Sladen Library
Great Research · Great Care · Start Here

HENRY FORD HEALTH

Henry Ford Health Publication List – February 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 Google Books during the month, and then imported into EndNote for formatting. There are 152 unique citations listed this month, including 114 articles, 36 conference abstracts, and 2 books or book chapters.

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

Click the "Full Text" link to view the articles to which Sladen Library provides access. If the full-text of the article is not available, you may request it through ILLiad by clicking on "Request Article," or calling us at (313) 916-2550. If you would like to be added to the monthly email distribution list to automatically receive a PDF of this bibliography, or you have any questions or comments, please contact smoore31@hfhs.org. If your published work has been missed, please use this form to notify us for inclusion on next month's list. All articles and abstracts listed here are deposited into Scholarly Commons, the Henry Ford Health institutional repository.

Articles

Conference Abstracts

Books and Book Chapters

Articles

Allergy and Immunology

Zanobetti A, Ryan PH, Coull BA, Luttmann-Gibson H, Datta S, Blossom J, Brokamp C, Lothrop N, Miller RL, Beamer PI, Visness CM, Andrews H, Bacharier LB, Hartert T, **Johnson CC**, Ownby DR, Khurana Hershey GK, **Joseph CLM**, Mendonça EA, Jackson DJ, **Zoratti EM**, Wright AL, Martinez FD, Seroogy CM, Ramratnam SK, Calatroni A, Gern JE, and Gold DR. Early-Life Exposure to Air Pollution and Childhood Asthma Cumulative Incidence in the ECHO CREW Consortium. *JAMA Netw Open* 2024; 7(2):e240535. PMID: 38416497. Full Text

Department of Environmental Health, Harvard T.H. Chan School of Public Health, Boston, Massachusetts.
Department of Pediatrics, University of Cincinnati, College of Medicine, Cincinnati, Ohio.
Division of Biostatistics and Epidemiology, Cincinnati Children's Hospital Medical Center, Cincinnati, Ohio.
Department of Biostatistics, Harvard T.H. Chan School of Public Health, Boston, Massachusetts.
Channing Division of Network Medicine, Brigham and Women's Hospital and Harvard Medical School, Boston, Massachusetts.
Center for Geographic Analysis, Harvard University, Cambridge, Massachusetts.
Asthma and Airways Disease Research Center, University of Arizona, Tucson.
Department of Community, Environment, and Policy, Mel and Enid Zuckerman College of Public Health, University of Arizona, Tucson.
Division of Clinical Immunology, Icahn School of Medicine at Mount Sinai, New York, New York.
Rho Inc, Federal Research Operations, Durham, North Carolina.
Department of Biostatistics, Mailman School of Public Health, Columbia University, New York, New York.
Monroe Carell Jr Children's Hospital at Vanderbilt, Division of Pediatric Allergy, Immunology, and Pulmonary Medicine, Nashville, Tennessee.
Vanderbilt University School of Medicine, Division of Allergy, Pulmonary, and Critical Care Medicine, Nashville, Tennessee.
Department of Public Health Sciences, Henry Ford Health, Detroit, Michigan.
Division of Allergy and Immunology, Augusta University, Augusta, Georgia.
Cincinnati Children's Hospital, Division of Asthma Research, Cincinnati, Ohio.
Department of Pediatrics, Indiana University, Indianapolis.
Department of Pediatrics, University of Wisconsin School of Medicine and Public Health, Madison.
Department of Medicine, Henry Ford Health, Detroit, Michigan.
Division of Pulmonary and Sleep Medicine, Department of Pediatrics, College of Medicine, University of Arizona, Tucson.

IMPORTANCE: Exposure to outdoor air pollution contributes to childhood asthma development, but many studies lack the geographic, racial and ethnic, and socioeconomic diversity to evaluate susceptibility by individual-level and community-level contextual factors. OBJECTIVE: To examine early life exposure to fine particulate matter (PM2.5) and nitrogen oxide (NO2) air pollution and asthma risk by early and middle childhood, and whether individual and community-level characteristics modify associations between air pollution exposure and asthma. DESIGN, SETTING, AND PARTICIPANTS: This cohort study included children enrolled in cohorts participating in the Children's Respiratory and Environmental Workgroup consortium. The birth cohorts were located throughout the US, recruited between 1987 and 2007, and followed up through age 11 years. The survival analysis was adjusted for mother's education, parental asthma, smoking during pregnancy, child's race and ethnicity, sex, neighborhood characteristics, and cohort. Statistical analysis was performed from February 2022 to December 2023. EXPOSURE: Early-life exposures to PM2.5 and NO2 according to participants' birth address. MAIN OUTCOMES AND MEASURES: Caregiver report of physician-diagnosed asthma through early (age 4 years) and middle (age 11 years) childhood. RESULTS: Among 5279 children included, 1659 (31.4%) were Black, 835 (15.8%) were Hispanic, 2555 (48.4%) where White, and 229 (4.3%) were other race or ethnicity; 2721 (51.5%) were male and 2596 (49.2%) were female; 1305 children (24.7%) had asthma by 11 years of age and 954 (18.1%) had asthma by 4 years of age. Mean values of pollutants over the first 3 years of life

were associated with asthma incidence. A 1 IQR increase in NO2 (6.1 µg/m3) was associated with increased asthma incidence among children younger than 5 years (HR, 1.25 [95% CI, 1.03-1.52]) and children younger than 11 years (HR, 1.22 [95% CI, 1.04-1.44]). A 1 IQR increase in PM2.5 (3.4 µg/m3) was associated with increased asthma incidence among children younger than 5 years (HR, 1.31 [95% CI, 1.04-1.66]) and children younger than 11 years (OR, 1.23 [95% CI, 1.01-1.50]). Associations of PM2.5 or NO2 with asthma were increased when mothers had less than a high school diploma, among Black children, in communities with fewer child opportunities, and in census tracts with higher percentage Black population and population density; for example, there was a significantly higher association between PM2.5 and asthma incidence by younger than 5 years of age in Black children (HR, 1.60 [95% CI, 1.15-2.22]) compared with White children (HR, 1.17 [95% CI, 0.90-1.52]). CONCLUSIONS AND RELEVANCE: In this cohort study, early life air pollution was associated with increased asthma incidence by early and middle childhood, with higher risk among minoritized families living in urban communities characterized by fewer opportunities and resources and multiple environmental coexposures. Reducing asthma risk in the US requires air pollution regulation and reduction combined with greater environmental, educational, and health equity at the community level.

Anesthesiology

Fayed M, and **Maroun W**. Awake prone positioning in COVID-19 patients: is there any benefit? *J Thorac Dis* 2024; 16(1):807-809. PMID: 38410584. Full Text

Department of Anesthesia, Montefiore Medical Center, Bronx, NY, USA.
Department of Anesthesia, Henry Ford Hospital, Detroit, MI, USA.

Behavioral Health Services/Psychiatry/Neuropsychology

Davidson WM, Mahavni A, Chrusciel T, Salas J, **Miller-Matero LR**, Sullivan MD, **Zabel C**, Lustman PJ, **Ahmedani BK**, and Scherrer JF. Characteristics of patients with non-cancer pain and long-term prescription opioid use who have used medical versus recreational marijuana. *J Cannabis Res* 2024; 6(1):7. PMID: 38383471. Full Text

Department of Family and Community Medicine, Saint Louis University School of Medicine, 1008 S. Spring, SLUCare Academic Pavilion, 3rd Floor, St. Louis, MO, 63110, USA.
Advanced HEAlth Data (AHEAD) Research Institute, Saint Louis University School of Medicine, 3545 Lafayette Ave, 4th Floor, St. Louis, MO, 63104, USA.
Department of Health and Clinical Outcomes Research, Saint Louis University School of Medicine, 3545 Lafayette Ave, 4th Floor, St. Louis, MO, 63104, USA.
Center for Health Policy and Health Services Research and Behavioral Health Services, Henry Ford Health, One Ford Place, Detroit, MI, 48202, USA.
Department of Psychiatry and Behavioral Science, University of Washington School of Medicine, 1959 NE Pacific Street, Seattle, WA, 98195, USA.
Department of Psychiatry, Washington University School of Medicine, 4320 Forest Park Blvd, Suite 301, St. Louis, MO, 63108, USA.
Department of Family and Community Medicine, Saint Louis University School of Medicine, 1008 S. Spring, SLUCare Academic Pavilion, 3rd Floor, St. Louis, MO, 63110, USA. jeffrey.scherrer@health.slu.edu.
Department of Psychiatry and Behavioral Neuroscience, Saint Louis University School of Medicine, 1438 South Grand Blvd., St. Louis, MO, 63104, USA. jeffrey.scherrer@health.slu.edu.
Advanced HEAlth Data (AHEAD) Research Institute, Saint Louis University School of Medicine, 3545 Lafayette Ave, 4th Floor, St. Louis, MO, 63104, USA. jeffrey.scherrer@health.slu.edu.
Department of Health and Clinical Outcomes Research, Saint Louis University School of Medicine, 3545 Lafayette Ave, 4th Floor, St. Louis, MO, 63104, USA. jeffrey.scherrer@health.slu.edu.

OBJECTIVE: Marijuana use is increasingly common among patients with chronic non-cancer pain (CNCP) and long-term opioid therapy (LTOT). We determined if lifetime recreational and medical marijuana use were associated with more frequent and higher dose prescription opioid use. DESIGN: Cross-sectional SUBJECTS: Eligible patients (n=1,037), who had a new period of prescription opioid use lasting 30-90 days, were recruited from two midwestern health care systems to a study of long-term

prescription opioid use and mental health outcomes. The present cross-sectional analyses uses baseline data from this on-going cohort study. METHODS: Primary exposures were participant reported lifetime recreational and medical marijuana use versus no lifetime marijuana use. Prescription opioid characteristics included daily versus non-daily opioid use and ≥50 morphine milligram equivalent (MME) dose per day vs. <50 MME. Multivariate, logistic regression models estimated the association between lifetime recreational and medical marijuana use vs. no use and odds of daily and higher dose prescription opioid use, before and after adjusting for confounding. RESULTS: The sample was an average of 54.9 (SD±11.3) years of age, 57.3% identified as female gender, 75.2% identified as White, and 22.5% identified as Black race. Among all participants, 44.4% were never marijuana users, 21.3% were recreational only, 7.7% medical only and 26.6% were both recreational and medical marijuana users. After controlling for all confounders, lifetime recreational marijuana use, as compared to no use, was significantly associated with increased odds of daily prescription opioid use (OR=1.61; 95%CI:1.02-2.54). There was no association between lifetime recreational or medical marijuana use and daily opioid dose. CONCLUSION: Lifetime medical marijuana use is not linked to current opioid dose, but lifetime recreational use is associated with more than a 60% odds of being a daily prescription opioid user. Screening for lifetime recreational marijuana use may identify patients with chronic pain who are vulnerable to daily opioid use which increases risk for adverse opioid outcomes. Prospective data is needed to determine how marijuana use influences the course of LTOT and vice versa.

Behavioral Health Services/Psychiatry/Neuropsychology
Hecht LM, **Joseph-Mofford G**, **Iacobelli R**, **Ahmed M**, **Haley E**, **Loree AM**, and **Miller-Matero LR**. Anxiety, depression, and infertility-specific distress among women with female factor infertility. *J Health Psychol* 2024; Epub ahead of print. PMID: 38413845. Full Text

Henry Ford Health, Detroit, MI, USA.
Wayne State University School of Medicine, Detroit, MI, USA.

This study aimed to evaluate whether anxiety, depression, and infertility-specific distress differ among women with female infertility who are trying to conceive and/or seeking infertility treatment. Women with diagnosed female factor infertility in the past 2 years (N = 188) completed demographic questions, and measures of infertility-specific distress, anxiety, and depression. The majority of the sample were actively trying to conceive (78.7%, n = 148) and approximately one third (33.5%, n = 63) were undergoing fertility treatment. Anxiety and depression scores did not differ based on trying to conceive or treatment-seeking, although these subgroups reported higher levels of need for parenthood and rejection of a childfree lifestyle. High levels of mood and anxiety are experienced by women with female infertility. Although infertility-specific distress is experienced more so by women with anxiety and depression, a substantial proportion of those without mental health conditions had high levels of distress, underscoring the need for screening and treatment.

Behavioral Health Services/Psychiatry/Neuropsychology
Patel S, and **Sivananthan M**. Hypersensitivity to Psychotropic Medications in a Patient With 17q12 Microdeletion Syndrome: A Case Report. *J Clin Psychopharmacol* 2024; 44(1):69-71. PMID: 38032074. Full Text

Behavioral Health Services/Psychiatry/Neuropsychology
Reffi AN, **Moore DA**, and **Drake CL**. Objective sleep disturbance in nightmares: Is prolonged sleep onset latency a proxy for fear-of-sleep-related arousal? *Sleep* 2024; Epub ahead of print. PMID: 38353132. Full Text

Thomas Roth Sleep Disorders & Research Center, Henry Ford Health, 1 Ford Place, Detroit, MI 48202 USA.
Department of Psychiatry, Michigan State University College of Human Medicine, 15 Michigan St NE, Grand Rapids, MI.
Department of Surgery, Division of Acute Care Surgery, Henry Ford Hospital, 2799 W. Grand Blvd, Detroit, MI 48202 USA.

Department of Psychiatry and Behavioral Health, Division of Consultation Liaison Psychiatry, Henry Ford Hospital, 2799 W. Grand Blvd, Detroit, MI 48202 USA.

Cardiology/Cardiovascular Research

Alexandrou M, Rempakos A, Mutlu D, Al Ogaili A, Choi JW, Poommipanit P, **Alaswad K**, **Basir MB**, Davies R, Jaffer FA, Chandwaney RH, Azzalini L, Aygul N, Dattilo P, Jefferson BK, Gorgulu S, Khatri JJ, Krestyaninov O, Frizzell J, Elbarouni B, Rangan BV, Mastrodemos O, Burke MN, Sandoval Y, and Brilakis ES. Equipment entrapment/loss during chronic total occlusion percutaneous coronary intervention. *J Invasive Cardiol* 2024; Epub ahead of print. PMID: 38412445. Request Article

Minneapolis Heart Institute and Minneapolis Heart Institute Foundation, Abbott Northwestern Hospital, Minneapolis, MN, USA.
Texas Health Presbyterian Hospital, Dallas, Texas, USA.
University Hospitals, Case Western Reserve University, Cleveland, OH, USA.
Henry Ford Cardiovascular Division, Detroit, MI, USA.
WellSpan York Hospital, York, PA, USA.
Massachusetts General Hospital, Boston, MA, USA.
Oklahoma Heart Institute, Tulsa, OK, USA.
Division of Cardiology, Department of Medicine, University of Washington, Seattle, WA, USA.
Selcuk University, Konya, Turkey.
Medical Center of the Rockies, Loveland, CO, USA.
Tristar Hospitals, TN, USA.
Biruni University Medical School, Istanbul, Turkey.
Cleveland Clinic, Cleveland, OH, USA.
Meshalkin Novosibirsk Research Institute, Novosibirsk, Russia.
St. Vincent Hospital, Indianapolis, IN, USA.
St. Boniface General Hospital, Winnipeg, Manitoba, Canada.
Minneapolis Heart Institute and Minneapolis Heart Institute Foundation, Abbott Northwestern Hospital,Minneapolis, MN, USA.
Minneapolis Heart Institute and Minneapolis Heart Institute Foundation, Abbott Northwestern Hospital,Minneapolis, MN, USA. esbrilakis@gmail.com.

BACKGROUND: There is limited data on equipment loss or entrapment during chronic total occlusion (CTO) percutaneous coronary intervention (PCI). METHODS: We analyzed the baseline clinical and angiographic characteristics and outcomes of equipment loss/entrapment at 43 US and non-US centers between 2017 and 2023. RESULTS: Equipment loss/entrapment was reported in 40 (0.4%) of 10 719 cases during the study period. These included guidewire entrapment/fracture (n = 21), microcatheter entrapment/fracture (n = 11), stent loss (n = 8) and balloon entrapment/fracture/rupture (n = 5). The equipment loss/entrapment cases were more likely to have moderate to severe calcification, longer lesion length, higher J-CTO and PROGRESS-CTO complications scores, and use of the retrograde approach compared with the remaining cases. Retrieval was attempted in 71.4% of the guidewire, 90.9% of the microcatheter, 100% of the stent loss, and 100% of the balloon cases, and was successful in 26.7%, 30.0%, 50%, and 40% of the cases, respectively. Procedures complicated by equipment loss/entrapment had higher procedure and fluoroscopy time, contrast volume and patient air kerma radiation dose, lower procedural (60.0% vs 85.6%, P less than .001) and technical (75.0% vs 86.8%, P = .05) success, and higher incidence of major adverse cardiac events (MACE) (17.5% vs 1.8%, P less than .001), acute MI (7.5% vs 0.4%, P less than .001), emergency coronary artery bypass graft (CABG) (2.5% vs 0.1%, P = .03), perforation (20.0% vs 4.9%, P less than .001), and death (7.5% vs 0.4%, P less than .001). CONCLUSIONS: Equipment loss is a rare complication of CTO PCI; it is more common in complex CTOs and is associated with lower technical success and higher MACE.

Cardiology/Cardiovascular Research

Alexandrou M, Simsek B, Rempakos A, Kostantinis S, Karacsonyi J, Rangan BV, Mastrodemos OC, Kirtane AJ, Bortnick AE, Jneid H, Azzalini L, Milkas A, **Alaswad K**, Linzer M, Egred M, Rao SV, Allana SS, Sandoval Y, and Brilakis ES. Sex differences in the well-being of interventional cardiologists. *J Invasive Cardiol* 2024; 36(2). PMID: 38335507. Request Article

Minneapolis Heart Institute and Minneapolis Heart Institute Foundation, Minneapolis, Minnesota, USA.
Division of Cardiology, Columbia University Irving Medical Center/NewYork-Presbyterian Hospital, New York, New York, USA.
Department of Medicine, Montefiore Medical Center/Albert Einstein College of Medicine, Bronx, New York, USA.
Department of Medicine, Division of Cardiology, Baylor College of Medicine, Houston, Texas, USA.
Division of Cardiology, Department of Medicine, University of Washington, Seattle, Washington, USA.
Department of Cardiology, Athens Naval Hospital, Athens, Greece.
Division of Cardiology, Henry Ford Hospital, Detroit, Michigan, USA.
Institute for Professional Worklife, Hennepin Healthcare, Minneapolis, Minnesota, USA.
Department of Cardiology, Freeman Hospital, Newcastle upon Tyne, UK; Newcastle University Translational and Clinical Research Institute, Newcastle upon Tyne, UK.
Department of Medicine, Division of Cardiology, New York University Grossman School of Medicine, New York, New York, USA.
Minneapolis Heart Institute and Minneapolis Heart Institute Foundation, Minneapolis, Minnesota, USA.
Email: esbrilakis@gmail.com.

Several studies suggest differences in burnout and coping mechanisms between female and male physicians. We conducted an international, online survey exploring sex-based differences in the well-being of interventional cardiologists. Of 1251 participants, 121 (9.7%) were women. Compared with men, women were more likely to be single and under 50 years old, and they asked more often for development opportunities and better communication with administration. Overall burnout was similar between women and men, but women interventional cardiology attendings were more likely to think that they were achieving less than they should. Improved communication with administration and access to career development opportunities may help prevent or mitigate burnout in women interventional cardiologists.

Cardiology/Cardiovascular Research

Ashburn NP, Snavely AC, Allen BR, Christenson RH, Madsen T, **McCord JK**, Mumma BE, Hashemian T, Stopyra JP, Wilkerson RG, and Mahler SA. Performance of the European Society of Cardiology 0/1-hour algorithm with high-sensitivity cardiac troponin T at 90 days among patients with known coronary artery disease. *Am J Emerg Med* 2024; 79:111-115. PMID: 38417221. Full Text

Department of Emergency Medicine, Wake Forest University School of Medicine, Winston-Salem, NC, USA. Electronic address: n.ashburn@wakehealth.edu.
Department of Emergency Medicine, Wake Forest University School of Medicine, Winston-Salem, NC, USA; Department of Biostatistics and Data Science, Wake Forest University School of Medicine, Winston-Salem, NC, USA.
Department of Emergency Medicine, University of Florida College of Medicine, Gainesville, FL, USA.
Department of Pathology, University of Maryland School of Medicine, Baltimore, MD, USA.
Department of Emergency Medicine, University of Utah School of Medicine, Salt Lake City, UT, USA.
Department of Cardiology, Henry Ford Health System, Detroit, MI, USA.
Department of Emergency Medicine, University of California Davis School of Medicine, Sacramento, CA, USA.
Department of Emergency Medicine, Wake Forest University School of Medicine, Winston-Salem, NC, USA.
Department of Emergency Medicine, University of Maryland School of Medicine, Baltimore, MD, USA.
Department of Emergency Medicine, Wake Forest University School of Medicine, Winston-Salem, NC, USA; Department of Epidemiology and Prevention, Wake Forest University School of Medicine, Winston-Salem, NC, USA; Department of Implementation Science, Wake Forest University School of Medicine, Winston-Salem, NC, USA.

BACKGROUND: The European Society of Cardiology (ESC) 0/1-h high sensitivity troponin T (hs-cTnT) algorithm does not differentiate risk based on known coronary artery disease (CAD: prior myocardial infarction [MI], coronary revascularization, or ≥ 70% coronary stenosis). We recently evaluated its performance among patients with known CAD at 30-days, but little is known about its longer-term risk

prediction. The objective of this study is to determine and compare the performance of the algorithm at 90-days among patients with and without known CAD. METHODS: We performed a pre-planned subgroup analysis of the STOP-CP cohort, which prospectively enrolled ED patients ≥21 years old with symptoms suggestive of ACS without ST-elevation on initial ECG across 8 US sites (1/25/2017-9/6/2018). Participants with 0- and 1-h hs-cTnT measures (Roche, Basel, Switzerland) were stratified into rule-out, observe, and rule-in groups using the ESC 0/1-h algorithm. Algorithm performance was tested among patients with or without known CAD, as determined by the treating provider. The primary outcome was cardiac death or MI at 90-days. Fisher's exact tests were used to compare 90-day event and rule-out rates between patients with and without known CAD. Negative predictive values (NPVs) for 90-day cardiac death or MI with exact 95% confidence intervals were calculated and compared using Fisher's exact test. RESULTS: The STOP-CP study accrued 1430 patients, of which 31.4% (449/1430) had known CAD. Cardiac death or MI at 90 days was more common in patients with known CAD than in those without [21.2% (95/449) vs. 10.0% (98/981); $p < 0.001$]. Using the ESC 0/1-h algorithm, 39.6% (178/449) of patients with known CAD and 66.1% (648/981) of patients without known CAD were ruled-out ($p < 0.001$). Among rule-out patients, 90-day cardiac death or MI occurred in 3.4% (6/178) of patients with known CAD and 1.2% (8/648) without known CAD ($p = 0.09$). NPV for 90-day cardiac death or MI was 96.6% (95%CI 92.8-98.8) among patients with known CAD and 98.8% (95%CI 97.6-99.5) in patients without known CAD ($p = 0.09$). CONCLUSION: Patients with known CAD who were ruled-out using the ESC 0/1-h hs-cTnT algorithm had a high rate of missed 90-day cardiac events, suggesting that the ESC 0/1-h hs-cTnT algorithm may not be safe for use among patients with known CAD. TRIAL REGISTRATION: High-Sensitivity Cardiac Troponin T to Optimize Chest Pain Risk Stratification (STOP-CP; ClinicalTrials.gov: NCT02984436; https://clinicaltrials.gov/ct2/show/NCT02984436).

Cardiology/Cardiovascular Research

Fadel R, **Khan E**, and **Maskoun W**. The use of percutaneous left atrial appendage occluder device in a patient with prior surgical ligation with incomplete exclusion: a case report. *Eur Heart J Case Rep* 2024; 8(2). PMID: 38332926. Full Text

Division of Cardiovascular Medicine, Henry Ford Hospital, 2799 W Grand Boulevard, Detroit, MI 48202, USA.

