. For every 7 biopsies of T1bRM performed, one RN was avoided.

Urology

Ditonno F, Franco A, Wu Z, Wang L, **Abdollah F**, Simone G, Correa AF, Ferro M, Perdonà S, Amparore D, Bhanvadia R, Brönimann S, Puri D, Mendiola DF, Ben-David R, Moon SC, Yong C, Moghaddam FS, Ghoreifi A, Bologna E, Licari LC, **Finati M**, Tuderti G, Helstrom E, Tozzi M, Tufano A, Rais-Bahrami S, Sundaram CP, Mehrazin R, Gonzalgo ML, Derweesh IH, Porpiglia F, Singla N, Margulis V, Antonelli A, Djaladat H, and Autorino R. Robot-assisted nephroureterectomy: surgical and mid-term oncological outcomes in over 1100 patients (ROBUUST 2.0 collaborative group). *BJU Int* 2024; Epub ahead of print. PMID: 39263834. Full Text

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OBJECTIVE: To analyse surgical, functional, and mid-term oncological outcomes of robot-assisted nephroureterectomy (RANU) in a contemporary large multi-institutional setting. PATIENTS AND METHODS: Data were retrieved from the ROBotic surgery for Upper tract Urothelial cancer STtudy (ROBUUST) 2.0 database, an international, multicentre registry encompassing data of patients with upper urinary tract urothelial carcinoma undergoing curative surgery between 2015 and 2022. The analysis included all consecutive patients undergoing RANU except those with missing data in predictors. Detailed surgical, pathological, and postoperative functional data were recorded and analysed. Oncological time-to-event outcomes were: recurrence-free survival (RFS), metastasis-free survival (MFS), cancer-specific survival (CSS), and overall survival (OS). Survival analysis was performed using the Kaplan-Meier method, with a 3-year cut-off. A multivariable Cox proportional hazard model was built to evaluate predictors of each oncological outcome. RESULTS: A total of 1118 patients underwent RANU during the study period. The postoperative complications rate was 14.1%; the positive surgical margin rate was 4.7%. A postoperative median (interquartile range) estimated glomerular filtration rate decrease of -13.1 (-27.5 to 0) mL/min/1.73 m(2) from baseline was observed. The 3-year RFS was 59% and the 3-year MFS was 76%, with a 3-year OS and CSS of 76% and 88%, respectively. Significant predictors of worse oncological outcomes were bladder-cuff excision, high-grade tumour, pathological T stage ≥3, and nodal involvement. CONCLUSIONS: The present study contributes to the growing body of evidence supporting the increasing adoption of RANU. The procedure consistently offers low surgical morbidity and can provide favourable mid-term oncological outcomes, mirroring those of open NU, even in non-organ-confined disease.

Urology

Finati M, **Corsi NJ**, **Stephens A**, **Chiarelli G**, **Cirulli GO**, **Davis M**, **Tinsley S**, Sood A, Buffi N, Lughezzani G, Salonia A, Briganti A, Montorsi F, Bettocchi C, Carrieri G, **Rogers C**, and **Abdollah F**. The Impact of Radical Prostatectomy Versus Radiation Therapy on Cancer-Specific Mortality for Nonmetastatic Prostate Cancer: Analysis of an Other-Cause Mortality Matched Cohort. *Clin Genitourin Cancer* 2024; 22(6):102201. PMID: 39243664. Full Text

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INTRODUCTION: Studies comparing radical prostatectomy (RP) to radiation therapy (RT) have consistently shown that patients undergoing RT have a higher risk of other-cause mortality (OCM) compared to RP, signifying poor health status of the former patients. We aimed to evaluate the impact of RP versus RT on cancer-specific mortality (CSM) over a cohort with equivalent OCM risk. PATIENTS AND METHODS: The SEER database was queried to identify patients with nonmetastatic PCa between 2004 and 2009. Patients were matched based on their calculated 10-year OCM risk and further stratified for D'Amico Risk Score and Gleason Grade. A Cox-regression model was used to calculate the 10-year OCM risk. Propensity-score based on the calculated OCM risk were used to match RP and RT patients. Cumulative incidence curves and Competing-risk regression analyses were used to examine the impact of treatment on CSM in the matched cohort. RESULTS: We identified 55,106 PCa patients treated with RP and 36,674 treated with RT. After match, 6,506 patients were equally distributed for RT versus RP, with no difference in OCM rates (P = .2). The 10-year CSM rates were 8.8% versus 0.6% (P = .01) for RT versus RP in patients with unfavorable-intermediate-risk (Gleason Score 4 + 3) and 7.9% versus 3.9% (P = .003) for high-risk disease. There was no difference in CSM among RT and RP patients for favorable-intermediate-risk (Gleason Score 3 + 4) and low-risk disease. CONCLUSIONS: In a matched cohort of PCa patients with comparable OCM between the 2 arms, RP yielded a more favorable CSM rate compared to RT only for unfavorable-intermediate- and high-risk groups.

Urology

Finati M, **Stephens A**, **Chiarelli G**, **Cirulli GO**, **Tinsley S**, **Wang Y**, Sood A, Buffi N, Lughezzani G, Salonia A, Briganti A, Montorsi F, Busetto GM, Carrieri G, **Rogers C**, and **Abdollah F**. Radical cystectomy versus trimodal therapy for muscle-invasive bladder cancer: Analysis of an other-cause mortality matched cohort. *Urol Oncol* 2024; Epub ahead of print. PMID: 39242301. Full Text

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OBJECTIVE: Comparative effectiveness studies comparing trimodal therapy (TMT) to radical cystectomy (RC) are typically hindered by selection bias where TMT is usually reserved to patients with poor overall health status. We developed a novel approach by matching patients based on their calculated other-cause mortality (OCM) risk. Using this homogeneous cohort, we tested the impact of TMT vs RC on cancer-specific mortality (CSM). MATERIALS AND METHODS: The Surveillance, Epidemiology and End Results (SEER) 2004-2018 database was queried to identify patients diagnosed with cT2-4N0M0 muscle-invasive bladder cancer (MIBC). A Fine-Gray competing-risk regression model calculating the 5-year OCM risk was used to create a 1:1 propensity-score matched-cohort of patients treated with RC or TMT. Cumulative incidence and competing-risk regression analyses tested the impact of treatment type (RC vs TMT) on CSM. Patients were further stratified according to clinical T stage (cT2 vs cT3-4) in sensitivity analyses. RESULTS: We identified 6,587 patients (76%) treated with RC and 2,057 (24%) with TMT. The median follow-up was 3.0 years. In the unmatched-cohort, 5-year OCM and CSM rates were 14% and 40% for RC vs 23% and 47% in TMT group, respectively (all $P < 0.001$). Our matched-cohort included 4,074 patients, equally distributed for treatment type, with no difference in 5-year OCM (HR: 0.98, 95% CI: 0.86-1.11, $P = 0.714$). In clinical-stage specific sensitivity analyses, 5-year CSM rate was significantly worse for cT2N0M0 patients treated with TMT (HR: 1.52, 95% CI: 1.21-1.91, $P < 0.001$) than those treated with RC. For cT3-4N0M0 patients, there was no difference in CSM among the 2 approaches (HR: 0.98, 95% CI: 0.63-1.52, $P = 0.900$). CONCLUSIONS: Our findings demonstrate an oncologic advantage of RC over TMT for cT2 MIBC patients. Conversely, we did not find a cancer-specific survival difference for cT3-T4 MIBC patients, regardless of treatment.

Urology

Hubbard L, **Rambhatla A**, and Colpi GM. Differentiation between nonobstructive azoospermia and obstructive azoospermia: then and now. *Asian J Androl* 2024; Epub ahead of print. PMID: 39268812. Full Text

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Male infertility has seen an increase in prevalence with cases of azoospermia estimated to affect 10%-15% of infertile men. Confirmation of azoospermia subsequently necessitates an early causal differentiation between obstructive azoospermia (OA) and nonobstructive azoospermia (NOA). Although less common when compared to NOA, OA can represent upward 20%-40% of cases of azoospermia. While there are a multitude of etiologies responsible for causing NOA and OA, correctly distinguishing between the two types of azoospermia has profound implications in managing the infertile male. This review represents an amalgamation of the current guidelines and literature which will supply the reproductive physician with a diagnostic armamentarium to properly distinguish between NOA and OA, therefore providing the best possible care to the infertile couple.

Urology

Hubbard L, **Rambhatla A**, and Glina S. Nonobstructive azoospermia: an etiologic review. *Asian J Androl* 2024; Epub ahead of print. PMID: 39243180. Full Text

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Azoospermia is the complete absence of spermatozoa in the ejaculate in two or more semen analyses after centrifugation. Nonobstructive azoospermia (NOA) represents the most severe form of male factor infertility accounting for 10%-15% of cases and stems from an impairment to spermatogenesis. Understanding of the hypothalamic-pituitary-testicular axis has allowed NOA to be subcategorized by anatomic and/or pathophysiologic level. The etiologies of NOA, and therefore, the differential diagnoses when considering NOA as a cause of male factor infertility, can be subcategorized and condensed into several distinct classifications. Etiologies of NOA include primary hypogonadism, secondary hypogonadism, defects in androgen synthesis and/or response, defective spermatogenesis and sperm maturation, or a mixed picture thereof. This review includes up-to-date clinical, diagnostic, cellular, and histologic features pertaining to the multitude of NOA etiologies. This in turn will provide a framework by which physicians practicing infertility can augment their clinical decision-making, patient counseling, thereby improving upon the management of men with NOA.

Urology

Katayama S, Pradere B, Grossman NC, Potretzke AM, Boorjian SA, Ghoreifi A, Daneshmand S, Djaladat H, Sfakianos JP, Mari A, Khene ZE, D'Andrea D, Hayakawa N, Fujita K, Heindenreich A, Raman JD, Roumiguié M, **Abdollah F**, Breda A, Fontana M, Rouprêt M, Margulis V, Karakiewicz PI, Araki M, Nasu Y, and Shariat SF. Clinical Significance of Tumor Location for Ureteroscopic Tumor Grading in Upper Tract Urothelial Carcinoma. *J Endourol* 2024; Epub ahead of print. PMID: 39264866. Full Text

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Background: Although previous literature shows tumor location as a prognostic factor in upper tract urothelial carcinoma (UTUC), there remains uninvestigated regarding the impact of tumor location on grade concordance and discrepancies between ureteroscopic (URS) biopsy and final radical nephroureterectomy (RNU) pathology. Methods: In this international study, we retrospectively reviewed the records of 1,498 patients with UTUC who underwent diagnostic URS with concomitant biopsy followed by RNU between 2005 and 2020. Tumor location was divided into four sections: the calyceal-pelvic system, proximal ureter, middle ureter, and distal ureter. Patients with multifocal tumors were excluded from the study. We performed multiple comparison tests and logistic regression analyses. Results: Overall, 1,154 patients were included; 54.4% of those with low-grade URS biopsies were upgraded on RNU. In the multiple comparison tests, middle ureter tumors exhibited the highest probability of upgrading, meanwhile pelvicalyceal tumors exhibited the lowest probability of upgrading (73.7% vs 48.5%, p = 0.007). Downgrading was comparable across all tumor locations. On multivariate analyses, middle ureteral location was significantly associated with a low probability of grade concordance (odds ratio [OR] 0.59; 95% confidence interval [CI], 0.35-1.00; p = 0.049) and an increased risk of upgrading (OR 2.80; 95% CI, 1.20-6.52; p = 0.017). The discordance did not vary regardless of caliceal location, including the lower calyx. Conclusions: Middle ureteral tumors diagnosed to be low grade had a high probability to be undergraded. Our data can inform providers and their patients regarding the likelihood of undergrading according to tumor location, facilitating patient counseling and shared decision making regarding the choice of kidney sparing vs RNU.

Urology

Shah R, **Rambhatla A**, and Kavoussi PK. Historical perspective of surgical sperm retrieval techniques for nonobstructive azoospermia. *Asian J Androl* 2024; Epub ahead of print. PMID: 39254421. Full Text

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Urology

Suleyman G, **Hussain B**, and **Dabaja AA**. Letter to the Editor: Use of Catheterization Algorithms to Manage Acute Urinary Retention; What is the Evidence? *Urology* 2024; Epub ahead of print. PMID: 39306304. Full Text

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Conference Abstracts

Administration
Jagannathan M, **Jordan T**, **Kinsey D**, **Kenney R**, **Veve M**, **Suleyman G**, and **Shallal A**. Characteristics, Treatment, and Outcomes of Invasive Group A Streptococcal Infections...The Society for Healthcare Epidemiology of America (SHEA) Spring Conference, April 16-19, 2024, Houston, Texas. *Antimicrob Steward Healthc Epidemiol* 2024; 4:s59-s60. Full Text

Henry Ford Hospital

Center for Health Policy and Health Services Research
Chaker A, **Rademacher A**, **Kagithala D**, **Telemi E**, **Kim E**, **Mansour T**, **Schultz LR**, **Hu J**, **Jafar Y**, **Easton M**, **Abdulhak M**, **Schwalb JM**, and **Chang V**. The impact of serum albumin levels on cervical spine surgery outcomes: a MSSIC study. *Spine J* 2024; 24(9):S171-S172. Full Text

BACKGROUND CONTEXT: Serum albumin, a marker of nutritional status, has been identified as a significant predictor of postoperative outcomes across various surgical fields. Patients with serum albumin levels < 3.5, indicative of poor nutritional status, are traditionally nutritionally optimized prior to undergoing operative intervention. However, there is a paucity of data regarding the outcomes of patients with albumin levels ranging between 3.5 to 4. PURPOSE: This study aims to determine if there is an association between albumin levels between 3.5 and 4 g/dL and postoperative outcomes in cervical spine surgery, and to determine if these patients may benefit from preoperative optimization. STUDY DESIGN/SETTING: N/A PATIENT SAMPLE: N/A OUTCOME MEASURES: N/A METHODS: A Michigan Spine Surgery Improvement Collaborative (MSSIC) database search was performed for cervical spine fusion surgeries between January 2020 and December 2022. 6,826 patients were analyzed retrospectively. Patients were grouped by preoperative serum albumin level: < 3.5 g/dL, 3.5–3.7 g/dL, 3.8–4 g/dL, and >4 g/dL. Measured postoperative outcomes included urinary retention, readmission within 30 and 90 days, surgical site infection (SSI), return to the operating room, dysphagia, and length of stay (LOS) ≥ 4 days. RESULTS: A total of 6,826 cervical fusion cases were included in the analysis. Multivariate analysis used cases with albumin >4 g/dL as the reference group. Urinary retention rates among albumin levels did not vary significantly from the reference group. Albumin < 3.5 g/dL was associated with increased readmission at 90 days (incidence rate ratio 1.72, CI [1.06-2.77], p=0.027), increased LOS > 4 days (IRR 1.39, CI [1.29-1.51], p< 0.001) and higher levels of dysphagia (IRR 1.78, CI [1.24-2.56], p = 0.002). Albumin 3.5-3.7 g/dL was associated with increased readmission at 90 days (IRR 1.92, CI [1.47-2.52], p< 0.001), increased readmission at 30 days (IRR 1.97, CI [1.28-3.03], p=0.002), and increased LOS > 4 days (IRR 1.31, CI [1.23-1.40], p< 0.001). Albumin 3.8-4 g/dL was associated with increased readmission at 90 days (IRR 1.35, CI [1.13-1.61], p=0.001), increased readmission at 30 days (IRR 1.40, CI [1.08-1.83], p=0.012), and increased LOS > 4 days (IRR 1.14, CI [1.09-1.20], p< 0.001). CONCLUSIONS: Albumin levels < 3.5 g/dL is the traditional cutoff for preoperative nutritional optimization. Albumin 3.5-3.7 g/dL and 3.8-4 g/dL had an increased risk of readmission at 90 days and increased LOS similar to albumin < 3.5 g/dL. This study suggests a higher albumin cutoff than 3.5 g/dL may be beneficial in limiting poor postoperative outcomes in cervical spine surgery. FDA Device/Drug Status: This abstract does not discuss or include any applicable devices or drugs.

Center for Health Policy and Health Services Research
Chaker A, **Rademacher A**, **Telemi E**, **Mansour T**, **Kagithala D**, **Hu J**, **Schultz LR**, **Brennan M**, **Easton M**, **Abdulhak M**, **Schwalb JM**, and **Chang V**. Impact of serum albumin levels on lumbar spine surgery outcomes: a Michigan State Surgery Improvement Collaborative study. *Spine J* 2024; 24(9):S21. Full Text

BACKGROUND CONTEXT: Serum albumin has been identified as a significant predictor of postoperative complications. Traditionally, patients with serum albumin levels < 3.5 g/dL are considered malnourished and are nutritionally optimized prior to surgery. However, there is a paucity of data regarding the outcomes of patients with albumin levels greater than 3.5 g/dL but less than 4.0 g/dL. PURPOSE: This study aims to examine whether patients with albumin levels between 3.5-4g/dL have an increased risk of complications and could benefit from nutritional optimization prior to lumbar spine surgery. STUDY DESIGN/SETTING: N/A PATIENT SAMPLE: N/A OUTCOME MEASURES: N/A METHODS: The

Michigan Spine Surgery Improvement Collaborative (MSSIC) database contained 15,629 lumbar fusion surgeries between January, 2020 and December, 2022. Patients were grouped based on serum albumin levels: < 3.5g/dL, 3.5-3.7g/dL, 3.8-4g/dL, and >4g/dL. Outcomes measured included urinary retention, surgical site infection (SSI), wound dehiscence, readmission within 30 and 90 days, return to OR, and length of stay (LOS) ≥4 days. Patients with albumin levels >4g/dL comprised the reference group. RESULTS: This study included a total of 15,393 lumbar cases. Albumin of < 3.5 g/dL was associated with an increased risk of urinary retention (Incidence Rate Ratio 1.40, CI [1.08-1.83], p=0.012), Surgical Site Infection (2.35 [1.71-3.23], p< 0.001), readmission at 30 days (1.87 [1.49-2.34], p< 0.001) and 90 days (1.95 [1.58-2.40], p< 0.001), return to OR (2.13 [1.65-2.75], p< 0.001), and LOS ≥4 days (1.32 [1.21-1.44], p< 0.001). Albumin of 3.5– 3.7 g/dL was associated with increased risk of readmission at 30 days (1.21 [1.001-1.45], p=0.048) and 90 days (1.28 [1.08-1.52], p=0.005), and LOS ≥4 days (1.22 [1.16-1.29], p< 0.001). Albumin of 3.8–4.0 g/dL was associated with an increased risk of LOS ≥4 days (1.08 [1.04-1.11], p< 0.001). CONCLUSIONS: Serum albumin of < 3.5 g/dL was strongly associated with increased complications and increased return to OR, length of stay, and 30- and 90-day readmissions in elective lumbar spine procedures. Levels of 3.5-3.7 g/dL had increased risk of readmission and LOS, whereas levels of 3.8-4.0 g/dL did not show increased risk. These findings suggest that a goal albumin of >3.7 g/dL may improve postoperative outcomes in elective lumbar spine surgery. FDA Device/Drug Status: This abstract does not discuss or include any applicable devices or drugs.

Center for Health Policy and Health Services Research

Kagithala D, **Chaker A**, **Melhem M**, **Abdulhak M**, **Hu J**, **Schultz LR**, **Schwalb JM**, **Mansour T**, **Telemi E**, **Rademacher A**, and **Chang V**. Single-staged versus multi-staged lumbar 360 fusion surgery: a Michigan Spine Surgery Improvement Collaborative (MSSIC) study. *Spine J* 2024; 24(9):S207. Full Text

BACKGROUND CONTEXT: Patients undergoing anterior/posterior lumbar fusion surgery can undergo either a single-stage or multi-stage operation depending on surgeon preference. There is limited evidence directly comparing outcomes between single- and multi-stage lumbar fusion surgery. PURPOSE: To assess differences in outcomes between patients who underwent single- versus multi-stage lumbar fusion procedures in a multi-center setting. STUDY DESIGN/SETTING: Not Applicable PATIENT SAMPLE: Not Applicable OUTCOME MEASURES: Not Applicable METHODS: The Michigan Spine Surgery Improvement Collaborative database was queried for lumbar fusion surgeries between July 2018 and January 2022. Patients who underwent single-stage and multi-stage procedures were included. Primary outcomes included postoperative complications and improvement in patient-reported outcomes (PROs) which include: NASS patient satisfaction, PROMIS Physical Function, and EQ-5D. Propensity matching was conducted followed by Poisson generalized estimating equation models for multivariate analyses. RESULTS: Following propensity matching, 355 patients underwent single-stage procedures and 355 patients underwent multi-stage procedures. Patients undergoing multi-stage procedures had more complications, less patient satisfaction after 1 year, and were less likely to experience improvement in back pain after 90 days and at 2 years (1.17[1.02-1.34, p = 0.026], 0.83[0.74-0.93, p < 0.001], 0.86[0.75-0.99, p = 0.039], and 0.76[0.60-0.96, p = 0.023], respectively). CONCLUSIONS: On a matched cohort of patients undergoing lumbar 360 fusion, we observed that patients who undergo a multi-stage approach have higher postoperative complication rates and lower patient satisfaction compared to those who underwent single-stage procedures. Our findings suggest that single-stage lumbar 360 fusion surgery is tolerated well, if not better, than the multi-staged approach. FDA Device/Drug Status: This abstract does not discuss or include any applicable devices or drugs.

Dermatology

Alexis A, Del Rosso J, Forman S, Calatayud A, Browning J, Laquer V, York JP, Chavda R, Dhawan S, Moore A, and **Stein-Gold L**. 51125 PATIENT EXIT INTERVIEWS ILLUSTRATE BENEFIT OF TRIFAROTENE ON ACNE-INDUCED PIGMENTARY PROBLEMS. *J Am Acad Dermatol* 2024; 91(3):AB274. Full Text

Background: Acne-induced post-inflammatory hyperpigmentation (PIH) is a common, long-lasting sequela of acne with a significant psychosocial impact. To assess its impact on sufferers, interviews were conducted in a phase IV study of trifarotene treatment of acne and PIH. Methods: Cross-sectional blinded qualitative interviews as a sub-study of a 6-month phase IV randomized controlled study of patients

(n=123) with acne and moderate-to-marked PIH treated with trifarotene or vehicle. Semi-structured interviews conducted by trained interviewers with patients (n=30, 18-34 y). Results: Patients had a mean age of 24.8 years, 73.3% had Fitzpatrick skin types IV-VI, and 40% (12/30) were treated with trifarotene. More than half (60%) rated their PIH severity at ≥7 at study entry, and 57% said PIH disturbed their daily life at a level of 7 (0=no disturbance to 10=worst disturbance). Improvement in PIH was reported by 100% of the trifarotene group vs 83% in the vehicle group and those in the trifarotene group had a greater reduction in self-reported PIH severity (-5.5 vs -3.5 vehicle). Patients reported lack of treatment success with prior treatments but noticeable improvements in uniformity of skin color during this study: “my skin got brighter, lighter, the dark spots have faded,” and “at first it was very, very noticeable … it just faded.” Other patients reported increased self-confidence and reduced reliance on makeup and lengthy cover-up daily routines. AEs were more common with vehicle vs trifarotene (30.2% vs 16.7%). Conclusions: Patients described noticeable and meaningful changes in the appearance of PIH and daily life impacts.

Dermatology
Alexis A, Schleicher S, Weiss J, Callender V, York JP, Chavda R, Cook Bolden FE, Bhatia N, Del Rosso J, and **Gold LS**. 53113 Trifarotene shown to improve acne and related sequelae (scars, pigmentation). *J Am Acad Dermatol* 2024; 91(3):AB94. Full Text

Background: Trifarotene belongs to a new generation of topical retinoids for acne. Data indicate multiple mechanisms through which trifarotene may interrupt acne pathogenesis and improve acne-related scarring and pigmentation. Acne sequelae impact patients’ lives and frequently outlast the causative acne lesion. Thus, treatment addressing both acne lesions and sequelae is likely to improve long-term outcomes. Methods: Two vehicle-controlled, 24-week phase 4 studies evaluated trifarotene treatment (with appropriate skin care regimen) and 1) atrophic acne scarring and 2) acne-related hyperpigmentation. The scarring study (Study 1) utilized a split-face design (N = 121) while the pigmentation study (Study 2) randomized patients 1:1 to active or vehicle arms (N = 123). Results: In study 1, trifarotene treatment resulted in significant improvement in scar counts, with differences from vehicle apparent as early as week 2 (W2) and progressively improving through W24. There was also a significant difference between trifarotene and vehicle in scar global assessment (SGA) success from W12 through W24. Study 2 enrolled a diverse population of patients with a range of skin tones. In study 2, trifarotene treatment accelerated pigment reduction at week 12 vs vehicle. Active and vehicle were similar at week 24. Although not a defined study endpoint, reduction in macular erythema was also observed. Trifarotene was well tolerated in both studies, with tolerability scores higher than vehicle but mild in severity. Conclusions: Management of atrophic acne scarring and hyperpigmentation is an important consideration in acne therapy. Trifarotene achieved rapid improvements in these acne sequelae along with efficacious acne control.