BACKGROUND: Atrial fibrillation (AF) is the most common sustained cardiac arrhythmia, and the most common cause of cardioembolic stroke. The left atrial appendage (LAA) is the main source of thrombus formation in patients with AF. Therapies include use of percutaneous LAA closure devices, or surgical LAA occlusion (LAAO). Despite these options, complete closure of the LAA is not always achieved, and residual communication between the LAA and atrium may result in increased thrombus formation. Although studies have analysed the use of percutaneous measures such as coils, plugs, or second occluder device deployment in LAA with peri-device leak (PDL), use of percutaneous occlude devices in surgically occluded LAA is far less studied. CASE SUMMARY: We present a case of a 79-year-old female patient who underwent LAAO device deployment within a surgically occluded LAA with PDL. She underwent 27 mm LAAO device (WATCHMANTM) deployment and all the P.A.S.S. (Position, Anchor, Size, and Seal) criteria were satisfied. Only 1.4 mm PDL was present. She was continued on apixaban and aspirin post-operatively. Post-operative transoesophageal echocardiogram at 6 weeks demonstrated trivial PDL measuring 1.49 mm. Patient was continued on aspirin and clopidogrel, with discontinuation of apixaban. DISCUSSION: Percutaneous LAAO device deployment in previously surgically ligated LAA with incomplete exclusion is a potential therapeutic option for patients with AF and a high bleeding risk seeking a minimally invasive strategy, in an attempt to de-escalate anticoagulation therapy.

Cardiology/Cardiovascular Research

Gupta R, Hosseinpour A, Patel C, Malik AH, Goel A, Bandyopadhyay D, **Basir MB**, Lavie CJ, Patel NC, and Bhatt DL. Intravascular lithotripsy compared with rotational atherectomy for calcified coronary lesions: A meta-analysis of outcomes. *Cardiovasc Revasc Med* 2024; Epub ahead of print. PMID: 38307793. Full Text

Lehigh Valley Heart Institute, Lehigh Valley Health Network, Allentown, PA, USA. Electronic address: https://twitter.com/rgupta8687.

School of Medicine, Shiraz University of Medical Sciences, Shiraz, Iran.
Lehigh Valley Heart Institute, Lehigh Valley Health Network, Allentown, PA, USA.
Department of Cardiology, Westchester Medical Center and New York Medical College, Valhalla, NY, USA.
Division of Cardiology, Department of Medicine, Henry Ford Health System, Detroit, MI, USA.
John Ochsner Heart and Vascular Institute, Oshner Clinical School, The University of Queensland School of Medicine, New Orleans, LA, USA.
Mount Sinai Heart, Icahn School of Medicine at Mount Sinai Health System, New York, NY 10029, USA.
Electronic address: dlbhattmd@post.harvard.edu.

Cardiology/Cardiovascular Research
Hanson ID, Rusia A, Palomo A, Tawney A, Pow T, Dixon SR, Meraj P, Sievers E, Johnson M, Wohns D, Ali O, Kapur NK, Grines C, Burkhoff D, Anderson M, Lansky A, Naidu SS, **Basir MB**, and **O'Neill W**. Treatment of Acute Myocardial Infarction and Cardiogenic Shock: Outcomes of the RECOVER III Postapproval Study by Society of Cardiovascular Angiography and Interventions Shock Stage. *J Am Heart Assoc* 2024; 13(3):e031803. PMID: 38293995. Full Text

Department of Cardiovascular Medicine William Beaumont University Hospital Royal Oak MI.
Department of Advanced Heart Failure, Baylor Scott & White Health-The Heart Hospital Plano TX.
Department of Cardiology Northwell Health Manhasset NY.
Department of Cardiovascular Surgery Jackson-Madison County Hospital Jackson TN.
Department of Cardiology Piedmont Augusta Augusta GA.
Division of Cardiology Spectrum Health Grand Rapids MI.
Department of Cardiology Detroit Medical Center Detroit MI.
Department of Cardiology Tufts University School of Medicine Boston MA.
Northside Hospital Cardiovascular Institute Atlanta GA.
Cardiovascular Research Foundation New York NY.
Department of Cardiac Surgery Hackensack University Medical Center Hackensack NJ.
Yale New Haven Hospital New Haven CT.
Department of Cardiology Westchester Medical Center and New York Medical College Valhalla NY.
Division of Cardiology Henry Ford Hospital Detroit MI.

BACKGROUND: The Society for Cardiovascular Angiography and Interventions proposed a staging system (A-E) to predict prognosis in cardiogenic shock. Herein, we report clinical outcomes of the RECOVER III study for the first time, according to Society for Cardiovascular Angiography and Interventions shock classification. METHODS AND RESULTS: The RECOVER III study is an observational, prospective, multicenter, single-arm, postapproval study of patients with acute myocardial infarction with cardiogenic shock undergoing percutaneous coronary intervention with Impella support. Patients enrolled in the RECOVER III study were assigned a baseline Society for Cardiovascular Angiography and Interventions shock stage. Staging was then repeated within 24 hours after initiation of Impella. Kaplan-Meier survival curve analyses were conducted to assess survival across Society for Cardiovascular Angiography and Interventions shock stages at both time points. At baseline assessment, 16.5%, 11.4%, and 72.2% were classified as stage C, D, and E, respectively. At ≤24-hour assessment, 26.4%, 33.2%, and 40.0% were classified as stage C, D, and E, respectively. Thirty-day survival among patients with stage C, D, and E shock at baseline was 59.7%, 56.5%, and 42.9%, respectively (P=0.003). Survival among patients with stage C, D, and E shock at ≤24 hours was 65.7%, 52.1%, and 29.5%, respectively (P<0.001). After multivariable analysis of impact of shock stage classifications at baseline and ≤24 hours, only stage E classification at ≤24 hours was a significant predictor of mortality (odds ratio, 4.8; P<0.001). CONCLUSIONS: In a real-world cohort of patients with acute myocardial infarction with cardiogenic shock undergoing percutaneous coronary intervention with Impella support, only stage E classification at ≤24 hours was significantly predictive of mortality, suggesting that response to therapy may be more important than clinical severity of shock at presentation.

Cardiology/Cardiovascular Research
Khadanga S, Savage P, **Keteyian S**, Yant B, Gaalema D, and Ades P. Cardiac rehabilitation: the gateway for secondary prevention. *Heart* 2024; Epub ahead of print. PMID: 38302263. Full Text

Medicine, University of Vermont, Burlington, Vermont, USA sherrie.khadanga@uvmhealth.org.
Medicine, University of Vermont, Burlington, Vermont, USA.
Preventive Cardiology, Henry Ford Hospital, Detroit, Michigan, USA.
Psychiatry, University of Vermont, Burlington, Vermont, USA.

Cardiac rehabilitation (CR) is a multidisciplinary supervised programme which typically consists of tailored exercise and education on lifestyle management and risk factor modification in cardiac patients. Participation in CR reduces morbidity and mortality, while improving quality of life following major cardiovascular events. Despite the benefits of CR, it is underutilised, generally in the 20%-30% range for eligible patients. Participation and adherence rates are particularly suboptimal in vulnerable populations, such as those of lower socioeconomic status and women. Interventions such as automated referral to CR or hybrid/virtual programmes can increase enrolment to CR. This review summarises the components of CR and provides recommendations for providers regarding participation and adherence. To better engage a larger proportion of CR-eligible patients, CR programmes may need to expand or adjust ways to deliver secondary prevention.

Cardiology/Cardiovascular Research

Madder RD, Seth M, Frazier K, Dixon S, Karve M, Collins J, Miller RV, **Pielsticker E**, Sharma M, Sukul D, and Gurm HS. Statewide Initiative to Reduce Patient Radiation Doses During Percutaneous Coronary Intervention. *Circ Cardiovasc Interv* 2024; 17(2):e013502. PMID: 38348649. Full Text

Frederik Meijer Heart and Vascular Institute, Division of Cardiovascular Medicine, Corewell Health West, Grand Rapids, MI (R.D.M.).
Department of Internal Medicine, Division of Cardiovascular Medicine, University of Michigan, Ann Arbor (M.S., K.F., D.S., H.S.G.).
Department of Cardiovascular Medicine, Corewell Health William Beaumont University Hospital, Royal Oak, MI (S.D.).
Sparrow Hospital, Lansing, MI (M.K.).
Ascension St. Mary's Hospital, Saginaw, MI (J.C.).
Ascension Providence Southfield, MI (R.V.M.).
Henry Ford Jackson Hospital, MI (E.P.).
Covenant HealthCare, Saginaw, MI (M.S.).

BACKGROUND: Improved radiation safety practices are needed across hospitals performing percutaneous coronary intervention (PCI). This study was performed to assess the temporal trend in PCI radiation doses concurrent with the conduct of a statewide radiation safety initiative. METHODS: A statewide initiative to reduce PCI radiation doses was conducted in Michigan between 2017 and 2021 and included focused radiation safety education, reporting of institutional radiation doses, and implementation of radiation performance metrics for hospitals. Using data from a large statewide registry, PCI discharges between July 1, 2016, and July 1, 2022, having a procedural air kerma (AK) recorded were analyzed for temporal trends. A multivariable regression analysis was performed to determine whether declines in procedural AK over time were attributable to changes in known predictors of radiation doses. RESULTS: Among 131 619 PCI procedures performed during the study period, a reduction in procedural AK was observed over time, from a median dose of 1.46 (0.86-2.37) Gy in the first year of the study to 0.97 (0.56-1.64) Gy in the last year of the study (P<0.001). The proportion of cases with an AK ≥5 Gy declined from 4.24% to 0.86% over the same time period (P<0.0001). After adjusting for variables known to impact radiation doses, a 1-year increase in the date of PCI was associated with a 7.61% (95% CI, 7.38%-7.84%) reduction in procedural AK (P<0.0001). CONCLUSIONS: Concurrent with the conduct of a statewide initiative to reduce procedural radiation doses, a progressive and significant decline in procedural radiation doses was observed among patients undergoing PCI in the state of Michigan.

Cardiology/Cardiovascular Research

Maki M, **El-Khatib L**, and **Basir MB**. STEMI in a patient with recent intracranial hemorrhage. *J Invasive Cardiol* 2024; Epub ahead of print. PMID: 38412442. Request Article

Department of Internal Medicine, Henry Ford Hospital, Detroit, Michigan, USA. Email: Mmaki4@hfhs.org.
Department of Cardiology, Henry Ford Hospital, Detroit, Michigan, USA.

A 63-year-old male patient with a history of hypertension presented to the emergency department with a one-day history of dizziness, nausea, and vomiting.

Cardiology/Cardiovascular Research

Mohebi R, Jones PG, Spertus JA, Lingvay I, **Lanfear DE**, Gosch KL, Birmingham M, Kosiborod MN, Butler J, and Januzzi JL, Jr. Early Longitudinal Change in Heart Failure Health Status Following Initiation of Canagliflozin. *JACC Heart Fail* 2024; Epub ahead of print. PMID: 38385941. Full Text

Massachusetts General Hospital, Harvard Medical School, Boston, Massachusetts, USA.
Saint Luke's Mid America Heart Institute/University of Missouri-Kansas City, Kansas City, Missouri, USA.
University of Texas Southwestern Medical Center, Dallas, Texas, USA.
Henry Ford Health, Detroit, Michigan, USA.
Janssen Scientific Affairs LLC, Titusville, New Jersey, USA.
University of Mississippi Medical Center, Jackson, Mississippi, USA.
Massachusetts General Hospital, Harvard Medical School, Boston, Massachusetts, USA; Baim Institute for Clinical Research, Boston, Massachusetts, USA. Electronic address: jjanuzzi@partners.org.

BACKGROUND: Sodium glucose co-transporter-2 inhibitor (SGLT2i) therapy improves health status in heart failure (HF). There is insufficient description regarding the timing, rate, and extent of the health status changes in heart failure with preserved ejection fraction (HFpEF) and heart failure with reduced ejection fraction (HFrEF) after initiation of SGLT2is. OBJECTIVES: The authors sought to model the association of canagliflozin treatment with rates of change in HF symptom status in HFpEF and HFrEF. METHODS: Study participants with HFrEF and HFpEF were treated with either canagliflozin 100 mg or placebo for 12 weeks. The Kansas City Cardiomyopathy Questionnaire Total Symptom Score (KCCQ-TSS) was assessed at baseline and at 2, 4, 6, and 12 weeks. Longitudinal modeling assessed slope of KCCQ change across the study. RESULTS: Among 448 individuals with HF (181 with HFrEF and 267 with HFpEF), participants with HFpEF had lower baseline KCCQ-TSS scores than those with HFrEF (54 ± 21 vs 64 ± 20). Modeling demonstrated initial rapid improvement in KCCQ-TSS in both HF groups, with deceleration over the next 4 to 6 weeks. The rate of change was greater among HFpEF participants (0.7 points/day; 95% CI: 0.3-1.1 points/day) than HFrEF participants (ΔKCCQ-TSS/day = 0.5; 95% CI: 0.1-1.0 points/day) randomized to canagliflozin, but these differences were not statistically significant (0.2 points/day; 95% CI: -0.4 to 0.7 points/day; P = 056). CONCLUSIONS: After canagliflozin therapy, regardless of EF, modeling shows the KCCQ-TSS improves rapidly with the greatest improvements occurring within the first weeks of treatment. These results have implications for clinical use of SGLT2is and may be useful in the design of trials examining impact of these agents on health status in HF. (A Study on Impact of Canagliflozin on Health Status, Quality of Life, and Functional Status in Heart Failure [CHIEF-HF]; NCT04252287).

Cardiology/Cardiovascular Research

Panoulas VF, Escaned J, Hill JM, Barker E, Butler K, Almedhychy A, Tsintzos SI, and **O'Neill WW**. Predictors of left ventricular ejection fraction in high-risk percutaneous coronary interventions. *Front Cardiovasc Med* 2024; 11:1342409. PMID: 38370154. Full Text

Department of Cardiology, Harefield Hospital, Royal Brompton and Harefield Hospitals, Guy's and St Thomas' NHS Foundation Trust, London, United Kingdom.
Department of Interventional Cardiology, Hospital Clinico San Carlos, Madrid, Spain.
Department of Cardiology, Royal Brompton Hospital, Royal Brompton and Harefield Hospitals, Guy's and St Thomas' NHS Foundation Trust, London, United Kingdom.
York Health Economics Consortium, University of York, York, United Kingdom.
Medical Affairs, Abiomed Inc., Danvers, MA, United States.
Health Economics and Market Access, Abiomed Europe GmbH, Aachen, Germany.
Centre for Structural Heart Disease, Henry Ford Hospital, Detroit, MI, United States.

Revascularization completeness after percutaneous coronary intervention (PCI) is associated with improved long-term outcomes. Mechanical circulatory support [intra-aortic balloon pump (IABP) or Impella] is used during high-risk PCI (HR-PCI) to enhance peri-procedural safety and achieve more complete revascularization. The relationship between revascularization completeness [post-PCI residual SYNTAX Score (rSS)] and left ventricular ejection fraction (LVEF) in HR-PCI has not been established. We investigated LVEF predictors at 90 days post-PCI with Impella or IABP support. Individual patient data (IPD) were analyzed from PROTECT II (NCT00562016) in the base case. IPD from PROTECT II and RESTORE-EF (NCT04648306) were naïvely pooled in the sensitivity analysis. Using complete cases only, linear regression was used to explore the predictors of LVEF at 90 days post-PCI. Models were refined using stepwise selection based on Akaike Information Criterion and included: treatment group (Impella, IABP), baseline characteristics [age, gender, race, New York Heart Association Functional Classification, LVEF, SYNTAX Score (SS)], and rSS. Impella treatment and higher baseline LVEF were significant predictors of LVEF improvement at 90 days post-PCI ($p \leq 0.05$), and a lower rSS contributed to the model ($p = 0.082$). In the sensitivity analysis, Impella treatment, higher baseline LVEF, and lower rSS were significant predictors of LVEF improvement at 90 days ($p \leq 0.05$), and SS pre-PCI contributed to the model ($p = 0.070$). Higher baseline LVEF, higher SS pre-PCI, lower rSS (i.e. completeness of revascularization), and Impella treatment were predictors of post-PCI LVEF improvement. The findings suggest potential mechanisms of Impella include improving the extent and quality of revascularization, and intraprocedural ventricular unloading.

Cardiology/Cardiovascular Research

Solomon RA, **Kerrigan DJ**, **Keteyian SJ**, and **Cowger JA**. Bridge to Weight Loss: A Case Series. *ASAIO J* 2024; Epub ahead of print. PMID: 38346296. Full Text

From the Division of Cardiovascular Medicine, Henry Ford Hospital, Detroit, Michigan.

Durable left ventricular assist devices (LVADs) are a well-established therapeutic option for patients with advanced heart failure. These devices are often used to "bridge" patients to an orthotopic heart transplantation (HT). Unfortunately, many patients on LVAD support with a body mass index (BMI) above a certain value are not eligible for HT due a lack of suitable donors and the association between obesity and poor outcomes after HT. This case series describes three individuals on LVAD support who were able to successfully lose enough weight to qualify to be listed for an HT. We highlight a systematic, multidisciplinary approach to implementing guideline-driven weight loss strategies, including some aggressive methods (ie, meal replacements, weight loss medications, and bariatric surgery). In addition to describing the weight loss outcomes, we also discuss barriers and medical challenges during weight loss that are unique to this population.

Cardiology/Cardiovascular Research

Taleb I, Kyriakopoulos CP, Fong R, Ijaz N, **Demertzis Z**, Sideris K, Wever-Pinzon O, Koliopoulou AG, Bonios MJ, Shad R, **Peruri A**, Hanff TC, Dranow E, Giannouchos TV, Krauspe E, Zakka C, Tang DG, **Nemeh HW**, Stehlik J, Fang JC, Selzman CH, Alharethi R, Caine WT, **Cowger JA**, Hiesinger W, Shah P, and Drakos SG. Machine Learning Multicenter Risk Model to Predict Right Ventricular Failure After Mechanical Circulatory Support: The STOP-RVF Score. *JAMA Cardiol* 2024; Epub ahead of print. PMID: 38294795. Full Text

U.T.A.H. (Utah Transplant Affiliated Hospitals) Cardiac Transplant Program: University of Utah Health and School of Medicine, Intermountain Medical Center, George E. Wahlen Department of Veterans Affairs Medical Center, Salt Lake City, Utah.
Department of Cardiothoracic Surgery, Stanford University, Stanford, California.
Heart Failure, Mechanical Circulatory Support & Transplant, Inova Heart & Vascular Institute, Falls Church, Virginia.
Henry Ford Medical Center, Detroit, Michigan.
Onassis Cardiac Surgery Center, Athens, Greece.
Division of Cardiovascular Surgery, Hospital of the University of Pennsylvania, Philadelphia.
Department of Health Policy and Organization, School of Public Health, The University of Alabama at Birmingham, Birmingham.

IMPORTANCE: The existing models predicting right ventricular failure (RVF) after durable left ventricular assist device (LVAD) support might be limited, partly due to lack of external validation, marginal predictive power, and absence of intraoperative characteristics. OBJECTIVE: To derive and validate a risk model to predict RVF after LVAD implantation. DESIGN, SETTING, AND PARTICIPANTS: This was a hybrid prospective-retrospective multicenter cohort study conducted from April 2008 to July 2019 of patients with advanced heart failure (HF) requiring continuous-flow LVAD. The derivation cohort included patients enrolled at 5 institutions. The external validation cohort included patients enrolled at a sixth institution within the same period. Study data were analyzed October 2022 to August 2023. EXPOSURES: Study participants underwent chronic continuous-flow LVAD support. MAIN OUTCOME AND MEASURES: The primary outcome was RVF incidence, defined as the need for RV assist device or intravenous inotropes for greater than 14 days. Bootstrap imputation and adaptive least absolute shrinkage and selection operator variable selection techniques were used to derive a predictive model. An RVF risk calculator (STOP-RVF) was then developed and subsequently externally validated, which can provide personalized quantification of the risk for LVAD candidates. Its predictive accuracy was compared with previously published RVF scores. RESULTS: The derivation cohort included 798 patients (mean [SE] age, 56.1 [13.2] years; 668 male [83.7%]). The external validation cohort included 327 patients. RVF developed in 193 of 798 patients (24.2%) in the derivation cohort and 107 of 327 patients (32.7%) in the validation cohort. Preimplant variables associated with postoperative RVF included nonischemic cardiomyopathy, intra-aortic balloon pump, microaxial percutaneous left ventricular assist device/venoarterial extracorporeal membrane oxygenation, LVAD configuration, Interagency Registry for Mechanically Assisted Circulatory Support profiles 1 to 2, right atrial/pulmonary capillary wedge pressure ratio, use of angiotensin-converting enzyme inhibitors, platelet count, and serum sodium, albumin, and creatinine levels. Inclusion of intraoperative characteristics did not improve model performance. The calculator achieved a C statistic of 0.75 (95% CI, 0.71-0.79) in the derivation cohort and 0.73 (95% CI, 0.67-0.80) in the validation cohort. Cumulative survival was higher in patients composing the low-risk group (estimated <20% RVF risk) compared with those in the higher-risk groups. The STOP-RVF risk calculator exhibited a significantly better performance than commonly used risk scores proposed by Kormos et al (C statistic, 0.58; 95% CI, 0.53-0.63) and Drakos et al (C statistic, 0.62; 95% CI, 0.57-0.67). CONCLUSIONS AND RELEVANCE: Implementing routine clinical data, this multicenter cohort study derived and validated the STOP-RVF calculator as a personalized risk assessment tool for the prediction of RVF and RVF-associated all-cause mortality.

Cardiology/Cardiovascular Research

Thompson MP, Hou H, Fliegner M, Guduguntla V, Cascino T, Aaronson KD, Likosky DS, Sukul D, and **Keteyian SJ**. Cardiac Rehabilitation Use After Heart Failure Hospitalization Associated With Advanced Heart Failure Center Status. *J Cardiopulm Rehabil Prev* 2024; Epub ahead of print. PMID: 38300252. Full Text

Section for Health Services Research and Quality, Department of Cardiac Surgery, Michigan Medicine, Ann Arbor (Drs Thompson and Likosky and Ms Hou); Center for Healthcare Outcomes & Policy, University of Michigan, Ann Arbor (Drs Thompson and Likosky); School of Medicine, Oakland University William Beaumont, Auburn Hills, Michigan (Mr Fliegner); Division of Cardiology, Department of Medicine, Feinberg School of Medicine, Northwestern University, Chicago, Illinois (Dr Guduguntla); Division of Cardiovascular Medicine, Department of Internal Medicine, Michigan Medicine, Ann Arbor (Drs Cascino, Aaronson, and Sukul); and Division of Cardiovascular Medicine, Henry Ford Health System, Detroit, Michigan (Dr Keteyian).

PURPOSE: Cardiac rehabilitation (CR) is an evidence-based, guideline-endorsed therapy for patients with heart failure with reduced ejection fraction (HFrEF) but is broadly underutilized. Identifying structural factors contributing to increased CR use may inform quality improvement efforts. The objective here was to associate hospitalization at a center providing advanced heart failure (HF) therapies and subsequent CR participation among patients with HFrEF. METHODS: A retrospective analysis was performed on a 20% sample of Medicare beneficiaries primarily hospitalized with an HFrEF diagnosis between January 2008 and December 2018. Outpatient claims were used to identify CR use (no/yes), days to first session, number of attended sessions, and completion of 36 sessions. The association between advanced HF

status (hospitals performing heart transplantation or ventricular assist device implantations) and CR participation was evaluated with logistic regression, accounting for patient, hospital, and regional factors. RESULTS: Among 143 392 Medicare beneficiaries, 29 487 (20.6%) were admitted to advanced HF centers (HFC) and 5317 (3.7%) attended a single CR session within 1 yr of discharge. In multivariable analysis, advanced HFC status was associated with significantly greater relative odds of participating in CR (OR = 2.20: 95% CI, 2.08-2.33; P < .001) and earlier initiation of CR participation (-8.5 d; 95% CI, -12.6 to 4.4; P < .001). Advanced HFC status had little to no association with the intensity of CR participation (number of visits or 36 visit completion). CONCLUSIONS: Medicare beneficiaries hospitalized for HF were more likely to attend CR after discharge if admitted to an advanced HFC than a nonadvanced HFC.