Dermatology
Alexis A, **Stein-Gold L**, Chavda R, York JP, Del Rosso J, and Weiss J. 53447 Phase IV studies show trifarotene is efficacious and suitable for broad range of patient types. *J Am Acad Dermatol* 2024; 91(3):AB70. Full Text

Background: Acne is highly visible andone of the most common skin diseases. Healthcare professionals should have a reliable first-line approach that is efficacious and suited for a broad range of patient skin types, ages, and demographics. Methods: Including the Phase 3 program, trifarotene has been studied in thousands of acne subjects in clinical trials. Most recently two vehicle-controlled, 24-week phase 4 studies evaluated trifarotene treatment of acne and 1) atrophic acne scarring (4-1) and 2) acne-related hyperpigmentation (4-2). The scarring study 4-1) utilized a split-face design (N = 121) while the pigmentation study (Phase4-2) randomized subjects 1:1 to active or vehicle arms (N = 123). Results: The studies were international, with men and women in the studies ranging from 9 to 58 years of age. The phase 3 studies were majority White, but included substantial diversity, including 74 Black/African-American and 195 Latino subjects treated with trifarotene. In 4-2 <50% of subjects were White. Additionally, 30.6% of subjects in 4-1 and 61.7% of subjects in 4-2 had type IV-VI skin. Approximately 35% of subjects in 4-1 and 2 identified as Hispanic/Latino. In Study 2, 18.2% of subjects in the trifarotene group were Asian. In all studies, trifarotene was significantly superior to vehicle in improving acne. In 4-1, trifarotene rapidly improved atrophic acne scars and in 4-2 trifarotene reduced hyperpigmentation. In all

studies, trifarotene had a positive risk/benefit ratio. Conclusions: Across a broad range of subject types, trifarotene had good efficacy for improving acne, atrophic scars, and hyperpigmentation, and safety.

Dermatology
Armstrong AW, Eichenfield LF, Lee LW, Brar KK, Joyce JC, Forman SB, Soong W, Sofen H, Angel B, Li Q, and **Stein Gold LF**. 54147 Efficacy of Ruxolitinib Cream for Treatment of Atopic Dermatitis in Children Aged 2–<12 Years by Baseline Clinical Characteristics: Subgroup Analysis From a Randomized Phase 3 Study (TRuE-AD3). *J Am Acad Dermatol* 2024; 91(3):AB199. Full Text

Background: Atopic dermatitis (AD), a highly pruritic inflammatory skin disease, typically begins in childhood and affects up to 23% of children globally. Ruxolitinib cream was effective and well tolerated in adults/adolescents (TRuE-AD1/TRuE-AD2 [NCT03745638/NCT03745651]) and children 2–<12 years old (y/o; TRuE-AD3 [NCT04921969]). Here, efficacy by baseline clinical characteristics in children 2–<12 y/o enrolled in TRuE-AD3 is reported. Methods: Patients 2–<12 y/o with AD for ≥3 months, Investigator's Global Assessment (IGA) score of 2/3, and 3%–20% affected body surface area (BSA) were randomized (2:2:1) to apply twice-daily ruxolitinib cream (0.75%/1.5%) or vehicle for 8 weeks. Results: Patients 2–<12 y/o (N=330) had a median (range) age of 6 (2–11) years; AD duration, 4.8 (0.3–11.3) years; mean (SD) affected BSA was 10.5% (5.40%). At Week 8, 49/134 (36.6%) children applying 0.75% ruxolitinib cream and 74/131 (56.5%) applying 1.5% ruxolitinib cream vs 7/65 (10.8%) applying vehicle achieved IGA treatment success (IGA-TS; score 0/1 with ≥2-grade improvement from baseline); 69/134 (51.5%) and 88/131 (67.2%) vs 10/65 (15.4%) achieved ≥75% improvement in Eczema Area and Severity Index (EASI75), respectively. IGA-TS was observed regardless of baseline AD severity measure. For IGA-TS: IGA score of 2 and 3, 32.3%/48.4% vs 0% and 37.9%/59.0% vs 14.3%, respectively; EASI score ≤7 and >7, 41.7%/58.8% vs 17.2% and 30.6%/55.0% vs 5.6%. Ruxolitinib cream was well tolerated; no serious treatment-emergent adverse events were reported. Conclusions: Ruxolitinib cream is a well-tolerated and effective treatment for AD in children 2–<12 y/o, independent of baseline clinical characteristics.

Dermatology
Bardhi R, **Mokhtari M**, **Masood M**, **Hamzavi I**, and **Kohli I**. 54396 Ultrasound Mapping for Carbon Dioxide Surgery in Hidradenitis Suppurativa. *J Am Acad Dermatol* 2024; 91(3):AB348. Full Text

Introduction: High frequency ultrasound (HFU) has been shown to be useful for Hidradenitis Suppurativa (HS) evaluation along with physical examination.1 Sonographic features of HS include dermal thickening, widening of hair follicles, anechoic or hypoechoic fluid deposits and fistulous tracts.2,3 Pre-surgical margin mapping with HFU, prior to CO2 laser surgery – an effective treatment for HS, may reduce recurrence rates; however, there is little existing literature on margin mapping methodology.4 Methods: This work describes methodology for HFU margin mapping of HS lesions prior to CO2 laser surgery. Results: Unlike traditional US imaging, skin imaging requires utilization of transducers with high frequency (15 MHz and above). A 1-2 mm gel bed is required for better visualization of changes in superficial features.5 For margin mapping, dermal thickening was found to be the most relevant HFU feature of HS. Skin marker was used to mark the border at the transition point between normal and thickened dermis every 1-2 cm around the HS lesion to demarcate the area of excision. Isolated lesions within 2-3 cm on the surrounding skin were evaluated for the presence of any sinus tracts connecting them to the main lesion as that would impact the area to be excised. Conclusion: Change in dermal thickening was the most pertinent HFU feature of HS when performing preoperative margin mapping. Future studies are needed to evaluate if preoperative margin mapping of HS lesions with HFU correlates with lower recurrence rates.

Dermatology
Bechara FG, Sayed C, Goldberg S, Szepietowski JC, Guillem P, **Hamzavi I**, Dokhe P, Joshi P, Rolleri R, Davis L, and van der Zee HH. 52726 Bimekizumab impact on concomitant rescue interventions in patients with moderate to severe hidradenitis suppurativa in BE HEARD I & II. *J Am Acad Dermatol* 2024; 91(3):AB143. Full Text

Introduction: Hidradenitis suppurativa (HS), a chronic, systemic inflammatory skin disease characterized by deep, painful, and difficult-to-treat lesions, often requires rescue interventions alongside conventional

treatment.[1] Here, we investigate the impact of bimekizumab (BKZ), a monoclonal IgG1 antibody that inhibits interleukin (IL)-17F and IL-17A, on the need for concomitant rescue interventions in patients with moderate to severe HS. Methods: We report pooled, post hoc analysis from the initial treatment period (Weeks 0–16) of the BE HEARD I&II trials.[2,3] Adult patients with moderate to severe HS were randomized to BKZ (320mg every 2 weeks [Q2W] or Q4W) or placebo (PBO). The incidence of concomitant rescue interventions for HS, including medical (antibiotics, analgesics) and procedural (incision/drainage, intralesional triamcinolone injection), and time to first procedural intervention, are reported. Results: Overall, 1,014 patients were randomized to BKZ (n=868) or PBO (n=146) across BE HEARD I&II. In BKZ-treated and PBO-treated patients, 4.1% (n=36) and 8.9% (n=13) received ≥1 rescue analgesic; 4.0% (n=35) and 5.5% (n=8), received ≥1 rescue systemic antibiotic. Incidence of ≥1 incision/drainage intervention was 2.1% (n=18) in BKZ-treated and 3.4% (n=5) in PBO-treated patients; 1.6% BKZ-treated (n=14) and 3.4% PBO-treated (n=5) received ≥1 intralesional triamcinolone injection. Time to first procedural intervention was 65.3±36.2 (mean days±standard deviation) in BKZ-treated and 30.4±17.0 in PBO-treated patients. Conclusions: Over 16 weeks, the incidence of concomitant interventions for HS was low in BKZ-treated patients; low levels of rescue analgesic use in BKZ-treated patients may indicate reduced pain burden. Time to first procedure was numerically longer for BKZ- versus PBO-treated patients.

Dermatology

Bhatia N, Cook-Bolden F, DuBois J, Ferris L, **Gold LS**, Turchin I, Zirwas M, Krupa D, Burnett P, Berk DR, and Chu DH. 53894 Roflumilast foam 0.3% once daily in patients with seborrheic dermatitis: Improvement in patient reported outcomes and pruritus from a phase 3 trial (STRATUM). *J Am Acad Dermatol* 2024; 91(3):AB304. Full Text

Roflumilast is a nonsteroidal, highly potent phosphodiesterase 4 inhibitor developed as once-daily cream and foam formulations being studied in patients for long-term treatment of atopic dermatitis and seborrheic dermatitis (SD). Roflumilast cream 0.3% is approved as a once-daily, nonsteroidal cream for patients with chronic plaque psoriasis, including sensitive areas such as intertriginous, face, and genital areas. Efficacy and safety of once-daily roflumilast foam 0.3% in patients ≥9 years old with at least moderate SD from this phase 3 randomized controlled trial (NCT04973228) were reported previously. Roflumilast foam 0.3% (n=304) demonstrated statistically significant improvements in efficacy compared with vehicle (n=153) with low rates of adverse events, which were similar between treatment groups. Here we report the patient-reported outcomes: Worst Itch Numeric Rating Scale (WI-NRS), Scalpdex, and Dermatology Life Quality Index (DLQI)/Children's DLQI (CDLQI), and local tolerability. Among patients with baseline WI-NRS score ≥2, more roflumilast-treated than vehicle-treated achieved WI-NRS score 0/1 at Week 8 (70.7% vs. 52.9%; P=0.0085), with improvements in itch compared to vehicle as early as 48 hours after first treatment (mean percent change from baseline [CfB]: -27.87% vs. -13.11%; nominal P=0.0024). Roflumilast-treated patients reported greater improvements in least squares (LS) mean CfB DLQI score (-3.8 vs. -2.7; nominal P<0.001), while those with scalp involvement, had greater improvements in LS mean CfB Scalpdex score (-23.21 vs. -15.42; nominal P<0.001) at Week 8. Local tolerability and safety were favorable. Treatment with once-daily roflumilast foam 0.3% reduced pruritus and improved quality of life with favorable tolerability. Sponsored by Arcutis Biotherapeutics, Inc.

Dermatology

Bissonnette R, **Gold LS**, Kircik L, Eichenfield LF, Chih-Ho Hong H, Papp KA, Tallman AM, Piscitelli SC, Rubenstein DS, Brown PM, and Silverberg JI. 53928 Tapinarof Cream 1% Once Daily: Interim Analysis of ADORING 3 Phase 3 Long-term Extension Trial in Adults and Children Down to 2 Years of Age with Atopic Dermatitis. *J Am Acad Dermatol* 2024; 91(3):AB88. Full Text

Tapinarof cream 1% once daily (QD) demonstrated significant efficacy versus vehicle and was well-tolerated in adults and children down to 2 years of age with moderate to severe atopic dermatitis (AD) in two pivotal phase 3 trials (ADORING 1 and 2). Here, we present baseline characteristics and outcomes from the prespecified interim analysis of ADORING 3, the long-term extension trial assessing safety and efficacy of up to 48-weeks' open-label tapinarof. 728 patients enrolled in ADORING 3, representing a large, diverse AD population comprising a high proportion (91%) of eligible patients from the pivotal ADORING trials, 28 patients from a 4-week maximal usage pharmacokinetic trial, and an additional 76

tapinarof-naive patients aged 2-17 years with various disease severities (mild; or moderate or worse with body surface area [BSA] ≥40%), who were ineligible for preceding trials. The majority of patients in ADORING 3 were pediatric; 26.6% were aged 2-6 years; 27.1% 7-11 years; 29.3% 12-17 years; and 17.0% were adults. Overall, 46.6% were male, 52.6% White, 11.1% Asian, 30.1% Black/African American, and 4.4% other race categories. Patients with AD present different phenotypes and treatment responses. A high proportion of primarily pediatric patients elected to rollover from previous trials, and the diverse population enrolled in ADORING 3 is representative across the broad spectrum of disease severity, BSA affected (up to 95%), and demographics. No new safety signals were reported with long-term treatment in this interim analysis. The full analysis in 2024 will report further safety and efficacy data with tapinarof cream 1% QD.

Dermatology

Dermer S, Considine C, Badal K, and **Gold LS**. 50584 Online Continuing Medical Education Improved Dermatologists' Knowledge, Competence, and Confidence About New Topical Treatments for Psoriasis. *J Am Acad Dermatol* 2024; 91(3):AB268. Full Text

Introduction: New topical treatments were recently FDA approved for patients with plaque psoriasis. This study was designed to assess the effect of education on knowledge, competence, and confidence regarding new topical psoriasis treatments. Methods: Dermatologists (n= 76) participated in an online CME activity that featured video with synchronized slides. A repeated-pair design with pre/post-assessment including 3 multiple choice questions that assessed knowledge or competence and one confidence assessment question assess effectiveness, with each participant serving as his/her own control. A McNemar's test was conducted to assess question level statistical significance (P <.05). The activity launched 3/10/23 and data were collected approximately 60 days post-launch. Data are presented as %improved (%pre/%post) correct responses. Results are presented by learning theme. New Topical Psoriasis Treatments: • 11% improved (58%/54%; P = NS) change in knowledge regarding calcipotriene/ betamethasone data • 34% increase in confidence in identifying patients who would benefit from new topical psoriasis treatments Psoriasis in Sensitive Areas: • 18% (49%/63%) increase in knowledge about the suitability of roflumilast in difficult to treat areas Psoriasis in Patients with Skin of Color: • 18% improved (53%/67%) competence in counseling patients with diverse skin tones on pigmentary changes associated with healing psoriasis. Discussion: Online CME resulted in improved knowledge, competence, and confidence among dermatologists regarding new topical psoriasis treatments. Baseline and post-education results suggest that there are remaining gaps regarding new topical treatments, managing psoriasis in difficult areas, and in treating psoriasis in patients with diverse skin tones.

Dermatology

Eichenfield LF, Soong W, **Stein Gold LF**, Simpson EL, Holland KE, Brar KK, Lee LW, Kallender H, Sturm D, Li Q, and Zaenglen AL. 54214 Efficacy of Ruxolitinib Cream for the Treatment of Atopic Dermatitis in Children Aged 2–<12 Years by Previous Medication History: Subgroup Analysis From the Randomized, Phase 3 TRuE-AD3 Study. *J Am Acad Dermatol* 2024; 91(3):AB38. Full Text

Background: Atopic dermatitis (AD), a highly pruritic inflammatory skin disease, typically develops in childhood and affects up to 23% of children globally. Ruxolitinib cream was effective and well tolerated in adults/adolescents and children (TRuE-AD1/TRuE-AD2/TRuE-AD3; NCT03745638/NCT03745651/NCT04921969); findings were similar regardless of age. Here we report ruxolitinib cream efficacy by previous medication history in children from the phase 3 TRuE-AD3 study. Methods: Patients aged 2–<12 years with AD ≥3 months, Investigator's Global Assessment (IGA) score of 2/3, and 3%–20% affected body surface area (BSA) were randomized (2:2:1) to apply twice-daily ruxolitinib cream (0.75%/1.5%) or vehicle for 8 weeks. Primary endpoint was IGA treatment success ([IGA-TS]; score 0/1 with ≥2-grade improvement from baseline) at Week 8. Results: 330 patients were randomized; median (range) age, 6 (2–11) years; mean (SD) BSA, 10.5% (5.40%); 67.3% received AD therapy in the previous 12 months, including topical corticosteroids (TCS; 63.0%), topical calcineurin inhibitors (TCI; 7.3%), and systemic therapies (2.4%). Prior therapies were mainly discontinued for reported lack of efficacy or to comply with study washout periods. IGA-TS at Week 8 was achieved by significantly more patients applying 0.75%/1.5% ruxolitinib cream (36.6%/56.5%) vs vehicle (10.8%; P≤0.0001). IGA-TS rates were higher for 0.75%/1.5% ruxolitinib cream vs vehicle for patients with prior

AD therapy (40.7%/54.4% vs 10.9%; P<0.001/TCS [41.0%/54.9% vs 11.6%; P<0.001]/TCI [50.0%/45.5% vs 14.3%]/systemic therapies [50.0%/50.0% vs 0.0%]) or without prior AD therapy (29.2%/61.0% vs 10.5%; P<0.001, 1.5% ruxolitinib cream vs vehicle). Conclusions: Ruxolitinib cream demonstrated efficacy in children with AD, regardless of previous topical or systemic therapy.

Dermatology
Ezzedine K, Soliman AM, Camp HS, Ladd MK, Pokrzywinski R, Sen R, Schlosser BJ, Bae JM, and **Hamzavi I**. 51626 Psychometric Properties of the Vitiligo Noticeability Scale (VNS) Using Data From a Phase 2 Upadacitinib Study in Adults With Nonsegmental Vitiligo. *J Am Acad Dermatol* 2024; 91(3):AB75. Full Text

Vitiligo Noticeability Scale (VNS) is a patient-reported outcome assessing noticeability in patients with vitiligo. Using data from a phase 2, randomized, double-blind, placebo-controlled, study with upadacitinib (NCT04927975), the test-retest reliability, validity, and responsiveness of the VNS were assessed. Randomized patients received once-daily upadacitinib (6, 11, or 22 mg) or placebo for 24 weeks. Between weeks 4 and 8, patients with clinically stable disease, defined as no change in vitiligo based on Total-Patient Global Vitiligo Assessment (T-PaGVA; n=115), showed excellent agreement between VNS scores (concordance percentage: 79.1%, Gwet AC1 0.77), reflecting VNS test-retest reliability. Similarly, there was excellent agreement between VNS scores when clinically stable disease was defined as no change in vitiligo based on Face-PaGVA (F-PaGVA; n=110; concordance percentage: 80.9%, Gwet AC1 0.79). Construct validity examined at week 24 showed that VNS had a significant but weak correlation with F-PaGVA and T-PaGVA, (Spearman's r: −0.21, −0.2 respectively, both P<0.05). VNS response distributions were significantly different between patients showing improvements vs those with no improvements on patient global impression of change (PaGIC), T-PaGVA, and F-PaGVA scores reflecting VNS responsiveness (each P<.05). When VNS response was defined as "a lot less noticeable" or "no longer noticeable" at week 24, significantly higher proportions of clinical responders achieved VNS response compared with nonresponders (F-VASI 50: 10.9% vs 0%; F-VASI 75: 16.7% vs 1.4%; and T-VASI 50: 27.3% vs 1.3%; all P<.001). These results indicate that VNS is a valid and reliable measure, can differentiate between clinically distinct groups, and responds to improvements in vitiligo.

Dermatology
Gold LS, Augustin M, Sofen H, Gisondi P, Jardon S, Reddy J, Zou H, and Duffin KC. 51480 Efficacy of apremilast in adults with mild-to-moderate plaque psoriasis with scalp involvement: Pooled data from PROMINENT, ADVANCE, and EMBRACE trials. *J Am Acad Dermatol* 2024; 91(3):AB198. Full Text

Background: Plaque psoriasis (PsO) with scalp involvement occurs in 65-80% of PsO (1,2), yet most patients are dissatisfied with scalp topical therapies (3,4). Apremilast, an oral immunomodulating phosphodiesterase-4 inhibitor approved for PsO, has demonstrated efficacy in a placebo-controlled RCT involving moderate-to-severe PsO with scalp involvement (5). In patients with limited skin involvement, scalp involvement exacerbates PsO burden. Here, findings from a pooled analysis of apremilast efficacy data are presented. Methods: Data from PROMINENT (6), ADVANCE (7) and EMBRACE (8) patients with baseline body surface area (BSA) <10%, baseline Scalp Physician Global Assessment (ScPGA) ≥2, and ≥1 post-baseline ScPGA value were pooled. Outcomes were achievement of ScPGA response (clear/almost clear [0/1]), static Physician Global Assessment (sPGA) score cleared/minimal (0/1) with ≥2-grade improvement (sPGA response), ≥75% BSA improvement (BSA-75), Psoriasis Area and Severity Index score <3 (PASI<3), and ≥4-point reduction in the patient-reported outcome (PRO) of Dermatology Life Quality Index (DLQI) score at 16 weeks. Results: Pooled data from 548 patients (apremilast: 336; placebo: 212) showed mean baseline ScPGA and sPGA of 2.7 and 2.6, respectively, in each treatment group. A significantly higher proportion of patients achieved ScPGA response with apremilast than placebo (46.7% vs 19.8%; P<0.0001) at 16 weeks. sPGA, BSA-75, and PASI<3 skin responses significantly improved with apremilast vs placebo (23.8% vs 6.9%; 26.8% vs 7.1%; 53.9% vs 18.9%, respectively, P<0.0001). DLQI score significantly improved with apremilast vs placebo (61.1% vs 31.2%; P<0.0001). Conclusions: Apremilast demonstrated consistent significant efficacy and PRO improvement in PsO patients with scalp and limited skin involvement at 16 weeks.

Dermatology

Gold LS, Banerjee S, Colombo MJ, Kisa RM, Berger V, Hoyt K, Soung J, Torres T, Bhatia N, Glick BP, and Kaufmann MD. 51091 Deucravacitinib, an oral, selective, allosteric tyrosine kinase 2 inhibitor, in plaque psoriasis: 3-year Psoriasis Area and Severity Index (PASI) outcomes in the long-term extension of the phase 3 POETYK PSO-1 and PSO-2 trials. *J Am Acad Dermatol* 2024; 91(3):AB31. Full Text

Introduction: Deucravacitinib is approved in the US, EU, and other countries for the treatment of adults with moderate-to-severe plaque psoriasis who are candidates for systemic therapy. Deucravacitinib was efficacious and well-tolerated in the global, 52-week, phase 3 POETYK PSO-1 (NCT03624127) and PSO-2 (NCT03611751) trials.[1,2] Methods: Patients were randomized 1:2:1 to oral placebo, deucravacitinib 6 mg once daily, or apremilast 30 mg twice daily. At Week 52, patients could enroll in the POETYK long-term extension (NCT04036435) trial and receive open-label deucravacitinib. Efficacy was evaluated in patients (n=513) who received continuous deucravacitinib from Day 1 of the parent trials for up to 3 years (Week 148), as of the data cutoff (June 15, 2022). Outcomes included mean change from baseline PASI, analyzed using modified baseline observation carried forward, and proportions of patients achieving treat-to-target absolute PASI thresholds. Results: From a mean (SD) baseline PASI score of 21.1 (7.9), improvements were observed beginning at Week 1 (mean change, −3.2 [4.9]) through Week 16 (−15.7 [9.0]), further improved through Week 52 (−17.6 [8.0]), and maintained through Week 148 (−16.4 [8.7]). Proportions of patients achieving 75%-80% reduction from baseline in PASI (75<80), 80<85, 85<90, 90<95, and 95<100, treat-to-target absolute PASI thresholds of ≤1, ≤2, ≤3, ≤4, and ≤5, and absolute PASI of >1 to ≤3 and >3 to ≤5 were increased/maintained from Week 16 through Week 52 and subsequently through Week 148. Conclusion: Efficacy outcomes in PASI scores and at treat-to-target thresholds were clinically meaningful through 3 years of continuous deucravacitinib treatment.

Dermatology

Gold LS, Del Rosso J, Ehst BD, Zirwas MJ, Green LJ, Brown PM, Tallman AM, Rubenstein DS, and Piscitelli SC. 53949 Tapinarof Cream 1% Once Daily was Well Tolerated for the Treatment of Adults and Children Down to 2 Years of Age with Moderate to Severe Atopic Dermatitis Across Two Pivotal Phase 3 Trials. *J Am Acad Dermatol* 2024; 91(3):AB321. Full Text

Tapinarof cream 1% once daily (QD) demonstrated significant efficacy versus vehicle in adults and children down to 2 years of age with moderate to severe atopic dermatitis (AD) in the pivotal phase 3 ADORING 1 and 2 trials. Here, we report local tolerability results for tapinarof cream. In ADORING 1 and 2, patients were randomized 2:1 to tapinarof cream or vehicle QD for 8 weeks. Tolerability was evaluated using patient- and investigator-assessed Local Tolerability Scale (LTS) scores on a 5-point scale (range 0-4; 0=none to 4=severe). Investigators also assessed irritation scores for sensitive/intertriginous skin areas. 407 and 406 patients (>80% aged <18 years) were randomized. Mean baseline, pre-treatment LTS scores were similar in tapinarof and vehicle groups across trials (patient-assessed overall scores, 1.0-1.9; investigator-assessed overall scores, 0.3-0.6). Tapinarof was well tolerated with patients reporting none (LTS=0) or slight (LTS=1) local burning/stinging and itching, with improvement from baseline. At Week 8, mean LTS scores with tapinarof cream were 0.2-0.4 (burning/stinging) and 0.6-0.8 (itching) across trials. Investigator-assessed mean LTS scores across tapinarof groups also showed no irritation (dryness/erythema/peeling) with improvement from baseline at Week 8: mean scores were 0.2 and 0.1 in ADORING 1 and 2, respectively. Across sensitive and intertriginous areas, mean scores were 0-0.3 and 0-0.1. Tapinarof cream 1% QD had favorable patient- or investigator-assessed local tolerability, including on sensitive and intertriginous skin, in adults and children down to 2 years of age with moderate to severe AD. Improvements from baseline with tapinarof were possibly due to skin barrier repair.

Dermatology

Gold LS, Lain E, Han G, and Jacobson A. 53779 Fixed-Combination Halobetasol Propionate 0.01%/Tazarotene 0.045% and Halobetasol Propionate 0.01% Lotions for Plaque Psoriasis on Lower Extremities With Body Hair. *J Am Acad Dermatol* 2024; 91(3):AB217. Full Text

Background: Fixed-combination halobetasol propionate 0.01%/tazarotene 0.045% (HP/TAZ) and HP 0.01% lotions are indicated for plaque psoriasis in adults. The efficacy and safety of HP/TAZ and HP in hair-bearing areas are not well understood. This post hoc analysis of pivotal phase 3 trials of participants

with moderate-to-severe plaque psoriasis evaluated a subgroup of males with target plaques on the leg. Methods: Participants applied HP/TAZ (n=276) or vehicle (n=142 [NCT02462122, NCT02462070]); or HP (n=285) or vehicle (n=145 [NCT02514577, NCT02515097]) once daily for 8 weeks and were assessed at weeks 2, 4, 6, 8, and 12. Endpoints included treatment success (≥2-grade improvement from baseline in investigator's global assessment [IGA] and IGA score of 0 or 1); treatment success of target lesion (≥2 grade improvement from baseline score in erythema, scaling, and plaque elevation); and safety. Results: Rates of treatment success were significantly greater at weeks 4 through 12 for HP/TAZ (n=87) and HP (n=91) vs vehicle (n=50 and 48, respectively; P≤0.01 for both HP/TAZ and HP vs vehicle). Target plaques receiving either HP/TAZ or HP vs placebo exhibited significantly higher rates of treatment success of erythema, scaling, and elevation at weeks 4 through 8 (P<0.05 for both HP/TAZ and HP vs vehicle). Forty two and 19 participants reported treatment-emergent adverse events in HP/TAZ- and HP-treated groups, respectively. Conclusions: This post hoc analysis demonstrates that HP/TAZ and HP lotions are effective and safe at treating plaque psoriasis of the leg on males, a body area historically difficult to treat due to the presence of hair.

Dermatology
Gold LS, Schuttelaar ML, Prajapati VH, Homey B, Strowd L, Dossenbach M, Liu C, Zhong J, Pierce E, Agell H, and Silvestre JF. 50351 Lebrikizumab maintains clinically meaningful outcomes with treatment administered every 4 weeks in adult and adolescent patients with moderate-to-severe atopic dermatitis. *J Am Acad Dermatol* 2024; 91(3):AB58. Full Text

Lebrikizumab (LEB) demonstrated superiority vs. placebo in patients with moderate-to-severe atopic dermatitis (AD) at weeks 4 and 16 of ADvocate1 (NCT04146363) and ADvocate2 (NCT04178967). At week 16, patients meeting the protocol-defined response were rerandomized 2:2:1 to receive LEB every 2 weeks (LEBQ2W), LEB every 4 weeks (LEBQ4W), or placebo. In week 16 responders continuing treatment with LEB, approximately 80% maintained a 75% improvement in the Eczema Area and Severity Index (EASI 75) and 84% maintained ≥4-point improvement in the Pruritus Numeric Rating Scale (NRS) at week 52. This Kaplan-Meier curve analysis demonstrates the continuous maintenance of a composite endpoint (defined as maintaining either an absolute EASI score of ≤7 or a Pruritus NRS score of ≤4) for 36 weeks following dose switch from LEBQ2W to LEBQ4W. Patients maintaining the composite endpoint and entering the long-term extension study without an event were censored when the last patient completed the maintenance period or at the date of their last visit. Patients receiving systemic rescue before losing the composite endpoint were censored at the date of rescue. At week 16, 98% (116/118) of LEB responders rerandomized to LEBQ4W had met the composite endpoint. Demographics and baseline disease characteristics were similar to the overall study population. At week 52, 91% of patients treated with LEBQ4W continued to maintain either EASI≤7 or Pruritus NRS≤4. Patients with moderate-to-severe AD who switch to LEBQ4W after successful induction treatment with LEBQ2W continue to maintain a high level of skin and itch response at week 52.

Dermatology
Gold LS, Tanghetti E, Lain E, Murina A, and Jacobson A. 53803 Early and Sustained Efficacy of Fixed-Combination Halobetasol Propionate and Tazarotene Lotion in Participants with Moderate-to-Severe Scaling or Plaque Elevation. *J Am Acad Dermatol* 2024; 91(3):AB189. Full Text

Background: Hyperkeratotic psoriasis produces plaques with extensive elevation and scaling and may be challenging to treat. Tazarotene-induced gene modulation may normalize the keratinocyte differentiation observed in psoriasis. This post hoc analysis of two phase 3 trials of fixed-combination halobetasol propionate (0.01%) and tazarotene (0.045%) lotion (HP/TAZ) reports skin clearance as measured by the product of the Investigator's Global Assessment and affected body surface area (IGA×BSA) in participants with moderate-to-severe scaling or plaque elevation. Methods: Participants were randomized to once-daily HP/TAZ or vehicle lotion and evaluated at weeks 2 through 8 with post-treatment follow-up at week 12. Moderate-to-severe elevation or scaling was defined as baseline target plaque score of 3 (moderate) or 4 (severe) on a 0-to-4 scale. Outcomes included rate of ≥75% improvement from baseline in IGA×BSA (IGA×BSA-75; correlates with ≥75% improvement in the Psoriasis Area and Severity Index) and percent change from baseline in IGA×BSA. Results: Participants with moderate-to-severe scaling receiving HP/TAZ (N=240) achieved significantly greater rates of IGA×BSA-75 compared with vehicle

(N=120), starting at week 2 (P=0.019) and sustained through week 12 (P<0.001). Additionally, significant improvements in percent change in IGA×BSA from baseline were observed as early as week 2 through week 12 (P<0.001, all time points). Similar significant improvements were observed in participants with moderate-to-severe plaque elevation receiving HP/TAZ (N=246) compared with vehicle (N=128). Conclusions: HP/TAZ was associated with clinically meaningful, early, and sustained skin clearance in participants with hyperkeratotic psoriasis, as defined by moderate to severe scaling or plaque elevation, which is often difficult to treat.

Dermatology
Gold LS, Thaci D, Katoh N, Shi V, Irvine A, Buziqui Piruzeli ML, Montmayeur S, Gallo G, and de Bruin-Weller M. 52041 Safety of lebrikizumab in adults and adolescents with moderate-to-severe atopic dermatitis: integrated analysis from 10 clinical trials. *J Am Acad Dermatol* 2024; 91(3):AB307. Full Text

Background: We provide updated lebrikizumab long-term safety in adults and adolescents with moderate-to-severe atopic dermatitis. Methods: Integrated data from 10 phase 2/3 clinical trials, including Japan (ADhere-J) and vaccine (ADopt-VA) studies with 4 months of additional data from our previous report[1] were summarized in 2 datasets: All-placebo-controlled Week 0-16 ([All-PC], lebrikizumab 250mg every 2 weeks [Q2W] vs placebo) and All-LEB (patients who received any dose of lebrikizumab any time during the studies). Adjusted percentages and exposure-adjusted incidence rates (IR)/100 patient-years are provided for All-PC; crude rates for All LEB. Results: This analysis provides an additional 475 patients (N=2195) and 634 (total=2271) patient-years (All-LEB) from our previous report[1]. In All-PC, the frequency of treatment emergent adverse events (TEAEs) was similar between treatment groups; most were nonserious and mild/moderate in severity. The most frequently reported TEAEs in All-PC were atopic dermatitis in placebo (14.6%) and conjunctivitis in Q2W (6.3%). Frequencies of conjunctivitis cluster were 2.7% (placebo IR=9.7), 10.0% (Q2W IR=37.0), and 12.9% (All-LEB IR=13.9); most events were mild/moderate. Frequencies of injection site reactions were 1.9% (placebo IR=6.9), 3.0% (Q2W IR=10.2), and 3.6% (All-LEB IR=3.6). Frequencies of adverse events leading to treatment discontinuation were 1.7% (placebo IR=5.9), 2.2% (Q2W IR=7.6), and 3.8% (All-LEB IR=3.7). Frequencies of SAEs were low (placebo 1.8%, IR=6.5; Q2W 1.1%, IR=3.8; All-LEB 3.3%, IR=3.3). Conclusion: This updated integrated safety analysis is consistent with previously reported data from the lebrikizumab clinical trial program. IRs of most TEAEs did not increase with longer duration of exposure to lebrikizumab in adolescents and adults with AD.

Dermatology
Gold LS, Tyring SK, Hong HCH, Pavlovsky L, Pinter A, Reich A, Wu T, Stakias V, Richter S, and Papp KA. 50251 Efficacy of Risankizumab Versus Apremilast Among Patients with Scalp or Nail Psoriasis from the Phase 4 IMMpulse Study. *J Am Acad Dermatol* 2024; 91(3):AB38. Full Text

Background: The phase-4, IMMpulse study (NCT04908475) has demonstrated superior efficacy and safety of risankizumab compared to apremilast in systemic-eligible adult patients with moderate plaque psoriasis (1). Methods: At baseline, 118 patients received subcutaneous risankizumab (150 mg; at labeled dosing), and 234 received oral apremilast (30 mg BID) for 16-weeks (Period-A). This analysis compared efficacy in skin clearance (sPGA0/1, PASI90, PASI75, PASI100) in patients with baseline nail or scalp psoriasis at week-16. Health-related quality of life (PSS0/1, DLQI0/1) and treatment satisfaction (TSQM-9) were also evaluated. Results: At baseline, risankizumab/apremilast groups had comparable demographic and disease characteristics; 93/195 had scalp psoriasis and 62/127 had nail psoriasis. At week-16, risankizumab-treated patients demonstrated significant improvements (P<0.001) from baseline in mean NAPSI (-8.5) and PSSI scores (-14.0) compared to apremilast-treated patients (-5.0 and -6.8 respectively). A higher proportion of patients with scalp psoriasis treated with risankizumab achieved sPGA0/1 (77.4%), PASI90 (57.0%), PASI75 (87.1%), and PASI100 (32.3%) than apremilast (17.9%, 5.1%, 17.4% and 1.5% respectively). A higher proportion of patients with nail psoriasis treated with risankizumab achieved sPGA0/1 (69.4%), PASI90 (48.4%), PASI75 (79.0%), and PASI100 (30.6%) than apremilast (17.3%, 3.9%, 15.0% and 1.6% respectively). Risankizumab-treated patients had favorable PSS0/1, DLQI0/1, and TSQM-9 outcomes compared to apremilast. All results achieved statistical significance (nominal P-values<0.001). Conclusion: Risankizumab demonstrated superior efficacy in skin clearance, quality of life, and treatment satisfaction among patients with baseline scalp or nail psoriasis

compared to apremilast at week-16. These results support risankizumab as an effective treatment in systemic-eligible psoriasis patients with high-impact area involvement.

Dermatology
Gold LS, Yeung J, Rodriguez AO, Vasquez J, Choi O, Rowland K, Alkousakis T, Jeyarajah J, Alonso-Llamazares J, Tyring S, and Armstrong AW. 54203 VISIBLE: Clearance and Symptom Improvement With Guselkumab at Week 16 in Skin of Color Participants With Moderate-to-Severe Plaque Psoriasis. *J Am Acad Dermatol* 2024; 91(3):AB97. Full Text

Objective: VISIBLE examines efficacy and safety of guselkumab in skin of color (SoC) participants with moderate-to-severe plaque psoriasis. Methods: Participants were randomized (3:1) to receive guselkumab 100mg or placebo. Week(W)16 Psoriasis Area and Severity Index (PASI), Investigator Global Assessment (IGA), and body surface area (BSA) results, along with participant health-related quality of life improvements as assessed by the Psoriasis Symptoms and Signs Diary (PSSD), are presented. Results: Co-primary endpoints of IGA 0/1 and PASI90 were achieved by significantly higher proportions of participants treated with guselkumab vs placebo (IGA0/1, 74.0% vs 0%; PASI90, 57.1% vs 3.8%; both p<0.001), as were IGA0 (32.5% vs 0%; p<0.001) and PASI100 (29.9% vs 0%; p<0.01). Proportions of guselkumab-treated participants achieving improvements in each PASI component (erythema, induration, scaling) were similar over time. In guselkumab and placebo groups, respectively, mean percent improvements from baseline were: BSA, 77.9% vs 0.9%; PASI, 84.5% vs 8.3% (both p<0.001). Mean changes from baseline in PSSD symptom score were: guselkumab -49.4 vs placebo -8.2 (p<0.001), with a change of ≥40 considered clinically meaningful. Mean changes from baseline in individual PSSD symptom scores for guselkumab vs placebo were: redness, -6.2 vs -1.4; dryness, -4.9 vs -0.9; scaling, -6.2 vs -1.2 (all p<0.001). Overall safety was consistent with the established guselkumab safety profile, no new safety signals were identified. Conclusions: After 3 doses of guselkumab, the majority of participants with moderate-to-severe plaque psoriasis achieved significantly clearer skin and reported clinically meaningful improvement in psoriasis symptoms.

Dermatology
Hamad J, **Chung C**, **Lim HW**, and **Matthews NH**. 53495 Disparity of cost and protective features between tinted and non-tinted sunscreens. *J Am Acad Dermatol* 2024; 91(3):AB183. Full Text

Introduction: Ensuring optimal sun protection for skin of color (SOC) populations necessitates sunscreens with superior UVA protective factors and properties that guard against visible light and pigmentary disorders. Tinted sunscreens are often recommended for SOC patients. We sought to compare cost and characteristics of tinted versus non-tinted sunscreens on market. Methods: We collected and compared cost (USD), total ounces (oz), vehicle, Sun Protective Factor (SPF), water resistance (minutes), color matching, ratings volume, ratings scores, and comments between the best-selling non-tinted and tinted sunscreens from three of the largest online US retailers for skincare products: Amazon.com, Target.com, and Walmart.com. Results: We reviewed 120 products (60 tinted sunscreens). Mean cost-per-ounce for tinted sunscreens was $15.4/oz (SD 7.15), significantly higher than non-tinted sunscreens priced at $3.60/oz (SD 4.81) (95%CI: 9.57-14.0). Tinted sunscreens were generally available in smaller quantities, averaging 1.64oz/container (SD 0.64), as opposed to non-tinted options which averaged 6.17oz (SD 3.41, 95%CI: 3.64-5.42). Non-tinted sunscreens not only exhibited a higher average SPF (53.3; SD 16.4) in contrast to tinted versions (38.8; SD 11.6, 95%CI: 9.32-19.6), but also enjoyed higher customer ratings (4.57; SD 0.26 vs 4.12; SD 0.76) (95%CI 0.24-0.65). All p < 0.001. Conclusion Despite their higher cost, tinted sunscreens were found to have lower SPF values, diminished water resistance, and less favorable consumer ratings. These findings signal a pressing need for the dermatology community to address potential inequities in sun protection strategies for skin of color populations, urging a re-evaluation of the current market offerings to foster healthcare equality.

Dermatology
Hamzavi I, Soliman AM, Camp HS, Ladd MK, Pokrzywinski R, Sen R, Schlosser BJ, Bae JM, and Ezzedine K. 51618 Reliability, Validity, Responsiveness, and Meaningful Change Thresholds of the Facial–Vitiligo Area Scoring Index (F-VASI) and Total–Vitiligo Area Scoring Index (T-VASI) Among Patients with Non-Segmental Vitiligo. *J Am Acad Dermatol* 2024; 91(3):AB297. Full Text

Facial-Vitiligo Area Scoring Index (F-VASI) and Total-VASI (T-VASI) are clinician-reported outcomes that quantify depigmentation. The reliability, validity, responsiveness, and clinically meaningful score difference for VASI are not fully characterized. Using data from a phase 2, randomized, double-blind, placebo-controlled study (NCT04927975), of upadacitinib (6, 11, or 22 mg) vs placebo for 24 weeks, we evaluated the psychometric characteristics of F-VASI and T-VASI. Analyses included data from 164 patients. Test-retest reliability was excellent for F-VASI (ICC=0.99) and T-VASI (ICC=0.98) when comparing patients with clinically stable vitiligo (no change in Face-Physician Global Vitiligo Assessment [F-PhGVA; n=124] or Total-Physician Global Vitiligo Assessment [T-PhGVA; n=115] between baseline and week 4). At baseline and week 24, F-VASI and T-VASI had moderate-to-strong correlations with F-PhGVA (Spearman's r=0.65–0.71) and T-PhGVA (r=0.63–0.65), respectively. Average F-VASI and T-VASI scores at baseline and week 24 decreased with increasing re-pigmentation levels (defined by F-PhGVA and T-PhGVA, respectively). F-VASI and T-VASI were responsive; least-square means at week 24 indicated greater F-VASI and T-VASI improvement with greater PhGIC-V improvement. Significant differences between F-VASI (P<.0001) and T-VASI (P<.001) were detected among patients with improvement in PhGIC-V vs those with no change or worsened PhGIC-V. At week 24, thresholds of 50% and 30% improvement from baseline in F-VASI (F-VASI 50) and T-VASI (T-VASI 30), respectively, reflected meaningful score improvements (lower than commonly used thresholds of T-VASI 50 and F-VASI 75). These results demonstrate that F-VASI and T-VASI are reliable, valid, able to differentiate between clinically distinct groups, and responsive to improvements in vitiligo involvement.

Dermatology
Hewitt M, **Pandher K**, Elbuluk N, and **Huggins R**. 54585 Vitiligo, Nutrition and the Gut Microbiome: A Narrative Review. *J Am Acad Dermatol* 2024; 91(3):AB98-AB98. Full Text

Wayne State Dermatology
Henry Ford Dermatology
Keck School of Medicine of University of Southern California

Dermatology
Jafry M, **Fakhoury J**, and **Kerr H**. 54843 QR Codes and Dermatology: Examining Resident Attitudes on Digitized After Visit Summaries. *J Am Acad Dermatol* 2024; 91(3):AB290. Full Text

Introduction: The After Visit Summary (AVS) is an integral part of the dermatology clinic visit. Most Electronic Medical Record (EMR) AVS' provide the ability to include text-or image-based instructions, but other multimedia (MM) such as audio or video-based instructions are excluded. Quick Response (QR) code-based digital AVS' hold the potential to improve AVS instructions by the inclusion of MM and reduction of environmental impact. Methods: Dermatology residents at one U.S. based dermatology residency program were sent an anonymous online survey asking for their opinion regarding the utility of and their interest in digitized AVS instructions. Survey questions, presented on a numerical Likert-type scale from strongly disagree (1) to strongly agree (5), focused on their desire to learn about and incorporate digitized AVS instructions into practice. Results: A total of 13 Dermatology residents responded. Results showed that 84.6% of residents stated their AVS instructions would be more effective with the inclusion of MM (score of 4 or 5). 69.3% reported feeling limited by their current AVS system. 100% of residents stated they would benefit from learning about creating digitized AVS material, and 100% reported that they would use digitized AVS' after graduation if they knew how. Additionally, 53.9% of residents felt digitized AVS creation should be part of the standard dermatology curriculum. The Cronbach alpha for these results was 0.82. Conclusion: Here we present a new QR code patient education technology. Digitized AVS instructions serve as a topic of strong interest to current dermatology residents. Residents noted feeling limited with the current AVS format, and reported a desire to learn digital AVS creation and intent to use digital AVS' in their education and future careers. Thus, digitized AVS instructions offer a promising new avenue for dermatology residency education and improvement in patient care.

Dermatology
Jafry M, and **Powers M**. 54853 Trends in Incidence and Mortality of Pleomorphic Dermal Sarcoma: A Retrospective Cohort Study Using SEER Data. *J Am Acad Dermatol* 2024; 91(3):AB347. Full Text

Objective: This retrospective cohort study aimed to investigate changes in PDS incidence over 40 years and identify risk factors associated with PDS mortality. The study hypothesized an increase in incidence over time due to various factors, as well as differences in mortality based on age, sex, ethnicity, stage at diagnosis, tumor size, treatment modalities, and comorbidities. Methods: Data from the Surveillance, Epidemiology, and End Results (SEER) Program, covering patients diagnosed with PDS from 1979 to 2019, were utilized for this study. Incidence and mortality rates were calculated using SEER*Stat software, and joinpoint models analyzed trends in incidence and mortality rates. Factors associated with PDS incidence and mortality were identified using chi-square tests and t-tests, respectively. Multivariable Cox regression analysis was performed to determine significant predictors of mortality. Results: Data from 567 PDS patients were analyzed. The incidence of PDS increased steadily over four decades, with a net incidence of 0.508 per 100,000 cases in 2018-2019. PDS incidence was higher among older males, white individuals, and those with head and neck involvement. The overall survival rate improved significantly over time. Factors associated with increased mortality risk included older age, non-white race, and non-head/neck site of involvement. Discussion: This study highlights a decreasing trend in PDS incidence and mortality over the past 20 years, possibly due to advancements in diagnosis and treatment. However, certain patient groups, such as older individuals and non-white patients with malignancy in non-head/neck areas, have higher mortality rates, warranting further investigation and targeted interventions.

Dermatology
Kerob DK, Passeron T, Alexis A, Dreno B, Wei L, Morita AA, Leok C, Puig S, Schalka S, and **Lim HW**. 54772 Pigmentary disorders, prevalence, impact on quality of life and social stigmatization: Results of the first large international survey. *J Am Acad Dermatol* 2024; 91(3):AB280. Full Text

Introduction: Pigmentary disorders (PD) are frequent dermatological conditions, but little is known on their real-world prevalence and impact. This first worldwide survey evaluated the self-reported prevalence of PD such as Melasma, Post-inflammatory Hyperpigmentation (PIH), Solar Lentigo, Vitiligo, Peri-Orbital Hyperpigmentation (POH) and Axillary Hyperpigmentation (AH), their impact on quality of life (QoL) and stigmatization. Methods: This survey (N= 48,000) was conducted in 34 countries from all continents from December 2022-February 2023. The online auto-administered questionnaire covered demographics, phototype, self-reported pigmentation condition based on a descriptive text and image of each condition, its impact on QOL, stigmatization, and sun protection behavior. Results: 50% of the population (average age : 44 years) reported having at least one PD (solar lentigo 27%, AH 18%, PIH 15%, POH 15%, melasma 11% and vitiligo 8%), with more women affected (59%). Previous dermatological diagnosis was reported in 36% of them, while 19% made their own diagnosis thanks to the questionnaire. All PD significantly impact QoL and lead to stigmatization. DLQI score was >10/30 for 28% of them, and 44% of patients with a PD have concealed/hidden the visible parts of their affected skin. Although sun exposure worsens the pigmentation, respondents reported a low-level of protection against the sun: only 38% protect their skin all year long, and only 38% consider that sun exposure is deleterious to their condition. Conclusions: This first large international survey on PD shows the high prevalence of PD worldwide, their significant impact on QoL and stigmatization, highlighting the need for education on photoprotection.