Center for Health Policy and Health Services Research

Al-Antary N, Hirko KA, **Elsiss F**, **Zatirka T**, **Ryan M**, **Movsas B**, **Chang SS**, **Adjei Boakye E**, and **Tam SH**. Clinic-based perspectives on the integration of patient-reported outcomes (PROs) in a tertiary cancer center. *Support Care Cancer* 2024; 32(3):148. PMID: 38326573. Full Text

Department of Public Health Sciences, Henry Ford Health, One Ford Place, Detroit, MI, 48202, USA.
Department of Epidemiology and Biostatistics, College of Human Medicine, Michigan State University, East Lansing, MI, USA.
Center for Health Policy & Health Services Research, Henry Ford Health, Detroit, MI, USA.
Henry Ford Cancer, Henry Ford Health, Detroit, MI, USA.
Department of Radiation Oncology, Henry Ford Health, Detroit, MI, USA.
Department of Otolaryngology - Head and Neck Surgery, Henry Ford Health, Detroit, MI, USA.
Department of Public Health Sciences, Henry Ford Health, One Ford Place, Detroit, MI, 48202, USA. eadjei1@hfhs.org.
Department of Epidemiology and Biostatistics, College of Human Medicine, Michigan State University, East Lansing, MI, USA. eadjei1@hfhs.org.
Department of Otolaryngology - Head and Neck Surgery, Henry Ford Health, Detroit, MI, USA. eadjei1@hfhs.org.

PURPOSE: This study examines providers' and clinic staff's perspectives on patient-reported outcomes (PROs) implementation at an academic medical center. METHODS: An anonymous and voluntary survey was administered to Henry Ford Cancer providers and clinic staff 18 months after PROs program implementation in September 2020, to obtain their feedback on perceived barriers, impact on workflows, and PROs administration frequency in routine cancer care. RESULTS: A total of 180 providers and 40 clinic staff were invited to complete the survey; 31% and 63% completed the survey, respectively. Approximately 68% of providers reported that electronically integrated PROs scores were either beneficial or somewhat beneficial to their patients, while only 28% of the clinic staff reported that PROs were beneficial or somewhat beneficial to patients. According to the clinic staff, the most common barriers to PROs completion included lack of patients' awareness of the utility of the program with respect to their care, patients' health status at check-in, and PROs being offered too frequently. CONCLUSION: There is favorable acceptance of the PROs program by providers, but clinic staff found it less favorable. Interventions to address barriers and improve program engagement are needed to ensure broad adoption of PROs in oncology practice.

Center for Health Policy and Health Services Research

Davidson WM, Mahavni A, Chrusciel T, Salas J, **Miller-Matero LR**, Sullivan MD, **Zabel C**, Lustman PJ, **Ahmedani BK**, and Scherrer JF. Characteristics of patients with non-cancer pain and long-term prescription opioid use who have used medical versus recreational marijuana. *J Cannabis Res* 2024; 6(1):7. PMID: 38383471. Full Text

Department of Family and Community Medicine, Saint Louis University School of Medicine, 1008 S. Spring, SLUCare Academic Pavilion, 3rd Floor, St. Louis, MO, 63110, USA.
Advanced HEAlth Data (AHEAD) Research Institute, Saint Louis University School of Medicine, 3545 Lafayette Ave, 4th Floor, St. Louis, MO, 63104, USA.

Department of Health and Clinical Outcomes Research, Saint Louis University School of Medicine, 3545 Lafayette Ave, 4th Floor, St. Louis, MO, 63104, USA.
Center for Health Policy and Health Services Research and Behavioral Health Services, Henry Ford Health, One Ford Place, Detroit, MI, 48202, USA.
Department of Psychiatry and Behavioral Science, University of Washington School of Medicine, 1959 NE Pacific Street, Seattle, WA, 98195, USA.
Department of Psychiatry, Washington University School of Medicine, 4320 Forest Park Blvd, Suite 301, St. Louis, MO, 63108, USA.
Department of Family and Community Medicine, Saint Louis University School of Medicine, 1008 S. Spring, SLUCare Academic Pavilion, 3rd Floor, St. Louis, MO, 63110, USA. jeffrey.scherrer@health.slu.edu.
Department of Psychiatry and Behavioral Neuroscience, Saint Louis University School of Medicine, 1438 South Grand Blvd., St. Louis, MO, 63104, USA. jeffrey.scherrer@health.slu.edu.
Advanced HEAlth Data (AHEAD) Research Institute, Saint Louis University School of Medicine, 3545 Lafayette Ave, 4th Floor, St. Louis, MO, 63104, USA. jeffrey.scherrer@health.slu.edu.
Department of Health and Clinical Outcomes Research, Saint Louis University School of Medicine, 3545 Lafayette Ave, 4th Floor, St. Louis, MO, 63104, USA. jeffrey.scherrer@health.slu.edu.

OBJECTIVE: Marijuana use is increasingly common among patients with chronic non-cancer pain (CNCP) and long-term opioid therapy (LTOT). We determined if lifetime recreational and medical marijuana use were associated with more frequent and higher dose prescription opioid use. DESIGN: Cross-sectional SUBJECTS: Eligible patients (n=1,037), who had a new period of prescription opioid use lasting 30-90 days, were recruited from two midwestern health care systems to a study of long-term prescription opioid use and mental health outcomes. The present cross-sectional analyses uses baseline data from this on-going cohort study. METHODS: Primary exposures were participant reported lifetime recreational and medical marijuana use versus no lifetime marijuana use. Prescription opioid characteristics included daily versus non-daily opioid use and ≥50 morphine milligram equivalent (MME) dose per day vs. <50 MME. Multivariate, logistic regression models estimated the association between lifetime recreational and medical marijuana use vs. no use and odds of daily and higher dose prescription opioid use, before and after adjusting for confounding. RESULTS: The sample was an average of 54.9 (SD±11.3) years of age, 57.3% identified as female gender, 75.2% identified as White, and 22.5% identified as Black race. Among all participants, 44.4% were never marijuana users, 21.3% were recreational only, 7.7% medical only and 26.6% were both recreational and medical marijuana users. After controlling for all confounders, lifetime recreational marijuana use, as compared to no use, was significantly associated with increased odds of daily prescription opioid use (OR=1.61; 95%CI:1.02-2.54). There was no association between lifetime recreational or medical marijuana use and daily opioid dose. CONCLUSION: Lifetime medical marijuana use is not linked to current opioid dose, but lifetime recreational use is associated with more than a 60% odds of being a daily prescription opioid user. Screening for lifetime recreational marijuana use may identify patients with chronic pain who are vulnerable to daily opioid use which increases risk for adverse opioid outcomes. Prospective data is needed to determine how marijuana use influences the course of LTOT and vice versa.

Center for Health Policy and Health Services Research
Hecht LM, **Joseph-Mofford G**, **Iacobelli R**, **Ahmed M**, **Haley E**, **Loree AM**, and **Miller-Matero LR**. Anxiety, depression, and infertility-specific distress among women with female factor infertility. *J Health Psychol* 2024; Epub ahead of print. PMID: 38413845. Full Text

Henry Ford Health, Detroit, MI, USA.
Wayne State University School of Medicine, Detroit, MI, USA.

This study aimed to evaluate whether anxiety, depression, and infertility-specific distress differ among women with female infertility who are trying to conceive and/or seeking infertility treatment. Women with diagnosed female factor infertility in the past 2 years (N = 188) completed demographic questions, and measures of infertility-specific distress, anxiety, and depression. The majority of the sample were actively trying to conceive (78.7%, n = 148) and approximately one third (33.5%, n = 63) were undergoing fertility treatment. Anxiety and depression scores did not differ based on trying to conceive or treatment-seeking,

although these subgroups reported higher levels of need for parenthood and rejection of a childfree lifestyle. High levels of mood and anxiety are experienced by women with female infertility. Although infertility-specific distress is experienced more so by women with anxiety and depression, a substantial proportion of those without mental health conditions had high levels of distress, underscoring the need for screening and treatment.

Center for Health Policy and Health Services Research
Roth KB, **Kahn G**, Storr CL, and Wilcox HC. Childhood Factors Associated With Unnatural Death Through Midadulthood. *JAMA Netw Open* 2024; 7(2):e240327. PMID: 38393724. Full Text

Department of Community Medicine, Mercer University School of Medicine, Savannah, Georgia.
Center for Health Policy & Health Services Research, Henry Ford Health, Detroit, Michigan.
University of Maryland School of Nursing, Baltimore.
Department of Mental Health, Johns Hopkins Bloomberg School of Public Health, Baltimore, Maryland.

IMPORTANCE: Life expectancy is decreasing in the US. Without national efforts to address factors that support policies and programs directed at children living in areas of concentrated poverty, life expectancy will likely continue to decline while costs and suffering associated with unnatural deaths will increase. OBJECTIVE: To identify which childhood factors are associated with death from unnatural causes through midadulthood. DESIGN, SETTING, AND PARTICIPANTS: For this cohort study, longitudinal data on childhood characteristics came from a group-randomized intervention trial implemented in Baltimore City Public Schools, Baltimore, Maryland (baseline 1985-1986; all students entering first grade were selected to participate at age 6 years). Participants were followed up to midadulthood with a National Death Index search through December 31, 2020. Data analysis was performed from February to May 2023. EXPOSURES: Exposures included individual factors (ie, sociodemographic characteristics, teacher-reported aggressive behavior, self-reported depression, anxiety, early alcohol and cannabis use, and assaultive violence exposure), family and peer factors (ie, household structure and education level, deviant peer affiliation, and parental monitoring), and neighborhood factors (ie, rates of neighborhood assault and public assistance). MAIN OUTCOMES AND MEASURES: The main outcome was unnatural death, defined as death due to unintentional injury, suicide, and homicide. A National Death Index search ascertained participants who died by age 41 to 42 years and cause of death. Multivariable Cox proportional hazards models were used to identify whether the exposures were independently associated with future mortality by unnatural causes. RESULTS: The initial trial included 2311 children, and longitudinal data were available for 2180 participants (median [IQR] age in first grade, 6.3 [6.0-6.5] years; 1090 female [50.0%]; 1461 Black [67.0%]; 1168 received free or reduced lunch in first grade [53.6%]). A total of 111 male participants (10.2%) and 29 female participants (2.7%) died; among those who died, 96 male participants (86.5%) and 14 female participants (48.3%) died of unnatural causes. Two factors remained significantly associated with mortality from unnatural causes: female sex was associated with reduced risk (hazard ratio, 0.13; 95% CI, 0.08-0.22), and neighborhood public assistance was associated with increased risk (hazard ratio, 1.89; 95% CI, 1.09-3.30). CONCLUSIONS AND RELEVANCE: In this urban population-based cohort study, no modifiable risk factors of mortality at the level of the individual (eg, depression or anxiety and substance use) or the family (eg, household education level) were identified. However, the degree of neighborhood poverty in early childhood was significantly associated with death by unnatural causes in early adulthood, suggesting that economic policies are needed to advance health equity in relation to premature mortality.

Center for Health Policy and Health Services Research
Yarborough BJ, Stumbo SP, Schneider JL, **Ahmedani BK**, Daida YG, Hooker SA, Lapham GT, Negriff S, and Rossom RC. Patient perspectives on mental health and pain management support needed versus received during opioid deprescribing. *J Pain* 2024; Epub ahead of print. PMID: 38311195. Request Article

Kaiser Permanente Northwest Center for Health Research, Portland, OR USA. Electronic address: Bobbijo.h.yarborough@kpchr.org.
Kaiser Permanente Northwest Center for Health Research, Portland, OR USA.
Henry Ford Health, Detroit, MI USA.
Kaiser Permanente Hawaii Center for Integrated Health Care Research, Honolulu, HI USA.

HealthPartners Institute, Minneapolis, MN USA.
Kaiser Permanente Washington Health Research Institute, Seattle, WA USA.
Kaiser Permanente Southern California, Pasadena, CA USA.

Prescription opioid tapering has increased significantly over the last decade. Evidence suggests that tapering too quickly or without appropriate support may unintentionally harm patients. The aim of this analysis was to understand patients' experiences with opioid tapering, including support received or not received for pain control or mental health. Patients with evidence of opioid tapering from six health care systems participated in semi-structured, in-depth interviews; family members of suicide decedents with evidence of opioid tapering were also interviewed. Interviews were analyzed using thematic analysis. Participants included 176 patients and 16 family members. Results showed that 24% of participants felt their clinicians checked in with them about their taper experiences while 41% reported their clinicians did not. A majority (68%) of individuals who experienced suicide behavior during tapering reported that clinicians did check in about mood and mental health changes specifically; however, 27% of that group reported no such check in. More individuals reported negative experiences (than positive) with pain management clinics-where patients are often referred for tapering and pain management support. Patients reporting successful tapering experiences named shared decision-making and ability to adjust taper speed or pause tapering as helpful components of care. Fifty-six percent of patients reported needing more support during tapering, including more empathy and compassion (48%) and an individualized approach to tapering (41%). Patient-centered approaches to tapering include reaching out to monitor how patients are doing, involving patients in decision-making, supporting mental health changes, and allowing for flexibility in the tapering pace. PERSPECTIVE: Patients tapering prescription opioids desire more provider-initiated communication including checking in about pain, setting expectations for withdrawal and mental health related changes, and providing support for mental health. Patients preferred opportunities to share decisions about taper speed and to have flexibility with pausing the taper as needed.

Dermatology
Chen Y, **Vellaichamy G**, **Schneider SL**, Kong W, and Liu Z. Exposure factors in the occurrence and development of melasma (Review). *Exp Ther Med* 2024; 27(4):131. PMID: 38414788. Full Text

Department of Dermatology, The Secondary Affiliated Hospital, Shandong First Medical University, Tai'an, Shandong 271000, P.R. China.
Center for Cutaneous Biology and Immunology Research, Department of Dermatology, Henry Ford Health System, Detroit, MI 48201, USA.

Melasma is an acquired pigmentation disease that mainly involves the development of symmetrical yellow-brown facial patches. The incidence rate of the disease is increasing yearly. Therefore, actively studying the exposure factors that induce melasma could contribute to the prevention and treatment of this disease. In the present review, the possible exposure factors were summarized.

Dermatology
Desai SR, Baldwin H, Del Rosso JQ, Gallo RL, Bhatia N, Harper JC, York JP, and **Gold LS**. Microencapsulated Benzoyl Peroxide for Rosacea in Context: A Review of the Current Treatment Landscape. *Drugs* 2024; Epub ahead of print. PMID: 38418773. Full Text

Innovative Dermatology, Plano, TX, USA.
Acne Treatment and Research Center, Brooklyn, NY, USA.
JDR Dermatology Research, Las Vegas, NV, USA.
University of California San Diego, San Diego, CA, USA.
Therapeutics Clinical Research, San Diego, CA, USA.
The Dermatology and Skin Care Center of Birmingham, Birmingham, AL, USA.
Galderma Laboratories, Dallas, TX, USA. jp.york@galderma.com.
Henry Ford Health System, Detroit, MI, USA.

Rosacea, a chronic skin condition affecting millions of people in the USA, leads to significant social and professional stigmatization. Effective management strategies are crucial to alleviate symptoms and improve patients' quality of life. Encapsulated benzoyl peroxide 5% (E-BPO 5%) is a newly FDA-approved topical treatment for rosacea that shows promise in enhancing therapeutic response and minimizing skin irritation. This review aims to assess the role of recently FDA approved E-BPO 5% in the current treatment landscape for rosacea management, as it is not yet included in clinical guidelines that predominantly rely on older approved therapies. The review focuses on randomized controlled trials conducted in English-speaking adults. It evaluates the efficacy, safety, and tolerability of various US Food and Drug Administration (FDA)-approved agents used for rosacea treatment, including E-BPO cream, metronidazole gel, azelaic acid gel and foam, ivermectin cream, minocycline foam, oral doxycycline, brimonidine gel, and oxymetazoline HCl cream. Existing therapies have been effective in reducing papulopustular lesions and erythema associated with rosacea for many years. E-BPO 5% offers a promising addition to the treatment options due to its microencapsulation technology, which prolongs drug delivery time and aims to improve therapeutic response while minimizing skin irritation. Further research is necessary to determine the exact role of E-BPO 5% in the therapeutic landscape for rosacea. However, based on available evidence, E-BPO 5% shows potential as a valuable treatment option for managing inflammatory lesions of rosacea, and it may offer benefits to patients including: rapid onset of action, demonstrated efficacy by Week 2, excellent tolerability, and sustained long-term results for up to 52 weeks of treatment.

Dermatology
Eichenfield LF, **Gold LS**, Han J, Hebert AA, Mazzetti A, Moro L, Squittieri N, and Thiboutot D. Integrated Short-Term and Long-Term Efficacy of Topical Clascoterone Cream 1% in Patients Aged 12 Years or Older With Acne Vulgaris. *J Drugs Dermatol* 2024; 23(1):1278-1283. PMID: 38206145. Full Text

BACKGROUND: Clascoterone cream 1% is approved for the treatment of acne vulgaris in patients aged 12 years or older based on results from two identical pivotal Phase 3 trials. Integrated efficacy of clascoterone in patients aged 12 years or older with acne vulgaris from the pivotal trials (NCT02608450 and NCT02608476) and long-term extension (LTE) study (NCT02682264) is reported. METHODS: In the pivotal trials, patients with moderate-to-severe acne vulgaris were randomized 1:1 to twice-daily application of clascoterone cream 1% or vehicle for 12 weeks; they could then enter the LTE study, where all patients applied clascoterone to the face and, if desired, trunk for up to 9 additional months. Efficacy was assessed from treatment success based on Investigator's Global Assessment scores (IGA 0/1) in patients aged 12 years or older in the intention-to-treat population; lesion counts were assessed through week 12. Missing data were handled using multiple imputation in the pivotal studies and were not imputed in the LTE study. RESULTS: Of 1421 patients enrolled, 1143 (clascoterone, 576; vehicle, 567) completed week 12; 600 entered and 343 completed the LTE study. The treatment success rate and most lesion count reductions following clascoterone vs placebo treatment reached statistical significance at week 12; the overall treatment success rate increased to 30.2% for facial acne after 12 months and 31.7% for truncal acne after 9 months of treatment. CONCLUSIONS: The efficacy of clascoterone cream 1% for the treatment of acne vulgaris continued to increase over time for up to 12 months in patients aged 12 years or older with acne vulgaris.   J Drugs Dermatol. 2024;23(1):1278-1283.   doi:10.36849/JDD.7719.

Dermatology
Gurley S, **Friedman BJ**, and **Shwayder T**. Unresectable infantile myofibroma discovered in utero. *Pediatr Dermatol* 2024; Epub ahead of print. PMID: 38409999. Full Text

MS4 at Chicago Medical School, Chicago, Illinois, USA.
Department of Dermatology, Henry Ford Hospital, Detroit, Michigan, USA.
Pediatric Dermatology, Henry Ford Hospital, Detroit, Michigan, USA.

The authors present a case of a proliferative nodule located beneath an infant's lower lip that was initially discovered on prenatal ultrasound and fetal magnetic resonance imaging (MRI). Biopsy revealed a smooth muscle actin-positive spindled cell proliferation with hemangiopericytoma-like vessels consistent with infantile myofibromatosis (IM). Since the location prevented surgical management, the clinicians

opted to observe the lesion. Ultimately, the lesion fully regressed on its own confirming conservative management is an option for isolated IM.

Dermatology
Horton LA, **Lyons AB**, **Kwa MC**, **Chaffins ML**, and **Veenstra J**. Pemetrexed-Induced Pseudocellulitis: A Diagnostic Conundrum. *Cureus* 2024; 16(1):e52114. PMID: 38344595. Full Text

Dermatology, University of California Irvine, Irvine, USA.
Dermatology, Henry Ford Health System, Detroit, USA.

Pemetrexed, an anti-folate, antineoplastic agent, effectively treats various malignancies such as non-small cell lung cancer (NSCLC) and mesothelioma. Here, we report two cases of recurrent pemetrexed-induced lower extremity erythema and edema, one in a 60-year-old male and the other in a 47-year-old male, who were both treated for recurrent cellulitis on multiple occasions before finally being diagnosed with pemetrexed-induced pseudocellulitis (PIP), a rarely reported adverse effect. This is an important diagnostic pitfall for clinicians to be aware of, as early recognition may minimize patient morbidity and prevent unnecessary hospitalization and antibiotic use for presumed cellulitis.

Dermatology
Jiang A. Extracellular Vesicles and the Immune System: From Immunological Function to Therapeutic Application. *Immunol Invest* 2024; 1-4. Epub ahead of print. PMID: 38383313. Request Article

Center for Cutaneous Biology and Immunology, Department of Dermatology, Henry Ford Health System, Detroit, Michigan, USA.
College of Human Medicine, Michigan State University, East Lansing, Michigan, USA.

Dermatology
Kwa MC, and **Lim HW**. Commentary on: "Trends in price for topical corticosteroids from 2017 to 2021 and the opportunity for cost savings identifiable at the point of care: A retrospective cross-sectional study". *J Am Acad Dermatol* 2024; Epub ahead of print. PMID: 38367673. Full Text

Department of Dermatology, Chobanian & Avedisian School of Medicine, Boston University, Boston , MA.
Department of Dermatology, Henry Ford Health, Detroit MI.

Dermatology
Maghfour J, **Ozog DM**, Mineroff J, Jagdeo J, **Kohli I**, and **Lim HW**. Photobiomodulation CME Part I: Overview and Mechanism of Action. *J Am Acad Dermatol* 2024; Epub ahead of print. PMID: 38309304. Full Text

Department of Dermatology, Henry Ford Health, Detroit, MI, USA.
Department of Dermatology, Henry Ford Health, Detroit, MI, USA; The Henry W. Lim, MD, Division of Photobiology and Photomedicine, Department of Dermatology, Henry Ford Health, Detroit, MI, USA; College of Human Medicine, Michigan State University, East Lansing, Michigan, USA. Electronic address: dozog1@hfhs.org.
Department of Dermatology, State University of New York, Downstate Health Sciences University, Brooklyn, NY, USA.
College of Human Medicine, Michigan State University, East Lansing, Michigan, USA.
Department of Dermatology, Henry Ford Health, Detroit, MI, USA; The Henry W. Lim, MD, Division of Photobiology and Photomedicine, Department of Dermatology, Henry Ford Health, Detroit, MI, USA; College of Human Medicine, Michigan State University, East Lansing, Michigan, USA.

Photobiomodulation (PBM), previously known as low-level laser light therapy, represents a non-invasive form of phototherapy that utilizes wavelengths in the red light (RL, 620-700 nm) portion of the visible light (VL, 400-700 nm) spectrum and the near-infrared (NIR, 700-1440 nm) spectrum. PBM is a promising and increasingly used therapy for the treatment of various dermatologic and non-dermatologic conditions. Photons from RL and NIR are absorbed by endogenous photoreceptors including mitochondrial

cytochrome C oxidase (COX). Activation of COX leads to the following changes: modulation of mitochondrial adenosine triphosphate (ATP), generation of reactive oxygen species (ROS), and alterations in intracellular calcium levels. The associated modulation of ATP, ROS and calcium levels promotes the activation of various signaling pathways (e.g., insulin-like growth factors, phosphoinositide 3-kinase pathways), which contribute to downstream effects on cellular proliferation, migration and differentiation. Effective PBM therapy is dependent on treatment parameters (e.g., fluence, treatment duration and output power). PBM is generally well-tolerated and safe with erythema being the most common and self-limiting adverse cutaneous effect.

Dermatology

Mineroff J, **Maghfour J**, **Ozog DD**, **Lim HW**, **Kohli I**, and Jagdeo J. Photobiomodulation CME Part II: Clinical Applications in Dermatology. *J Am Acad Dermatol* 2024; Epub ahead of print. PMID: 38307144. Full Text

Department of Dermatology, State University of New York, Downstate Health Sciences University, Brooklyn, NY, USA.
The Henry W. Lim, MD, Division of Photobiology and Photomedicine, Department of Dermatology, Henry Ford Health, Detroit, MI, USA.
The Henry W. Lim, MD, Division of Photobiology and Photomedicine, Department of Dermatology, Henry Ford Health, Detroit, MI, USA; College of Human Medicine, Michigan State University, East Lansing, Michigan, USA.
The Henry W. Lim, MD, Division of Photobiology and Photomedicine, Department of Dermatology, Henry Ford Health, Detroit, MI, USA; Department of Physics and Astronomy, Wayne State University, Detroit, MI.
Department of Dermatology, State University of New York, Downstate Health Sciences University, Brooklyn, NY, USA. Electronic address: jrjagdeo@gmail.com.