Dermatology
Krevh R, **Bardhi R**, **Pandher K**, **Jacobsen G**, and **Kohen L**. 54542 Assessing the risk of subcutaneous nodules. *J Am Acad Dermatol* 2024; 91(3):AB18. Full Text

Subcutaneous nodules without identifying features are often observed by physicians during cutaneous exams, resulting in a wide differential. Diagnostic certainty is often implicated when practitioners overutilize the term “lipoma” for what they might deem as a benign-appearing nodule. Existing literature is limited when providing a standardized approach to the evaluation of subcutaneous nodules. Here, we outline five criteria to determine whether additional workup of subcutaneous nodules is indicated. We hope a simplified approach to assessing subcutaneous nodules may decrease unnecessary imaging for benign nodules and/or prompt further investigation of benign-appearing nodules that may be worrisome.

Our study consists of a retrospective chart review of over 900 pediatric and adult patients from 2014 to 2022, using patient data from dermatology offices at Henry Ford Health. After reviewing charts that describe subcutaneous nodules, we obtained the following data: the size of the nodule, whether the nodule was mobile or fixed, duration, evolution, and associated pain. Benignity or malignancy was confirmed through histopathological diagnosis. Our results indicate a significant difference in the evolution between benign and malignant nodules ($p<0.001$), mobility ($p<0.001$), and size ($p<0.001$). Additionally, two or more malignant features (>3cm, immobile, painful, duration <1 year, rapid change) were observed in 19.1% of non-malignant patients versus 60% of malignant patients ($p=0.008$). Our findings suggest the malignant potential of subcutaneous nodules can be determined by evaluating relevant clinical criteria and calculating a malignancy score. These characteristics can aid in management by indicating when imaging or excisions are necessary, potentially mitigating harm from diagnostic delay.

Dermatology
Lamberg O, **Pandher K**, and **Lim H**. 53329 Long-Term Adverse Event Risks of Systemic Janus Kinase (JAK) Inhibitors versus Traditional Immunomodulators. *J Am Acad Dermatol* 2024; 91(3):AB1. Full Text

Background: Systemic Janus kinase (JAK) inhibitors have exhibited treatment efficacy in managing dermatologic conditions characterized by excessive inflammation and immune dysregulation.1,2 While currently approved for the treatment of atopic dermatitis and alopecia areata, their broader potential, including off-label use and ongoing clinical trials for other dermatologic conditions, has generated considerable interest. Despite their efficacy, concerns have arisen due to the additional black box warning labels issued by the US Food and Drug Administration regarding long term adverse events associated with systemic JAK inhibitors.3 Methods: We conducted a comprehensive literature review to assess the long-term adverse events associated with oral JAK inhibitors in comparison to traditional immunomodulators. Our search focused on articles reporting medication exposure exceeding one year and subsequent adverse event development. We collected data on adverse event rates including malignancies (excluding non-melanoma skin cancer (NMSC)), NMSC, major adverse cardiovascular events (MACE), venous thromboembolism (VTE), infections, and other outcomes. Our evaluation encompassed several JAK inhibitors commonly used for dermatologic conditions, such as tofacitinib, baricitinib, upadacitinib, ruxolitinib, as well as traditional immunomodulators, including cyclosporine, methotrexate, etanercept, adalimumab, and systemic steroids. Results: Our analysis revealed equivalent or lower incidence rates per 100 patient-years for major adverse events including malignancy (excluding NMSC), NMSC, MACE, VTE, and infections when comparing JAK inhibitors to the majority of conventional immunomodulators. Conclusion: These findings provide valuable insights into the safety profile of JAK inhibitors and have significant implications for guiding the management of dermatologic conditions that necessitate the use of JAK inhibitors or traditional immunomodulators.

Dermatology
Lebwohl M, Bukhalo M, **Stein-Gold L**, Pelle M, Glick B, Llamas-Velasco M, Sanchez-Rivera S, Zhan T, Drogaris L, Espaillat R, and Bissonnette R. 51652 Safety and efficacy of risankizumab in adult patients with moderate to severe plaque psoriasis with non-pustular palmoplantar involvement: change in DLQI and achievement of DLQI 0/1 results from the Phase 3b IMMprint trial. *J Am Acad Dermatol* 2024; 91(3):AB306. Full Text

Introduction: Risankizumab (RZB) is an IL-23 inhibitor approved for the treatment of moderate-to-severe psoriasis (PsO). Here, we assess improvement in dermatology life quality index (DLQI) in patients with non-pustular palmoplantar psoriasis (PPPsO) PPPsO receiving risankizumab (RZB). Methods: IMMprint (NCT04713592) is a phase 3b double-blind, placebo-controlled study evaluating the safety and efficacy of RZB in patients with predominately PPPsO. Eligible patients (≥18 years) were randomized 1:1 to receive RZB 150mg (week 0, 4 and 16) or placebo (PBO). At week 16, all patients received open-label RZB 150mg every 12 weeks (PBO/RZB vs. RZB/RZB) till week 40 with a final evaluation at week 52. DLQI was assessed by Mixed-effect Model Repeat Measure analysis to handle missing data in period A and Observed Cases in period B. Safety was monitored throughout the study. Results: The change from baseline in DLQI (RZB vs. PBO, nominal p-value) was -4.5 vs. -0.5, $p < 0.001$) at week 16 and -8.2 vs. -8.3 (PBO/RZB vs. RZB/RZB) at week 52. The proportion of patients achieving DLQI 0/1 was 25.3% vs. 4.6%, $p < 0.001$ at week 16 and 35.6% vs. 46.9% (PBO/RZB vs. RZB/RZB) at week 52. The proportion of

patients who achieved DLQI reduction ≥4 among baseline DLQI ≥ 4 was 58.6% vs 33.3%, p < 0.001 at week 16 and 65.7% vs. 76.2% (PBO/RZB vs. RZB/RZB) at week 52. No new safety signals were indicated. Conclusions: Systemic-eligible patients with moderate-to-severe PPPsO treated with RZB demonstrated improved quality of life assessed by DLQI.

Dermatology
Masood M, **Fakhoury J**, **Parks-Miller A**, and **Hamzavi I**. 52818 Easy on the Hands: Utilization of a Foot Pedal for Tumescent Anesthesia Delivery. *J Am Acad Dermatol* 2024; 91(3):AB34. Full Text

Hidradenitis Suppurativa (HS) is a chronic inflammatory disorder characterized by painful development of sinus tracts and scarring.1 Treatment of HS is multifactorial with medical treatment targeting inflammation but areas with recurrent disease activity, scarring, and sinus tract formation may require surgical intervention.1,2 Carbon dioxide (CO2) laser evaporation of HS lesions has led to successful resolution of disease activity at affected sites with low rates of recurrence and high rates of patient satisfaction.2 Tumescent anesthesia is delivered in the subcutaneous plane for pain management.3 However, delivery of the tumescent anesthesia via an infiltration pump by hand requires frequent communication between the physician navigating the large bore needle and the nursing staff (i.e. “start, stop”). Additionally, physically pumping the anesthetic infiltrate by hand is an arduous task, especially if the area requiring anesthetic has any resistance from scarring or covers a large body surface area. Here, we share the utility and ease of a foot pedal mechanism for tumescent anesthetic infiltration delivery. With the foot pedal, the physician navigates the large bore needle while pressing the foot pedal to start and stop the delivery of anesthetic infiltrate. Results of surveys to staff about fatigue and ease of use of the two methods will also be presented. We have found great use of the foot pedal in decreasing physical strain on our nursing staff, reducing delivery time of anesthesia, and improved overall satisfaction between team members. The foot pedal pump has further applications in the realm of tumescent anesthetic delivery in dermatologic surgery.

Dermatology
Matthews N, **Hamad J**, Henderson J, Mariotto A, Weinstock M, and Ellis C. 52910 Projected burden of melanoma clinical surveillance in the United States. *J Am Acad Dermatol* 2024; 91(3):AB288. Full Text

Background: Melanoma ranks fifth among the most diagnosed cancers in the US. Melanoma survival rate is excellent when diagnosed early, and survival at later stages is improving. The implications of rising melanoma prevalence on dermatology melanoma skin exam follow-up visits remain uncertain. Objective: We aimed to project the volume of melanoma surveillance visits in the US, emphasizing its effect on dermatology demand, and offer a graphical interface model for providers to foresee melanoma surveillance load over the next two decades. Methods: Leveraging the US melanoma incidence and survival data from the SEER registries (1975–2015) and US population projections until 2040, we created a simulation model based on melanoma prevalence projections and recommended surveillance schedules by the NCCN and the AAD. This algebraic estimation considered various follow-up recommendations and loss due to attrition, without incorporating probability models. Results: Under a conservative annual surveillance schedule, the number of visits per dermatologist will increase by 18.7% from 92.3% in 2020 to 109.5% by 2040, versus an increase of 15.6% from 120.6% in 2020 to 139.6% by 2040 when adhering to a more aggressive surveillance schedule in which exams are performed every 6 months for the first 5 years, and annually thereafter. The number of additional dermatologists needed in 2040 to maintain 2020 parity is 3,022 for the annual surveillance case versus 2,519 for the aggressive surveillance case. Conclusion: Our model predicts a substantial increase in melanoma surveillance visits, exacerbating the strain on the dermatology workforce amid a growing and aging US population.

Dermatology
McMichael A, **Gold LS**, Soung J, Kindred C, Choi O, Chan D, Jeyarajah J, Heath CR, Bhutani T, Sauder M, and Alexis A. 50532 VISIBLE: Guselkumab Demonstrated Significant Scalp Psoriasis Clearance and Scalp Itch Improvements at Week 16 in Skin of Color Participants With Moderate-to-Severe Plaque Psoriasis. *J Am Acad Dermatol* 2024; 91(3):AB97. Full Text

Introduction: Scalp is the most commonly involved special site among patients with moderate-to-severe plaque psoriasis, and may be challenging to treat in skin of color (SoC) patients due to greater visibility of scales and styling/hair types. We report the efficacy of guselkumab (GUS) on scalp psoriasis in the Phase 3b VISIBLE study, which exclusively enrolled SoC participants with moderate-to-severe plaque psoriasis. Methods: VISIBLE Cohort-A (N=103) participants were randomized 3:1 to receive GUS 100mg or placebo(PBO). Scalp psoriasis outcomes (scalp-specific Investigator Global Assessment[ss-IGA] score, Psoriasis Scalp Severity Index[PSSI], scalp surface area[SSA], and scalp itch numeric rating scale[NRS] score) were evaluated at Week(W)16 among participants with at least mild scalp psoriasis (ss-IGA score≥2) at baseline. Results: At baseline, 77 participants had at least mild scalp psoriasis (ss-IGA 2-mild [22.1%], 3-moderate [63.6%], 4-severe [14.3%]; mean SSA 33.4%). Significantly greater improvements in scalp itch NRS were observed in GUS vs PBO groups, respectively (mean change from baseline -4.3 vs -1.3, p<0.001). Significantly greater proportions of participants in GUS vs PBO groups, respectively, achieved: ss-IGA 0/1 with ≥2-grade improvement from baseline (80.7% vs 15.0%, p<0.001); ss-IGA 0 (71.9% vs 10.0%, p<0.001). At W16, mean percent change from baseline in SSA was -87.6% (improved) for GUS vs +167.1% (worsened) for PBO (p<0.01); and mean percent improvement from baseline in PSSI was 81.0% GUS vs 12.1% PBO (p<0.001). Conclusions: After 3 doses, 80% of participants with at least mild scalp psoriasis achieved clear or almost clear scalp psoriasis with GUS, and reported significant improvements in scalp itch.

Dermatology

Minta A, Shareef S, Schnell P, Nessel T, Rose L, Dulmage B, and **Novice T**. 54078 Examining Hair Preservation in Manual vs. Machine Scalp Cooling by Chemotherapy Regimen: A Meta-Analysis. *J Am Acad Dermatol* 2024; 91(3):AB210. Full Text

Background: To date, few studies the success of hair preservation of the two types of scalp cooling equipment: 1) manual cold caps (MCC) and 2) scalp cooling systems (SCS) [1-3]. SCS, which deliver constant coolant, are maintained by the infusion center [4]. Comparatively, patients bring MCC on dry ice and require assistance with cap preparation and placement [3,4]. Considering the differences in availability and application, a meta-analysis comparing the efficacy of MCC and SCS for reducing chemotherapy-induced alopecia was performed. Methods: PubMed(Medline), Cochrane, and Embase were searched for studies conducted from January 1997 to January 2022. Random effects meta-analysis was used to assess success proportions for participants receiving MCC and SCS. Results: Of the 32 studies included (MCC[n=5], SCS[n=26], both[n=1]), 5 (15.6%) were RCT, 5 (15.6%) were NRCT, and 22 (68.8%) were PCS. There was no significant effect of MCC (n=384) vs SCS (n=3,078) on success rate among patients receiving anthracycline (OR = 1.39, 95% CI = 0.47 to 4.11, p = 0.6) or non-anthracycline regimens (OR = 2.43, 95% CI = 0.71 to 8.37, p = 0.2). There was however a higher success rate during non-anthracycline chemotherapies for both MCC (OR = 5.03, 95% CI = 1.94 to 13, p < 0.001) and SCS (OR = 2.87, 95% CI = 2.08 to 3.97, p < 0.001). Conclusion: We found that the effectiveness of scalp hypothermia in reducing alopecia remains dependent on the chemotherapy regimen and may be independent of type of scalp cooling equipment. Further studies directly comparing SCS and MCC are necessary for further evaluation.

Dermatology

Mokhtari M, **Bardhi R**, **Masood M**, Abdel-Gadir D, McGowan D, **Lane B**, **Ceresnie M**, **Lim H**, **Hamzavi I**, **Kohli I**, and **Mohammad T**. 52736 Assessment of Color Match of Universal Tinted Sunscreens in Fitzpatrick Skin Phototypes I-VI. *J Am Acad Dermatol* 2024; 91(3):AB132. Full Text

Background: Long Wavelength Ultraviolet A1 and visible light have been shown to induce erythema in those with light skin, and erythema and pigmentation in those with skin of color1. Majority of currently available organic sunscreens fail to provide adequate protection against these specific wavelengths. Tinted mineral sunscreens offer some protection; however, have associated challenges of color match impacting compliance2. The objective of this study was to evaluate seven brands of universal tinted sunscreens, encompassing a spectrum of price ranges, and investigate color match. Methods: The experimental protocol involved a single visit study during which the application of each sunscreen was performed at two distinct concentrations: 1 and 2 mg/cmˆ2, onto the dorsal arms of participants representing a broad range of Fitzpatrick skin phototypes. Assessment methods evaluating color match

included satisfaction surveys and objective colorimetry measurements. Results: Although marketed as universal, colorimeter data and survey responses showed certain products had better color match for certain skin phototypes relative to others. Colorimeter analysis using L* variation to measure color match, demonstrated that for SPT III-IV, five of seven products had delta L* within one point, which was determined an appropriate color match. However, for SPT I-II and V-VI groups, two of seven products had a reasonable color match for each. Similar trends followed for satisfaction surveys. Discussion: While majority of universal tinted products demonstrated good color match for SPT III-IV, few were cosmetically elegant for SPT I-II and IV-VI groups. Findings: suggest the need for development of different shades of tinted sunscreen.

Dermatology
Novice M, **Novice T**, **Powers M**, and Lo Sicco K. 52503 The financial burden of scalp cooling therapy: a non-profit organization data analysis. *J Am Acad Dermatol* 2024; 91(3):AB328. Full Text

Background: Scalp cooling therapy (SCT) is currently the most effective method to reduce chemotherapy-induced alopecia (CIA). However, cost (approximately $1500-$3000) can be prohibitive for many patients, and insurance coverage is inconsistent. Non-profit organizations have emerged to help combat this disparity of care by providing need-based funding for SCT. Methods: We reviewed de-identified applicant and financial records from individuals who received SCT funding from a Michigan-based non-profit organization, Cap & Conquer™(C&C), between September 2020 - April 2023. Results: Of the 112 patients, 82 completed SCT use and 30 discontinued prior to their chemotherapy completion. C&C spent a total of $142,956.65, averaging $1,287.90/patient. Factors that impacted cost included: cap company, percent funding received, chemotherapy length, and SCT outcome (completed vs. discontinued). For the 71 patients (63.4%) who received 100% funding, the average cost per person was $1,454.15. Their average self-reported annual income was $32,953.20 versus $61,339.07 for those who received 75% funding or less. Their average self-reported monthly disposable income was -$91.69 versus $1,089.34 for applicants with 75% or less funding. When considering SCT outcome, the average price per patient who completed SCT was $1,451.39 versus $846.48 in those who discontinued prior to chemotherapy completion. Conclusion: Our data highlights the out-of-pocket cost of SCT. Non-profit funding, while an important resource, is not a sustainable solution. Given long-lasting, psychological implications from CIA in cancer patients, improved insurance coverage is necessary to increase SCT access for all patients.

Dermatology
Novice M, Rose L, **Novice T**, Darland A, Dulmage B, **Powers M**, and Lo Sicco K. 52509 Expanding access to scalp cooling therapy: a review of post-capping satisfaction in patients who received financial assistance from a non-profit organization. *J Am Acad Dermatol* 2024; 91(3):AB43. Full Text

Background: Scalp cooling therapy (SCT) is the most effective method to reduce chemotherapy-induced alopecia (CIA), a highly distressing treatment side effect. Despite SCT's efficacy data, insurance coverage is inconsistent and out-of-pocket costs are ~$1500-3000 per chemotherapy course. SCT is more likely to be offered to young, female breast cancer patients living in zip codes with average incomes greater than $100,000. Non-profit organizations exist to provide need-based funding for SCT. Methods: We reviewed de-identified applicant records and post-capping surveys from funding recipients of a non-profit organization, Cap & Conquer™(C&C). Results: Of 139 funded patients, all were female with predominately breast cancer (119/139, 85.6%). Ages ranged from 22 to 75 years old (average 47.02). Approximately 78% (108/139) completed SCT. Sixty-six out of 139 individuals completed a post-capping survey (47.4% response rate). Hair retention was reported as enough to not be noticeable loss (43/66, 65.2%), overall thinning/bald spots (12/66, 18.2%), lost most hair (10/66, 15.1%), and no response (1/66, 1.5%). Fifty-five out of 66 participants (83.3%) were satisfied with their SCT experience, and 60/66 (90.9%) would recommend SCT to others. Individuals who did not receive anthracyclines were significantly more likely to continue (p=0.00001) or be satisfied (p=1.1 x 10-16) with SCT. There was no correlation between patient age and SCT completion (p=0.85) or satisfaction (p=0.68). Conclusion: Our data highlights high post-capping satisfaction rates in patients requiring financial support to use SCT, regardless of age. Given CIA's negative psychological impactions, educating a broader population and advocating for insurance coverage is essential to increasing SCT access.

Dermatology

Oska S, **Konda S**, and **Matthews N**. 54337 Full-body Multifocal Pyoderma Gangrenosum in the setting of PASH Syndrome. *J Am Acad Dermatol* 2024; 91(3):AB47. Full Text

Presentation: A 26-year-old male with history of hidradenitis suppurativa (HS) of the groin presented with a two-year worsening rash. He was cachectic on examination with innumerable tender ulcerations with violaceous borders and purulent drainage on the scalp, face, trunk, and all four proximal extremities. He also exhibited mild facial acne vulgaris and sinus tracts with multiple scars in the bilateral inguinal folds consistent with his known HS. He denied personal or family history of autoinflammatory, autoimmune, or inflammatory bowel disease (IBD). He denied any fevers, chills, arthralgias, abdominal pain, or changes in bowel movements. Differential diagnosis included pyoderma gangrenosum (PG), PASH (PG, acne, and HS) syndrome, pemphigus vegetans, and infection. Course and Therapy: Punch biopsy of a chest lesion showed ulcer with granulation tissue and a neutrophilic-rich dermal infiltrate. Tissue culture was negative. Work-up was negative for inflammatory arthritis, IBD, connective tissue disease, or malignancy. He was diagnosed with PASH syndrome. He underwent treatment with high-dose corticosteroids, doxycycline, and ultimately infliximab with significant improvement of the ulcerations. Prior to treatment, he was non-ambulatory due to pain. He was able to ambulate after starting infliximab. Discussion: Our patient exhibited a strikingly diffuse presentation of PG in the setting of suspected PASH syndrome. PASH and other autoinflammatory syndromes are characterized by sterile neutrophil-dense inflammation. Mutations affecting proteins of the inflammasome complex are thought to play a role in its pathogenesis, leading to over-expression of IL-1 and tumor necrosis factor (TNF) alpha. Thus, TNF-alpha inhibitors and IL-1 inhibitors are often utilized for treatment.

Dermatology

Pinter A, **Stein Gold LF**, Bagel J, Tyring SK, Vender R, Reich A, Pavlovsky L, Kaldas MI, Wu T, Patel M, and Papp KA. 50250 Comparing the Effect of Risankizumab versus Apremilast on Psoriasis Symptoms, Treatment Satisfaction, and Health-Related Quality of Life from the Phase 4 IMMpulse Study. *J Am Acad Dermatol* 2024; 91(3):AB165. Full Text

Background: The phase-4 IMMpulse (NCT04908475) study demonstrated superior efficacy of risankizumab versus apremilast in systemic-eligible adult patients with moderate plaque psoriasis (ref). Methods: At baseline, 118 patients received risankizumab (150 mg), and 234 patients received apremilast (induction phase followed by 30 mg BID) for 16-weeks (Period-A). This analysis compared the proportion of patients achieving Psoriasis Symptoms Scale (PSS) score 0/1 (none to mild: pain, redness, itch, and burning), high levels of satisfaction assessed by the Treatment Satisfaction Questionnaire for Medication version-9 (TSQM-9), and Dermatology Life Quality Index (DLQI) 0/1. Analyses included individual item-level results comparing risankizumab versus apremilast at weeks-4 and -16. Results: Patient characteristics were comparable across treatments. At week-16 numerically higher proportion of risankizumab compared to apremilast-treated patients achieved: • PSS 0/1 (pain [88.1%/58.5%], redness [83.1%/39.3%], itching [82.2%/36.8%], and burning [85.6%/54.7%]) • very or extremely satisfied/easy/convenient/certain via TSQM-9 (medicine to prevent/treat condition [71.2%/17.1%], medication relieves symptoms [68.6%/16.2%], time medicine takes to start working [66.1%/9.8%], easy/difficult to use medicine [69.5%/41.5%], easy/difficult to plan medicine use [65.3%/32.5%], convenient/inconvenient to take medicine [71.2%/34.6%], confident medicine is good [85.6%/30.8%], certain good things outweigh bad [79.7%/28.6%], and satisfied/dissatisfied with medicine [78.0%/19.2%]). • DLQI 0/1 across all DLQI items. At week-4, consistent results were seen. Conclusion: A higher proportion of risankizumab-treated patients achieved symptom resolution, high levels of satisfaction across all TSQM-9 questions, with little to no impact on quality of life on individual DLQI items compared to apremilast-treated patients after 4 and 16 weeks of treatment.

Dermatology

Rose L, Novice M, Minta A, **Novice T**, and Dulmage B. 50524 Facebook groups provide support and product recommendations for patients using scalp cooling to prevent chemotherapy-induced alopecia: A survey study. *J Am Acad Dermatol* 2024; 91(3):AB45. Full Text

Patients diagnosed with cancer may turn to social media platforms while navigating their diagnosis. Since the invention of scalp cooling for the prevention of chemotherapy-induced alopecia (CIA), multiple Facebook groups for interested patients have emerged. With an average of ten daily posts, there is strong evidence of member engagement. Still, it is unclear how members are specifically using these Facebook groups. A 23-question survey was posted in four scalp cooling and cold cap Facebook groups. Of the 152 women who participated, 88% joined for support from others going through a similar experience, 83% wanted scalp cooling instructions, 60% sought out advice for hair regrowth products, and 49% pursued hair loss camouflaging recommendations. Based on Facebook reviews, participants were most likely to have tried hair loss vitamins or supplements (20%), wigs or hair pieces (19%), and Toppik (17%). Interestingly, despite seeking out hair regrowth product information in Facebook groups, merely 5% of patients had seen a dermatologist for hair loss concerns. For eyebrow and eyelash loss product recommendations, participants were more likely to turn to Facebook groups (72%), oncologists (6%), or dermatologists (4%). This survey demonstrates that Facebook groups have a clear role in influencing treatment decisions in patients who have scalp cooled. As patients with CIA express a growing interest in over-the-counter hair, eyebrow, and eyelash loss products, it is important for dermatologists to be aware of where their patients obtain recommendations, and further, if these recommendations have clinical evidence of efficacy.