Photobiomodulation (PBM) is an emerging treatment modality in dermatology with increasing office and home-based use. PBM is the use of various light sources in the red light (620-700 nm) and near-infrared (700-1440 nm) spectrum as a form of light therapy. PBM is often administered through low-level lasers or light-emitting diodes. Studies show that PBM can be used effectively to treat conditions secondary to cancer therapies, alopecia, ulcers, herpes simplex virus, acne, skin rejuvenation, wounds, and scars. PBM offers patients many benefits compared to other treatments. It is non-invasive, cost-effective, and convenient for patients and offers a favorable safety profile. PBM can be used as an alternative or adjuvant to other treatment modalities including pharmacotherapy. It is important for dermatologists to gain a better clinical understanding of PBM for in-office administration and to counsel patients on proper application for home-use devices to best manage safety and expectations as this technology develops. PBM wavelengths can induce varied biological effects in diverse skin types, races, and ethnicities; therefore, it is also important for dermatologists to properly counsel their skin of color patients who undergo PBM treatments. Future clinical trials are necessary to produce standardized recommendations across conditions and skin types.

Dermatology

Reynolds RV, Yeung H, Cheng CE, Cook-Bolden F, Desai SR, Druby KM, Freeman EE, Keri JE, **Stein Gold LF**, Tan JKL, Tollefson MM, Weiss JS, Wu PA, Zaenglein AL, Han JM, and Barbieri JS. Guidelines of care for the management of acne vulgaris. *J Am Acad Dermatol* 2024; Epub ahead of print. PMID: 38300170. Full Text

Department of Dermatology, Beth Israel Deaconess Medical Center, Boston, Massachusetts.
Department of Dermatology, Emory University School of Medicine, Atlanta, Georgia.
Division of Dermatology, Department of Medicine, University of California Los Angeles, Los Angeles, California.
Department of Dermatology, Weill Cornell Medicine, New York, New York.
Innovative Dermatology, Plano, Texas; Department of Dermatology, University of Texas Southwestern Medical Center, Dallas, Texas.
Penn State Health Hampden Medical Center, Enola, Pennsylvania.

Department of Dermatology, Massachusetts General Hospital, Boston, Massachusetts.
University of Miami, Miller School of Medicine, Miami, Florida; Miami VA Medical Center, Miami, Florida.
Department of Dermatology, Henry Ford Health, Detroit, Michigan.
Western University, London, Ontario, Canada; Windsor Clinical Research Inc., Windsor, Ontario, Canada.
Departments of Dermatology and Pediatrics, Mayo Clinic, Rochester, Minnesota.
Department of Dermatology, Emory University School of Medicine, Atlanta, Georgia; Georgia Dermatology Partners, Snellville, Georgia.
Department of Dermatology, University of California Davis, Sacramento, California.
Departments of Dermatology and Pediatrics, Penn State/Hershey Medical Center, Hershey, Pennsylvania.
American Academy of Dermatology, Rosemont, Illinois. Electronic address: jminhan@aad.org.
Department of Dermatology, Brigham and Women's Hospital, Boston, Massachusetts.

BACKGROUND: Acne vulgaris commonly affects adults, adolescents, and preadolescents aged 9 years or older. OBJECTIVE: The objective of this study was to provide evidence-based recommendations for the management of acne. METHODS: A work group conducted a systematic review and applied the Grading of Recommendations, Assessment, Development, and Evaluation approach for assessing the certainty of evidence and formulating and grading recommendations. RESULTS: This guideline presents 18 evidence-based recommendations and 5 good practice statements. Strong recommendations are made for benzoyl peroxide, topical retinoids, topical antibiotics, and oral doxycycline. Oral isotretinoin is strongly recommended for acne that is severe, causing psychosocial burden or scarring, or failing standard oral or topical therapy. Conditional recommendations are made for topical clascoterone, salicylic acid, and azelaic acid, as well as for oral minocycline, sarecycline, combined oral contraceptive pills, and spironolactone. Combining topical therapies with multiple mechanisms of action, limiting systemic antibiotic use, combining systemic antibiotics with topical therapies, and adding intralesional corticosteroid injections for larger acne lesions are recommended as good practice statements. LIMITATIONS: Analysis is based on the best available evidence at the time of the systematic review. CONCLUSIONS: These guidelines provide evidence-based recommendations for the management of acne vulgaris.

Dermatology

Shareef SJ, Jackson S, **Lane BN**, Kallabat E, Boopathy D, **Fakhoury JW**, and **Lim HW**. Photoprotective measures among adolescents stratified by region: An analysis utilizing the National College Health Assessment. *Photodermatol Photoimmunol Photomed* 2024; 40(1):e12934. PMID: 38017654. Full Text

Michigan State University College of Human Medicine, East Lansing, Michigan, USA.
The Henry W. Lim Division of Photobiology and Photomedicine, Department of Dermatology, Henry Ford Health, Detroit, Michigan, USA.
Department of Public Health Sciences, Henry Ford Health, Detroit, Michigan, USA.

BACKGROUND/PURPOSE: Exposure to sunlight has been shown to cause pigmentary alterations, photoaging and photocarcinogenesis. Understanding photoprotective patterns in adolescent populations is beneficial to public health initiatives. We utilized data provided by the American College Health Association's National College Health Assessment to evaluate photoprotective behaviors among adolescent populations. METHODS: Behavioral questions related to photoprotection were analyzed from the American College Health Association (ACHA) National College Health Assessment (NCHA) (Version III). RESULTS: When comparing races, Black/African American respondents had the lowest association of practicing photoprotective behaviors in comparison to white respondents ($p < .05$). When comparing US geographic regions, the south had the lowest association of photoprotective measures ($p < .05$). LIMITATIONS: The response rate of each institution varied, although there was still a large quantity of respondents. Finally, we cannot discern the specific reasoning for adolescent populations not using sunscreen. CONCLUSION: These data identify demographics where efforts to enhance education on photoprotective behaviors, specifically among skin of color and southern population, to support public health initiatives.

Dermatology
Shetty NP, **Powers M**, and **Ozog D**. How We Do It: Forehead Flap in Combination With Hinge Advancement Flap for Through-and-Through Nasal Defect Reconstruction. *Dermatol Surg* 2024; Epub ahead of print. PMID: 38349849. Full Text

All authors are affiliated with the Department of Dermatology, Henry Ford Health, Detroit, Michigan.

Dermatology
Simpson EL, Bissonnette R, Chiesa Fuxench ZC, Kallender H, Sturm D, Ren H, and **Stein Gold LF**. Ruxolitinib cream monotherapy demonstrates rapid improvement in the extent and signs of mild to moderate atopic dermatitis across head and neck and other anatomic regions in adolescents and adults: pooled results from 2 phase 3 studies. *J Dermatolog Treat* 2024; 35(1):2310633. PMID: 38297490. Full Text

Department of Dermatology, Oregon Health & Science University, Portland, OR, USA.
Innovaderm Research, Montreal, Quebec, Canada.
Department of Dermatology, University of Pennsylvania, Philadelphia, PA, USA.
Incyte Corporation, Wilmington, DE, USA.
Henry Ford Health System, Detroit, MI, USA.

Purpose: Ruxolitinib (selective Janus kinase [JAK] 1 and JAK2 inhibitor) cream demonstrated efficacy and safety in patients with atopic dermatitis (AD) in the phase 3 TRuE-AD studies. In TRuE-AD1/TRuE-AD2 (NCT03745638/NCT03745651), adults and adolescents with mild to moderate AD were randomized to apply twice-daily ruxolitinib cream or vehicle for eight weeks. Here, we evaluated the efficacy and tolerability of ruxolitinib cream by anatomic region, focusing on head/neck (HN) lesions that are typically difficult to manage and disproportionately affect quality of life (QoL).Materials and methods: Eczema Area and Severity Index (EASI) responses in anatomic regions were evaluated in the pooled population (N = 1208) and among patients with baseline HN involvement (n = 663). Itch, Investigator's Global Assessment (IGA), QoL, and application site tolerability were also assessed.Results: By Week 2 (earliest assessment), ruxolitinib cream application resulted in significant improvements across all EASI anatomic region subscores and AD signs versus vehicle, with further improvements through Week 8. Significantly more patients with HN involvement who applied ruxolitinib cream versus vehicle achieved clinically meaningful improvements in itch, IGA, and QoL. Application site reactions with ruxolitinib cream were infrequent (<3%), including in patients with HN involvement.Conclusions: These results support the use of ruxolitinib cream for AD treatment across all anatomic regions, including HN.

Dermatology
Tahir S, Ihebom D, Garcia E, Amin B, and **Mohammad TF**. Sunscreen Access, Availability, and Quality in Dollar Store Chains. *J Am Acad Dermatol* 2024; Epub ahead of print. PMID: 38378087. Full Text

University of Toledo College of Medicine and Life Sciences.
Henry Ford Health Systems, Department of Dermatology, Detroit, Michigan. Electronic address: tmohamm2@hfhs.org.

Dermatology
Young AT, **Lane BN**, **Ozog D**, and **Matthews NH**. Patients and dermatologists are largely satisfied with ChatGPT-generated after-visit summaries: A pilot study. *JAAD Int* 2024; 15:33-35. PMID: 38371667. Full Text

Department of Dermatology, Henry Ford Hospital, Detroit, Michigan.
Department of Medicine, Michigan State University College of Human Medicine, East Lansing, Michigan.

Diagnostic Radiology
Oates ME, **Brown ML**, Coy DL, and Sumkin JH. State of Academic Radiology: Current Challenges, Future Adaptations. *Semin Ultrasound CT MR* 2024; Epub ahead of print. PMID: 38373670. Full Text

Department of Radiology, University of Kentucky College of Medicine UK HealthCare 800 Rose Street, Room HX-307B, Lexington, KY 40536-0293. Electronic address: meoate2@email.uky.edu.
Zolton J Kovacs Endowed Chair, Department of Radiology, Henry Ford Health, Michigan State University College of Human Medicine, Wayne State University School of Medicine, 2799 West Grand Boulevard, Detroit, MI 48202. Electronic address: manuelb@rad.hfh.edu.
Department of Radiology C5-XR, Virginia Mason Medical Center, Seattle, WA 98101. Electronic address: david.coy@virginiamason.org.
Department of Radiology, UPMC Endowed Chair for Women's Imaging, University of Pittsburgh Medical Center (UPMC), UPMC Presbyterian, Radiology, Suite 200 East Wing, Pittsburgh, PA 15213. Electronic address: sumkjh@upmc.edu.

There are approximately 200 academic radiology departments in the United States. While academic medical centers vary widely depending on their size, complexity, medical school affiliation, research portfolio and geographic location, they are united by their three core missions: patient care, education and training, and scholarship. Despite inherent differences, the current challenges faced by all academic radiology departments have common threads; potential solutions and future adaptations will need to be tailored and individualized --- one size will not fit all. In this article, we provide an overview based on our experiences at four academic centers across the United States, from relatively small to very large size, and discuss creative and innovative ways to adapt, including community expansion, hybrid models of faculty in-person versus teleradiology (traditional vs non-traditional schedule), work-life integration, recruitment and retention, mentorship, among others.

Emergency Medicine
Pflaum-Carlson J. Commentary on "Drop of Blood". *Acad Med* 2024; 99(2):163. PMID: 38294425. Full Text

J. Pflaum-Carlson is clinical assistant professor, Division of Pulmonary and Critical Care Medicine, Department of Emergency Medicine, Wayne State University School of Medicine, Henry Ford Health System, Detroit, Michigan; email: jpflaum1@hfhs.org ; Twitter: @CritCraftingMD; ORCID: http://orcid.org/0000-0002-0502-1826 .

Emergency Medicine
Zègre-Hemsey JK, Cheskes S, Johnson AM, Rosamond WD, **Cunningham CJ**, Arnold E, Schierbeck S, and Claesson A. Challenges & barriers for real-time integration of drones in emergency cardiac care: Lessons from the United States, Sweden, & Canada. *Resusc Plus* 2024; 17:100554. PMID: 38317722. Full Text

University of North Carolina at Chapel Hill, School of Nursing, United States.
Department of Family and Community Medicine, Division of Emergency Medicine, University of Toronto, Toronto, Ontario, Canada.
Sunnybrook Centre for Prehospital Medicine, Toronto, Ontario, Canada.
University of North Carolina at Chapel Hill, Gillings School of Global Public Health, Department of Epidemiology, United States.
Henry Ford Health, Department of Emergency Medicine, United States.
North Carolina State University, Institute for Transportation Research and Education, United States.
Centre for Resuscitation Science, Department of Clinical Science and Education, Södersjukhuset, Karolinska Institutet, Stockholm, Sweden.

IMPORTANCE: Out-of-hospital cardiac arrest (OHCA) is a leading cause of morbidity and mortality in the US and Europe (~600,000 incident events annually) and around the world (~3.8 million). With every minute that passes without cardiopulmonary resuscitation or defibrillation, the probability of survival decreases by 10%. Preliminary studies suggest that uncrewed aircraft systems, also known as drones, can deliver automated external defibrillators (AEDs) to OHCA victims faster than ground transport and potentially save lives. OBJECTIVE: To date, the United States (US), Sweden, and Canada have made significant contributions to the knowledge base regarding AED-equipped drones. The purpose of this Special Communication is to explore the challenges and facilitators impacting the progress of AED-

equipped drone integration into emergency medicine research and applications in the US, Sweden, and Canada. We also explore opportunities to propel this innovative and important research forward. EVIDENCE REVIEW: In this narrative review, we summarize the AED-drone research to date from the US, Sweden, and Canada, including the first drone-assisted delivery of an AED to an OHCA. Further, we compare the research environment, emergency medical systems, and aviation regulatory environment in each country as they apply to OHCA, AEDs, and drones. Finally, we provide recommendations for advancing research and implementation of AED-drone technology into emergency care. FINDINGS: The rates that drone technologies have been integrated into both research and real-life emergency care in each country varies considerably. Based on current research, there is significant potential in incorporating AED-equipped drones into the chain of survival for OHCA emergency response. Comparing the different environments and systems in each country revealed ways that each can serve as a facilitator or barrier to future AED-drone research. CONCLUSIONS AND RELEVANCE: The US, Sweden, and Canada each offers different challenges and opportunities in this field of research. Together, the international community can learn from one another to optimize integration of AED-equipped drones into emergency systems of care.

Endocrinology and Metabolism
Alfares K, and **Han HJ**. Pembrolizumab-Induced Isolated Adrenocorticotropic Hormone (ACTH) Deficiency. *Cureus* 2024; 16(1):e52235. PMID: 38352096. Full Text

Endocrinology, Diabetes and Metabolism, King Abdulaziz University Faculty of Medicine, Jeddah, SAU.
Endocrinology, Diabetes and Metabolism, Henry Ford Health System, Detroit, USA.
Internal Medicine, Henry Ford Health System, Detroit, USA.

Pembrolizumab is a programmed death 1 receptor (PD-1) inhibitor. It is used as immunotherapy in various cancers, including metastatic melanoma, non-small cell lung cancer, and, notably, high-risk triple-negative breast cancer. We discuss a case of a 44-year-old female with a past medical history of triple-negative breast cancer who presented with a chief complaint of poor oral intake and fatigue after her fourth cycle of pembrolizumab therapy. The patient was diagnosed with pembrolizumab-induced isolated secondary adrenal insufficiency (AI) and was treated with corticosteroids with improvement in her symptoms. Secondary AI due to pembrolizumab use is a rare yet potentially life-threatening complication. If initial serum cortisol is borderline low, as observed in our patient, repeated testing within shorter intervals should be considered to optimize patient outcomes.

Endocrinology and Metabolism
Manas F, and Singh S. Pseudohypoaldosteronism Type II or Gordon Syndrome: A Rare Syndrome of Hyperkalemia and Hypertension With Normal Renal Function. *Cureus* 2024; 16(1):e52594. PMID: 38374860. Full Text

Endocrinology, Henry Ford Health System, Detroit, USA.
Internal Medicine, Sunrise Hospital and Medical Center, Las Vegas, USA.

Pseudohypoaldosteronism type II (PHA II) or Gordon syndrome is characterized by hyperkalemia, hypertension, hyperchloremic metabolic acidosis, low plasma renin activity, and normal kidney function. We report a rare case of a young adult female patient presenting with abdominal pain, diarrhea, and vomiting. She was hypertensive during the presentation. Blood work showed mild anemia, hyperkalemia, hyperchloremia, and metabolic acidosis, with normal renal function and liver function. Plasma renin activity and aldosterone levels were low-normal. These findings were suggestive of PHA II or Gordon syndrome. It is a rare familial disease, with a non-specific presentation and no specific diagnostic criteria, and physicians should suspect it in patients with hyperkalemia in the setting of normal glomerular filtration, along with hypertension (which can be absent), metabolic acidosis, hyperchloremia, low plasma renin activity, and relatively suppressed aldosterone.

Family Medicine
Schrager S, **Fox K**, and **Lee R**. Abnormal Uterine Bleeding Associated With Hormonal Contraception. *Am Fam Physician* 2024; 109(2):161-166. PMID: 38393800. Full Text

University of Wisconsin, Madison, Wisconsin.
Henry Ford Family Medicine Residency Program, Michigan State University, Detroit, Michigan.

Abnormal uterine bleeding is a common and bothersome symptom in people using hormonal contraception, and it can lead to discontinuation of reliable methods of contraception and unintended pregnancies. Clinicians should counsel individuals about the potential for abnormal bleeding at initiation of the contraceptive method. After considering and excluding other potential causes of abnormal uterine bleeding, clinicians can offer treatment options specific to each hormonal contraceptive method. This article includes algorithms to help clinicians treat abnormal uterine bleeding in people using levonorgestrel intrauterine devices, depo-medroxyprogesterone acetate, progestin implant, progestin-only pills, and combined hormonal contraception. For patients with levonorgestrel intrauterine devices, physicians should first ensure that the device is correctly placed within the uterus, then consider nonsteroidal anti-inflammatory drugs as a first-line treatment for abnormal uterine bleeding; estradiol can be used if nonsteroidal anti-inflammatory drugs are ineffective. For depo-medroxyprogesterone acetate or progestin implant users, combined oral contraceptives or nonsteroidal anti-inflammatory drugs may be considered. For patients using norethindrone progestin-only pills, changing to drospirenone progesterone-only pills may help reduce the bleeding. In people using combined hormonal contraception, it may be helpful to increase estrogen content from 20 mcg to 35 mcg per day, decrease the hormone-free interval (from seven to four or five days) in people using cyclic contraception, or start a trial of low-dose doxycycline. For continuous combined contraception users, adding a hormone-free interval of four or five days can help regulate bleeding patterns.

Gastroenterology
Harris KB, **Gonzalez HC**, and **Gordon SC**. The Health Care Burden of Hepatic Encephalopathy. *Clin Liver Dis* 2024; Epub ahead of print. PMID: Not assigned. Full Text

S.C. Gordon, Henry Ford Hospital, 2799 W. Grand Boulevard, K16, Detroit, MI, United States

Gastroenterology
Khan MZ, **Suresh S**, **Ichkhanian Y**, **Jou J**, **Nagirimadugu A**, **Ghanimeh MA**, and **Zuchelli T**. Use of endoscopic plication to repair a dysfunctional gastric conduit. *VideoGIE* 2024; 9(2):78-81. PMID: 38357021. Full Text

Department of Gastroenterology and Hepatology, Henry Ford Health, Detroit, Michigan.
Department of Internal Medicine, Henry Ford Health, Detroit, Michigan.

Video 1Full length video showing the use of endoscopic plication to repair a dysfunctional gastric conduit.

Gastroenterology
Miyake K, **Chau LC**, **Trudeau S**, **Kitajima T**, **Wickramaratne N**, **Shimada S**, **Nassar A**, **Gonzalez HC**, **Venkat D**, **Moonka D**, **Yoshida A**, **Abouljoud MS**, and **Nagai S**. Improved Waitlist Outcomes in Liver Transplant Patients With Mid-MELD-Na Scores Listed in Centers Receptive to Use of Organs Donated After Circulatory Death. *Transplantation* 2024; Epub ahead of print. PMID: 38409687. Full Text

Division of Transplant and Hepatobiliary Surgery, Henry Ford Health, Detroit, MI.
Department of Public Health Sciences, Henry Ford Health, Detroit, MI.
Division of Gastroenterology and Hepatology, Henry Ford Health, Detroit, MI.

BACKGROUND: Liver transplant (LT) using organs donated after circulatory death (DCD) has been increasing in the United States. We investigated whether transplant centers' receptiveness to use of DCD organs impacted patient outcomes. METHODS: Transplant centers were classified as very receptive (group 1), receptive (2), or less receptive (3) based on the DCD acceptance rate and DCD transplant percentage. Using organ procurement and transplantation network/UNOS registry data for 20 435 patients listed for LT from January 2020 to June 2022, we compared rates of 1-y transplant probability and waitlist mortality between groups, broken down by model for end-stage liver disease-sodium (MELD-

Na) categories. RESULTS: In adjusted analyses, patients in group 1 centers with MELD-Na scores 6 to 29 were significantly more likely to undergo transplant than those in group 3 (aHR range 1.51-2.11, P < 0.001). Results were similar in comparisons between groups 1 and 2 (aHR range 1.41-1.81, P < 0.001) and between groups 2 and 3 with MELD-Na 15-24 (aHR 1.19-1.20, P < 0.007). Likewise, patients with MELD-Na score 20 to 29 in group 1 centers had lower waitlist mortality than those in group 3 (scores, 20-24: aHR, 0.71, P = 0.03; score, 25-29: aHR, 0.51, P < 0.001); those in group 1 also had lower waitlist mortality compared with group 2 (scores 20-24: aHR0.69, P = 0.02; scores 25-29: aHR 0.63, P = 0.03). One-year posttransplant survival of DCD LT patients did not vary significantly compared with donation after brain dead. CONCLUSIONS: We conclude that transplant centers' use of DCD livers can improve waitlist outcomes, particularly among mid-MELD-Na patients.

Gastroenterology

Saleem A, Haque MZ, Affas S, Munawar M, and **Jafri SM**. Transplant hepatology and diversity: A decade-long analysis (2013-2022). *JGH Open* 2024; 8(2):e13048. PMID: 38415059. Full Text

Department of Internal Medicine Henry Ford Hospital Detroit Michigan USA.
Michigan State University College of Human Medicine East Lansing Michigan USA.
Department of Internal Medicine Ascension Providence Southfield Michigan USA.
University of Michigan, College of Science Ann Arbor Michigan USA.
Department of Hepatology Henry Ford Health Detroit Michigan USA.

Diversity among physicians has been shown to positively impact patient care. Physicians from minority backgrounds are more likely to serve underserved communities and be involved in health disparities research. Efforts to increase the proportion of underrepresented minorities and women in medicine will help prepare a physician workforce that best cares for a diversifying nation. The purpose of this paper was to highlight trends in sex and ethnic representation among incoming U.S. transplant hepatology trainees over a 10-year period.

Global Health Initiative

Jarris YS, Chang H, Kureshi S, Mishori R, **Kaljee L**, Hunting J, Laurent MS, and Chen HC. Screening for Food Insecurity: A Curriculum for Medical Students. *PRiMER* 2024; 8:9. PMID: 38406230. Full Text

Georgetown University School of Medicine, Washington, DC.
Georgetown University School of Medicine, Washington, DC | Physicians for Human Rights, Washington, DC.
Henry Ford Health, Global Health Initiative, Detroit, MI.
Department of Internal Medicine, Wake Forest School of Medicine, Winston-Salem, NC.
Department of General Pediatrics, Northwell Health, New Hyde Park, NY.

INTRODUCTION: Food insecurity (FI) is defined as a lack of access to enough food for an active, healthy life. We sought to determine how a longitudinal FI screening curriculum impacts medical students' knowledge, attitudes, and behavior in screening for FI. METHODS: This was a prospective, single-institution study. The curriculum consisted of three components completed over 3 years. We administered a survey to the intervention cohort before and after the curriculum and analyzed their written reflections. We also evaluated whether students screened for FI during an objective structured clinical exam (OSCE) and compared their performance to a control cohort, which did not receive the curriculum. RESULTS: Preintervention, students felt screening for FI was important for physicians to do with their patients, but most felt uncomfortable addressing it in clinical settings. Postintervention, there was a statistically significant increase in mean scores for knowledge questions (45.24% vs 74.74%, P<.001, pre- and postintervention, respectively). Students also felt more confident in their abilities to screen and follow up about FI. Additionally, compared to the control cohort, the intervention cohort screened for FI more often during their OSCE (28.21% vs 10.71%, P<.001). CONCLUSION: A longitudinal curriculum using minimal curricular time can improve students' knowledge, attitudes, and behavior when screening for FI. Students who received the curriculum were more likely to recognize the need for and perform FI screening. Based on these findings, we anticipate that the curriculum will increase the likelihood of students identifying, screening for, and intervening in cases of FI in future clinical encounters.