Dermatology
Shi V, Nadir U, Haq M, Koza E, Ahmed A, Ma M, **Ozog D**, Kelly K, Krakowski A, and Alam M. 53146 Expert evidence regarding cosmetic procedures in minors. *J Am Acad Dermatol* 2024; 91(3):AB43. Full Text

Background: There is limited evidence regarding patient selection, indications, and outcomes of appearance-altering procedures for minors. Methods: Experts representing key stakeholder specialties (dermatology subspecialties, pediatric surgical subspecialties, psychiatry) were selected based on publication history regarding appearance-altering procedures in minors. A data collection form was distributed to collect evidence about periprocedural considerations, the consultation process, and their perceptions of the patient and guardian's experience. Results were analyzed. Results: Forty-six experts of 59 (78%) experts responded. Over the past 10 years, they consulted with 1,380 minors seeking appearance-altering procedures for cosmetic enhancement. In over 90% of cases, there was agreement between the patient and parent(s) regarding the procedure, and in 93% and 87% of cases, respectively, the proceduralist asked the child and the parent(s) about the child's motivations. During the consultation process, few received preoperative psychiatric assessment (3%) or toxicology screens (1%), and only 5% of patients or guardians were asked to teach back about procedure risks. Most patients had a separate consultation appointment but 10% received the procedure the same day. Five percent of minors who underwent a cosmetic procedure experienced a minor adverse event, and none experienced a serious adverse event. Patients expressed high (92%) post-procedure satisfaction and low (0%) regret levels, although an estimated 2% of patients sought revisions. Conclusion: Cosmetic procedures in minors are associated with good communication and agreement between parents and minors, with outcomes generally satisfactory and without complication. Additional preoperative assessment may further reduce the risk of adverse, unexpected, or undesired outcomes.

Dermatology
Shivaram K, **Edwards K**, and **Mohammad T**. 51716 Hydroquinone and Alternative Agents for Hyperpigmentation: A Systematic Review. *J Am Acad Dermatol* 2024; 91(3):AB229. Full Text

Background: Hydroquinone has been used for years for multiple conditions, including melasma, post inflammatory hyperpigmentation, dyschromia from photoaging, and solar lentigines. It is known to be a very effective lightening agent, but several concerns have been raised about its use. The recent U.S. ban on OTC skin lightening products containing hydroquinone has prompted further questioning of the safety of this widely used agent. We aim to provide an updated review of the safety profile of hydroquinone and evaluate the efficacy and safety of alternative lightening agents. Methods: A literature search was conducted using the electronic databases Medline and Embase with search terms 'hydroquinone', 'safety', 'skin pigmentation', and 'skin lightening preparations'. The search yielded 137 results that were then screened. Results: Common adverse effects from hydroquinone use including irritant contact

dermatitis, hypopigmentation, and postinflammatory hyperpigmentation were found to be tolerable and often transient in treated patients. Ochronosis and ocular complications are chronic adverse effects that are associated with long-term hydroquinone use without medical supervision. Alternative lightening agents including mequinol, arbutin, kojic acid, and others have shown comparable efficacy to hydroquinone in treating hyperpigmentation with less concerning side effects. Conclusion: Recent studies of hydroquinone further impress its efficacy and safety when used as directed and under medical supervision. Groups who may be susceptible to increased hydroquinone sensitivity or unable to withstand its adverse effects may benefit from using alternative skin lightening agents listed in this review with higher safety profiles.

Dermatology
Simpson E, Li A, Dawson Z, Ho K, **Gold LS**, Desai S, Golant A, DiRuggiero D, and Silverberg J. 50377 Factors associated with the initiation of a new systemic therapy among adults with atopic dermatitis: Data from the CorEvitas Atopic Dermatitis Registry. *J Am Acad Dermatol* 2024; 91(3):AB215. Full Text

Background: Given the significant burden of atopic dermatitis (AD) and relative hesitancy of providers to escalate therapy, it is important to recognize when to initiate advanced systemic therapy (ST) to prevent delayed or undertreatment. This study explored factors associated with initiation of ST in a population of systemic-eligible patients with moderate-to-severe AD. Methods: This study included adults (≥18 years) from the CorEvitas AD Registry (2020–2022) with a vIGA-AD™>3 and Eczema Area Severity Index (EASI)>12 at enrollment. Study included two cohorts with patients either newly prescribed ST or not prescribed ST at enrollment. Patients on ST before enrollment were excluded. A multivariable mixed-effects logistic regression model was constructed to estimate adjusted odds ratio (aOR) with 95% confidence intervals (95% CI) for factors associated with ST. Covariates with a significance level >0.10 were dropped, then stepwise backward elimination was performed with variable elimination set at significance level of 0.10. Results: Study included patients who were newly prescribed ST (n=673; mean age=50.7 years; 55.6% female) and non-ST (n=229; 47.8 years; 51.3%). Initiation of ST was associated with facial pallor (aOR [95% CI]: 5.7 [1.50–21.71], p=0.01), peak pruritus (1.1 [1.04–1.27], p=0.01), and WPAI (1.01 [1.01–1.03], p<0.001), inversely associated with SCORAD (0.90 [0.82–0.99], p=0.04) and history of biologics (0.06 [0.03–0.16], p<0.001) and not associated with worst fatigue (0.9 [0.84–1.01], p=0.07). Conclusion: The decision to prescribe ST is multifactorial in systemic-eligible patients; however, understanding how these factors may influence treatment is needed to improve care of patients with AD.

Dermatology
Sliverberg J, Wollenberg A, Lio P, Carrascosa JM, Casillas M, Gallo G, Ding Y, Yang FE, Vestergaard C, **Gold LS**, and Del Rosso J. 52792 Lebrikizumab provides stable skin response with no or minimal fluctuations for up to two years in patients with atopic dermatitis. *J Am Acad Dermatol* 2024; 91(3):AB59. Full Text

Lebrikizumab, a high-affinity IL-13 inhibitor, demonstrated safety and efficacy as monotherapy through 52 weeks of treatment in adults and adolescents (≥40 kg) with moderate-to-severe atopic dermatitis (AD) in recent phase 3 trials (ADvocate1, NCT04146363; ADvocate2, NCT04178967). Here, we assessed the stability of response after 2 years of lebrikizumab in the subpopulation of patients who responded at week 16 to 250 mg lebrikizumab every two weeks (LEB Q2W) without the use of rescue medication and who then received LEB Q2W or LEB every four weeks (LEB Q4W) in ADvocate1 and 2 and continued the same treatment (LEB Q2W, n=82; LEB Q4W, n=99) in ADjoin (NCT04392154), a long-term extension study of lebrikizumab. Response at week 16 was defined as an Investigators Global Assessment 0/1 or a ≥75% reduction in Eczema Area and Severity Index (EASI-75). Stability of response with treatment from week 16 through week 104 (ADjoin week 52) was defined as the proportion of patients with an EASI-75 response during ≥80% of attended visits, using all observed data. A ≥90% reduction in EASI (EASI-90) was also assessed. A stable EASI-75 response was achieved for 96.0% of patients receiving LEB Q4W and 91.5% for LEB Q2W. A stable EASI-90 response was achieved for 64.6% of patients receiving LEB Q4W and 59.8% for LEB Q2W. In summary, most lebrikizumab responders had a stable EASI-75 response with no or minimal fluctuations during 2 years of treatment.

Dermatology

Williams K, **Wong N**, Anderson Z, Tolliver S, and Mehregan D. 52417 Efficacy of the Minority Outreach for High School Students (MOHSS) Program in Addressing Racial and Ethnic Disparities in Skin Cancer Awareness and Outcomes. *J Am Acad Dermatol* 2024; 91(3):AB199. Full Text

Introduction/Background: Skin cancer disproportionately affects non-Hispanic White individuals(1), but when diagnosed in people with darker skin tones, it is often at a more advanced stage, leading to poorer outcomes(2,3). Sociocultural factors, access to care, racial concordance with providers, and limited public awareness contribute to these disparities. The Minority Outreach for High School Students (MOHSS) program was developed to address this issue by educating minority high school students in underserved areas about skin protection and encouraging careers in dermatology. Methods: The MOHSS program's efficacy was assessed through pre- and post-program surveys administered across multiple high schools over two academic years (2021-2023). The data were analyzed using Pearson chi-square tests, with a significance level set at α=0.05. Results: The program led to statistically significant improvements in students' attitudes, beliefs, and health literacy regarding skin cancer. Notably, there was an increased interest in pursuing a career in medicine among the participants. Discussion: The MOHSS program appears to be an effective intervention for improving skin cancer awareness and outcomes among minority high school students. It suggests that targeted educational programs can bridge the existing knowledge gap, thereby promoting early detection and better survival rates. Limitation: The study is limited by its focus on specific high schools in underprivileged areas, affecting its generalizability. The reliance on self-reported survey data and logistical challenges in administering post-surveys also pose limitations. Conclusions: The MOHSS program shows promise as a tool for mitigating racial and ethnic disparities in skin cancer outcomes. Further research is needed to assess the sustainability of the observed changes in attitudes and behaviors over a longer period.

Dermatology

Young A, **Lu K**, **Dai A**, **Kagithala D**, **Samir E**, **Gregory M**, **Romanski M**, **Dimitrion P**, **Hamzavi I**, and **Mi QS**. 54091 Biologic efficacy and reasons for discontinuation in a tertiary referral hidradenitis suppurativa clinic. *J Am Acad Dermatol* 2024; 91(3):AB25. Full Text

Background: Hidradenitis suppurativa (HS) is a chronic inflammatory skin condition often unresponsive to conventional treatments. Biologic therapies targeting TNFα (first-line) and IL-17/IL-23 (second-line) have gained prominence for managing resistant cases. However, a comprehensive understanding of their real-world efficacy and underlying causes for treatment discontinuation remains limited. Methods: Leveraging a patient cohort from a specialized HS clinic, this study conducted an exhaustive examination of medical records from initial dermatological consultation to the latest follow-up, ending on September 4, 2023. Results: Among 391 patients, 178 (46%) had taken 1 or more biologics: adalimumab (N=147; 38%), infliximab (N=111; 28%), ustekinumab (N=22; 5.6%), secukinumab (N=19; 4.9%), and guselkumab (N=12; 3.1%). For those completing ≥3 months with assessable data, discontinuation rates at 1 year due to inefficacy were: adalimumab (47/93; 51%), infliximab (5/59; 8.5%), ustekinumab (9/17; 53%), secukinumab (7/8; 88%), and guselkumab (5/7; 71%). Infection led to discontinuation in 4.1%, 1.8%, 9.1%, 0%, and 0%, respectively. Side effect(s) other than infection led to discontinuation in 7.5%, 13%, 14%, 16%, and 8.3%, respectively. Lack of insurance coverage led to discontinuation in 4.8%, 5.4%, 4.5%, 0%, and 25%, respectively. Other reasons encompassed loss to follow-up, surgery, cancer diagnosis, switching to another medication due to comorbidity, latent tuberculosis, COVID-19 concerns, neutralizing anti-drug antibodies, needle anxiety, and clinical trial participation. Conclusion: This dataset reveals insights into biologic efficacy and common reasons for discontinuation in HS management. Infliximab discontinuation rates were the lowest among the TNF-alpha inhibitors. Rates of discontinuation of second-line therapies are high, emphasizing the urgent need to develop effective treatments for refractory HS.

Dermatology

Young A, **Lu K**, **Dai A**, **Kagithala D**, **Samir E**, **Gregory M**, **Romanski M**, **Dimitrion P**, **Hamzavi I**, and **Mi QS**. 53351 Predictors of drug survival in patients with hidradenitis suppurativa treated with TNF-alpha-inhibitors. *J Am Acad Dermatol* 2024; 91(3):AB72. Full Text

Background: Adalimumab and infliximab are biologics commonly used to treat hidradenitis suppurativa (HS). Factors underlying heterogeneity in treatment response are poorly understood. Methods: Patients from a tertiary HS referral clinic who had taken adalimumab or infliximab for at least 90 days were included. Multivariate Cox proportional-hazards models were fitted with drug survival as a function of age, sex, race, family history, age of onset, smoking status, body mass index (BMI), Hurley stage, anatomic sites affected, and previous biologic use. Results: 135 patients were included; the median age was 40 (range 19-67), 72% were female, and 45% were Black. 117 patients took adalimumab for a median of 304 days (IQR 153, 458); by 1 year, 66% had stopped due to inefficacy. Younger age (HR 1.03 [1.002-1.06] per year), BMI 30-40 (HR 2.26 [1.18-4.27]), BMI 40+ (HR 2.46 [1.22-4.96]), Hurley stage III disease, compared to stage II (HR 3.91 [1.83-8.35]), and groin involvement (HR 3.87 [1.47-10.18]) were significantly associated with adalimumab failure. Eighty-four patients took infliximab for a median of 464 days (IQR 299, 878); by 1 year, 22% had stopped due to inefficacy. No variables were significantly associated with infliximab failure. Conclusion: Infliximab had higher drug survival than adalimumab. Patients with younger age, obesity, Hurley Stage III disease, and groin involvement were more likely to fail adalimumab. No statistically significant predictors of infliximab response were identified, despite this being the largest reported cohort to date, suggesting a need for more nuanced data (e.g., biomarkers or genetic data) and/or larger sample size.

Diet and Nutrition Services
Buggs M, and Haque R. Continuous Glucose Monitoring: Implications for Health Literacy in the Management of Type 2 Diabetes Mellitus...Academy of Nutrition and Dietetics Food & Nutrition Conference & Expo, October 5-8, 2024, Minneapolis, Minnesota. *J Acad Nutr Diet* 2024; 124(10):A56-A56. Full Text

Eastern Michigan University/ Henry Ford Health
Eastern Michigan University

Diet and Nutrition Services
Ford J, Colling E, **Hannah D**, and Hand S. Analysis of Registered Dietitian Nutritionists (RDNs) Knowledge, Attitudes, and Beliefs on Transgender Nutrition Care in Michigan...Academy of Nutrition and Dietetics Food & Nutrition Conference & Expo, October 5-8, 2024, Minneapolis, Minnesota. *J Acad Nutr Diet* 2024; 124(10):A29-A29. Full Text

Grand Valley State University
Henry Ford Health System

Emergency Medicine
Gunaga S, **Al-Hage A**, **Buchheister A**, **Corcoran J**, Etu EE, **Welchans M**, **Swan K**, **Lakshmish-Kumar B**, **Mowbray F**, and **Miller J**. Temporal Impact of Hospice and Palliative Medicine Consults on End-of-Life Outcomes in Emergency Department and Hospitalized Patients. *Ann Emerg Med* 2024; 84(4):S87-S88. Full Text

Study Objectives: In recent years, there has been growing recognition of the benefits associated with early engagement of hospice and palliative medicine (HPM) resources for patients nearing the end-of-life. Early access to primary and specialized palliative care, notably in the emergency department (ED) and inpatient settings, facilitates essential goals of care conversations, updates patients' code status preferences, and explores comfort care options while continuing disease targeted therapies. Despite the expanding evidence base supporting early HPM interventions, questions persist regarding the optimal timing and clinical setting of such consultations. This retrospective cohort study aims to address this gap by examining the outcomes associated with different timing intervals for HPM consultations, whether initiated in the ED, within the first 48 hours of an inpatient stay, or after 48 hours of hospitalization. Methods: We conducted a multicenter retrospective cohort study using electronic health records from five hospital based EDs within a large urban and suburban metropolitan health system. The study period ranged from January 1, 2018, to December 31, 2022, and included patients aged >18 years who had

HPM consults ordered during ED or inpatient encounters. Patients were categorized into three cohorts: those who had HPM consults ordered in the ED, within the first 48 hours of admission (early), and after 48 hours of hospitalization (late). Patient data collected included demographics, inpatient hospital length of stay (LOS), ICU LOS, inpatient mortality, and final hospital dispositions. In cases where patients received multiple HPM consults per encounter, cohort assignment was determined based on the timing of their earliest HPM consult order. The three cohorts underwent an analysis of variance (ANOVA) to assess baseline and outcome differences among the groups. Descriptive statistics were employed to offer a synopsis of the characteristics and outcomes within each cohort. Results: The study analyzed 45,710 HPM consultations involving 25,609 unique patients across 31,072 encounters. Consultation distribution varied, with 6,220 initiated in the ED, 12,162 within 48 hours of hospitalization, and 12,690 after 48 hours of hospitalization. The mean age of the ED cohort was 77.7 years old (SD=13.88), statistically older than both the early (74.99, SD=14.86)) and late (74.36, SD=13.93) HPM consult groups ($p < .001$). The mean ED emergency severity index (ESI) was identical for all three groups at 2.12, $p = 0.55$. We observed significant associations between consult timing and various outcomes, including ICU length of stay, total hospital length of stay, and mortality rates in both ED and inpatient settings. For ICU length of stay, ED consults averaged 0.82 days, early inpatient consults 1.39 days, and late inpatient consults 4.99 days ($p < .001$). Similarly, for total hospital length of stay, ED consults averaged 4.75 days, early inpatient consults 5.69 days, and late inpatient consults 12.72 days ($p < .001$). Additionally, mortality rates varied across consult timings, with ED consults experiencing a mortality rate of 52.91% (n=3291), early inpatient consults 61.97% (n=7537), and late inpatient consults 69.61% (n=8833) ($p < .001$). Graphical summary of these comparisons is displayed in Figure 1. Conclusion: Our findings provide valuable preliminary insights into the temporal dynamics of HPM consultations in end-of-life hospital care. Early consultations, especially those initiated in the ED, were linked to shorter ICU and total hospital length of stay, as well as lower mortality rates. To advance these findings into practice, further efforts are needed to enhance primary palliative care skills among clinical teams and prioritize initiatives that enable early HPM consults in both the ED and inpatient setting. [Formula presented] No, authors do not have interests to disclose

Graduate Medical Education

Gunaga S, **Al-Hage A**, **Buchheister A**, **Corcoran J**, Etu EE, **Welchans M**, **Swan K**, **Lakshmish-Kumar B**, **Mowbray F**, and **Miller J**. Temporal Impact of Hospice and Palliative Medicine Consults on End-of-Life Outcomes in Emergency Department and Hospitalized Patients. *Ann Emerg Med* 2024; 84(4):S87-S88. Full Text

Study Objectives: In recent years, there has been growing recognition of the benefits associated with early engagement of hospice and palliative medicine (HPM) resources for patients nearing the end-of-life. Early access to primary and specialized palliative care, notably in the emergency department (ED) and inpatient settings, facilitates essential goals of care conversations, updates patients' code status preferences, and explores comfort care options while continuing disease targeted therapies. Despite the expanding evidence base supporting early HPM interventions, questions persist regarding the optimal timing and clinical setting of such consultations. This retrospective cohort study aims to address this gap by examining the outcomes associated with different timing intervals for HPM consultations, whether initiated in the ED, within the first 48 hours of an inpatient stay, or after 48 hours of hospitalization. Methods: We conducted a multicenter retrospective cohort study using electronic health records from five hospital based EDs within a large urban and suburban metropolitan health system. The study period ranged from January 1, 2018, to December 31, 2022, and included patients aged >18 years who had HPM consults ordered during ED or inpatient encounters. Patients were categorized into three cohorts: those who had HPM consults ordered in the ED, within the first 48 hours of admission (early), and after 48 hours of hospitalization (late). Patient data collected included demographics, inpatient hospital length of stay (LOS), ICU LOS, inpatient mortality, and final hospital dispositions. In cases where patients received multiple HPM consults per encounter, cohort assignment was determined based on the timing of their earliest HPM consult order. The three cohorts underwent an analysis of variance (ANOVA) to assess baseline and outcome differences among the groups. Descriptive statistics were employed to offer a synopsis of the characteristics and outcomes within each cohort. Results: The study analyzed 45,710 HPM consultations involving 25,609 unique patients across 31,072 encounters. Consultation distribution varied, with 6,220 initiated in the ED, 12,162 within 48 hours of hospitalization, and 12,690 after 48 hours of hospitalization. The mean age of the ED cohort was 77.7 years old (SD=13.88), statistically older than

both the early (74.99, SD=14.86)) and late (74.36, SD=13.93) HPM consult groups (p < .001). The mean ED emergency severity index (ESI) was identical for all three groups at 2.12, p = 0.55. We observed significant associations between consult timing and various outcomes, including ICU length of stay, total hospital length of stay, and mortality rates in both ED and inpatient settings. For ICU length of stay, ED consults averaged 0.82 days, early inpatient consults 1.39 days, and late inpatient consults 4.99 days (p < .001). Similarly, for total hospital length of stay, ED consults averaged 4.75 days, early inpatient consults 5.69 days, and late inpatient consults 12.72 days (p < .001). Additionally, mortality rates varied across consult timings, with ED consults experiencing a mortality rate of 52.91% (n=3291), early inpatient consults 61.97% (n=7537), and late inpatient consults 69.61% (n=8833) (p < .001). Graphical summary of these comparisons is displayed in Figure 1. Conclusion: Our findings provide valuable preliminary insights into the temporal dynamics of HPM consultations in end-of-life hospital care. Early consultations, especially those initiated in the ED, were linked to shorter ICU and total hospital length of stay, as well as lower mortality rates. To advance these findings into practice, further efforts are needed to enhance primary palliative care skills among clinical teams and prioritize initiatives that enable early HPM consults in both the ED and inpatient setting.

Hematology-Oncology

Besse B, Drilon AE, Cho BC, Camidge DR, Neal J, Lin CC, Liu SV, Nagasaka M, Kao SCH, Felip E, Van Der Wekken AJ, Lin CC, Bauman JR, **Gadgeel S**, Samant M, Shen J, Sun Y, Zhu VW, Upadhyay VA, and Lin JJ. 1256MO Phase I/II ARROS-1 study of zidesamtinib (NVL-520) in ROS1 fusion-positive solid tumours. *Ann Oncol* 2024; 35:S804-S805. Full Text

Background: Zidesamtinib is a brain-penetrant, TRK-sparing, highly selective ROS1 tyrosine kinase inhibitor (TKI) with activity against diverse ROS1 fusions and resistance mutations including G2032R. Methods: The global ARROS-1 phase (ph) 1 (NCT05118789) enrolled pts with heavily pretreated advanced/metastatic ROS1+ solid tumors. Key objectives were selection of a recommended ph 2 dose (RP2D) and evaluation of safety and efficacy (RECIST 1.1, investigator assessment). Data cut: 12 March 2024. Results: 104 pts (99 NSCLC, 5 other) received zidesamtinib (25-150 mg orally once daily [QD]) in ph 1. Pts had a median of 3 (range: 1-11) prior anticancer therapies, including any ROS1 TKI (99%); lorlatinib (55%), repotrectinib (repo; 21%), or either (67%); ≥2 ROS1 TKIs (69%); and chemo (66%). 53% had history of CNS metastases (mets). 100 mg QD was selected as the RP2D with no observed dose relationships for safety or efficacy. No dose-limiting toxicity or discontinuation due to treatment-related adverse event (TRAE) occurred. TRAE led to dose reduction in 5.8%. Most common TRAEs were peripheral edema (18%) and transaminase increase (12%); TRAEs were grade ≥3 in 7.7%. 73 pts with ROS1+ NSCLC were response-evaluable (Table). [Formula presented] In pts with known ROS1 G2032R, ORR was 65% (11/17) with mDOR 15.8m (6, NE) among repo-naïve pts and ORR was 38% (3/8) among repo-pretreated pts. In pts with measurable intracranial (IC) mets and ≥2 prior ROS1 TKIs (all with prior lorlatinib and/or repo), IC ORR was 57% (4/7), and IC DOR range was 1.9+ - 17.3+m with no IC progression. Conclusions: Zidesamtinib demonstrated encouraging efficacy and durability in pts with pretreated ROS1+ NSCLC, including those who had exhausted available therapies, with ROS1 resistance mutations including G2032R, and/or with CNS mets. Safety was favorable and consistent with the highly ROS1-selective and TRK-sparing design. Ph 2 enrollment is ongoing with registrational intent in pts with TKI-naïve and pretreated ROS1+ NSCLC. Clinical trial identification: NCT05118789.