Hematology-Oncology

Al-Antary N, Hirko KA, **Elsiss F**, **Zatirka T**, **Ryan M**, **Movsas B**, **Chang SS**, **Adjei Boakye E**, and **Tam SH**. Clinic-based perspectives on the integration of patient-reported outcomes (PROs) in a tertiary cancer center. *Support Care Cancer* 2024; 32(3):148. PMID: 38326573. Full Text

Department of Public Health Sciences, Henry Ford Health, One Ford Place, Detroit, MI, 48202, USA.
Department of Epidemiology and Biostatistics, College of Human Medicine, Michigan State University, East Lansing, MI, USA.
Center for Health Policy & Health Services Research, Henry Ford Health, Detroit, MI, USA.
Henry Ford Cancer, Henry Ford Health, Detroit, MI, USA.
Department of Radiation Oncology, Henry Ford Health, Detroit, MI, USA.
Department of Otolaryngology - Head and Neck Surgery, Henry Ford Health, Detroit, MI, USA.
Department of Public Health Sciences, Henry Ford Health, One Ford Place, Detroit, MI, 48202, USA. eadjei1@hfhs.org.
Department of Epidemiology and Biostatistics, College of Human Medicine, Michigan State University, East Lansing, MI, USA. eadjei1@hfhs.org.
Department of Otolaryngology - Head and Neck Surgery, Henry Ford Health, Detroit, MI, USA. eadjei1@hfhs.org.

PURPOSE: This study examines providers' and clinic staff's perspectives on patient-reported outcomes (PROs) implementation at an academic medical center. METHODS: An anonymous and voluntary survey was administered to Henry Ford Cancer providers and clinic staff 18 months after PROs program implementation in September 2020, to obtain their feedback on perceived barriers, impact on workflows, and PROs administration frequency in routine cancer care. RESULTS: A total of 180 providers and 40 clinic staff were invited to complete the survey; 31% and 63% completed the survey, respectively. Approximately 68% of providers reported that electronically integrated PROs scores were either beneficial or somewhat beneficial to their patients, while only 28% of the clinic staff reported that PROs were beneficial or somewhat beneficial to patients. According to the clinic staff, the most common barriers to PROs completion included lack of patients' awareness of the utility of the program with respect to their care, patients' health status at check-in, and PROs being offered too frequently. CONCLUSION: There is favorable acceptance of the PROs program by providers, but clinic staff found it less favorable. Interventions to address barriers and improve program engagement are needed to ensure broad adoption of PROs in oncology practice.

Hematology-Oncology

Castellano CA, Sun T, Ravindranathan D, **Hwang C**, **Balanchivadze N**, **Singh SRK**, Griffiths EA, Puzanov I, Ruiz-Garcia E, Vilar-Compte D, Cárdenas-Delgado AI, McKay RR, Nonato TK, Ajmera A, Yu PP, Nadkarni R, O'Connor TE, Berg S, Ma K, Farmakiotis D, Vieira K, Arvanitis P, Saliby RM, Labaki C, El Zarif T, Wise-Draper TM, Zamulko O, Li N, Bodin BE, Accordino MK, Ingham M, Joshi M, Polimera HV, Fecher LA, Friese CR, Yoon JJ, Mavromatis BH, Brown JT, Russell K, Nanchal R, Singh H, Tachiki L, Moria FA, Nagaraj G, Cortez K, Abbasi SH, Wulff-Burchfield EM, Puc M, Weissmann LB, Bhatt PS, Mariano MG, Mishra S, Halabi S, Beeghly A, Warner JL, French B, and Bilen MA. The impact of cancer metastases on COVID-19 outcomes: A COVID-19 and Cancer Consortium registry-based retrospective cohort study. *Cancer* 2024; Epub ahead of print. PMID: 38376917. Full Text

Winship Cancer Institute of Emory University, Atlanta, Georgia, USA.
Vanderbilt University Medical Center, Nashville, Tennessee, USA.
Henry Ford Cancer Institute, Henry Ford Hospital, Detroit, Michigan, USA.
Virginia Oncology Associates, US Oncology, Norfolk, Virginia, USA.
University of Arkansas for Medical Sciences, Little Rock, Arkansas, USA.
Roswell Park Comprehensive Cancer Center, Buffalo, New York, USA.
Instituto Nacional de Cancerología, Mexico City, Mexico.
Moores Comprehensive Cancer Center, University of California San Diego, La Jolla, California, USA.
Hartford HealthCare Cancer Institute, Hartford, Connecticut, USA.
Loyola University Medical Center, Maywood, Illinois, USA.

Segal Cancer Centre, Jewish General Hospital, McGill University, Montreal, Quebec, Canada.
Brown University, Providence, Rhode Island, USA.
Lifespan Cancer Institute, Providence, Rhode Island, USA.
Dana-Farber Cancer Institute, Boston, Massachusetts, USA.
University of Cincinnati Cancer Center, Cincinnati, Ohio, USA.
Columbia University Irving Medical Center, New York, New York, USA.
Penn State Health/Penn State Cancer Institute, Hershey, Pennsylvania, USA.
University of Michigan Rogel Cancer Center, Ann Arbor, Michigan, USA.
UPMC Western Maryland, Cumberland, Maryland, USA.
Tallahassee Memorial Healthcare, Tallahassee, Florida, USA.
Medical College of Wisconsin, Milwaukee, Wisconsin, USA.
University of Washington and Fred Hutchinson Cancer Center, Seattle, Washington, USA.
McGill University Health Centre, Montreal, Quebec, Canada.
Loma Linda University Cancer Center, Loma Linda, California, USA.
The University of Kansas Medical Center, Kansas City, Kansas, USA.
Virtua Health, Marlton, New Jersey, USA.
Mount Auburn Hospital, Cambridge, Massachusetts, USA.
Duke Cancer Institute at Duke University Medical Center, Durham, North Carolina, USA.

BACKGROUND: COVID-19 can have a particularly detrimental effect on patients with cancer, but no studies to date have examined if the presence, or site, of metastatic cancer is related to COVID-19 outcomes. METHODS: Using the COVID-19 and Cancer Consortium (CCC19) registry, the authors identified 10,065 patients with COVID-19 and cancer (2325 with and 7740 without metastasis at the time of COVID-19 diagnosis). The primary ordinal outcome was COVID-19 severity: not hospitalized, hospitalized but did not receive supplemental O(2) , hospitalized and received supplemental O(2) , admitted to an intensive care unit, received mechanical ventilation, or died from any cause. The authors used ordinal logistic regression models to compare COVID-19 severity by presence and specific site of metastatic cancer. They used logistic regression models to assess 30-day all-cause mortality. RESULTS: Compared to patients without metastasis, patients with metastases have increased hospitalization rates (59% vs. 49%) and higher 30 day mortality (18% vs. 9%). Patients with metastasis to bone, lung, liver, lymph nodes, and brain have significantly higher COVID-19 severity (adjusted odds ratios [ORs], 1.38, 1.59, 1.38, 1.00, and 2.21) compared to patients without metastases at those sites. Patients with metastasis to the lung have significantly higher odds of 30-day mortality (adjusted OR, 1.53; 95% confidence interval, 1.17-2.00) when adjusting for COVID-19 severity. CONCLUSIONS: Patients with metastatic cancer, especially with metastasis to the brain, are more likely to have severe outcomes after COVID-19 whereas patients with metastasis to the lung, compared to patients with cancer metastasis to other sites, have the highest 30-day mortality after COVID-19.

Hematology-Oncology

Francescone R, **Crawford HC**, and **Vendramini-Costa DB**. Rethinking the Roles of Cancer-Associated Fibroblasts in Pancreatic Cancer. *Cell Mol Gastroenterol Hepatol* 2024; Epub ahead of print. PMID: 38316215. Full Text

Department of Surgery, Henry Ford Health, Detroit, Michigan; Henry Ford Pancreatic Cancer Center, Henry Ford Health, Detroit, Michigan.
Department of Surgery, Henry Ford Health, Detroit, Michigan; Henry Ford Pancreatic Cancer Center, Henry Ford Health, Detroit, Michigan. Electronic address: dbarbos1@hfhs.org.

Bearing a dismal 5-year survival rate, pancreatic ductal adenocarcinoma (PDAC) is a challenging disease that features a unique fibroinflammatory tumor microenvironment. As major components of the PDAC tumor microenvironment, cancer-associated fibroblasts are still poorly understood and their contribution to the several hallmarks of PDAC, such as resistance to therapies, immunosuppression, and high incidence of metastasis, is likely underestimated. There have been encouraging advances in the understanding of these fascinating cells, but many controversies remain, leaving the field still actively exploring the full scope of their contributions in PDAC progression. Here we pose several important considerations regarding PDAC cancer-associated fibroblast functions. We posit that transcriptomic analyses be

interpreted with caution, when aiming to uncover the functional contributions of these cells. Moreover, we propose that normalizing these functions, rather than eliminating them, will provide the opportunity to enhance therapeutic response. Finally, we propose that cancer-associated fibroblasts should not be studied in isolation, but in conjunction with its extracellular matrix, because their respective functions are coordinated and concordant.

Hematology-Oncology
Jaiyesimi IA, Leighl NB, Ismaila N, Alluri K, Florez N, **Gadgeel S**, Masters G, Schenk EL, Schneider BJ, Sequist L, Singh N, Bazhenova L, Blanchard E, Freeman-Daily J, Furuya N, Halmos B, Azar IH, Kuruvilla S, Mullane M, Naidoo J, Reuss JE, Spigel DR, Owen DH, and Patel JD. Therapy for Stage IV Non-Small Cell Lung Cancer With Driver Alterations: ASCO Living Guideline, Version 2023.3. *J Clin Oncol* 2024; Epub ahead of print. PMID: 38417091. Full Text

Corewell Health William Beaumont University Hospital, Royal Oak and Oakland University William Beaumont School of Medicine, Rochester, MI.
Princess Margaret Cancer Centre, University Health Network, Toronto, Ontario, Canada.
American Society of Clinical Oncology (ASCO), Alexandria, VA.
St Luke's Mountain States Tumor Institute, Boise, ID.
Dana-Farber Cancer Institute, Harvard Medical School, Boston, MA.
Henry Ford Cancer Institute/Henry Ford Health System, Detroit, MI.
Helen F. Graham Cancer Center and Research Institute, Newark, DE.
University of Colorado Anschutz Medical Center, Aurora, CO.
University of Michigan Health System, Ann Arbor, MI.
Massachusetts General Hospital, Boston, MA.
Postgraduate Institute of Medical Education and Research, Chandigarh, India.
University of California San Diego Moores Cancer Center, San Diego, CA.
Southcoast Centers for Cancer Care, New Bedford, MA.
The ROS1ders, Seattle, WA.
St Marianna University School of Medicine, Kawasaki, Japan.
Montefiore Einstein Center for Cancer Care, Bronx, NY.
IHA Hematology Oncology Consultants, Ypsilanti, MI.
London Health Sciences Centre, London, ON, Canada.
Aurora Cancer Care, Mount Pleasant, WI.
Sidney Kimmel Comprehensive Cancer Center, Baltimore, MD.
Georgetown University, Washington, DC.
Sarah Cannon Research Institute, Nashville, TN.
Ohio State University, Columbus, OH.
Northwestern University, Chicago, IL.

PURPOSE: To provide evidence-based recommendations for patients with stage IV non-small cell lung cancer with driver alterations. METHODS: This ASCO living guideline offers continually updated recommendations based on an ongoing systematic review of randomized clinical trials (RCTs), with the latest time frame spanning February to October 2023. An Expert Panel of medical oncology, pulmonary, community oncology, research methodology, and advocacy experts were convened. The literature search included systematic reviews, meta-analyses, and randomized controlled trials. Outcomes of interest include efficacy and safety. Expert Panel members used available evidence and informal consensus to develop evidence-based guideline recommendations. RESULTS: This guideline consolidates all previous updates and reflects the body of evidence informing this guideline topic. Eight new RCTs were identified in the latest search of the literature to date. RECOMMENDATIONS: Evidence-based recommendations were updated to address first, second, and subsequent treatment options for patients based on targetable driver alterations.Additional information is available at www.asco.org/living-guidelines.

Hematology-Oncology
Jaiyesimi IA, Leighl NB, Ismaila N, Alluri K, Florez N, **Gadgeel S**, Masters G, Schenk EL, Schneider BJ, Sequist L, Singh N, Bazhenova L, Blanchard E, Freeman-Daily J, Furuya N, Halmos B, Azar IH, Kuruvilla S, Mullane M, Naidoo J, Reuss JE, Spigel DR, Owen DH, and Patel JD. Therapy for Stage IV Non-Small

Cell Lung Cancer Without Driver Alterations: ASCO Living Guideline, Version 2023.3. *J Clin Oncol* 2024; Epub ahead of print. PMID: 38417098. Full Text

Corewell Health William Beaumont University Hospital, Royal Oak and Oakland University William Beaumont School of Medicine, Rochester, MI.
Princess Margaret Cancer Centre, University Health Network, Toronto, Ontario, Canada.
American Society of Clinical Oncology ASCO, Alexandria, VA.
St Luke's Mountain States Tumor Institute, Boise, ID.
Dana-Farber Cancer Institute, Harvard Medical School, Boston, MA.
Henry Ford Cancer Institute/Henry Ford Health System, Detroit, MI.
Helen F. Graham Cancer Center and Research Institute, Newark, DE.
University of Colorado Anschutz Medical Center, Aurora, CO.
University of Michigan Health System, Ann Arbor, MI.
Massachusetts General Hospital, Boston, MA.
Postgraduate Institute of Medical Education and Research, Chandigarh, India.
University of California San Diego Moores Cancer Center, San Diego, CA.
Southcoast Centers for Cancer Care, New Bedford, MA.
The ROS1ders, Seattle, WA.
St Marianna University School of Medicine, Kawasaki, Japan.
Montefiore Einstein Center for Cancer Care, Bronx, NY.
IHA Hematology Oncology Consultants, Ypsilanti, MI.
London Health Sciences Centre, London, ON, Canada.
Aurora Cancer Care, Mount Pleasant, WI.
Sidney Kimmel Comprehensive Cancer Center, Baltimore, MD.
Georgetown University, Washington, DC.
Sarah Cannon Research Institute, Nashville, TN.
Ohio State University, Columbus, OH.
Northwestern University, Chicago, IL.

PURPOSE: To provide evidence-based recommendations for patients with stage IV non-small cell lung cancer (NSCLC) without driver alterations. METHODS: This ASCO living guideline offers continually updated recommendations based on an ongoing systematic review of randomized clinical trials (RCTs), with the latest time frame spanning February to October 2023. An Expert Panel of medical oncology, pulmonary, community oncology, research methodology, and advocacy experts were convened. The literature search included systematic reviews, meta-analyses, and randomized controlled trials. Outcomes of interest include efficacy and safety. Expert Panel members used available evidence and informal consensus to develop evidence-based guideline recommendations. RESULTS: This guideline consolidates all previous updates and reflects the body of evidence informing this guideline topic. Ten new RCTs were identified in the latest search of the literature to date. RECOMMENDATIONS: Evidence-based recommendations were updated to address first, second, and subsequent treatment options for patients without driver alterations.Additional information is available at www.asco.org/living-guidelines.

Hematology-Oncology

Patel SP, Alonso-Gordoa T, Banerjee S, **Wang D**, Naidoo J, Standifer NE, Palmer DC, Cheng LY, Kourtesis P, Ascierto ML, Das M, Diamond JR, Hellmann MD, and Carneiro BA. Phase 1/2 study of monalizumab plus durvalumab in patients with advanced solid tumors. *J Immunother Cancer* 2024; 12(2). PMID: 38309722. Full Text

University of California San Diego, Moores Cancer Center, San Diego, California, USA spatel@ucsd.edu.
Hospital Universitario Ramón y Cajal, Madrid, Spain.
Royal Marsden NHS Foundation Trust and Institute of Cancer Research, London, UK.
Henry Ford Health System, Detroit, Michigan, USA.
Johns Hopkins Medicine, Sidney Kimmel Comprehensive Cancer Center, Baltimore, Maryland, USA.
Johns Hopkins Medicine The Bloomberg~Kimmel Institute for Cancer Immunotherapy, Baltimore, Maryland, USA.
BioPharmaceuticals Research and Development, AstraZeneca, South San Francisco, California, USA.

Oncology Research and Development, AstraZeneca, Gaithersburg, Maryland, USA.
University of Colorado, Anschutz Medical Campus, Denver, Colorado, USA.
Memorial Sloan Kettering Cancer Center, New York, New York, USA.
Legorreta Cancer Center at Brown University, Lifespan Cancer Institute, Providence, Rhode Island, USA.

BACKGROUND: The combination of monalizumab (anti-NKG2A/CD94) and durvalumab (anti-programmed death ligand-1) may promote antitumor immunity by targeting innate and adaptive immunity. This phase 1/2 study of monalizumab and durvalumab evaluated safety, antitumor activity, and pharmacodynamics in patients with advanced solid tumors. MAIN BODY: Immunotherapy-naïve patients aged ≥18 years with advanced disease, Eastern Cooperative Oncology Group performance status of 0-1, and 1-3 prior lines of systemic therapy in the recurrent/metastatic setting were enrolled. In part 1 (dose escalation), patients received durvalumab 1500 mg every 4 weeks (Q4W) with increasing doses of monalizumab Q2W/Q4W (n=15). Dose expansion in part 1 included patients with cervical cancer (n=15; durvalumab 1500 mg Q4W and monalizumab 750 mg Q2W) or metastatic microsatellite stable (MSS)-colorectal cancer (CRC) (n=15; durvalumab 1500 mg Q4W and monalizumab 750 mg Q4W). In part 2 (dose expansion), patients with MSS-CRC (n=40), non-small cell lung cancer (NSCLC; n=20), MSS-endometrial cancer (n=40), or ovarian cancer (n=40) received durvalumab 1500 mg Q4W and monalizumab 750 mg Q2W. The primary endpoint was safety. Secondary endpoints included antitumor activity per Response Evaluation Criteria In Solid Tumors version 1.1 (RECIST v1.1). Exploratory analyses included assessment of T-cell and natural killer (NK) cell activation and proliferation in peripheral blood and the tumor microenvironment (TME). The study enrolled 185 patients (part 1, 45; part 2, 140). No dose-limiting toxicities were observed and the maximum tolerated dose was not reached. In part 2, the most common treatment-related adverse events were fatigue (12.1%), asthenia (9.3%), diarrhea (9.3%), pruritus (7.9%), and pyrexia (7.1%). In the expansion cohorts, response rates were 0% (cervical), 7.7% (MSS-CRC), 10% (NSCLC), 5.4% (ovarian), and 0% (MSS-endometrial). Sustained NK cell activation, CD8(+) T-cell proliferation, increased serum levels of CXCL10 (C-X-C motif chemokine ligand 10) and CXCL11, and increased tumor infiltration of CD8(+) and granzyme B(+) cells were observed. CONCLUSIONS: Although efficacy was modest, monalizumab plus durvalumab was well tolerated and encouraging immune activation was observed in the peripheral blood and TME. TRIAL REGISTRATION NUMBER: NCT02671435.

Hematology-Oncology

Schwartz T. At the Speed of SOUND: The Pace of Change for Axillary Management in Breast Cancer. *Ann Surg Oncol* 2024; Epub ahead of print. PMID: 38347331. Full Text

Department of Surgery, Henry Ford Cancer Institute, Detroit, MI, USA. tschwar2@hfhs.org.

Hematology-Oncology

Zengin ZB, Henderson NC, Park JJ, Ali A, Nguyen C, **Hwang C**, Barata PC, Bilen MA, Graham L, Mo G, Kilari D, Tripathi A, Labriola M, Rothstein S, Garje R, Koshkin VS, Patel VG, Schweizer MT, Armstrong AJ, McKay RR, Alva A, and Dorff T. Clinical implications of AR alterations in advanced prostate cancer: a multi-institutional collaboration. *Prostate Cancer Prostatic Dis* 2024; Epub ahead of print. PMID: 38383885. Full Text

Department of Medical Oncology & Therapeutics Research, City of Hope Comprehensive Cancer Center, Duarte, CA, USA.
Department of Biostatistics, University of Michigan, Ann Arbor, MI, USA.
Division of Hematology and Oncology, Department of Medicine, University of Michigan, Ann Arbor, MI, USA.
Division of Hematology/Oncology, Department of Internal Medicine, Henry Ford Health System, Detroit, MI, USA.
Tulane Cancer Center, Tulane University, New Orleans, LA, USA.
Winship Cancer Institute of Emory University, Atlanta, GA, USA.
University of Colorado Anschutz Medical Campus, Aurora, CO, USA.
University of Washington/Fred Hutchinson Cancer Center, Seattle, WA, USA.
Department of Medicine, Froedtert Cancer Center, Medical College of Wisconsin, Milwaukee, WI, USA.

Stephenson Cancer Center, Oklahoma City, OK, USA.
Division of Medical Oncology, Duke University Medical Center, Duke Cancer Institute Center for Prostate and Urologic Cancers, Duke University, Durham, NC, USA.
Karmanos Cancer Institute, Wayne State University, Detroit, MI, USA.
Holden Comprehensive Cancer Center, Iowa City, IA, USA.
Division of Hematology and Oncology, Department of Medicine, University of California San Francisco, San Francisco, CA, USA.
Icahn School of Medicine at Mount Sinai, New York, NY, USA.
Arvinas Inc, New Haven, CT, USA.
Moores Cancer Center, University of California San Diego, La Jolla, CA, USA.
Department of Medical Oncology & Therapeutics Research, City of Hope Comprehensive Cancer Center, Duarte, CA, USA. tdorff@coh.org.

BACKGROUND: AR gene alterations can develop in response to pressure of testosterone suppression and androgen receptor targeting agents (ARTA). Despite this, the relevance of these gene alterations in the context of ARTA treatment and clinical outcomes remains unclear. METHODS: Patients with castration-resistant prostate cancer (CRPC) who had undergone genomic testing and received ARTA treatment were identified in the Prostate Cancer Precision Medicine Multi-Institutional Collaborative Effort (PROMISE) database. Patients were stratified according to the timing of genomic testing relative to the first ARTA treatment (pre-/post-ARTA). Clinical outcomes such as time to progression, PSA response, and overall survival were compared based on alteration types. RESULTS: In total, 540 CRPC patients who received ARTA and had tissue-based (n = 321) and/or blood-based (n = 244) genomic sequencing were identified. Median age was 62 years (range 39-90) at the time of the diagnosis. Majority were White (72.2%) and had metastatic disease (92.6%) at the time of the first ARTA treatment. Pre-ARTA genomic testing was available in 24.8% of the patients, and AR mutations and amplifications were observed in 8.2% and 13.1% of the patients, respectively. Further, time to progression was longer in patients with AR amplifications (25.7 months) compared to those without an AR alteration (9.6 months; p = 0.03). In the post-ARTA group (n = 406), AR mutations and AR amplifications were observed in 18.5% and 35.7% of the patients, respectively. The most common mutation in post-ARTA group was L702H (9.9%). CONCLUSION: In this real-world clinicogenomics database-driven study we explored the development of AR alterations and their association with ARTA treatment outcomes. Our study showed that AR amplifications are associated with longer time to progression on first ARTA treatment. Further prospective studies are needed to optimize therapeutic strategies for patients with AR alterations.

Hypertension and Vascular Research

Chen G, Zhou G, Zhai L, Bao X, **Tiwari N**, Li J, **Mottillo E**, and Wang J. SHMT2 reduces fatty liver but is necessary for liver inflammation and fibrosis in mice. *Commun Biol* 2024; 7(1):173. PMID: 38347107. Full Text

Department of Pathology, Wayne State University School of Medicine, Detroit, MI, 48202, USA.
Biomedical Research Informatics Core, Clinical and Translational Sciences Institute, Michigan State University, East Lansing, MI, 48824, USA.
Department of Pathology, University of Michigan, Ann Arbor, MI, 48109, USA.
Department of Oncology, Wayne State University School of Medicine, Detroit, MI, 48202, USA.
Hypertension and Vascular Research Division, Henry Ford Hospital, Detroit, MI, 48202, USA.
Department of Physiology, Wayne State University School of Medicine, Detroit, MI, 48202, USA.
Department of Pathology, Wayne State University School of Medicine, Detroit, MI, 48202, USA.
jianwang@med.wayne.edu.

Non-alcoholic fatty liver disease is associated with an irregular serine metabolism. Serine hydroxymethyltransferase 2 (SHMT2) is a liver enzyme that breaks down serine into glycine and one-carbon (1C) units critical for liver methylation reactions and overall health. However, the contribution of SHMT2 to hepatic 1C homeostasis and biological functions has yet to be defined in genetically modified animal models. We created a mouse strain with targeted SHMT2 knockout in hepatocytes to investigate this. The absence of SHMT2 increased serine and glycine levels in circulation, decreased liver methylation potential, and increased susceptibility to fatty liver disease. Interestingly, SHMT2-deficient

mice developed simultaneous fatty liver, but when fed a diet high in fat, fructose, and cholesterol, they had significantly less inflammation and fibrosis. This study highlights the critical role of SHMT2 in maintaining hepatic 1C homeostasis and its stage-specific functions in the pathogenesis of NAFLD.

Infectious Diseases

Fowler VG, Jr., Das AF, Lipka-Diamond J, Ambler JE, Schuch R, Pomerantz R, Cassino C, Jáuregui-Peredo L, Moran GJ, Rupp ME, Lachiewicz AM, Kuti JL, Wise RA, Kaye KS, **Zervos MJ**, and Nichols WG. Exebacase in Addition to Standard-of-Care Antibiotics for Staphylococcus aureus Bloodstream Infections and Right-Sided Infective Endocarditis: A Phase 3, Superiority-Design, Placebo-Controlled, Randomized Clinical Trial (DISRUPT). *Clin Infect Dis* 2024; Epub ahead of print. PMID: 38297916. Full Text

Duke University Medical Center, Durham, NC, USA.
AD Stat Consulting, Guerneville, CA, USA.
ContraFect Corporation, Yonkers, NY, USA.
Stony Point Life Sciences Consulting, Benson, VT, USA.
Mercy Health-St. Vincent Medical Center, Toledo, OH, USA.
Olive View-UCLA Medical Center, Sylmar, CA, USA.
University of Nebraska Medical Center, Omaha, NE, USA.
University of North Carolina Health Care System, Chapel Hill, NC, USA.
Hartford Hospital, Hartford, CT, USA.
Johns Hopkins Bayview Medical Center, Baltimore, MD, USA.
Rutgers Robert Wood Johnson Medical School, New Brunswick, NJ, USA.
Henry Ford Health System, Detroit, MI, USA.

BACKGROUND: Novel treatments are needed for Staphylococcus aureus bacteremia, particularly for methicillin-resistant S. aureus (MRSA). Exebacase is a first-in-class antistaphylococcal lysin that is rapidly bactericidal and synergizes with antibiotics. METHODS: In DISRUPT, a superiority-design phase 3 study, patients with S. aureus bacteremia/endocarditis were randomly assigned to receive a single dose of IV exebacase or placebo in addition to standard-of-care antibiotics. The primary efficacy outcome was clinical response at Day 14 in the MRSA population. RESULTS: A total of 259 patients were randomized before the study was stopped for futility based on the recommendation of the unblinded Data Safety Monitoring Board. Clinical response rates at Day 14 in the MRSA population (n = 97) were 50.0% (exebacase + antibiotics; 32/64) vs. 60.6% (antibiotics alone; 20/33) (P = 0.392). Overall, rates of adverse events were similar across groups. No adverse events of hypersensitivity related to exebacase were reported. CONCLUSIONS: Exebacase + antibiotics failed to improve clinical response at Day 14 in patients with MRSA bacteremia/endocarditis. This result was unexpected based on phase 2 data that established proof-of-concept for exebacase + antibiotics in patients with MRSA bacteremia/endocarditis. In the antibiotics alone group, the clinical response rate was higher than that seen in phase 2. Heterogeneity within the study population and a relatively small sample size in either the phase 2 or phase 3 studies may have increased the probability of imbalances in the multiple components of Day 14 clinical outcome. This study provides lessons for future superiority studies in S. aureus bacteremia/endocarditis.

Infectious Diseases

Okhuysen PC, **Ramesh MS**, Louie T, Kiknadze N, Torre-Cisneros J, de Oliveira CM, Van Steenkiste C, Stychneuskaya A, Garey KW, Garcia-Diaz J, Li J, Duperchy E, Chang BY, Sukbuntherng J, Montoya JG, Styles L, Clow F, James D, Dubberke ER, and Wilcox M. A Randomized, Double-Blind, Phase 3 Safety and Efficacy Study of Ridinilazole Versus Vancomycin for Treatment of Clostridioides difficile Infection: Clinical Outcomes With Microbiome and Metabolome Correlates of Response. *Clin Infect Dis* 2024; Epub ahead of print. PMID: 38305378. Full Text

Department of Infectious Diseases, Infection Control, and Employee Heatlh, The University of Texas MD Anderson Cancer Center, Houston, Texas, USA.
Henry Ford Health, Detroit, Michigan, USA.
Foothills Medical Center and University of Calgary, Calgary, Canada.

Aversi Clinic, Tbilisi, Georgia.
Reina Sofia University Hospital-IMIBIC, University of Córdoba, CIBERINFEC, Cordoba, Spain.
Santa Casa de Belo Horizonte, Belo Horizonte, Brazil.
Algemeen Ziekenhuis Maria Middelares, Ghent, Belgium.
University Antwerp,Antwerp, Belgium.
Vitebsk Regional Clinical Hospital of Infectious Diseases, Vitebsk, Belarus.
University of Houston College of Pharmacy, Houston, Texas, USA.
Ochsner Health, New Orleans, Louisiana, USA.
Summit Therapeutics, Menlo Park, California, USA.
Dr. Jack S. Remington Laboratory for Specialty Diagnostics, Palo Alto Medical Foundation, Palo Alto, California, USA.
Washington University School of Medicine, St.Louis, Missouri, USA.
Leeds Teaching Hospitals and University of Leeds, School of Medicine, Leeds, United Kingdom.

BACKGROUND: Exposure to antibiotics predisposes to dysbiosis and Clostridioides difficile infection (CDI) that can be severe, recurrent (rCDI), and life-threatening. Nonselective drugs that treat CDI and perpetuate dysbiosis are associated with rCDI, in part due to loss of microbiome-derived secondary bile acid (SBA) production. Ridinilazole is a highly selective drug designed to treat CDI and prevent rCDI. METHODS: In this phase 3 superiority trial, adults with CDI, confirmed with a stool toxin test, were randomized to receive 10 days of ridinilazole (200 mg twice daily) or vancomycin (125 mg 4 times daily). The primary endpoint was sustained clinical response (SCR), defined as clinical response and no rCDI through 30 days after end of treatment. Secondary endpoints included rCDI and change in relative abundance of SBAs. RESULTS: Ridinilazole and vancomycin achieved an SCR rate of 73% versus 70.7%, respectively, a treatment difference of 2.2% (95% CI: -4.2%, 8.6%). Ridinilazole resulted in a 53% reduction in recurrence compared with vancomycin (8.1% vs 17.3%; 95% CI: -14.1%, -4.5%; P = .0002). Subgroup analyses revealed consistent ridinilazole benefit for reduction in rCDI across subgroups. Ridinilazole preserved microbiota diversity, increased SBAs, and did not increase the resistome. Conversely, vancomycin worsened CDI-associated dysbiosis, decreased SBAs, increased Proteobacteria abundance (~3.5-fold), and increased the resistome. CONCLUSIONS: Although ridinilazole did not meet superiority in SCR, ridinilazole greatly reduced rCDI and preserved microbiome diversity and SBAs compared with vancomycin. These findings suggest that treatment of CDI with ridinilazole results in an earlier recovery of gut microbiome health. Clinical Trials Registration.Ri-CoDIFy 1 and 2: NCT03595553 and NCT03595566.

Internal Medicine
Alfares K, and **Han HJ**. Pembrolizumab-Induced Isolated Adrenocorticotropic Hormone (ACTH) Deficiency. *Cureus* 2024; 16(1):e52235. PMID: 38352096. Full Text

Endocrinology, Diabetes and Metabolism, King Abdulaziz University Faculty of Medicine, Jeddah, SAU.
Endocrinology, Diabetes and Metabolism, Henry Ford Health System, Detroit, USA.
Internal Medicine, Henry Ford Health System, Detroit, USA.

Pembrolizumab is a programmed death 1 receptor (PD-1) inhibitor. It is used as immunotherapy in various cancers, including metastatic melanoma, non-small cell lung cancer, and, notably, high-risk triple-negative breast cancer. We discuss a case of a 44-year-old female with a past medical history of triple-negative breast cancer who presented with a chief complaint of poor oral intake and fatigue after her fourth cycle of pembrolizumab therapy. The patient was diagnosed with pembrolizumab-induced isolated secondary adrenal insufficiency (AI) and was treated with corticosteroids with improvement in her symptoms. Secondary AI due to pembrolizumab use is a rare yet potentially life-threatening complication. If initial serum cortisol is borderline low, as observed in our patient, repeated testing within shorter intervals should be considered to optimize patient outcomes.

Internal Medicine
Khan MZ, **Suresh S**, **Ichkhanian Y**, **Jou J**, **Nagirimadugu A**, **Ghanimeh MA**, and **Zuchelli T**. Use of endoscopic plication to repair a dysfunctional gastric conduit. *VideoGIE* 2024; 9(2):78-81. PMID: 38357021. Full Text

Department of Gastroenterology and Hepatology, Henry Ford Health, Detroit, Michigan.
Department of Internal Medicine, Henry Ford Health, Detroit, Michigan.

Video 1Full length video showing the use of endoscopic plication to repair a dysfunctional gastric conduit.

Internal Medicine
Maki M, **El-Khatib L**, and **Basir MB**. STEMI in a patient with recent intracranial hemorrhage. *J Invasive Cardiol* 2024; Epub ahead of print. PMID: 38412442. Request Article

Department of Internal Medicine, Henry Ford Hospital, Detroit, Michigan, USA. Email: Mmaki4@hfhs.org.
Department of Cardiology, Henry Ford Hospital, Detroit, Michigan, USA.

A 63-year-old male patient with a history of hypertension presented to the emergency department with a one-day history of dizziness, nausea, and vomiting.

Internal Medicine
Saleem A, Haque MZ, Affas S, Munawar M, and **Jafri SM**. Transplant hepatology and diversity: A decade-long analysis (2013-2022). *JGH Open* 2024; 8(2):e13048. PMID: 38415059. Full Text

Department of Internal Medicine Henry Ford Hospital Detroit Michigan USA.
Michigan State University College of Human Medicine East Lansing Michigan USA.
Department of Internal Medicine Ascension Providence Southfield Michigan USA.
University of Michigan, College of Science Ann Arbor Michigan USA.
Department of Hepatology Henry Ford Health Detroit Michigan USA.

Diversity among physicians has been shown to positively impact patient care. Physicians from minority backgrounds are more likely to serve underserved communities and be involved in health disparities research. Efforts to increase the proportion of underrepresented minorities and women in medicine will help prepare a physician workforce that best cares for a diversifying nation. The purpose of this paper was to highlight trends in sex and ethnic representation among incoming U.S. transplant hepatology trainees over a 10-year period.

Internal Medicine
Suleiman NM, Baiyasi M, **Al-Saghir T**, Daines B, and Patel F. Concomitant Lymphocytic Colitis With Recurrent Clostridium difficile Infection. *Cureus* 2024; 16(1):e51606. PMID: 38313897. Full Text

Internal Medicine, Wayne State University School of Medicine, Detroit, USA.
Internal Medicine, Henry Ford Health, Detroit, USA.
Dermatology, Beaumont Hospital, Dearborn, USA.
Internal Medicine, Beaumont Hospital, Dearborn, USA.

Microscopic colitis is a clinicopathological diagnosis that is characterized by chronic microscopic inflammation of the colon and presents with chronic watery diarrhea. There are following two subtypes of microscopic colitis: lymphocytic colitis and collagenous colitis. This is a case of a 70-year-old female with a history of Clostridium difficile infections who presented with persistent watery diarrhea and was diagnosed with lymphocytic colitis in the setting of a concomitant C. difficile infection. Given her clinical presentation, the patient was initiated on empiric treatment for C. difficile infection and showed a lack of clinical improvement with persistent watery diarrhea and elevated white blood cell count. The patient's symptoms resolved upon the confirmatory diagnosis and treatment of lymphocytic colitis. This study illustrates the importance of assessing for, diagnosing, and treating lymphocytic colitis in patients with chronic non-resolving watery diarrhea, especially in the setting of concomitant or recurrent C. difficile infections. Additionally, it emphasizes the need for further characterization of the relationship between C. difficile infection and microscopic colitis.

Nephrology

Singh N, Anand PM, Gupta G, Sawinski D, Fix O, Adey D, Akalin E, Zayas C, Dadhania D, Doshi M, Cibrik D, Gupta M, Parsons R, Leca N, Santos RD, Concepcion BP, Nishio Lucar AG, Ong S, Sridhar VS, Parajuli S, Zachariah M, Mehta S, Soliman K, Shawar S, Husain SA, Preczewski L, Friedewald J, Mohan S, Wiseman A, **Samaniego M**, Kumar V, Tanriover B, and Bloom R. Should Transplant Nephrology pursue recognition from the Accreditation Council for Graduate Medical Education (ACGME)? *Clin J Am Soc Nephrol* 2024; Epub ahead of print. PMID: 38319649. Full Text

Willis-Knighton Health System, Shreveport, LA.
Medical University of South Carolina, Lancaster Medical Center, Lancaster, SC.
Virginia Commonwealth University, Richmond, VA.
Weill Cornell Medical College/New York-Presbyterian Hospital, New York, NY.
University of North Carolina, Chapel Hill, NC.
University of California San Francisco, San Francisco, CA.
Montefiore Medical Center, Bronx, NY.
University of South Carolina, Greenville, SC.
University of Michigan, Ann Arbor, MI.
University of Kansas, Kansas City, KS.
Emory University School of Medicine, Atlanta, GA.
University of Washington, Seattle, WA.
Washington University School of Medicine, St. Louis, MO.
University of Chicago Medicine, Chicago, IL.
University of Virginia, Charlottesville, VA.
University of Alabama at Birmingham, Birmingham, AL.
University of Toronto, Toronto ON.
University of Wisconsin, Madison, WI.
Texas Tech University Health Sciences Center, Lubbock, TX.
Medical University of South Carolina, Charleston, SC.
Medical Services, Ralph H. Johnson VA Medical Center, Charleston, SC.
Vanderbilt University Medical Center, Nashville, TN.
Columbia University, New York, NY.
Miami Transplant Institute, Miami, Florida.
Northwestern University, Chicago Illinois.
Centura Transplant Institute, Denver, CO.
Henry Ford Health System, Detroit, MI.
University of Arizona, College of Medicine-Tucson, Tucson, AZ.
University of Pennsylvania, Philadelphia, PA.

Kidney transplant is not only the best treatment for patients with advanced kidney disease, but it also reduces health-care expenditure. The management of transplant patients is complex as they require special care by transplant nephrologists who have expertise in assessing transplant candidates, understand immunology and organ rejection, have familiarity with peri-operative complications, and have the ability to manage the long-term effects of chronic immunosuppression. This skill set at the intersection of multiple disciplines necessitates additional training in Transplant Nephrology. Currently, there are more than 250,000 patients with a functioning kidney allograft and over 100,000 waitlisted patients awaiting kidney transplant, with a burgeoning number added to the kidney transplant wait list every year. In 2022, more than 40,000 patients were added to the kidney wait list and more than 25,000 received a kidney transplant. The Advancing American Kidney Health Initiative (AAKHI), passed in 2019, is aiming to double the number of kidney transplants by 2030 creating a need for additional transplant nephrologists to help care for them. Over the last decade there has been a decline in the Nephrology- as well Transplant Nephrology- workforce due to a multitude of reasons. The American Society of Transplantation (AST) Kidney Pancreas Community of Practice (KPCOP) created a workgroup to discuss the Transplant Nephrology workforce shortage. In this paper, we discuss the scope of the problem and how ACGME accreditation of Transplant Nephrology Fellowship could at least partly mitigate the Transplant Nephrology work-force crisis.

Neurology

Boyd ED, **Zhang L**, **Ding G**, **Li L**, **Lu M**, **Li Q**, **Huang R**, **Kaur J**, Hu J, **Chopp M**, **Zhang Z**, and **Jiang Q**. The Glymphatic Response to the Development of Type 2 Diabetes. *Biomedicines* 2024; 12(2). PMID: 38398003. Full Text

Department of Neurology, Henry Ford Health System, E&R B126, 2799 West Grand Boulevard, Detroit, MI 48202, USA.
Department of Radiology, Michigan State University, East Lansing, MI 48824, USA.
Department of Public Health Sciences, Henry Ford Health System, Detroit, MI 48202, USA.
Department of Physics, Oakland University, Rochester, MI 48309, USA.
Department of Radiology, Wayne State University, Detroit, MI 48202, USA.
Department of Neurology, Wayne State University, Detroit, MI 28202, USA.

The glymphatic system has recently been shown to be important in neurological diseases, including diabetes. However, little is known about how the progressive onset of diabetes affects the glymphatic system. The aim of this study is to investigate the glymphatic system response to the progressive onset of diabetes in a rat model of type 2 diabetic mellitus. Male Wistar rats (n = 45) with and without diabetes were evaluated using MRI glymphatic tracer kinetics, functional tests, and brain tissue immunohistochemistry. Our data demonstrated that the contrast agent clearance impairment gradually progressed with the diabetic duration. The MRI data showed that an impairment in contrast clearance occurred prior to the cognitive deficits detected using functional tests and permitted the detection of an early DM stage compared to the immuno-histopathology and cognitive tests. Additionally, the quantitative MRI markers of brain waste clearance demonstrated region-dependent sensitivity in glymphatic impairment. The improved sensitivity of MRI markers in the olfactory bulb and the whole brain at an early DM stage may be attributed to the important role of the olfactory bulb in the parenchymal efflux pathway. MRI can provide sensitive quantitative markers of glymphatic impairment during the progression of DM and can be used as a valuable tool for the early diagnosis of DM with a potential for clinical application.

Neurology

Cai Y, Zhang Y, Leng S, Ma Y, **Jiang Q**, Wen Q, Ju S, and Hu J. The relationship between inflammation, impaired glymphatic system, and neurodegenerative disorders: A vicious cycle. *Neurobiol Dis* 2024; 192:106426. PMID: 38331353. Full Text

Nurturing Center of Jiangsu Province for State Laboratory of AI Imaging & Interventional Radiology, Department of Radiology, Zhongda Hospital, Medical School of Southeast University, Nanjing 210009, China.
School of Medicine, Southeast University, Nanjing 210009, China.
Center of Interventional Radiology and Vascular Surgery, Department of Radiology, Zhongda Hospital, Medical School, Southeast University, 87 Dingjiaqiao Road, Nanjing 210009, China.
Department of Neurology, Henry Ford Health System, 2799 W Grand Blvd, Detroit, MI 48202, USA.
Department of Radiology and Imaging Sciences, Indiana University School of Medicine, 355 W.16th Street, Indianapolis, IN 46202-5188, USA.
Nurturing Center of Jiangsu Province for State Laboratory of AI Imaging & Interventional Radiology, Department of Radiology, Zhongda Hospital, Medical School of Southeast University, Nanjing 210009, China. Electronic address: jsh@seu.edu.cn.
Department of Radiology, School of Medicine, Wayne State University, Detroit, MI 48201, USA. Electronic address: jhu@med.wayne.edu.

The term "glymphatic" emerged roughly a decade ago, marking a pivotal point in neuroscience research. The glymphatic system, a glial-dependent perivascular network distributed throughout the brain, has since become a focal point of investigation. There is increasing evidence suggesting that impairment of the glymphatic system appears to be a common feature of neurodegenerative disorders, and this impairment exacerbates as disease progression. Nevertheless, the common factors contributing to glymphatic system dysfunction across most neurodegenerative disorders remain unclear. Inflammation, however, is suspected to play a pivotal role. Dysfunction of the glymphatic system can lead to a significant accumulation of protein and waste products, which can trigger inflammation. The interaction

between the glymphatic system and inflammation appears to be cyclical and potentially synergistic. Yet, current research is limited, and there is a lack of comprehensive models explaining this association. In this perspective review, we propose a novel model suggesting that inflammation, impaired glymphatic function, and neurodegenerative disorders interconnected in a vicious cycle. By presenting experimental evidence from the existing literature, we aim to demonstrate that: (1) inflammation aggravates glymphatic system dysfunction, (2) the impaired glymphatic system exacerbated neurodegenerative disorders progression, (3) neurodegenerative disorders progression promotes inflammation. Finally, the implication of proposed model is discussed.

Neurology

LeWitt PA, Stebbins GT, Christensen KV, Tan R, Pretorius A, and Thomsen M. Buspirone and Zolmitriptan Combination for Dyskinesia: A Randomized, Controlled, Crossover Study. *Mov Disord* 2024; Epub ahead of print. PMID: 38314643. Full Text

Department of Neurology, Wayne State University School of Medicine and Henry Ford Hospital, Detroit, Michigan, USA.
Department of Neurological Sciences, Rush University Medical Center, Chicago, Illinois, USA.
Contera Pharma A/S, Hørsholm, Denmark.
Bukwang Pharmaceutical Co., Ltd, Seoul, South Korea.
Farmovs, Bloemfontein, South Africa.

BACKGROUND: Preclinical evidence suggests that co-administration of the 5-HT(1A) agonist buspirone and the 5-HT(1B/1D) agonist zolmitriptan act synergistically to reduce dyskinesia to a greater extent than that achieved by either drug alone. OBJECTIVES: Assess the therapeutic potential of a fixed-dose buspirone and zolmitriptan combination in Parkinson's disease (PD) patients with levodopa-induced dyskinesia. METHODS: Single-center, randomized, placebo-controlled, two-way crossover study (NCT02439203) of a fixed-dose buspirone/zolmitriptan regimen (10/1.25 mg three times a day) in 30 patients with PD experiencing at least moderately disabling peak-effect dyskinesia. RESULTS: Seven days of treatment with buspirone/zolmitriptan added to levodopa significantly reduced dyskinesia as assessed by Abnormal Involuntary Movement Scale scores versus placebo (mean treatment effect vs. placebo: -4.2 [-6.1, -2.3]) without significantly worsening Unified Parkinson's Disease Rating Scale (UPDRS) Part III (ON) scores (mean treatment effect vs. placebo: 0.6 [-0.1, 1.3]). No serious adverse events were reported. CONCLUSIONS: In this proof-of-concept study, addition of buspirone/zolmitriptan to the patients' PD medication regimen significantly reduced dyskinesia severity without worsening motor function. © 2024 International Parkinson and Movement Disorder Society.

Neurology

Singh S, Wright RE, 3rd, **Giri S**, Arumugaswami V, and Kumar A. Targeting ABCG1 and SREBP-2 mediated cholesterol homeostasis ameliorates Zika virus-induced ocular pathology. *iScience* 2024; 27(3):109088. PMID: 38405605. Full Text

Department of Ophthalmology, Visual and Anatomical Sciences/ Kresge Eye Institute, Wayne State University School of Medicine, Detroit, MI, USA.
Department of Neurology, Henry Ford Health System, Detroit, MI, USA.
Department of Molecular and Medical Pharmacology, University of California, Los Angeles, Los Angeles, CA, USA.
Department of Biochemistry, Microbiology, and Immunology, Wayne State University School of Medicine, Detroit, MI, USA.

Zika virus (ZIKV) infection during pregnancy causes severe neurological and ocular abnormalities in infants, yet no vaccine or antivirals are available. Our transcriptomic analysis of ZIKV-infected retinal pigment epithelial (RPE) cells revealed alterations in the cholesterol pathway. Thus, we investigated the functional roles of ATP binding cassette transporter G1 (ABCG1) and sterol response element binding protein 2 (SREPB-2), two key players in cholesterol metabolism, during ocular ZIKV infection. Our in vitro data showed that increased ABCG1 activity via liver X receptors (LXRs), reduced ZIKV replication, while ABCG1 knockdown increased replication with elevated intracellular cholesterol. Conversely, inhibiting

SREBP-2 or its knockdown reduced ZIKV replication by lowering cholesterol levels. In vivo, LXR agonist or SREBP-2 inhibitor treatment mitigated ZIKV-induced chorioretinal lesions in mice, concomitant with decreased expression of inflammatory mediators and increased activation of antiviral response genes. In summary, our study identifies ABCG1's antiviral role and SREBP-2's proviral effects in ocular ZIKV infection, offering cholesterol metabolism as a potential target to develop antiviral therapies.