Hematology-Oncology

Drilon AE, Lin JJ, Johnson ML, Baik CS, Paz-Ares LG, Besse B, Mazieres J, Swalduz A, Minchom AR, Reuss J, **Gadgeel S**, Riess JW, Liu G, Solomon BJ, Camidge DR, Swe W, Sun Y, Shen J, Zhu VW, and Felip E. 1253O Phase I/II ALKOVE-1 study of NVL-655 in ALK-positive (ALK+) solid tumours. *Ann Oncol* 2024; 35:S802-S803. Full Text

Background: NVL-655 is a potent, brain-penetrant, ALK-selective tyrosine kinase inhibitor (TKI) designed to address key limitations of prior generation ALK TKIs (1G, 2G, 3G); it demonstrates preclinical activity against diverse ALK fusions and resistance mutations, including lorlatinib-refractory compound mutations, while avoiding TRK inhibition, which is associated with neurologic toxicities. Methods: The global ALKOVE-1 phase (ph) 1 (NCT05384626) enrolled pts with pretreated advanced ALK+ solid tumors. Key objectives were selection of a recommended ph 2 dose (RP2D), safety, and efficacy (RECIST 1.1,

investigator assessment). Data cut: 23 March 2024. Results: 133 pts (131 NSCLC, 2 other) received NVL-655 (15-200 mg orally once daily [QD]) in ph 1. Pts previously received a median of 3 (range: 1-8) prior anticancer therapies, including 2G ALK TKI or lorlatinib (100%), ≥1 2G ALK TKI & lorlatinib (79%), ≥3 ALK TKIs (46%), and chemotherapy (56%); 56% had a history of treated/untreated CNS metastases. A maximum tolerated dose was not reached. 150 mg QD was selected as the RP2D, providing favorable safety, activity and exposure exceeding targeted efficacy thresholds for ALK resistance mutations. Most common TRAEs were ALT increase (33%), AST increase (29%), constipation (15%), nausea (12%) and dysgeusia (11%); 2% discontinued due to TRAEs. [Formula presented] Conclusions: NVL-655 demonstrated encouraging efficacy & durability in heavily pretreated ALK+ NSCLC pts, including pts who exhausted available therapies (including lorlatinib), with ALK single and compound resistance mutations, and with CNS metastases. Safety was favorable, consistent with the ALK-selective, TRK-sparing design. Ph 2 enrollment is ongoing with registrational intent for previously treated pts. Clinical trial identification: NCT05384626.

Hematology-Oncology

Dziadziuszko R, Damian S, **Gadgeel S**, Garralda E, Italiano A, Kim JE, Krzakowski M, Lin CC, Popovtzer A, Thomas D, Kirschbrown W, Patel S, Pham T, Sbirnac M, Wu F, and Barlesi F. Belvarafenib in patients (pts) with BRAF class II or III alteration-positive tumours: TAPISTRY study. *Ann Oncol* 2024; 35:S498-S499. Full Text

Background: BRAF class II and III alterations are found in a range of cancers and are resistant to approved type 1 BRAF inhibitors. We present efficacy and safety data for the potent and selective RAF inhibitor belvarafenib in pts with BRAF class II or III alteration-positive solid tumours from Cohorts I and J of the TAPISTRY study. Methods: The TAPISTRY phase II, open-label study (NCT04589845) is evaluating the efficacy and safety of various therapies in pts with advanced/metastatic solid tumours. Pts were aged ≥12 years, with measurable disease by RECIST v1.1 and BRAF class II mutant/fusion positive/intragenic deletion (Cohort I) or class III mutant tumours (Cohort J), identified by next-generation sequencing. Pts received 400 mg oral belvarafenib twice daily in 28-day cycles. Tumour assessments were performed at screening, every 8 weeks for 1 year, and every 12 weeks after. Primary endpoint: objective response rate (ORR) by independent review committee (IRC). Key secondary endpoints: ORR by investigator; clinical benefit rate; progression-free survival; overall survival; safety. Results: At data cutoff, 30 pts in Cohort I and 24 in Cohort J were evaluable for safety. In the efficacy-evaluable population there were 26 pts in Cohort I (12 tumour types; most common: colorectal and NSCLC [15% each]) and 23 in Cohort J (8 tumour types; most common: colorectal [39%]). After a median follow-up of 4.4 mos in Cohort I and 5.6 mos in Cohort J, there were no confirmed responses by IRC in either cohort (Table). Most common treatment-related adverse event was dermatitis acneiform (Cohort I: 43%; Cohort J: 25%). No new safety signals were identified. Conclusions: In this study belvarafenib did not demonstrate antitumour activity in pts whose tumours had class II or III BRAF alterations. However, a number of pts had stable disease. Further studies are needed to understand the value of BRAF inhibition in the tumour-agnostic setting. The safety profile of belvarafenib was consistent with the known safety profile of the drug. [Formula presented] Clinical trial identification: NCT04589845.

Hematology-Oncology

Florou V, Orr D, Morton A, Cheng Y, Yuan P, Sun Y, Tang X, Liu S, and **Gadgeel S**. 689TiP A phase I/IIa trial of Aurora-A inhibitor (JAB-2485) in adult patients with advanced solid tumors. *Ann Oncol* 2024; 35:S533-S534. Full Text

Background: Aurora kinase A (AURKA), a crucial mitotic regulator, is frequently dysregulated in a wide range of cancers, which contributes to clinical aggressiveness and poor patient survival, making it an attractive therapeutic target. Prior studies with pan-Aurora kinase inhibitors have shown limited success, largely owing to the narrow therapeutic window associated with bone marrow toxicity caused by targeting Aurora B. The development of highly selective AURKA inhibitors, with improved efficacy and tolerability, is highly warranted. We have developed JAB-2485, a potent, small-molecule AURKA inhibitor with greater than 1500-fold selectivity over AURKB and AURKC. JAB-2485 efficiently induced G2/M phase cell cycle arrest and apoptosis of cancer cells in vitro. Furthermore, it showed impressive anti-tumor efficacy both as a single agent and in synergy with chemotherapies in multiple animal models. Trial design: This global

first-in-human, open-label, multi-center phase 1/2a trial evaluates the safety and tolerability of JAB-2485 in adult patients with advanced solid tumors. In the dose escalation phase (phase 1), six dose levels of daily JAB-2485 (5, 10, 20, 40, 60, and 80mg) will be explored to determine the maximum tolerated dose (MTD) using a modified toxicity probability interval 2 (mTPI-2) method. After determining the recommended phase 2 dose (RP2D), the dose-expansion phase (Phase 2a) will explore the preliminary anti-tumor activity of JAB-2485 as a single agent in patients with ER+ breast cancer, triple-negative breast cancer, small cell lung cancer, and tumors harboring ARID1A mutations. The inclusion criteria for the phase 1 portion include progressive refractory advanced solid malignancy, ≥18 years of age, ECOG performance status ≤ 1, and adequate organ function. The primary endpoint is the incidence of dose-limiting toxicity (DLT) and the safety and tolerability of JAB-2485. The secondary endpoints include pharmacokinetics, overall response rate, time to, and duration, of response. Exploratory endpoints include correlative pharmacodynamic markers.Enrollment in this trial started in January 2023 in the US and April 2024 in China. Clinical trial identification: NCT05490472; CTR20223395. Legal entity responsible for the study: Jacobio Pharmaceuticals Co., Ltd.

Hematology-Oncology
Gambardella V, Navarro Mendivil AF, Lopez-Picazo Gonzalez JM, Jain P, Fernandez-Hinojal G, De Miguel M, Zugazagoitia J, **Gadgeel S**, Bhatti SA, Vilalta A, Castanon Alvarez E, Simoes da Rocha PF, Micallef S, Frederiksen Franzen R, Piggott L, Bellon A, Rodrigo Imedio E, and Paz-Ares LG. 1813TiP Debio 0123, a highly selective WEE1 inhibitor, combined with carboplatin (CP) and etoposide (ETOP) in patients (pts) with small cell lung cancer (SCLC) that progressed after platinum-based therapy: A phase I dose escalation and expansion study. *Ann Oncol* 2024; 35:S1074-S1075. Full Text

Background: Debio 0123 is an oral, brain-penetrant, highly selective WEE1 inhibitor. WEE1 inhibition leads to S phase and G2/M cell cycle abrogation, allowing mitosis without DNA repair, leading to mitotic catastrophe and cell death. Debio 0123 is in clinical development, as monotherapy or in combination, in solid tumors, and has shown manageable safety profile with early signals of antitumor activity. SCLC is an aggressive disease with poor prognosis carrying a high mutational burden and genomic instability. Preclinically, Debio 0123 has shown to significantly improve antitumor activity of CP and ETOP, in SCLC models. These data support clinical investigation of Debio 0123 combined with CP and ETOP in SCLC. Trial design: A phase I study (NCT05765812) evaluating Debio 0123 combined with CP and ETOP in pts with recurrent SCLC after 1st line of platinum-based chemotherapy. During dose escalation (part 1), pts who had a platinum chemotherapy-free interval (CFI)>45 days receive escalating doses of Debio 0123 combined with CP (AUC5) and ETOP (100 mg/m2) in 21-day cycles. Dose escalation is supported by a Bayesian logistic regression model with overdosing control (BLRM-EWOC). After dose escalation, expansion cohort(s) (Part 2) in pts with recurrent SCLC who had CFI>90 days, may be opened at different dose levels to define the optimal recommended dose (RD) for further development. The primary objectives of the study are to identify the RD, and to characterize the safety and tolerability of Debio 0123 combined with CP and ETOP. Secondary objectives include preliminary antitumor activity and pharmacokinetics. Brain penetration is assessed with CSF/plasma Debio 0123 concentration ratios. Key inclusion/exclusion criteria: recurrence or progression after 1st line with platinum-based chemotherapy CFI>45 (part 1) and CFI>90 (part 2), ECOG Performance Status 0-1, and measurable disease per RECIST 1.1. Prior 2nd line with lurbinectedin, and treated, stable brain metastasis are allowed. Enrolment started in May 2023 and as of May 2024, the fifth cohort is ongoing in Spain and the US. Clinical trial identification: EudraCT Number: 2022-001976-32; IND Number(s): 162 871; NCT05815160.

Hematology-Oncology
Kilari D, Szabo A, Bilen MA, Ged Y, Maughan BL, **Hwang C**, McManus H, Coelho Barata PM, Desai A, Zakharia Y, Emamekhoo H, Tripathi A, Rose T, Ghatalia P, Reimers MA, Heath E, King JM, Rini BI, Brugarolas J, and McKay RR. 1709P Outcomes with novel combinations in non-clear cell renal cell carcinoma (nccRCC): ORACLE study. *Ann Oncol* 2024; 35:S1024-S1025. Full Text

Background: There is a paucity of data to guide management of nccRCC due to the heterogeneity and rarity of these tumors. Limited data exists regarding the clinical activity of combination therapies in subtypes of advanced nccRCC. Methods: In this multicenter retrospective analysis, we evaluated the efficacy of combination systemic therapy from 2012-2024. in patients(pts) with nccRCC. Eligible pts

included those with nccRCC and receipt of any combination regimens including IO-IO, IO-VEGF, mTOR-VEGF during any line of treatment. The primary endpoint was objective response rate (ORR) assessed by investigator review. Secondary endpoints were progression- free survival (PFS), disease control rate (DCR), and overall survival (OS). Results: 253 pts received combination regimens. The median age was 59 years; 72% were male and 64% white. Histologies included papillary (38%), unclassified (34%), chromophobe (16%), translocation (8%), and other (4%). 23% had sarcomatoid and/or rhabdoid differentiation. 73% had prior nephrectomy, 82% were IMDC intermediate/poor risk. 23% and 28% had liver and bone metastasis respectively. The majority (69%) received combination treatment as first line. Comparison of outcomes based on treatment regimen and subtype is shown in the table. ORR/DCR/PFS was significantly lower when combination regimens were utilized in second or later line compared to front line setting. [Formula presented] Conclusions: Limited antitumor activity was observed with novel combinations in nccRCC in both frontline and later line setting. nccRCC subsets appear to respond differentially based on the type of combination regimen. Optimal management of nccRCC remains an unmet need.

Hematology-Oncology
Koshkin VS, Barthelemy P, Gravis G, Goodman O, Duran I, Girones Sarrio R, **Hwang C**, Garcia-Donas J, Morales Barrera R, Zanetta S, Chisamore M, Liu M, Gil M, Tomlinson G, Elsayed H, and Loriot Y. 1965MO Phase II study of futibatinib plus pembrolizumab in patients (pts) with advanced/metastatic urothelial carcinoma (mUC): Final analysis of efficacy and safety. *Ann Oncol* 2024; 35:S1136-S1137. Full Text

Background: Treatment options for pts with mUC who are platinum ineligible are limited. In this global, two-cohort, noncomparative phase 2 study (NCT04601857), the first-line combination of futibatinib (covalent FGFR1–4 inhibitor) plus pembrolizumab was assessed in platinum-ineligible pts with mUC with or without FGFR alterations. Methods: Pts with no prior systemic therapy for mUC, measurable disease, and FGFR3 mutations or FGFR1–4 fusion/rearrangements (f/r; Cohort A), or without these alterations (Cohort B), received futibatinib 20 mg PO QD plus pembrolizumab 200 mg IV Q3W, irrespective of PD-L1 status. Primary endpoint in each cohort: confirmed objective response rate (cORR; complete/partial response [CR/PR]). Secondary endpoints: disease control rate (DCR; CR + PR + stable disease [SD]), duration of response (DOR), progression-free survival (PFS), overall survival (OS), and safety. Results: In total, 43 pts were treated (17, Cohort A; 26, Cohort B). In Cohorts A/B, respectively, median age was 73/73 y, 82%/89% were male, 71%/46% had a baseline ECOG PS of 1, and 41%/31% had prior perioperative therapy. In Cohort A, 9 pts (53%) had FGFR3 mutations, 6 (35%) had FGFR3 f/r, 1 pt had FGFR2 f/r, and 1 pt had both an FGFR3 mutation and FGFR1 f/r. In Cohorts A/B, with a median follow-up of 16.2/24.6 months, the cORR was 47%/31%, median PFS was 8.3/4.8 months, and 12-month OS was 62%/57%. Overall, the most common treatment-related adverse events (TRAEs) were hyperphosphatemia (all grade, 23 [54%]; G3, 3 pts), diarrhea (19 [44%]; G3, 3 pts), and dry mouth (16 [37%]; all G1). The table presents key efficacy and safety data. [Formula presented] Conclusions: Futibatinib plus pembrolizumab had encouraging antitumor activity with durable responses in pts with mUC, particularly among pts with FGFR3 mutations or FGFR1–4 f/r. The combination was well tolerated; TRAEs were consistent with the known safety profiles of futibatinib and pembrolizumab, with no new safety concerns. Clinical trial identification: NCT04601857

Hematology-Oncology
McKean M, **Weise AM**, Papadopoulos KP, Crown JP, Thomas SS, Mehnert JM, Kaczmar J, Kim KB, Lakhani NJ, Yushak ML, Mani J, Fang F, Brennan L, Lowy I, Salvati ME, Fury MG, Lewis K, and Hamid O. 1097P Long-term follow-up of advanced melanoma (unresectable/metastatic - aMel) patients (pts) treated with fianlimab (FIAN) + cemiplimab (CEMI): Results from blinded independent central review (BICR) efficacy assessment. *Ann Oncol* 2024; 35:S726-S727. Full Text

Background: Treatment (Tx) with FIAN (anti-lymphocyte activation gene-3 [LAG-3]) + CEMI (anti-programmed cell death protein 1 [PD-1]) had a 61% ORR in pts with aMel by investigator assessment with an acceptable risk–benefit profile. Here, we present an efficacy analysis by BICR with 12-months (mos) additional follow-up and safety data on pts with aMel. Methods: This study (NCT03005782) enrolled 3 independent expansion cohorts of pts who were anti–PD-(L)1 Tx-naïve for aMel. Pts received

FIAN 1600 mg + CEMI 350 mg IV every 3 weeks (wk) up to 24 mos. Results: 98 pts [median (med) age: 68 years (y)] were enrolled. As of data cutoff (31 October 2023), med follow-up was 23 mos, and med Tx duration was 36 wk. Grade ≥3 treatment-emergent adverse events (TEAEs), serious TEAEs, and immune-mediated adverse event (imAEs) occurred in 47%, 39% and 39% of pts, respectively; 21% of pts discontinued Tx due to a TEAE. Rates of imAEs were similar to PD-1 monotherapy, except for adrenal insufficiency (12% [all grades] and 5% [grade ≥3]). BICR-assessed efficacy data for cohorts MM1, MM2, and MM3 are shown in the Table. Per BICR, overall (N=98) CR, ORR, and med PFS was 25%, 57% (95% CI: 47–67), and 24 mos (95% CI: 12–NE), respectively; med time to response and CR was 1.5 and 4.1 mos, respectively. Disease control rate was 78% (95% CI: 68–85), with med overall survival NR (95% CI: 42–NE). 31% and 4% of pts completed 1-y and 2-y Tx; med duration of response was NR (95% CI: 23–NE). ORR was 50% and 71% in pts with PD-L1 <1% and ≥1%; and 50% and 61% in pts with LAG-3 <1% and ≥1%, respectively. Circulating tumour DNA was cleared by Cycle 4 Day 1 in 15/31 pts. [Formula presented] Conclusions: With longer follow up, FIAN + CEMI in aMel pts showed persistent high clinical activity by BICR regardless of PD-L1 or LAG-3 status and across high-risk subgroups with an acceptable safety profile. The prevalence of CRs increased over time. Clinical trial identification: NCT03005782.

Hematology-Oncology
Thapa B, Henderson N, Tagawa ST, **Hwang C**, Sokolova AO, Bilen MA, Coelho Barata PM, Nguyen CB, Tripathi A, Ayanambakkam A, Graham LS, Zakharia Y, Koshkin VS, Heath E, Dorff TB, Armstrong AJ, McKay RR, Alva AS, Schweizer M, and Kilari D. 1643P Impact of PTEN alterations on clinical outcomes in patients (pts) with de novo metastatic prostate cancer (mPC). *Ann Oncol* 2024; 35:S991. Full Text

Background: Compound alterations in TP53, RB1, and/or PTEN have been correlated with poor outcomes in pts with mPC; however, there is limited data regarding whether PTEN alterations(alt) by next generation sequencing (NGS) are prognostic in isolation. PTEN -null de novo mPC is currently being investigated in CAPItello-281 and may represent a clinically actionable subtype. As such, we sought to characterize outcomes of this genomically defined subgroup. Methods: PROMISE is a multi-institutional database including mPC pts (N=2027) with NGS. Using PROMISE, we analyzed outcomes based on PTEN status in de novo mPC pts. Results: Among 1036 pts with de novo mPC, 212 (20%) had PTEN alt by NGS. Median age at diagnosis was 64 yrs, 21% were Black, 53% had high volume (HV) disease. Compared to the PTEN-wildtype (wt) group, PTEN-altered mPC had higher co-occurrence of TP53 and/or RB1 mutations (57% vs 37%); lower median PSA (38 vs 63 ng/ml); and more visceral disease (18 vs 11%). Groups were otherwise similar. The table shows univariate (UVA) outcomes based on PTEN status. Outcomes were similar in men with high volume disease on UVA. On multivariable analysis controlling for clinical prognostic features and TP53/RB1 alterations, PTEN status remained independently associated with overall survival (OS) [HR 1.27, 95% CI (0.99, 1.63) p=0.05]. [Formula presented] Conclusions: PTEN status correlated with poor outcomes in de novo mPC independent of other clinical and genomic factors.

Infectious Diseases
Jagannathan M, **Jordan T**, **Kinsey D**, **Kenney R**, **Veve M**, **Suleyman G**, and **Shallal A**. Characteristics, Treatment, and Outcomes of Invasive Group A Streptococcal Infections...The Society for Healthcare Epidemiology of America (SHEA) Spring Conference, April 16-19, 2024, Houston, Texas. *Antimicrob Steward Healthc Epidemiol* 2024; 4:s59-s60. Full Text

Henry Ford Hospital

Infectious Diseases
Malik A, **Shallal A**, **Alangaden G**, and **Suleyman G**. Risk Factors and Outcomes of Candida auris in Southeast Michigan...The Society for Healthcare Epidemiology of America (SHEA) Spring Conference, April 16-19, 2024, Houston, Texas. *Antimicrob Steward Healthc Epidemiol* 2024; 4:s92-s93. Full Text

Henry Ford Hospital
Henry Ford Health System and Wayne State Univ

Internal Medicine

Albakri K, Khater B, Aldemerdash MA, Nasruldin Shahin H, Aldemerdash A, Saleh O, Nabeel Alsafuti M, Alnajjar R, Khaity A, and **Ammari O**. IBCL-523 Comparative Efficacy, Safety, and Cost-Effectiveness of Subcutaneous Versus Intravenous Rituximab in Non-Hodgkin Lymphoma: A Systematic Review and Meta-Analysis. *Clin Lymphoma Myeloma Leuk* 2024; 24:S501-S502. Full Text

Context: Rituximab is considered a mainstay of treatment for non-Hodgkin lymphoma (NHL) that is usually given intravenously. A subcutaneous formulation is proposed as an alternative to reduce healthcare burdens and costs while maintaining efficacy. Objectives: Assessment of efficacy, adverse events, costs and time of infusion between subcutaneously and intravenously administered rituximab. Design: PubMed, Web of Science, Embase, SCOPUS, and Cochrane databases were searched from inception until 5/20/2024 identifying 1832 studies. Our inclusion criteria consisted of clinical or observational studies investigating NHL patients receiving rituximab intravenously versus subcutaneously. The primary outcome was patients' response including complete response (CR), unconfirmed complete response (CRu), partial response (PR), and overall response (OR). Secondary outcomes were therapy safety, administration time and cost. Results: Seven studies with 1562 participants were included. No statistically significant difference in CR/CRu (OR: 1.21, 95% CI [0.96, 1.53]), PR (OR: 0.87, 95% CI [0.69, 1.10]), and overall response (OR: 1.11, 95% CI [0.80, 1.54]) between subcutaneous and intravenous rituximab groups. No significant differences in grade ≥3 adverse events (OR: 1.04, 95% CI [0.83, 1.32]), and any grade adverse events (OR: 0.90, 95% CI [0.63, 1.27]). However, the intravenous group had a higher rate of administration-related adverse events (OR: 1.69, 95% CI [1.31, 2.19]). The subcutaneous rituximab group had a lower total cost (MD: -1.73.71, 95% CI [-195.04, 2.19]), pharmacy technique cost (MD: -0.66, 95% CI [-1.03, -0.29]), rituximab cost (MD: -85.61, 95% CI [-152.28, -18.95]), and total process time (MD: -48.91, 95% CI [-53.61, -44.22]). Conclusion: Subcutaneous rituximab is an alternative to the more conventional intravenous rituximab, offering comparable efficacy with fewer infusion-related reactions, shorter administration times, and lower costs. Despite these benefits, there is a gap between current research findings and the extent of subcutaneous rituximab utilization. We think this may be due to factors such as provider familiarity, institutional policies, and the costs associated with training individuals in subcutaneous rituximab administration. Our study highlights the importance of education and training to increase the utilization of subcutaneous rituximab in the context of NHL treatment.

Internal Medicine

Albakri K, Khater B, Aldemerdash MA, Nasruldin Shahin H, Saleh O, **Al-Hawi O**, Alnajjar R, and Khaity A. IBCL-506 Safety and Efficacy of Ibritumomab Tiuxetan Versus Rituximab in Newly Diagnosed and Relapsed Patients With Non-Hodgkin Lymphoma: A Systematic Review and Meta-Analysis. *Clin Lymphoma Myeloma Leuk* 2024; 24:S499-S500. Full Text

Context: Rituximab is the standard therapy after chemotherapy induction for newly diagnosed non-Hodgkin lymphoma (NHL) patients. Recent evidence suggests radioimmunotherapy (RIT) may be as effective as rituximab for consolidation after NHL induction treatment. Although RIT using ibritumomab tiuxetan (ibritumomab) is approved for relapsed NHL, its use as a consolidation therapy for newly diagnosed NHL is debated. Objective: Compare remission rates and adverse events between ibritumomab and rituximab consolidation. Design: A comprehensive search was conducted using PubMed, Web of Science, Embase, SCOPUS, and Cochrane databases until May 25, 2024, identifying 2437 records. This review includes studies investigating relapsed or newly diagnosed NHL patients. Our primary outcome is patients' response, including complete response (CR), unconfirmed complete response (CRu), partial response (PR), and overall response (OR). The secondary outcome is the safety of the therapies. Results: Six studies with 466 participants were included. No significant differences between ibritumomab and rituximab groups regarding CR/CRu (odds ratio [OR]: 0.78; 95% CI, 0.46-1.33), PR (OR: 0.90; 95% CI, 0.45-1.83), overall response rate (OR: 0.65; 95% CI, 0.23-1.87), and 5-year overall survival (OR: 0.70; 95% CI, 0.27-1.80) in newly diagnosed NHL patients. Subgroup analysis demonstrated no significant differences between newly diagnosed and relapsed patients for PR (P =.43), overall response rate (P=.26), and 5-year overall survival (P=.19). Relapsed patients treated with rituximab had higher CR/CRu rates than with ibritumomab (P=.03). The newly diagnosed patients in the ibritumomab group had significantly higher rates of grade ≥3 adverse events (OR: 2.88; 95% CI, 1.58-

5.25), neutropenia (OR: 16.23; 95% CI, 5.76-45.72), and thrombocytopenia (OR: 59.58; 95% CI, 11.16-318.13) than newly diagnosed patients in the rituximab group. Conclusions: No significant differences were found in key outcomes between ibritumomab tiuxetan and rituximab maintenance in newly diagnosed NHL patients. However, rituximab showed higher CR/CRu rates in relapsed patients compared to ibritumomab. Higher incidence of neutropenia and thrombocytopenia in newly diagnosed NHL patients were observed with ibritumomab. Ibritumomab tiuxetan could be an alternative to rituximab, but adverse events may limit its use. Therefore, careful consideration of patient characteristics and potential risks is necessary when selecting treatment. Further clinical trials are needed to optimize the safety and effectiveness of RIT.

Internal Medicine
Jagannathan M, **Jordan T**, **Kinsey D**, **Kenney R**, **Veve M**, **Suleyman G**, and **Shallal A**. Characteristics, Treatment, and Outcomes of Invasive Group A Streptococcal Infections...The Society for Healthcare Epidemiology of America (SHEA) Spring Conference, April 16-19, 2024, Houston, Texas. *Antimicrob Steward Healthc Epidemiol* 2024; 4:s59-s60. Full Text

Henry Ford Hospital

Internal Medicine
Khaity A, Mohammad Hussein A, Al-dardery NM, Albakri K, and **Ammari O**. AML-611 Safety and Efficacy of FLT3 Inhibitors in Acute Myeloid Leukemia: An Updated Meta-Analysis of 2975 Patients. *Clin Lymphoma Myeloma Leuk* 2024; 24:S325-S326. Full Text

Context: Acute myeloid leukemia (AML) is an aggressive hematological malignancy that arises from myeloid precursor cells within the bone marrow. Mutations in the FMS-like tyrosine kinase 3 (FLT3) gene occur in around one-third of AML patients. These mutations are associated with a worse prognosis. The FLT3 gene plays a crucial role in the growth and survival of cancer cells. FLT3 inhibitors have emerged as a promising treatment option to inhibit the aberrant signaling pathways driven by FLT3 mutations. Objective: We performed this meta-analysis to update the current evidence about the safety and efficacy of FLT3 inhibitors on the overall survival rate and adverse events in AML patients. Design: Scopus, Web of Science, Cochrane Library, and PubMed were searched for relevant randomized controlled trials (RCTs) from inception until April 2024. We included RCTs comparing sorafenib, gilteritinib, and midostaurin versus placebo. Records were screened for eligible studies, and all relevant outcomes were pooled as risk ratio (RR) in a random-effect model meta-analysis, using RevMan software. Results: Pooling data from 19 RCTs (2975 patients) showed that sorafenib was superior to placebo in terms of overall survival rate (RR = 2.26, 95% CI [1.33, 3.84], P=0.003). However, the overall effect did not favor either of the two groups in terms of hematological and gastrointestinal side effects (RR = 1.29, 95% CI [0.77, 2.18], P=0.3) and (RR = 1.40, 95% CI [0.92, 2.14], P=0.1), respectively. Additionally, an insignificant difference was detected among gilteritinib versus placebo and midostaurin versus placebo in terms of hematological and gastrointestinal side effects (RR = 1.54, 95% CI [0.97, 2.43], P=0.07; RR = 2.97, 95% CI [0.40, 22.15], P=0.2; RR = 1.27, 95% CI [0.96, 1.68], P=0.09; and RR = 1.16, 95% CI [0.56, 2.43], P=0.6), respectively. Conclusions: Our meta-analysis revealed a statistically significant improvement in overall survival with sorafenib compared to placebo. However, while our findings suggest that sorafenib may offer a survival benefit, a more comprehensive understanding of its safety profile, alongside those of gilteritinib and midostaurin, is necessary. Further research is crucial to optimize treatment strategies and establish definitive guidelines for using FLT3 inhibitors in AML patients.

Neurosurgery
Chaker A, **Rademacher A**, **Kagithala D**, **Telemi E**, **Kim E**, **Mansour T**, **Schultz LR**, **Hu J**, **Jafar Y**, **Easton M**, **Abdulhak M**, **Schwalb JM**, and **Chang V**. The impact of serum albumin levels on cervical spine surgery outcomes: a MSSIC study. *Spine J* 2024; 24(9):S171-S172. Full Text

BACKGROUND CONTEXT: Serum albumin, a marker of nutritional status, has been identified as a significant predictor of postoperative outcomes across various surgical fields. Patients with serum albumin levels < 3.5, indicative of poor nutritional status, are traditionally nutritionally optimized prior to undergoing operative intervention. However, there is a paucity of data regarding the outcomes of patients with

albumin levels ranging between 3.5 to 4. PURPOSE: This study aims to determine if there is an association between albumin levels between 3.5 and 4 g/dL and postoperative outcomes in cervical spine surgery, and to determine if these patients may benefit from preoperative optimization. STUDY DESIGN/SETTING: N/A PATIENT SAMPLE: N/A OUTCOME MEASURES: N/A METHODS: A Michigan Spine Surgery Improvement Collaborative (MSSIC) database search was performed for cervical spine fusion surgeries between January 2020 and December 2022. 6,826 patients were analyzed retrospectively. Patients were grouped by preoperative serum albumin level: < 3.5 g/dL, 3.5–3.7 g/dL, 3.8–4 g/dL, and >4 g/dL. Measured postoperative outcomes included urinary retention, readmission within 30 and 90 days, surgical site infection (SSI), return to the operating room, dysphagia, and length of stay (LOS) ≥ 4 days. RESULTS: A total of 6,826 cervical fusion cases were included in the analysis. Multivariate analysis used cases with albumin >4 g/dL as the reference group. Urinary retention rates among albumin levels did not vary significantly from the reference group. Albumin < 3.5 g/dL was associated with increased readmission at 90 days (incidence rate ratio 1.72, CI [1.06-2.77], p=0.027), increased LOS > 4 days (IRR 1.39, CI [1.29-1.51], p< 0.001) and higher levels of dysphagia (IRR 1.78, CI [1.24-2.56], p = 0.002). Albumin 3.5-3.7 g/dL was associated with increased readmission at 90 days (IRR 1.92, CI [1.47-2.52], p< 0.001), increased readmission at 30 days (IRR 1.97, CI [1.28-3.03], p=0.002), and increased LOS > 4 days (IRR 1.31, CI [1.23-1.40], p< 0.001). Albumin 3.8-4 g/dL was associated with increased readmission at 90 days (IRR 1.35, CI [1.13-1.61], p=0.001), increased readmission at 30 days (IRR 1.40, CI [1.08-1.83], p=0.012), and increased LOS > 4 days (IRR 1.14, CI [1.09-1.20], p< 0.001). CONCLUSIONS: Albumin levels < 3.5 g/dL is the traditional cutoff for preoperative nutritional optimization. Albumin 3.5-3.7 g/dL and 3.8-4 g/dL had an increased risk of readmission at 90 days and increased LOS similar to albumin < 3.5 g/dL. This study suggests a higher albumin cutoff than 3.5 g/dL may be beneficial in limiting poor postoperative outcomes in cervical spine surgery. FDA Device/Drug Status: This abstract does not discuss or include any applicable devices or drugs.

Neurosurgery

Chaker A, **Rademacher A**, **Telemi E**, **Mansour T**, **Kagithala D**, **Hu J**, **Schultz LR**, **Brennan M**, **Easton M**, **Abdulhak M**, **Schwalb JM**, and **Chang V**. Impact of serum albumin levels on lumbar spine surgery outcomes: a Michigan State Surgery Improvement Collaborative study. *Spine J* 2024; 24(9):S21. Full Text

BACKGROUND CONTEXT: Serum albumin has been identified as a significant predictor of postoperative complications. Traditionally, patients with serum albumin levels < 3.5 g/dL are considered malnourished and are nutritionally optimized prior to surgery. However, there is a paucity of data regarding the outcomes of patients with albumin levels greater than 3.5 g/dL but less than 4.0 g/dL. PURPOSE: This study aims to examine whether patients with albumin levels between 3.5-4g/dL have an increased risk of complications and could benefit from nutritional optimization prior to lumbar spine surgery. STUDY DESIGN/SETTING: N/A PATIENT SAMPLE: N/A OUTCOME MEASURES: N/A METHODS: The Michigan Spine Surgery Improvement Collaborative (MSSIC) database contained 15,629 lumbar fusion surgeries between January, 2020 and December, 2022. Patients were grouped based on serum albumin levels: < 3.5g/dL, 3.5-3.7g/dL, 3.8-4g/dL, and >4g/dL. Outcomes measured included urinary retention, surgical site infection (SSI), wound dehiscence, readmission within 30 and 90 days, return to OR, and length of stay (LOS) ≥4 days. Patients with albumin levels >4g/dL comprised the reference group. RESULTS: This study included a total of 15,393 lumbar cases. Albumin of < 3.5 g/dL was associated with an increased risk of urinary retention (Incidence Rate Ratio 1.40, CI [1.08-1.83], p=0.012), Surgical Site Infection (2.35 [1.71-3.23], p< 0.001), readmission at 30 days (1.87 [1.49-2.34], p< 0.001) and 90 days (1.95 [1.58-2.40], p< 0.001), return to OR (2.13 [1.65-2.75], p< 0.001), and LOS ≥4 days (1.32 [1.21-1.44], p< 0.001). Albumin of 3.5– 3.7 g/dL was associated with increased risk of readmission at 30 days (1.21 [1.001-1.45], p=0.048) and 90 days (1.28 [1.08-1.52], p=0.005), and LOS ≥4 days (1.22 [1.16-1.29], p< 0.001). Albumin of 3.8–4.0 g/dL was associated with an increased risk of LOS ≥4 days (1.08 [1.04-1.11], p< 0.001). CONCLUSIONS: Serum albumin of < 3.5 g/dL was strongly associated with increased complications and increased return to OR, length of stay, and 30- and 90-day readmissions in elective lumbar spine procedures. Levels of 3.5-3.7 g/dL had increased risk of readmission and LOS, whereas levels of 3.8-4.0 g/dL did not show increased risk. These findings suggest that a goal albumin of >3.7 g/dL may improve postoperative outcomes in elective lumbar spine surgery. FDA Device/Drug Status: This abstract does not discuss or include any applicable devices or drugs.

Neurosurgery

Kagithala D, **Chaker A**, **Melhem M**, **Abdulhak M**, **Hu J**, **Schultz LR**, **Schwalb JM**, **Mansour T**, **Telemi E**, **Rademacher A**, and **Chang V**. Single-staged versus multi-staged lumbar 360 fusion surgery: a Michigan Spine Surgery Improvement Collaborative (MSSIC) study. *Spine J* 2024; 24(9):S207. Full Text

BACKGROUND CONTEXT: Patients undergoing anterior/posterior lumbar fusion surgery can undergo either a single-stage or multi-stage operation depending on surgeon preference. There is limited evidence directly comparing outcomes between single- and multi-stage lumbar fusion surgery. PURPOSE: To assess differences in outcomes between patients who underwent single- versus multi-stage lumbar fusion procedures in a multi-center setting. STUDY DESIGN/SETTING: Not Applicable PATIENT SAMPLE: Not Applicable OUTCOME MEASURES: Not Applicable METHODS: The Michigan Spine Surgery Improvement Collaborative database was queried for lumbar fusion surgeries between July 2018 and January 2022. Patients who underwent single-stage and multi-stage procedures were included. Primary outcomes included postoperative complications and improvement in patient-reported outcomes (PROs) which include: NASS patient satisfaction, PROMIS Physical Function, and EQ-5D. Propensity matching was conducted followed by Poisson generalized estimating equation models for multivariate analyses. RESULTS: Following propensity matching, 355 patients underwent single-stage procedures and 355 patients underwent multi-stage procedures. Patients undergoing multi-stage procedures had more complications, less patient satisfaction after 1 year, and were less likely to experience improvement in back pain after 90 days and at 2 years (1.17[1.02-1.34, p = 0.026], 0.83[0.74-0.93, p < 0.001], 0.86[0.75-0.99, p = 0.039], and 0.76[0.60-0.96, p = 0.023], respectively). CONCLUSIONS: On a matched cohort of patients undergoing lumbar 360 fusion, we observed that patients who undergo a multi-stage approach have higher postoperative complication rates and lower patient satisfaction compared to those who underwent single-stage procedures. Our findings suggest that single-stage lumbar 360 fusion surgery is tolerated well, if not better, than the multi-staged approach. FDA Device/Drug Status: This abstract does not discuss or include any applicable devices or drugs.

Nursing

Gunaga S, **Al-Hage A**, **Buchheister A**, **Corcoran J**, Etu EE, **Welchans M**, **Swan K**, **Lakshmish-Kumar B**, **Mowbray F**, and **Miller J**. Temporal Impact of Hospice and Palliative Medicine Consults on End-of-Life Outcomes in Emergency Department and Hospitalized Patients. *Ann Emerg Med* 2024; 84(4):S87-S88. Full Text

Study Objectives: In recent years, there has been growing recognition of the benefits associated with early engagement of hospice and palliative medicine (HPM) resources for patients nearing the end-of-life. Early access to primary and specialized palliative care, notably in the emergency department (ED) and inpatient settings, facilitates essential goals of care conversations, updates patients' code status preferences, and explores comfort care options while continuing disease targeted therapies. Despite the expanding evidence base supporting early HPM interventions, questions persist regarding the optimal timing and clinical setting of such consultations. This retrospective cohort study aims to address this gap by examining the outcomes associated with different timing intervals for HPM consultations, whether initiated in the ED, within the first 48 hours of an inpatient stay, or after 48 hours of hospitalization. Methods: We conducted a multicenter retrospective cohort study using electronic health records from five hospital based EDs within a large urban and suburban metropolitan health system. The study period ranged from January 1, 2018, to December 31, 2022, and included patients aged >18 years who had HPM consults ordered during ED or inpatient encounters. Patients were categorized into three cohorts: those who had HPM consults ordered in the ED, within the first 48 hours of admission (early), and after 48 hours of hospitalization (late). Patient data collected included demographics, inpatient hospital length of stay (LOS), ICU LOS, inpatient mortality, and final hospital dispositions. In cases where patients received multiple HPM consults per encounter, cohort assignment was determined based on the timing of their earliest HPM consult order. The three cohorts underwent an analysis of variance (ANOVA) to assess baseline and outcome differences among the groups. Descriptive statistics were employed to offer a synopsis of the characteristics and outcomes within each cohort. Results: The study analyzed 45,710 HPM consultations involving 25,609 unique patients across 31,072 encounters. Consultation distribution varied, with 6,220 initiated in the ED, 12,162 within 48 hours of hospitalization, and 12,690 after 48 hours of hospitalization. The mean age of the ED cohort was 77.7 years old (SD=13.88), statistically older than

both the early (74.99, SD=14.86)) and late (74.36, SD=13.93) HPM consult groups (p < .001). The mean ED emergency severity index (ESI) was identical for all three groups at 2.12, p = 0.55. We observed significant associations between consult timing and various outcomes, including ICU length of stay, total hospital length of stay, and mortality rates in both ED and inpatient settings. For ICU length of stay, ED consults averaged 0.82 days, early inpatient consults 1.39 days, and late inpatient consults 4.99 days (p < .001). Similarly, for total hospital length of stay, ED consults averaged 4.75 days, early inpatient consults 5.69 days, and late inpatient consults 12.72 days (p < .001). Additionally, mortality rates varied across consult timings, with ED consults experiencing a mortality rate of 52.91% (n=3291), early inpatient consults 61.97% (n=7537), and late inpatient consults 69.61% (n=8833) (p < .001). Graphical summary of these comparisons is displayed in Figure 1. Conclusion: Our findings provide valuable preliminary insights into the temporal dynamics of HPM consultations in end-of-life hospital care. Early consultations, especially those initiated in the ED, were linked to shorter ICU and total hospital length of stay, as well as lower mortality rates. To advance these findings into practice, further efforts are needed to enhance primary palliative care skills among clinical teams and prioritize initiatives that enable early HPM consults in both the ED and inpatient setting.

Ophthalmology and Eye Care Services

Hosseinzadeh Z, Shabani H, and **Rathbun DL**. Ganglion Cell Type-Based Electrical Input Filters in Wild Type and Degenerating rd10 Mouse Retina. *Invest Ophthalmol Vis Sci* 2024; 65(7):4434. Full Text

Z. Hosseinzadeh, Department of Ophthamic, Radboudumc, Nijmegen, Gelderland, Netherlands

Purpose : Retinal Ganglion Cell (RGC) types have traditionally been classified based on visual stimuli, but understanding their responses to electrical stimulation is crucial in the context of retinal degeneration. This study aims to classify RGCs according to their electrical input filters, extracted through the Spike Triggered Averaging (STA) method. This categorization enables a nuanced understanding of how these pathways respond, contributing to the development and optimization of therapeutic strategies. Methods : Visual stimuli and randomly distributed electrical pulses were administered to both healthy and degenerating (4-week-old rd10) mouse retinas. Ganglion cell spike trains were recorded using a 60-channel microelectrode array. Hierarchical clustering was employed to categorize RGC populations based on their visual and electrical responses. Results : In healthy retinas, responses revealed 35 visual patterns and 14 electrical patterns. Conversely, degenerating retinas exhibited 12 visual patterns and 23 electrical patterns. Limited correspondences were observed between electrical and visual response patterns, except for the known correlation of ON visual type with upward deflecting electrical type and OFF cells with downward electrical profiles. Conclusions : This approach holds promise for advancing our understanding of retinal ganglion cell responses in health and degeneration. The comprehensive classification of visual and electrical retinal pathway types serves as a valuable tool for evaluating the functionality of therapeutic interventions, such as gene or cell therapy, in the context of retinal degeneration.

Orthopedics/Bone and Joint Center

Chaker A, **Rademacher A**, **Kagithala D**, **Telemi E**, **Kim E**, **Mansour T**, **Schultz LR**, **Hu J**, **Jafar Y**, **Easton M**, **Abdulhak M**, **Schwalb JM**, and **Chang V**. The impact of serum albumin levels on cervical spine surgery outcomes: a MSSIC study. *Spine J* 2024; 24(9):S171-S172. Full Text

BACKGROUND CONTEXT: Serum albumin, a marker of nutritional status, has been identified as a significant predictor of postoperative outcomes across various surgical fields. Patients with serum albumin levels < 3.5, indicative of poor nutritional status, are traditionally nutritionally optimized prior to undergoing operative intervention. However, there is a paucity of data regarding the outcomes of patients with albumin levels ranging between 3.5 to 4. PURPOSE: This study aims to determine if there is an association between albumin levels between 3.5 and 4 g/dL and postoperative outcomes in cervical spine surgery, and to determine if these patients may benefit from preoperative optimization. STUDY DESIGN/SETTING: N/A PATIENT SAMPLE: N/A OUTCOME MEASURES: N/A METHODS: A Michigan Spine Surgery Improvement Collaborative (MSSIC) database search was performed for cervical spine fusion surgeries between January 2020 and December 2022. 6,826 patients were analyzed retrospectively. Patients were grouped by preoperative serum albumin level: < 3.5 g/dL, 3.5–3.7 g/dL,

3.8–4 g/dL, and >4 g/dL. Measured postoperative outcomes included urinary retention, readmission within 30 and 90 days, surgical site infection (SSI), return to the operating room, dysphagia, and length of stay (LOS) ≥ 4 days. RESULTS: A total of 6,826 cervical fusion cases were included in the analysis. Multivariate analysis used cases with albumin >4 g/dL as the reference group. Urinary retention rates among albumin levels did not vary significantly from the reference group. Albumin < 3.5 g/dL was associated with increased readmission at 90 days (incidence rate ratio 1.72, CI [1.06-2.77], p=0.027), increased LOS > 4 days (IRR 1.39, CI [1.29-1.51], p< 0.001) and higher levels of dysphagia (IRR 1.78, CI [1.24-2.56], p = 0.002). Albumin 3.5-3.7 g/dL was associated with increased readmission at 90 days (IRR 1.92, CI [1.47-2.52], p< 0.001), increased readmission at 30 days (IRR 1.97, CI [1.28-3.03], p=0.002), and increased LOS > 4 days (IRR 1.31, CI [1.23-1.40], p< 0.001). Albumin 3.8-4 g/dL was associated with increased readmission at 90 days (IRR 1.35, CI [1.13-1.61], p=0.001), increased readmission at 30 days (IRR 1.40, CI [1.08-1.83], p=0.012), and increased LOS > 4 days (IRR 1.14, CI [1.09-1.20], p< 0.001). CONCLUSIONS: Albumin levels < 3.5 g/dL is the traditional cutoff for preoperative nutritional optimization. Albumin 3.5-3.7 g/dL and 3.8-4 g/dL had an increased risk of readmission at 90 days and increased LOS similar to albumin < 3.5 g/dL. This study suggests a higher albumin cutoff than 3.5 g/dL may be beneficial in limiting poor postoperative outcomes in cervical spine surgery. FDA Device/Drug Status: This abstract does not discuss or include any applicable devices or drugs.

Orthopedics/Bone and Joint Center

Chaker A, **Rademacher A**, **Telemi E**, **Mansour T**, **Kagithala D**, **Hu J**, **Schultz LR**, **Brennan M**, **Easton M**, **Abdulhak M**, **Schwalb JM**, and **Chang V**. Impact of serum albumin levels on lumbar spine surgery outcomes: a Michigan State Surgery Improvement Collaborative study. *Spine J* 2024; 24(9):S21. Full Text

BACKGROUND CONTEXT: Serum albumin has been identified as a significant predictor of postoperative complications. Traditionally, patients with serum albumin levels < 3.5 g/dL are considered malnourished and are nutritionally optimized prior to surgery. However, there is a paucity of data regarding the outcomes of patients with albumin levels greater than 3.5 g/dL but less than 4.0 g/dL. PURPOSE: This study aims to examine whether patients with albumin levels between 3.5-4g/dL have an increased risk of complications and could benefit from nutritional optimization prior to lumbar spine surgery. STUDY DESIGN/SETTING: N/A PATIENT SAMPLE: N/A OUTCOME MEASURES: N/A METHODS: The Michigan Spine Surgery Improvement Collaborative (MSSIC) database contained 15,629 lumbar fusion surgeries between January, 2020 and December, 2022. Patients were grouped based on serum albumin levels: < 3.5g/dL, 3.5-3.7g/dL, 3.8-4g/dL, and >4g/dL. Outcomes measured included urinary retention, surgical site infection (SSI), wound dehiscence, readmission within 30 and 90 days, return to OR, and length of stay (LOS) ≥4 days. Patients with albumin levels >4g/dL comprised the reference group. RESULTS: This study included a total of 15,393 lumbar cases. Albumin of < 3.5 g/dL was associated with an increased risk of urinary retention (Incidence Rate Ratio 1.40, CI [1.08-1.83], p=0.012), Surgical Site Infection (2.35 [1.71-3.23], p< 0.001), readmission at 30 days (1.87 [1.49-2.34], p< 0.001) and 90 days (1.95 [1.58-2.40], p< 0.001), return to OR (2.13 [1.65-2.75], p< 0.001), and LOS ≥4 days (1.32 [1.21-1.44], p< 0.001). Albumin of 3.5– 3.7 g/dL was associated with increased risk of readmission at 30 days (1.21 [1.001-1.45], p=0.048) and 90 days (1.28 [1.08-1.52], p=0.005), and LOS ≥4 days (1.22 [1.16-1.29], p< 0.001). Albumin of 3.8–4.0 g/dL was associated with an increased risk of LOS ≥4 days (1.08 [1.04-1.11], p< 0.001). CONCLUSIONS: Serum albumin of < 3.5 g/dL was strongly associated with increased complications and increased return to OR, length of stay, and 30- and 90-day readmissions in elective lumbar spine procedures. Levels of 3.5-3.7 g/dL had increased risk of readmission and LOS, whereas levels of 3.8-4.0 g/dL did not show increased risk. These findings suggest that a goal albumin of >3.7 g/dL may improve postoperative outcomes in elective lumbar spine surgery. FDA Device/Drug Status: This abstract does not discuss or include any applicable devices or drugs.