Neurosurgery
Chang MT, Grimm D, **Asmaro K**, Yong MC, Low C, Lee CK, Nayak JV, Hwang PH, Fernandez-Miranda JC, and Patel ZM. Ipsilateral Nasoseptal Flaps in a Transpterygoid Approach: Technical Pearls and Reconstruction Outcomes. *J Neurol Surg B Skull Base* 2024; Epub ahead of print. PMID: Not assigned. Request Article

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

Neurosurgery
Elfil M, Morsi RZ, Ghozy S, Elmashad A, Siddiqui A, Al-Bayati AR, Alaraj A, Brook A, Kam AW, Chatterjee AR, Patsalides A, Waldau B, Prestigiacomo CJ, Matouk C, Schirmer CM, Altschul D, Parrella DT, Toth G, Jindal G, Shaikh HA, Dolia JN, Fifi JT, Fraser JF, Do JT, Amuluru K, Kim LJ, Harrigan M, Amans MR, **Kole M**, Mokin M, Abraham M, Jumaa M, Janjua N, Zaidat O, Youssef PP, Khandelwal P, Wang QT, Grandhi R, Hanel R, Kellogg RT, Ortega-Gutierrez S, Sheth S, Nguyen TN, Szeder V, Hu YC, Yoo AJ, Tanweer O, Jankowitz B, Heit JJ, Williamson R, Kass-Hout T, Crowley RW, El-Ghanem M, and Al-Mufti F. Factors Affecting Selection of TraineE for Neurointervention (FASTEN). *Interv Neuroradiol* 2024; Epub ahead of print. PMID: 38389309. Full Text

Department of Neurological Sciences, University of Nebraska Medical Center, Omaha, NE, USA. RINGGOLD: 12284
Department of Neurology, University of Chicago, Chicago, IL, USA.
Department of Radiology, Mayo Clinic, Rochester, MN, USA. RINGGOLD: 6915
Department of Neurology, Yale University, New Haven, CT, USA. RINGGOLD: 5755
Neurosurgery and Radiology and Canon Stroke and Vascular Research Center, University of Buffalo, Buffalo, NY, USA.
Department of Neurology and Neurosurgery, University of Pittsburg Medical Center, Pittsburg, PA, USA.
Department of Neurosurgery, University of Illinois, Chicago, IL, USA.
Department of Neurosurgery, Montefiore Medical Center and Children's Hospital at Montefiore (CHAM), Bronx, NY, USA.
Department of Radiology, Loyola University Medical Center, Stritch School of Medicine, Maywood, IL, USA.

Interventional Neuroradiology, Mallinckrodt Institute of Radiology, Washington University School of Medicine, St Louis, MO, USA.
Department of Neurosurgery, North Shore University Hospital, Donald and Barbara Zucker School of Medicine, Manhasset, NY, USA.
Neurosurgery, University of California Davis, Sacramento, CA, USA.
Department of Neurological Surgery, College of Medicine, University of Cincinnati, Cincinnati, OH, USA. RINGGOLD: 2514
Department of Neurosurgery, Yale School of Medicine, New Haven, CT, USA. RINGGOLD: 12228
Neurosurgery, Geisinger Health System, Wilkes-Barre, PA, USA. RINGGOLD: 2780
Department of Neurosurgery, Montefiore Medical Center, Albert Einstein College of Medicine, Bronx, NY, USA. RINGGOLD: 2006
Interventional Neurology, Ascension Saint Thomas Hospital West, Nashville, TN, USA. RINGGOLD: 21940
Cerebrovascular Center, Cleveland Clinic, Cleveland, OH, USA. RINGGOLD: 567871
Division of Interventional Neuroradiology, Department of Radiology, University of Maryland Medical Center, Baltimore, MD, USA. RINGGOLD: 21668
Department of Radiology, Cooper University Hospital, Camden, NJ, USA.
Department of Neurology, Emory University, Atlanta, GA, USA. RINGGOLD: 1371
Department of Neurosurgery, Icahn School of Medicine at Mount Sinai, New York, NY, USA.
Department of Neurological Surgery, University of Kentucky, Lexington, KY, USA. RINGGOLD: 4530
Department of Neurosurgery, McLaren Northern Hospital, Petoskey, MI, USA.
Interventional Neuroradiology, Goodman Campbell Brain and Spine, Indianapolis, IN, USA.
Department of Neurological Surgery, University of Washington, Seattle, WA, USA.
Department of Neurosurgery, University of Alabama at Birmingham, Birmingham, AL, USA. RINGGOLD: 42865
Departments of Radiology and Biomedical Imaging, University of California San Francisco, San Francisco, CA, USA. RINGGOLD: 8785
Department of Neurosurgery, Henry Ford Hospital, Detroit, MI, USA.
Neurosurgery, University of South Florida, Tampa, FL, USA. RINGGOLD: 7831
Department of Neurology, University of Kansas Medical Center, Kansas City, KS, USA. RINGGOLD: 21638
Department of Neurology, University of Toledo College of Medicine and Life Sciences, Toledo, OH, USA.
Asia Pacific Comprehensive Stroke Institute, Pomona Valley Hospital Medical Center, Pomona, CA, USA.
Department of Endovascular Neurosurgery, Mercy Health St Vincent Medical Center, Toledo, OH, USA. RINGGOLD: 22984
Department of Neurosurgery, The Ohio State University Wexner Medical Center, Columbus, OH, USA.
Department of Neurosurgery, Rutgers New Jersey Medical School, Newark, NJ, USA. RINGGOLD: 12286
Departments of Neurology/Neurosurgery, Maimonides Medical Center/SUNY Downstate Health Sciences University, Brooklyn, NY, USA. RINGGOLD: 12298
Department of Neurosurgery, Clinical Neuroscience Center, University of Utah, Salt Lake City, UT, USA. RINGGOLD: 7060
Lyerly Neurosurgery, Baptist Medical Center Downtown, Jacksonville, FL, USA. RINGGOLD: 220127
Department of Neurosurgery, University of Virginia, Charlottesville, VA, USA. RINGGOLD: 2358
Neurology, University of Iowa Hospitals and Clinics, Iowa City, IA, USA.
Department of Neurology, McGovern Medical School at UTHealth, Houston, TX, USA.
Department of Neurology, Boston Medical Center, Boston, MA, USA. RINGGOLD: 1836
Department of Radiological Sciences, David Geffen School of Medicine, University of California Los Angeles, Los Angeles, CA, USA.
Department of Neurosurgery, UH Cleveland Medical Center, Cleveland, OH, USA. RINGGOLD: 114516
Department of Radiology/Neurointervention, Texas Stroke Institute, Dallas-Fort Worth, TX, USA.
Neurosurgery, Baylor College of Medicine, Houston, TX, USA. RINGGOLD: 189530
Neurosurgery, JFK University Hospital, Edison, NJ, USA.
Department of Interventional Neuroradiology, Stanford Medical Center, Palo Alto, CA, USA.
Department of Neurological Surgery, Allegheny Health Network, Pittsburgh, PA, USA. RINGGOLD: 6596

Department of Neurological Surgery, Rush University Medical Center, Chicago, IL, USA. RINGGOLD: 574052
Neuroendovascular Surgery, HCA Houston Northwest/University of Houston College of Medicine, Houston, TX, USA.
Department of Neurosurgery, Westchester Medical Center, Valhalla, NY, USA. RINGGOLD: 8138

BACKGROUND AND IMPORTANCE: Neurointervention is a very competitive specialty in the United States due to the limited number of training spots and the larger pool of applicants. The training standards are continuously updated to ensure solid training experiences. Factors affecting candidate(s) selection have not been fully established yet. Our study aims to investigate the factors influencing the selection process. METHODS: A 52-question survey was distributed to 93 program directors (PDs). The survey consisted of six categories: (a) Program characteristics, (b) Candidate demographics, (c) Educational credentials, (d) Personal traits, (e) Research and extracurricular activities, and (f) Overall final set of characteristics. The response rate was 59.1%. As per the programs' characteristics, neurosurgery was the most involved specialty in running the training programs (69%). Regarding demographics, the need for visa sponsorship held the greatest prominence with a mean score of 5.9 [standard deviation (SD) 2.9]. For the educational credentials, being a graduate from a neurosurgical residency and the institution where the candidate's residency training is/was scored the highest [5.4 (SD = 2.9), 5.4 (SD = 2.5), respectively]. Regarding the personal traits, assessment by faculty members achieved the highest score [8.9 (SD = 1)]. In terms of research/extracurricular activities, fluency in English had the highest score [7.2 (SD = 1.9)] followed by peer-reviewed/PubMed-indexed publications [6.4 (SD = 2.2)]. CONCLUSION: Our survey investigated the factors influencing the final decision when choosing the future neurointerventional trainee, including demographic, educational, research, and extracurricular activities, which might serve as valuable guidance for both applicants and programs to refine the selection process.

Neurosurgery

Haider S, **Air E**, Kou Z, and **Rock J**. Anatomic Review in 3D Augmented Reality Alters Craniotomy Planning Among Residents. *World Neurosurg* 2024; Epub ahead of print. PMID: 38325703. Full Text

Department of Neurosurgery, Henry Ford Health, Detroit, Michigan, USA. Electronic address: DrSamHaider@gmail.com.
Department of Neurosurgery, Henry Ford Health, Detroit, Michigan, USA.
College of Engineering, Wayne State University, Detroit, Michigan, USA.

OBJECTIVE: Objectively examine the effect of 3D-Augmented Reality anatomic review on craniotomy planning among neurosurgical residents as it pertains to craniotomy size, skull positioning, and knowledge of significant anatomic relationships. METHODS: Postgraduate year 1-7 neurosurgery residents were instructed to review standard 2D radiographs, pin a skull, and tailor a craniotomy for 6 different lesions and case vignettes. Participants then reviewed the lesion in a 3D-augmented reality (AR) environment, followed by repeating the craniotomy station for a variety of lesion types and locations (superficial, subcortical, deep, skull base). Quiz with case-specific anatomic and surgical questions followed by an exit survey for qualitative impressions. RESULTS: Eleven of thirteen eligible residents participated. Skull position significantly changed in 5 out of 6 cases after 3D-AR view ($P < 0.05$, 20° angular adjustment). No significant change in incision length or craniotomy size. Subgroup analysis of junior versus senior residents revealed that craniotomy size was significantly altered in 2 out of 6 cases. Qualitative testimonials (Likert scale 5 = strongly agree) reported a change in craniotomy approach after 3D-review (3.5), improved appreciation of anatomy (4.2), increased confidence in surgical approach (4.33 junior residents, 3.5 senior residents), smaller incision (3.5 junior residents, 1.75 senior residents), better appreciation of white matter tracts (4.6). CONCLUSIONS: The augmented reality platform offers a medium to examine surgical planning skills. Residents uniformly appreciated 3D-AR as a valuable tool for improving appreciation of critical anatomic structures and their relationship to lesional pathology. 3D-AR review significantly altered skull positioning for various lesions and craniotomy approaches, particularly among junior residents.

Neurosurgery

Malecki A, **Pawloski J**, **Anzalone A**, **Shaftel K**, **Fadel HA**, and **Lee I**. Compressive myelopathy from diffuse spinal dural calcifications in a patient with end-stage renal disease: illustrative case. *J Neurosurg Case Lessons* 2024; 7(9). PMID: 38408341. Full Text

1Wayne State University School of Medicine, Detroit, Michigan; and.
2Department of Neurosurgery, Henry Ford Health, Detroit, Michigan.

BACKGROUND: Diffuse spinal dural calcification is a rare disorder associated with hyperparathyroidism, including the secondary forms associated with renal failure, osteodystrophy, and chronic hypocalcemia. Here, the authors report a rare case of diffuse dural calcification causing spinal cord compression with myelopathy, requiring decompressive surgery with duraplasty to achieve adequate decompression. OBSERVATIONS: A 46-year-old male with a history of renal failure on dialysis presented with 2 months of progressive neuropathic pain, lower-extremity weakness, and nonsustained clonus. Spine imaging showed severe renal osteodystrophy with multilevel compression fractures and diffuse dural calcifications with areas of invagination causing severe spinal cord compression. Decompressive surgery was recommended. In surgery, a thickened and calcified dura was encountered with areas of buckling causing spinal cord compression. The invaginated area of the dura was resected and reconstructed with patch duraplasty. The patient's neurological status remained unchanged postoperatively, and at the 6-month follow-up, the patient reported significant improvement in pain and muscle spasms. LESSONS: Diffuse dural calcifications are a rare complication of prolonged dialysis and secondary hyperparathyroidism. When there is resultant spinal cord compression, this condition requires an intradural approach that addresses the thickened, calcified dura directly to obtain adequate spinal cord decompression.

Ophthalmology and Eye Care Services

Ashkenazy N, Harbour JW, Dubovy SR, Albini TA, Sridhar J, **Patel N**, Hansen ED, Uchiyama E, Rubsamen PE, and Correa ZM. Vitreous metastasis from cutaneous melanoma: diagnosis and management. *Arq Bras Oftalmol* 2024; 87(5). Full Text

Z.M. Correa, Bascom Palmer Eye Institute, University of Miami Miller School of Medicine, Miami, FL, United States

Purpose: To report the clinical findings, treatments, and outcomes in a series of patients with vitreous metastasis from cutaneous melanoma. Methods: This single-center, retrospective, interventional case series included patients with biopsy-confirmed vitreous metastasis from cutaneous melanoma diagnosed between 1997 and 2020. Standard 23- or 25-gauge pars plana vitrectomy was performed for diagnostic sampling. Sclerotomies were treated with double or triple freeze-thaw cryotherapy. Perioperative intravitreal injections of melphalan (32 µg/0.075 mL) were administered, when indicated. Visual acuity, intraocular pressure, and systemic and ocular treatment responses were reported. Results: Five eyes of five patients with unilateral vitreous metastasis from cutaneous melanoma were identified. The median age at diagnosis was 84 (range, 37–88) years. The median follow-up after ophthalmic diagnosis was 28 (8.5-36) months; one patient did not have a follow-up. The initial visual acuity ranged from 20/30 to hand motions. Baseline clinical findings included pigmented or non-pigmented cellular infiltration of the vitreous (5/5), anterior segment (4/5), and retina (3/5). Four patients had secondary glaucoma. Systemic therapy included checkpoint inhibitor immunotherapy (n=3, all with partial/complete response), systemic chemotherapy (n=2), surgical resection (n=3), and radiation (n=2). The median time from primary diagnosis to vitreous metastasis was 2 (2–15) years. One patient had an active systemic disease at the time of vitreous metastasis. The final visual acuity ranged from 20/40 to no light perception. Ophthalmic treatment included vitrectomy in all five patients, intravitreal administration of melphalan in three, and intravitreal administration of methotrexate in one. One patient required enucleation, and histopathology revealed extensive invasion by melanoma cells. Conclusions: Vitreous metastasis from cutaneous melanoma can present as a diffuse infiltration of pigmented or non-pigmented cells into the vitreous and may be misdiagnosed as uveitis. Diagnostic pars plana vitrectomy and periodic intravitreal chemotherapy may be indicated.

Ophthalmology and Eye Care Services

Enright JM, Purt B, Bruck B, Shah P, Eton E, Rezaei S, Armenti S, Patel KG, Liu J, Verkade A, **Hamad A**, Wubben TJ, Sheybani A, **Crandall D**, Tannen BL, Comer GM, Mian S, and Nallasamy N. Severe spontaneous tilt of scleral-fixated intraocular lenses. *Am J Ophthalmol* 2024; Epub ahead of print. PMID: 38373583. Full Text

John F. Hardesty Department of Ophthalmology and Visual Sciences, Washington University in St. Louis School of Medicine, Saint Louis, Missouri, USA.
Kellogg Eye Center, Department of Ophthalmology and Visual Sciences, University of Michigan, Ann Arbor, Michigan, USA; VA Ann Arbor Health Care System, Ann Arbor, Michigan, USA; Uniformed Services University of the Health Sciences, Bethesda, MD, USA.
Kellogg Eye Center, Department of Ophthalmology and Visual Sciences, University of Michigan, Ann Arbor, Michigan, USA.
Scheie Eye Institute, Department of Ophthalmology, Penn Medicine, University of Pennsylvania Health System, Philadelphia, Pennsylvania, USA.
Department of Ophthalmology, University of Texas Southwestern Medical Center, Dallas, Texas, USA.
Department of Ophthalmology, Henry Ford Health System, Detroit, Michigan, USA.
Kellogg Eye Center, Department of Ophthalmology and Visual Sciences, University of Michigan, Ann Arbor, Michigan, USA. Electronic address: nnallasa@med.umich.edu.

PURPOSE: To report and evaluate a multicenter series of 18 cases of severe, spontaneous IOL tilt involving the flanged intrascleral haptic fixation technique (FISHF). DESIGN: Clinical study with historical controls METHODS: : We report a cross-sectional study of 46 FISHF cases using the CT Lucia 602 IOL at a single academic center over a period of 24 weeks to determine the incidence of severe rotisserie-style rotational tilt. These rates were then compared with the same time-frame the prior year to help determine if this is a new phenomenon. Additional cases of severe tilt were solicited from another four academic centers. RESULTS: Among 46 FISHF cases at a single center, five developed severe tilt. No clear pattern in surgical technique, ocular history or ocular anatomy was evident in these cases compared with controls, although the involved IOLs clustered within a narrow diopter range, indicative of a batch effect. In the same 24-week interval the year before, 33 FISHF cases were performed, none of which exhibited severe rotational tilt. In our multi-center dataset, 18 cases of tilt were identified. Surgeons included fellow and early-career physicians as well as surgeons with multiple years of experience with the Yamane technique. A variety of surgical approaches for FISHF were represented. In at least eight of the cases, haptic rotation and/or dehiscence at the optic-haptic junction was documented. CONCLUSIONS: The identification of haptic rotation and dehiscence intraoperatively in several cases may reflect a new stability issue involving the optic-haptic junction.

Ophthalmology and Eye Care Services

Kasetty VM, **Monsalve PF**, **Sethi D**, **Yousif C**, **Hessburg T**, **Kumar N**, **Hamad AE**, and **Desai UR**. Cataract progression after primary pars plana vitrectomy for uncomplicated rhegmatogenous retinal detachments in young adults. *Int J Retina Vitreous* 2024; 10(1):19. PMID: 38383511. Full Text

Department of Ophthalmology, Henry Ford Health System, Detroit, MI, USA. vkasett1@hfhs.org.
Department of Ophthalmology, Henry Ford Health System, Detroit, MI, USA.
Department of Ophthalmology, University of Minnesota, Minneapolis, MN, USA.

BACKGROUND: Scleral buckling is typically implemented to repair rhegmatogenous retinal detachments (RRD) in young patients. Therefore, there is limited data on post-pars plana vitrectomy (PPV) cataract formation in this cohort. We report the rates and risk factors of cataract progression after PPV for RRD repair in young eyes. METHODS: Retrospective single-center cohort study. Medical records of patients between the ages of 15 to 45 undergoing PPV for uncomplicated RRD between 2014 and 2020 were reviewed. RESULTS: Twenty-eight eyes from 26 patients met inclusion criteria. Cataracts developed in 20/28 (71%) eyes after PPV. After PPV, nuclear sclerotic cataract (NSC) rates were higher in patients above 35 (65%) compared to below 35 years (18%) ($p = 0.024$). Cataracts developed more frequently after macula-off RRDs (88%) compared to macula-on RRDs (50%) ($p = 0.044$) with NSC more common in macula-off detachments ($p = 0.020$). At postoperative month 2, all eyes with C(3)F(8) gas developed

cataracts compared to 59% of eyes with no gas (p = 0.040). CONCLUSIONS: Cataract formation was common and frequent after PPV. After PPV, young eyes and macula-on detachments developed cataracts less frequently than older eyes and macula-off detachments. If appropriate, a shorter acting gas tamponade should be considered in young eyes to minimize cataract formation.

Ophthalmology and Eye Care Services

Shabani H, Zrenner E, **Rathbun DL**, and Hosseinzadeh Z. Electrical Input Filters of Ganglion Cells in Wild Type and Degenerating rd10 Mouse Retina as a Template for Selective Electrical Stimulation. *IEEE Trans Neural Syst Rehabil Eng* 2024; 32:850-864. PMID: 38294929. Full Text

Bionic vision systems are currently limited by indiscriminate activation of all retinal ganglion cells (RGCs)-despite the dozens of known RGC types which each encode a different visual message. Here, we use spike-triggered averaging to explore how electrical responsiveness varies across RGC types toward the goal of using this variation to create type-selective electrical stimuli. A battery of visual stimuli and a randomly distributed sequence of electrical pulses were delivered to healthy and degenerating (4-week-old rd10) mouse retinas. Ganglion cell spike trains were recorded during stimulation using a 60-channel microelectrode array. Hierarchical clustering divided the recorded RGC populations according to their visual and electrical response patterns. Novel electrical stimuli were presented to assess type-specific selectivity. In healthy retinas, responses fell into 35 visual patterns and 14 electrical patterns. In degenerating retinas, responses fell into 12 visual and 23 electrical patterns. Few correspondences between electrical and visual response patterns were found except for the known correspondence of ON visual type with upward deflecting electrical type and OFF cells with downward electrical profiles. Further refinement of the approach presented here may yet yield the elusive nuances necessary for type-selective stimulation. This study greatly deepens our understanding of electrical input filters in the context of detailed visual response characterization and includes the most complete examination yet of degenerating electrical input filters.

Orthopedics/Bone and Joint Center

Abed V, Kapp S, Nichols M, **Castle JP**, Landy DC, Conley C, and Stone AV. Lysholm and KOOS QoL Demonstrate High Responsiveness in Patients Undergoing Anterior Cruciate Ligament Reconstruction: A Systematic Review and Meta-analysis of Randomized Clinical Trials. *Am J Sports Med* 2024; Epub ahead of print. PMID: 38352999. Full Text

Department of Orthopaedic Surgery and Sports Medicine, University of Kentucky, Lexington, Kentucky, USA.
Department of Orthopaedics, Henry Ford Hospital, Detroit, Michigan, USA.

BACKGROUND: There have been a large number of patient-reported outcome measures (PROMs) used to assess outcomes after anterior cruciate ligament (ACL) reconstruction (ACLR). PURPOSE/HYPOTHESIS: The purpose was to determine which PROMs are being commonly used in randomized clinical trials (RCTs) to assess patients undergoing ACLR and to compare the responsiveness between them. It was hypothesized that the International Knee Documentation Committee (IKDC) score would be the most commonly used and responsive PROM among patients undergoing ACLR. STUDY DESIGN: Meta-analysis. Level of evidence, 2. METHODS: PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) guidelines were followed, and relevant studies were extracted from the PubMed/MEDLINE and Web of Science databases. The inclusion criteria were English-language RCTs reporting on PROMs after ACLR. For articles meeting our inclusion criteria for responsiveness analysis (≥2 PROMs reported, 1 year minimum follow-up, and reported pre- and postoperative PROM means and standard deviations), the responsiveness between PROMs was compared using effect size (ES) and relative efficiency (RE). RESULTS: A total of 108 articles met the inclusion criteria, comprising 9034 patients (mean age, 29.9 years; mean body mass index, 24.3; mean follow-up time, 36.1 months). There were 34 PROMs identified. The top 3 most commonly reported PROMs were the IKDC (n = 68; 63.0%), Lysholm (n = 65; 60.2%), and Tegner (n = 47; 43.5%) scores. The 2 PROMs with the highest ES were the ACL-Quality of Life (QoL) (3.37) and Knee Injury and Osteoarthritis Outcome Score (KOOS) QoL (2.07) scores. Compared with other PROMs, Lysholm and KOOS QoL scores had the greatest RE values. The Lysholm score had a greater RE than

the KOOS Pain (RE, 1.17), KOOS Symptoms (RE, 1.22), KOOS Activities of Daily Living (ADL) (RE, 1.42), KOOS Sport/Recreation (RE, 1.55), KOOS QoL (RE, 1.41), and Tegner (RE, 2.89) scores. KOOS QoL had a greater RE than the IKDC (RE, 1.32), KOOS Pain (RE, 1.60), KOOS Symptoms (RE, 2.12), KOOS ADL (RE, 3.03), KOOS Sport/Recreation (RE, 1.27), and Tegner (RE, 2.06) scores. CONCLUSION: The IKDC score is the most commonly reported PROM in RCTs after ACLR; however, the Lysholm and KOOS QoL scores demonstrated the highest responsiveness in patients undergoing ACLR compared with other PROMs.