Pathology and Laboratory Medicine

Vitale A, **Tawil T**, and **Yuan L**. Endobronchial Ultrasound-Guided Transbronchial Needle Aspiration without Rapid On-Site Evaluation: A Retrospective Study with Cytologic-Histologic Correlation. *J Am Soc Cytopathol* 2024; 13(5):S51-S52. Full Text

Introduction: Endobronchial ultrasound–guided transbronchial needle aspiration (EBUS-TBNA) is the most commonly used approach for both diagnosing and staging lung cancers with several advantages,

including minimally-invasive approach, safe, cost-effective, real-time image guidance, broad sampling capability, and rapid on-site evaluation (ROSE). However, utility of ROSE during EBUS-TBNA has been a matter of debate, in terms of diagnostic efficacy. Currently at our institution, EBUS is being performed without ROSE due to subspecialization and limited availability of our staff for multiple operating sites. Materials and Methods: EBUS specimens from all passes were fixed in Saccomanno, the sediment was used to prepare a cell block, the supernatant was used to prepare one ThinPrep slide for cytologic evaluation. We reviewed the cytological profile of 400 patients, including 140 lymph node only cases, 45 lung only cases, and 215 cases of both lymph node and lung sampling. Our aims:1) Compare the non-diagnostic rates between our method with the EBUS+ROSE method. 2) Establish sensitivity, specificity, positive predictive value, negative predictive value, and accuracy of our method and compare with EBUS+ROSE method. Results: Of cases of lymph node sampling, 169 nodes (48%) were diagnosed as malignant, 577 nodes (61%) as benign process, and 18 nodes (0.05%) as atypical cells. Of the lung lesion sampling, 123 cases (51%) were diagnosed as malignant, 79 cases (35%) as benign process, 4 cases (0.02%) as suspicious for malignancy, and 37 cases (15%) as atypical cells. The lymph node nondiagnostic rate was 6.1%, whereas the nondiagnostic rate for lung lesions was 16.3%. 154 patients had corresponding core biopsies or follow-up surgery. Using histology as the gold standard, the sensitivity, specificity, and positive and negative predictive values for EBUS-TBNA were 85.0%, 96%, and 98% and 91%, respectively. Conclusions: Although ROSE has been successfully introduced into daily practice, considering the cost, staffing issues, and distance between different sites, we used a method which does not utilize ROSE but is time saving, cost effective, and felt to be comparable in terms of performance.

Pathology and Laboratory Medicine

Vitale A, and **Yuan L**. A Practical Alternative Approach to Rapid Cytological Analysis for Endobronchial Ultrasound-Guided Transbronchial Needle Aspiration at Community Hospitals: A Retrospective Study with Cytologic-Histologic Correlation. *J Am Soc Cytopathol* 2024; 13(5):S53. Full Text

Introduction: Endobronchial ultrasound–guided transbronchial needle aspiration (EBUS-TBNA) is the most commonly used approach for diagnosing and staging lung cancers with several advantages including minimally invasive approach, safe, cost-effective, real time image guidance, broad sampling capability, and rapid on-site evaluation (ROSE). However, utility of ROSE during EBUS-TBNA has been matter of debate, in terms of diagnostic efficacy. We employed a method for performing EBUS without ROSE at our institution with staffing and cost benefit. We're a tertiary care center with a main campus and peripheral sites. This study was focused on EBUS performed at peripheral sites. Materials and Methods: EBUS specimens from all passes were fixed in Saccomanno, the sediment was used to prepare a cell block, the supernatant was used to prepare one ThinPrep slide for cytologic evaluation. We reviewed the cytological profile of 96 patients in a period of three months, including 31 lymph node only cases, 20 lung only cases, and 45 cases of both lymph node and lung sampling. Our aims:1) Compare the non-diagnostic rates between our method with the EBUS+ROSE method. 2) Establish sensitivity, specificity, positive predictive value, negative predictive value, and accuracy of our method and compare with EBUS+ROSE method. Results: Of cases of 140 lymph node sampling, 34 nodes (24.3%) were diagnosed as malignant, 82 nodes (58.6%) as benign, and 3 nodes (2.1%) as atypical. Of the 70 cases of lung lesion sampling, 22 cases (31.4%) were diagnosed as malignant, 17 cases (24.3%) as benign process, and 5 cases (7.1%) as atypical cells. The lymph node nondiagnostic rate was 15% (21 nodes), whereas the nondiagnostic rate for lung lesions (26 cases) was 37.1%. 25 of 26 lung cases with non-diagnostic FNAs had concurrent core biopsies; 13 were non-diagnostic, 20 were benign, and 2 were malignant on histology. 5 atypical lung cases included 1 carcinoid tumor and 1 eventually proven to be adenocarcinoma on subsequent resection. 72 patients had corresponding core biopsies or follow-up surgery. When histology was taken as the gold standard, the sensitivity, specificity, and positive and negative predictive values for EBUS-TBNA were 86.4%, 97.9%, and 95% and 94%, respectively. Two had positive FNAs and negative core biopsies. Conclusions: Although ROSE has been successfully introduced into daily clinical practice at hospitals, considering the cost, staffing issues, and the distance between different sites, we used an alternative method which does not utilize ROSE but is time saving, cost effective, and felt to be comparable in terms of performance at community hospitals/ peripheral sites. [Formula presented]

Pharmacy

Jagannathan M, **Jordan T**, **Kinsey D**, **Kenney R**, **Veve M**, **Suleyman G**, and **Shallal A**. Characteristics, Treatment, and Outcomes of Invasive Group A Streptococcal Infections...The Society for Healthcare Epidemiology of America (SHEA) Spring Conference, April 16-19, 2024, Houston, Texas. *Antimicrob Steward Healthc Epidemiol* 2024; 4:s59-s60. Full Text

Henry Ford Hospital

Public Health Sciences

Chaker A, **Rademacher A**, **Telemi E**, **Mansour T**, **Kagithala D**, **Hu J**, **Schultz LR**, **Brennan M**, **Easton M**, **Abdulhak M**, **Schwalb JM**, and **Chang V**. Impact of serum albumin levels on lumbar spine surgery outcomes: a Michigan State Surgery Improvement Collaborative study. *Spine J* 2024; 24(9):S21. Full Text

BACKGROUND CONTEXT: Serum albumin has been identified as a significant predictor of postoperative complications. Traditionally, patients with serum albumin levels < 3.5 g/dL are considered malnourished and are nutritionally optimized prior to surgery. However, there is a paucity of data regarding the outcomes of patients with albumin levels greater than 3.5 g/dL but less than 4.0 g/dL. PURPOSE: This study aims to examine whether patients with albumin levels between 3.5-4g/dL have an increased risk of complications and could benefit from nutritional optimization prior to lumbar spine surgery. STUDY DESIGN/SETTING: N/A PATIENT SAMPLE: N/A OUTCOME MEASURES: N/A METHODS: The Michigan Spine Surgery Improvement Collaborative (MSSIC) database contained 15,629 lumbar fusion surgeries between January, 2020 and December, 2022. Patients were grouped based on serum albumin levels: < 3.5g/dL, 3.5-3.7g/dL, 3.8-4g/dL, and >4g/dL. Outcomes measured included urinary retention, surgical site infection (SSI), wound dehiscence, readmission within 30 and 90 days, return to OR, and length of stay (LOS) ≥4 days. Patients with albumin levels >4g/dL comprised the reference group. RESULTS: This study included a total of 15,393 lumbar cases. Albumin of < 3.5 g/dL was associated with an increased risk of urinary retention (Incidence Rate Ratio 1.40, CI [1.08-1.83], p=0.012), Surgical Site Infection (2.35 [1.71-3.23], p< 0.001), readmission at 30 days (1.87 [1.49-2.34], p< 0.001) and 90 days (1.95 [1.58-2.40], p< 0.001), return to OR (2.13 [1.65-2.75], p< 0.001), and LOS ≥4 days (1.32 [1.21-1.44], p< 0.001). Albumin of 3.5– 3.7 g/dL was associated with increased risk of readmission at 30 days (1.21 [1.001-1.45], p=0.048) and 90 days (1.28 [1.08-1.52], p=0.005), and LOS ≥4 days (1.22 [1.16-1.29], p< 0.001). Albumin of 3.8–4.0 g/dL was associated with an increased risk of LOS ≥4 days (1.08 [1.04-1.11], p< 0.001). CONCLUSIONS: Serum albumin of < 3.5 g/dL was strongly associated with increased complications and increased return to OR, length of stay, and 30- and 90-day readmissions in elective lumbar spine procedures. Levels of 3.5-3.7 g/dL had increased risk of readmission and LOS, whereas levels of 3.8-4.0 g/dL did not show increased risk. These findings suggest that a goal albumin of >3.7 g/dL may improve postoperative outcomes in elective lumbar spine surgery. FDA Device/Drug Status: This abstract does not discuss or include any applicable devices or drugs.

Public Health Sciences

Kagithala D, **Chaker A**, **Melhem M**, **Abdulhak M**, **Hu J**, **Schultz LR**, **Schwalb JM**, **Mansour T**, **Telemi E**, **Rademacher A**, and **Chang V**. Single-staged versus multi-staged lumbar 360 fusion surgery: a Michigan Spine Surgery Improvement Collaborative (MSSIC) study. *Spine J* 2024; 24(9):S207. Full Text

BACKGROUND CONTEXT: Patients undergoing anterior/posterior lumbar fusion surgery can undergo either a single-stage or multi-stage operation depending on surgeon preference. There is limited evidence directly comparing outcomes between single- and multi-stage lumbar fusion surgery. PURPOSE: To assess differences in outcomes between patients who underwent single- versus multi-stage lumbar fusion procedures in a multi-center setting. STUDY DESIGN/SETTING: Not Applicable PATIENT SAMPLE: Not Applicable OUTCOME MEASURES: Not Applicable METHODS: The Michigan Spine Surgery Improvement Collaborative database was queried for lumbar fusion surgeries between July 2018 and January 2022. Patients who underwent single-stage and multi-stage procedures were included. Primary outcomes included postoperative complications and improvement in patient-reported outcomes (PROs) which include: NASS patient satisfaction, PROMIS Physical Function, and EQ-5D. Propensity matching was conducted followed by Poisson generalized estimating equation models for multivariate analyses. RESULTS: Following propensity matching, 355 patients underwent single-stage procedures and 355

patients underwent multi-stage procedures. Patients undergoing multi-stage procedures had more complications, less patient satisfaction after 1 year, and were less likely to experience improvement in back pain after 90 days and at 2 years (1.17[1.02-1.34, p = 0.026], 0.83[0.74-0.93, p < 0.001], 0.86[0.75-0.99, p = 0.039], and 0.76[0.60-0.96, p = 0.023], respectively). CONCLUSIONS: On a matched cohort of patients undergoing lumbar 360 fusion, we observed that patients who undergo a multi-stage approach have higher postoperative complication rates and lower patient satisfaction compared to those who underwent single-stage procedures. Our findings suggest that single-stage lumbar 360 fusion surgery is tolerated well, if not better, than the multi-staged approach. FDA Device/Drug Status: This abstract does not discuss or include any applicable devices or drugs.

Public Health Sciences

Vachon CM, Jiang R, Youngren J, Fung ET, Hubbell E, Venn O, Hou X, Giridhar KV, Couch FJ, **Rybicki BA**, Korn RL, Alhilli Z, and Kurbegov D. 70MO Cell-free DNA indicates potential preclinical detectability of cancer signals up to 30 months prior to diagnosis. *Ann Oncol* 2024; 35:S242. Full Text

Background: Multi-cancer early detection (MCED) tests measuring cell-free DNA (cfDNA) in blood are being developed for use along with single-cancer screening. To evaluate detectability of cancer signals using a methylation-based assay in individuals without known cancer at the time of blood draw, we assessed the time between preclinical signals and future cancer diagnosis (Dx) in a mammography screening cohort (STRIVE NCT03085888). Methods: STRIVE is a multicenter, prospective, observational cohort study of 99,252 women who underwent screening mammography and were followed for cancer Dx via medical records up to 30 months after a baseline (BL) mammogram and blood draw. A subset of incident cancers and non-cancers was assessed for tumor methylated fraction (TMeF). Non-cancer samples were used to determine background TMeF level; TMeFs > 98th percentile of TMeFs in non-cancers were considered indicative of preclinical cancer detectability. Time to Dx was assessed in 6-month intervals for all cancers and for a subset of the 12 most fatal cancer types accounting for ⅔ US cancer deaths. Results: In the overall study, 2436 cancers (2.6%) were diagnosed–1078 (44.3%) breast and 1358 (55.7%) non-breast cancers. The analysis subset included 1519 cancers and 1616 non-cancers. As the time between BL blood draw and cancer Dx shortened, the percent of detectable cancers by BL TMeF level increased: 32% (113/351) within 1-6 months, 23% (65/283) in 7-12, 13% (49/365) in 13-18, 7% (16/223) in 19-24, and 6% (18/297) in 25-30. For the subset of 12 deadliest cancers, the percent of detectable cancers by BL TMeF was higher at each time interval: 53% (67/127) in 1-6 months, 37% (43/117) in 7-12, 26% (25/95) in 13-18, 13% (11/88) in 19-24, and 10% (10/97) in 25-30. Among cancers with detectable BL TMeF, the mean time from BL to Dx was 275 days. Conclusions: In this cohort, TMeF levels suggest that MCED screening can potentially identify cancers up to 30 months before clinical presentation. TMeF levels were consistently higher in the deadliest cancers compared to all cancer types. The mean time of 275 days between detectable BL TMeF and cancer Dx suggests that the average preclinical detectable window by MCED is within a year, supporting MCED screening on an annual interval. Clinical trial identification: NCT03085888.

Surgery

Chahrour M, **Chamseddine H**, Hoballah J, **Kabbani L**, **Shepard A**, **Nypaver T**, and Hosn MA. Endoscopic Vein Harvest of Great Saphenous Vein Is Associated With Worse Long-term Outcomes in Infra-inguinal Bypass Patients. *J Vasc Surg* 2024; 80(3):e56.
Full Text

Objectives: The effect of great saphenous vein (GSV) harvest technique on infra-inguinal bypass (IIB) outcomes remains a matter of debate, with no robust evidence favoring a specific technique. This study aims to compare the outcomes of open and endoscopic vein harvesting. Methods: Patients receiving IIB from a femoral origin using a single segment GSV between 2011 and 2023 were identified in the Vascular Quality Initiative (VQI). Patients receiving an in-situ bypass were excluded. Patients who underwent endoscopic vein harvest were one-to-three propensity score-matched with those receiving open vein harvest. Kaplan-Meier and Cox regression analysis were used to evaluate the long-term outcomes of patency, amputation, reoperation, and major adverse limb events (MALE). Results: A total of 2639 patients who underwent endoscopic vein harvest were matched to 7922 patients who underwent open vein harvest. The two groups were similar in all baseline and operative characteristics. Endoscopic

harvesting of the GSV was associated with a lower rate of perioperative surgical site infection (SSI) compared with open harvesting (1.8% vs 2.9%; P < .001). Other perioperative outcomes were comparable between the two groups (Table). At 12-month follow up, the open harvesting group had higher primary patency (71% vs 65%; P < .001), higher secondary patency (90% vs 85%; P < .001), and lower MALE rates (25% vs 30%; P < .001) compared with the endoscopic harvesting group (Fig). Endoscopic harvesting was associated with increased risk of reoperation (hazard ratio [HR], 1.23; 95% confidence interval [CI], 1.10-1.36; P < .001), amputation (HR, 1.44; 95% CI, 1.20-1.73; P < .001), MALE (HR, 1.25; 95% CI, 1.13-1.37; P < .001), and loss of primary patency (HR, 1.30; 95% CI, 1.19-1.43; P < .001). Conclusion: The lower postoperative wound complication rate seen with endoscopic vein harvest comes at the expense of worse long-term patency outcomes. Open harvesting of GSV confers superior long-term outcomes of patency, reoperation, limb salvage, and MALE compared with endoscopic harvesting. [Formula presented] [Formula presented]

Surgery
Chamseddine H, **Shepard A**, Hoballah JJ, **Nypaver T**, **Weaver M**, **Boules T**, **Kavousi Y**, **Onofrey K**, **Peshkepija A**, and **Kabbani L**. Pedal Bypass in CLTI: A Tale of Excellent Results But Decreasing Utilization. *J Vasc Surg* 2024; 80(3):e63-e64. Full Text

Objectives: The technical challenges of pedal bypass (PB) coupled with the increased use of endovascular modalities jeopardizes its potential as a valuable revascularization modality. This study aims to assess the temporal trends in the use of PB and to compare its outcomes between high, middle, and low-volume centers. Methods: Patients receiving a PB for chronic limb-threatening ischemia (CLTI) between 2003 and 2023 were identified in the Vascular Quality Initiative (VQI). PB was defined as a bypass to an infra-malleolar vessel. Centers were categorized into tertiles based on their annual volume of PB procedures: high-volume (HVC, >4 PB/year; n = 1184 patients), middle-volume (MVC, 2-4 PB/year; n = 928 patients), and low-volume (LVC, <2 PB/year; n = 1354 patients) centers. Kaplan-Meier and Cox regression analyses were used to evaluate the long-term outcomes of patency, major amputation, reoperation, and major adverse limb events (MALE). Results: The ratio of PB to IIB dropped from 14% to 4% between 2003 and 2023 (Fig 1). The distribution of centers was as follows: 5% (16/302) HVC, 13% (38/302) MVC, and 82% (248/302) LVC. Notably, 19% of centers (56/302) did not perform any PB surgery. The average overall patency was 80% at 1 year. At 18 months follow-up, HVC achieved lower rates of amputation (17% vs 20% vs 22%; P = .045), reoperation (20% vs 23% vs 27%; P = .046), and MALE (34% vs 38% vs 42%; P = .014) compared with MVC and LVC, respectively. On multivariate Cox regression analysis, HVC were associated with a 21% decrease in the risk of loss of primary patency (hazard ratio [HR], 0.79; 95% confidence interval [CI], 0.66-0.95; P = .01), 23% decrease in the risk of amputation (HR, 0.77; 95% CI, 0.61-0.98; P = .034), 25% decrease in the risk of reoperation (HR, 0.75; 95% CI, 0.60-0.95; P = .016), and 22% decrease in the risk of MALE (HR, 0.78; 95% CI, 0.66-0.93; P = .005) compared with LVC (Fig 2). On average, centers achieved a 4% reduction in MALE (HR, 0.96; 95% CI, 0.94-0.98; P = .012) for every additional PB procedure performed annually. Conclusion: PB is not frequently utilized in North America despite an excellent 80% 1-year patency rate. This declining rate raises concerns as to whether patients with CLTI are being offered every limb salvage option. These patients may benefit from evaluation at centers offering PB before being subjected to other revascularization modalities or a major limb amputation. [Formula presented] [Formula presented]

Surgery
Chamseddine H, **Shepard A**, **Nypaver T**, **Weaver M**, Constantinou C, and **Kabbani L**. A 30-Day Smoke-Free Window Prior to Carotid Endarterectomy in Asymptomatic Patients Reduces Stroke Risk to Never-Smoker Levels. *J Vasc Surg* 2024; 80(3):e49. Full Text

Objectives: There is limited evidence on the impact of smoking on the long-term outcomes of elective carotid endarterectomy (CEA) in asymptomatic patients. This study aims to assess the impact of smoking on the long-term outcomes of stroke, myocardial infarction (MI), and death in asymptomatic patients undergoing CEA. Methods: Patients undergoing elective CEA for asymptomatic carotid artery stenosis between 2013 and 2023 were identified in the Vascular Quality Initiative. Patients were categorized into three groups: current smokers, former smokers, or never smokers. Former smokers were defined as those who abstained from smoking for at least 30 days prior to the procedure. Kaplan-Meier and Cox

regression analyses were used to evaluate the long-term outcomes of stroke, MI, death, and their combination defined as major adverse cardiac events (MACE). Results: A total of 77,664 patients were included, of which 24% (n = 18,874) were current smokers, 51% (n = 39,374) were former smokers, and 25% (n = 19,416) were never smokers. The three groups had similar rates of perioperative complications. At 18-month follow-up, former smokers exhibited stroke rates that are comparable to never smokers, but lower than that of current smokers (never smoker 0.8% vs former smoker 0.9% vs current smoker 1.5%; log-rank P = .002) (Fig). On multivariate Cox regression analysis, current smokers had a 47% higher risk of stroke compared with former smokers (hazard ratio [HR], 1.47; 95% confidence interval [CI], 1.15-1.89; P = .002), whereas no significant difference was observed between former and never smokers (HR, 1.06; 95% CI, 0.82-1.38; P = .646). Perioperative smoking was significantly associated with mortality, with current smokers having a 27% increase in the risk of death compared with former smokers (HR, 1.27; 95% CI, 1.19-1.36; P < .001) and a larger 52% increase in the risk of death compared with never smokers (HR, 1.52; 95% CI, 1.39-1.66; P < .001) (Table). Conclusion: Current smokers who undergo CEA for asymptomatic disease do not have increased perioperative complications, but active smoking at the time of CEA is associated with increased risk of long-term stroke and death compared with nonsmokers and former smokers. Postponing CEA for asymptomatic disease until patients have refrained from smoking for over 30 days may improve long-term stroke risks and outcomes in this population. [Formula presented] [Formula presented]

Surgery

Chamseddine H, **Shepard A**, **Nypaver T**, **Weaver M**, **Peshkepija A**, and **Kabbani L**. Total Endovascular Repair in Arch TEVAR Is Plagued by High Stroke Rates. *J Vasc Surg* 2024; 80(3):e77-e78. Full Text

Objectives: Endovascular stent grafting extending into the ascending aorta (zone 0) is becoming more prevalent in the treatment of aortic arch disease. This study aims to evaluate the risk of stroke in patients undergoing zone 0 thoracic endovascular aortic repair (TEVAR) for aortic arch disease, considering various techniques of head vessel revascularization. Methods: Patients undergoing zone 0 TEVAR covering all arch vessels between 2014 and 2023 were identified in the Vascular Quality Initiative (VQI). Patients were categorized based on head vessel revascularization technique: open revascularization (OR) of all head vessels, endovascular revascularization (ER) of all head vessels during TEVAR, and hybrid revascularization (HR) defined as endovascular repair of at least one head vessel with open debranching of the others. Univariate and Kaplan-Meier analyses were used to compare stroke and mortality rates. Results: Among 382 patients receiving zone 0 TEVAR involving the head vessels, 201 (53%) underwent OR, 76 (20%) underwent ER, and 105 (27%) underwent HR. The rate of OR dropped from 83% to 31% between 2013 and 2023, while that of HR increased from 4% to 54% (Fig 1). OR patients were younger (OR, 63; ER, 70; HR, 69 years; P < .001) and more likely to be symptomatic at presentation (P = .002). Otherwise, the groups exhibited similar baseline characteristics, pathologies, and distal landing zones. Hospital stay (P = .267) and ICU stay (P = .117) were comparable. The overall perioperative stroke and 30-day mortality rates were 12.5% and 10.1%, respectively. ER showed the highest incidence of stroke (ER, 22.4%; OR, 11.4%; HR, 7.6%; P = .01). Postoperative myocardial infarction was least in patients undergoing OR (OR, 1.5%; ER, 11.8%; HR, 10.5%; P < .001), and no difference in pneumonia rates was observed (P = .878). Thirty-day mortality (OR, 9.1%; ER, 10.4%; HR, 11.7%) and 1-year mortality (OR, 16.5%; ER, 16.6%; HR, 21.3%) were similar (Fig 2). Conclusion: TEVAR covering the arch vessels is associated with high stroke and mortality rates. Total ER of the head vessels during TEVAR has more than two-fold higher stroke rate compared with OR or HR with no improvement in morbidity or mortality. Using current technology, ER is overshadowed by high perioperative stroke rates, and thus OR or HR of the head vessels should be strongly considered whenever feasible.