Orthopedics/Bone and Joint Center
Gaudiani MA, **Castle JP**, **Easton MK**, Sprys-Tellner TJ, **Wolterink TD**, **Haan JW**, **George GF**, **Wager SG**, **Lynch TS**, and **Berger RJ**. Return to Play, Performance, and Earnings Analysis After Lumbar Disc Herniation in National Hockey League Players. *Global Spine J* 2024; Epub ahead of print. PMID: 38330937. Full Text

Department of Orthopaedic Surgery, Henry Ford Health, Detroit, MI, USA. RINGGOLD: 2971
Wayne State University School of Medicine, Detroit, MI, USA. RINGGOLD: 12267
Michigan State University College of Human Medicine, East Lansing, MI, USA. RINGGOLD: 12268

STUDY DESIGN: Retrospective cohort study. OBJECTIVE: Professional hockey players have a high incidence of lumbar disc herniations (LDH). The purpose of this study was to determine the impact of LDH on the performance and financial earnings of National Hockey League (NHL) players. METHODS: NHL players who sustained a LDH were retrospectively reviewed utilizing an online database and a 2:1 matched control cohort. Player performance and game usage was compared at one- and three-season(s) pre- and post-injury season within the cohorts. Injured and matched players were divided into 3 groups based on the player's adjusted index season salary. RESULTS: A total of 181 players were included, with 62 LDH players matched to 119 healthy controls. Return to play after LDH was 79%. The LDH cohort had fewer seasons played throughout their career compared to the matched group (12.5 ± 4.3 vs 14.2 ± 3.8; P = .031). At 1 season post-index, the LDH cohort had significantly fewer goals per 60 and points per 60 when compared to pre-index. At 3 seasons post-index, the LDH cohort exhibited a significant decline in time-on-ice per game played, goals per 60, and points per 60 compared to pre-index. CONCLUSION: The majority of NHL players who sustained a LDH returned to play (79%) but had shorter careers overall and decreased performance outcomes when compared to matched cohorts at both 1 and 3 seasons post-injury.

Orthopedics/Bone and Joint Center
Hansen LM, **Jiang EX**, **Hodson NM**, **Livingston N**, **Kazanjian A**, **Wu M**, and **Day CS**. Patients With and Without Double Crush Syndrome Achieve Similar Rates of Clinical Improvement Following Carpal Tunnel Release. *Hand (N Y)* 2024; Epub ahead of print. PMID: 38420760. Request Article

Department of Orthopedic Surgery, Henry Ford Health, Detroit, MI, USA.
School of Medicine, Wayne State University, Detroit, MI, USA.

BACKGROUND: The purpose of this study is to compare outcomes of carpal tunnel release (CTR) in patients with and without double crush syndrome (DCS), defined as concurrent carpal tunnel syndrome (CTS) and cervical radiculopathy at C5-T1 on preoperative nerve conduction studies. METHODS: Patients with preoperative nerve conduction studies who underwent unilateral, isolated CTR were retrospectively identified. All patients completed preoperative and 3-month postoperative Patient-Reported Outcomes Measurement Information System (PROMIS) upper extremity (UE) and pain interference (PI), and Disabilities of the Arm, Shoulder and Hand (QuickDASH) questionnaires, and responded to the anchor question: "Since your treatment, how would you rate your overall function?" (much worse, worse, slightly worse, no change, slightly improved, improved, much improved). Preoperative, postoperative, and changes in scores for UE, PI, and QuickDASH were compared, as were the anchor question responses and rates of achieving the minimal clinically important difference (MCID). RESULTS: Sixty-three patients with DCS and 115 patients with CTS only were included. At 3- to 4-month follow-up, absolute and change in UE, PI, and QuickDASH scores were not statistically different between patients with DCS and CTS. Rates of anchor question response and MCID achievement were

comparable for patients with CTS only and DCS on each questionnaire. The MCID achievement ranged from 48.4% to 68.8% in the unmatched cohort and 48.4% to 60% in the matched group. CONCLUSIONS: At 3 to 4 months, patients with DCS experience similar patient-reported symptomatic and functional improvement, and achieve MCID of outcome measures at comparable rates to patients with CTS only. For patients with nerve compression at the carpal tunnel and cervical spine, CTR is a reasonable first step prior to proceeding with cervical spine decompression.

Orthopedics/Bone and Joint Center
Hennekes ME, **Li S**, **Bennie J**, and **Makhni EC**. What does routine depression screening in the ambulatory orthopedic clinic teach us? Results from nearly 60,000 patient encounters. *J Orthop* 2024; 51:81-86. PMID: 38333047. Full Text

Henry Ford Health, 2799 W. Grand Blvd, Detroit, MI, 48202, USA.
Michigan State University College of Human Medicine, 15 E Michigan St NE, Grand Rapids, MI, 49503, USA.
Wayne State University School of Medicine, 540 E Canfield St, Detroit, MI, 48201, USA.

BACKGROUND: It remains unclear what role depression screening plays in routine ambulatory orthopedic care. The purpose of this study was to determine (1) the floor and ceiling effects of the Patient-Reported Outcomes Measurement Information System Depression (PROMIS-D) form, (2) the prevalence of positive PROMIS-D screening forms across an orthopedic service line, and (3) the prevalence of previously diagnosed depression and interventions among a representative sample of patients. METHODS: This retrospective study analyzed 58,227 patients who presented to ambulatory orthopedic clinics across an orthopedic service line between January 1, 2019 to December 31, 2021. All patients completed a self-administered PROMIS-D form as part of the ambulatory encounter. Scores were analyzed with respect to patient characteristics including age, gender, and presenting orthopedic complaint. A sample of 1000 patients was evaluated for prevalence of depressive symptoms and formal psychiatric diagnosis and interventions in the 5 years preceding the clinic visit. RESULTS: PROMIS-D displayed a negligible ceiling effect (<0.001 %) but a large floor effect (19.0 %). PROMIS-D scores indicating depressive symptoms were highest among patients presenting with spine complaints (42.8 %) and lowest among patients presenting to orthopedic pediatric clinics (28.6 %). Women and those in the lowest quartile median household income (MHI) were more likely to report depressive symptoms. Among the 1000 patient sample, 31.3 % exhibited depressive symptoms. Of these, 39 % had previously received some form of mental health treatment, including 33.2 % who were prescribed antidepressants. CONCLUSIONS: PROMIS-D is a useful screening questionnaire for patients in the orthopedic clinic, although there is a consistent floor effect. There are a number of patients who present to the orthopedic clinic who have depressive symptoms but have had no interaction with behavioral health. Given the impact depression can have on outcomes, screening for depressive symptoms should be considered as part of routine orthopedic practice.

Orthopedics/Bone and Joint Center
Ierardi K, **Hammond M**, **Searls WC**, and **Scott K**. Catastrophic Femoral Component Failure of a Unicompartmental Knee Arthroplasty. *Arthroplasty Today* 2024. Full Text

K. Ierardi, Department of Orthopedic Surgery, Henry Ford Macomb Hospital, 15855 19 Mile Road, Clinton Township, MI, United States

We report a case of previously undescribed medial unicompartmental knee arthroplasty failure due to femoral component implant fracture. The patient experienced sudden pain and locking while ambulating 8 years postoperatively. Radiographs revealed catastrophic femoral component failure with a transverse break through the metal. The patient underwent revision to total knee arthroplasty. At 1-year follow-up, the patient had no pain and a range of motion of 130 degrees. Particular attention should be paid to obtaining adequate femoral component posterior flange fixation during unicompartmental knee arthroplasty. Patient education regarding maintaining a healthy weight is crucial to preventing this complication.

Orthopedics/Bone and Joint Center

Legister CS, **James CL**, Truong WH, Guillaume TJ, Harding DC, Palmer CL, Morgan SJ, Beauchamp EC, Perra JH, and Miller DJ. The effects of gastrojejunostomy tube placement on pulmonary and gastrointestinal complications following spinal fusion for neuromuscular scoliosis. *J Pediatr Orthop B* 2024; Epub ahead of print. PMID: 38412048. Full Text

Research Department, Gillette Children's, St. Paul, Minnesota.
Department of Orthopaedic Surgery, Henry Ford Health System, Detroit, Michigan.
Department of Orthopaedic Surgery, Gillette Children's, St. Paul.
Department of Orthopaedic Surgery, University of Minnesota.
University of Minnesota Medical School.
Department of Rehabilitation Medicine, University of Minnesota, Minneapolis, Minnesota.
Department of Rehabilitation Medicine, University of Washington, Seattle, Washington.
Twin Cities Spine Center, Minneapolis, Minnesota, USA.

To evaluate whether preoperative conversion from a gastrostomy tube (G-tube) to a gastrojejunostomy tube (GJ-tube) decreases short-term postoperative aspiration pneumonia and gastrointestinal complications in children with neuromuscular scoliosis. We conducted a retrospective chart review from January 2006 to October 2021 of pediatric patients who had neuromuscular scoliosis and were fed with a G-tube before spinal fusion. Eligible patients were divided into two groups based on whether they were converted to a GJ-tube preoperatively. Preoperative characteristics and 30-day postoperative outcomes were compared between groups using Chi-square tests. Of 261 eligible patients, 205 were converted to a GJ-tube, while 56 underwent spinal fusion with a G-tube. Common complications following G-tube to GJ-tube conversion were feeding intolerance (25.2%), GJ-tube malfunction (17.7%), and at least one episode of vomiting (17.4%). Within 30 days of discharge, 12.5% of GJ-tube patients and 11.5% of G-tube patients experienced aspiration pneumonia (P = 0.85). The GJ-tube group received postoperative tube feeds 7 hours earlier than the G-tube group on average (51.6 h vs. 44.5 h, P = 0.02). Within 30 days of discharge, one (0.5%) patient from the GJ-tube group died of gastrointestinal complications unrelated to conversion and two (3.6%) patients in the G-tube group died from aspiration pneumonia (P = 0.12). Results suggest that there were no appreciable differences in outcomes between patients converted to a GJ-tube preoperatively compared to those who continued to use a G-tube. However, preoperative characteristics indicate that a higher number of complex patients were converted to a GJ-tube, indicating potential selection bias in this retrospective sample. Level of evidence: Level III.

Orthopedics/Bone and Joint Center

Moutzouros V, **Castle JP**, **Gasparro MA**, **Halkias EL**, and **Bennie J**. Anterior Cruciate Ligament Hybrid Remnant Preservation Reconstruction Demonstrates Equivalent Patient-Reported Outcomes and Complications as Traditional Anterior Cruciate Ligament Reconstruction After 1 Year. *Arthrosc Sports Med Rehabil* 2024; 6(2):100875. PMID: 38328529. Full Text

Department of Orthopaedic Surgery, Henry Ford Hospital, Detroit, Michigan, U.S.A.

PURPOSE: To compare the outcomes of anterior cruciate ligament (ACL) Hybrid Remnant Preservation Reconstruction (HRPR) with traditional anterior cruciate ligament reconstruction (ACLR) and determine differences in patient-reported outcomes, range of motion (ROM), and complications after 12 months. METHODS: A retrospective cohort study of patients undergoing ACLR by a single surgeon from December 2020 to January 2022 was conducted. Patients undergoing ACL-HRPR were compared with control patients undergoing traditional ACLR with bone-patellar tendon-bone autograft. Preoperative and postoperative Patient-Reported Outcome Measurement Information System scores, International Knee Documentation Committee, and patient acceptable symptom state were recorded over 12 months. Any complications occurring 12 months postoperatively were collected. RESULTS: The final analysis included 104 patients, with 39 undergoing ACL-HRPR compared with 65 ACLR controls. Patients who received HRPR were on average 19.46 ± 5.01 years old, with 51.28% being female, whereas control patients were, on average, 21.92 ± 7.71 years old with 50.77% being female. Total ROM was equivalent between groups, with complete terminal extension at 12 months. No significant differences were found for patient acceptable symptom state; Patient-Reported Outcome Measurement Information System-Physical

Function, -Pain Interference, or -Depression; or International Knee Documentation Committee at 6 months and 12 months postoperatively. Total ROM was similar between the HRPR and control groups. No differences were found for timed 6-meter hop test, hop for distance, or KT-1000 side-to-side differences. Over the 12-month period, complication rates were similar between groups (10% vs 12% P = .75) were similar. CONCLUSIONS: ACL HRPR is associated with equivalent patient-reported outcomes, full ROM, and no differences in complications rates after 1 year compared with control patients in the present retrospective study. LEVEL OF EVIDENCE: Level III, retrospective cohort study.

Orthopedics/Bone and Joint Center

Parsons M, Elwell J, **Muh S**, Wright T, Flurin P, Zuckerman J, and Roche C. Impact of Accumulating Risk Factors on the Incidence of Dislocation After Primary Reverse Total Shoulder Arthroplasty Using a Medial Glenoid Lateral Humerus Onlay Prosthesis. *J Shoulder Elbow Surg* 2024; Epub ahead of print. PMID: 38316238. Full Text

King and Parsons Orthopedic Center, Portsmouth, NH, USA. Electronic address: mobyparsons@gmail.com.
Exactech, Inc, Gainesville, FL, USA.
Henry Ford Hospital, Detroit, MI, USA.
University of Florida, Gainesville, FL, USA.
Clinique du Sport, Bordeaux, France.
NYU Langone Medical Center, New York, NY, USA.

INTRODUCTION: The aim of this study is to facilitate preoperative identification of patients at-risk for dislocation after reverse total shoulder arthroplasty (rTSA) using the Equinoxe rTSA prosthesis (medialized glenoid, lateralized onlay humerus with a 145° neck angle) and quantify the impact of accumulating risk factors on the occurrence of dislocation. METHODS: We retrospectively analyzed 10,023 primary rTSA patients from an international multi-center database of a single platform shoulder prosthesis and quantified the dislocation rate associated with multiple combinations of previously identified risk factors. To adapt our statistical results for prospective identification of patients most at-risk for dislocation, we stratified our dataset by multiple risk factor combinations and calculated the odds ratio for each cohort to quantify the impact of accumulating risk factors on dislocation. RESULTS: 136 (52F/83M/1UNK) of 10,023 primary rTSA patients were reported to have a dislocation for a rate of 1.4%. Patients with zero risk factors were rare, where only 12.7% of patients (1,268 of 10,023) had no risk factors, and only 0.5% of these (6 of 1,268) had a report of dislocation. The dislocation rate increased in patient cohorts with an increasing number of risk factors. Specifically, the dislocation rate increased from 0.9% for a patient cohort with 1 risk factor to 1.0% for 2 risk factors, 1.6% for 3 risk factors, 2.7% for 4 risk factors, 5.3% for 5 risk factors, and 7.3% for 6 risk factors. Stratifying dislocation rate by multiple risk factor combinations identified numerous cohorts with either an elevated risk or a diminished risk for dislocation. DISCUSSION: This 10,023 rTSA multi-center study demonstrated that 1.4% of rTSA patients experienced dislocation with one specific medialized glenoid/lateralized humerus onlay rTSA prosthesis. Stratifying patients by multiple combinations of risk factors demonstrated the impact of accumulating risk factors on incidence of dislocation. rTSA patients with the greatest risk of dislocation were: male gender, age ≤67 years at the time of surgery, patients with BMI ≥31, patients who received cemented humeral stems, patients who received glenospheres having a diameter >40mm, and/or patients who received expanded/laterally offset glenospheres. Patients with these risk factors who are considering rTSA using a medial glenoid/lateral humerus, should be made aware of their elevated dislocation risk profile.

Orthopedics/Bone and Joint Center

Singh A, Mantebea H, Badar F, Batool S, Abdelmessih G, Sebastian T, Newton M, **Baker K**, Salem S, and Xia Y. Assessment of articular cartilage degradation in response to an impact injury using μMRI. *Connect Tissue Res* 2024; 1-15. Epub ahead of print. PMID: 38415672. Request Article

Department of Physics and Center for Biomedical Research, Oakland University, Rochester, MI, USA.
Department of Chemistry, Oakland University, Rochester, MI, USA.
Orthopedic Research Laboratories, Beaumont Health, Royal Oak, MI, USA.
Department of Orthopedic Surgery, University of Michigan, Ann Arbor, MI, USA.

Department of Bone & Joint Center, Henry Ford Hospital, Detroit, MI, USA.

PURPOSE: Degradation of articular cartilage (AC) due to injury to the knee joint may initiate post-traumatic osteoarthritis (PTOA). Failure to diagnose the onset of the disease at an early stage makes the cure ineffective for PTOA. This study investigated the consequences of a mechanical injury to the knee in a rabbit model using microscopic magnetic resonance imaging (μMRI) at high resolution. MATERIALS AND METHODS: A mechanical injury was induced to the knee joints of 12 rabbits. Cartilage blocks were extracted from the non-impacted and impacted knee joints after 2 and 14 weeks post-impact. The specimens were studied using μMRI T2 relaxation and inductively coupled plasma analysis to determine the early degradation of the articular cartilage. RESULTS: The data established a connection between T2 relaxation time and the early progression of knee PTOA after an impact injury. T2 values were found to be higher in the impacted cartilage at both 2 and 14 weeks, in particular, T2-55° values in the impacted samples displayed a significant rise of 6.93% after 2 weeks and 20.02% after 14 weeks. Lower glycosaminoglycan measurement and higher water content in the impacted cartilage confirmed the μMRI results. CONCLUSIONS: This μMRI T2 study was able to detect cartilage damage in the impacted knees. In addition, greater degradation in the affected knees at 14 weeks than at 2 weeks indicated the progressive nature of cartilage deterioration over time. The μMRI results were in accord with the biochemical analysis, indicating the detection of early structural damage in the cartilage.

Orthopedics/Bone and Joint Center

Zhong J, Lee NJ, Crutchfield C, Mueller J, Ahmad C, Trofa D, and **Lynch TS**. Perioperative outcomes in isolated versus multiligamentous anterior cruciate ligament reconstruction: a retrospective cohort analysis. *Eur J Orthop Surg Traumatol* 2024; Epub ahead of print. PMID: 38363347. Full Text

Department of Orthopedic Surgery, Columbia University, 301 E 17th St, 14th Floor, New York, NY, 10010, USA. jackrzhong@gmail.com.
Department of Orthopaedic Surgery, New York University Langone Health, New York, 10010, USA. jackrzhong@gmail.com.
Department of Orthopedic Surgery, Columbia University, 301 E 17th St, 14th Floor, New York, NY, 10010, USA.
Department of Orthopedic Surgery, Henry Ford Health, Detroit, 48202, USA.

PURPOSE: The outcomes of anterior cruciate ligament reconstruction in the setting of multiligamentous knee injury (M-ACLR) have not been well characterized compared to isolated ACLR (I-ACLR). This study aims to characterize and compare short-term outcomes between I-ACLR and M-ACLR. METHODS: This is a retrospective cohort analysis of the American College of Surgeons National Surgical Quality Improvement Program database from 2005 to 2017. Current Procedural Terminology codes were used to identify and compare elective I- and M-ACLR patients, excluding patients undergoing concomitant meniscal or chondral procedures. Patient demographics and outcomes after I- and M-ACLR were compared using bivariate analysis. Multiple logistic regression analyzed if multiligamentous ACLR was an independent risk factor for adverse outcomes. RESULTS: There was a total of 13,131 ACLR cases, of which 341 were multiligamentous cases. The modified fragility index-5 was higher in multiligamentous ACLR ($p < 0.001$). Multiligamentous ACLR had worse perioperative outcomes, with higher rate of all complications (3.8%, $p = 0.013$), operative time > 1.5 h ($p < 0.001$), length of stay (LOS) ≥ 1 day ($p < 0.001$), wound complication (2.1%, $p = 0.001$), and intra- or post-op transfusions ($p < 0.001$). In multiple logistic regression, multiligamentous ACLR was an independent risk factor for LOS ≥ 1 (odds ratio [OR] 5.8), and intra-/post-op transfusion (OR 215.1) and wound complications (OR 2.4). M-ACLR was not an independent risk factor for any complication, reoperation at 30 days, readmission, urinary tract infection (UTI), or venous thromboembolism (VTE). CONCLUSION: M-ACLR generally had worse outcomes than I-ACLR, including longer LOS, need for perioperative transfusions, and wound complications.

Otolaryngology – Head and Neck Surgery

Al-Antary N, Hirko KA, **Elsiss F**, **Zatirka T**, **Ryan M**, **Movsas B**, **Chang SS**, **Adjei Boakye E**, and **Tam SH**. Clinic-based perspectives on the integration of patient-reported outcomes (PROs) in a tertiary cancer center. *Support Care Cancer* 2024; 32(3):148. PMID: 38326573. Full Text

Department of Public Health Sciences, Henry Ford Health, One Ford Place, Detroit, MI, 48202, USA.
Department of Epidemiology and Biostatistics, College of Human Medicine, Michigan State University, East Lansing, MI, USA.
Center for Health Policy & Health Services Research, Henry Ford Health, Detroit, MI, USA.
Henry Ford Cancer, Henry Ford Health, Detroit, MI, USA.
Department of Radiation Oncology, Henry Ford Health, Detroit, MI, USA.
Department of Otolaryngology - Head and Neck Surgery, Henry Ford Health, Detroit, MI, USA.
Department of Public Health Sciences, Henry Ford Health, One Ford Place, Detroit, MI, 48202, USA. eadjei1@hfhs.org.
Department of Epidemiology and Biostatistics, College of Human Medicine, Michigan State University, East Lansing, MI, USA. eadjei1@hfhs.org.
Department of Otolaryngology - Head and Neck Surgery, Henry Ford Health, Detroit, MI, USA. eadjei1@hfhs.org.

PURPOSE: This study examines providers' and clinic staff's perspectives on patient-reported outcomes (PROs) implementation at an academic medical center. METHODS: An anonymous and voluntary survey was administered to Henry Ford Cancer providers and clinic staff 18 months after PROs program implementation in September 2020, to obtain their feedback on perceived barriers, impact on workflows, and PROs administration frequency in routine cancer care. RESULTS: A total of 180 providers and 40 clinic staff were invited to complete the survey; 31% and 63% completed the survey, respectively. Approximately 68% of providers reported that electronically integrated PROs scores were either beneficial or somewhat beneficial to their patients, while only 28% of the clinic staff reported that PROs were beneficial or somewhat beneficial to patients. According to the clinic staff, the most common barriers to PROs completion included lack of patients' awareness of the utility of the program with respect to their care, patients' health status at check-in, and PROs being offered too frequently. CONCLUSION: There is favorable acceptance of the PROs program by providers, but clinic staff found it less favorable. Interventions to address barriers and improve program engagement are needed to ensure broad adoption of PROs in oncology practice.

Pathology and Laboratory Medicine

Manzar N, Khan UK, Goel A, **Carskadon S**, **Gupta N**, **Palanisamy N**, and Ateeq B. An integrative proteomics approach identifies tyrosine kinase KIT as a therapeutic target for SPINK1-positive prostate cancer. *iScience* 2024; 27(3):108794. PMID: 38384854. Full Text

Molecular Oncology Laboratory, Department of Biological Sciences and Bioengineering, Indian Institute of Technology Kanpur, Kanpur, UP 208016, India.
Vattikuti Urology Institute, Department of Urology, Henry Ford Health System, Detroit, MI 48202, USA.
Department of Pathology, Henry Ford Health System, Detroit, MI 48202, USA.
Mehta Family Center for Engineering in Medicine, Indian Institute of Technology Kanpur, Kanpur, UP 208016, India.
Centre of Excellence for Cancer - Gangwal School of Medical Sciences and Technology, Indian Institute of Technology Kanpur, Kanpur, UP 208016, India.

Elevated serine peptidase inhibitor, Kazal type 1 (SPINK1) levels in ~10%-25% of prostate cancer (PCa) patients associate with aggressive phenotype, for which there are limited treatment choices and dismal clinical outcomes. Using an integrative proteomics approach involving label-free phosphoproteome and proteome profiling, we delineated the downstream signaling pathways involved in SPINK1-mediated tumorigenesis and identified tyrosine kinase KIT as highly enriched. Furthermore, high to moderate levels of KIT expression were detected in ~85% of SPINK1-positive PCa specimens. We show KIT signaling orchestrates SPINK1-mediated oncogenesis, and treatment with KIT inhibitor reduces tumor growth and metastases in preclinical mice models. Mechanistically, KIT signaling modulates WNT/β-catenin pathway and confers stemness-related features in PCa. Notably, inhibiting KIT signaling led to restoration of AR/REST levels, forming a feedback loop enabling SPINK1 repression. Overall, we uncover the role of KIT signaling downstream of SPINK1 in maintaining lineage plasticity and provide distinct treatment modalities for advanced-stage SPINK1-positive patients.

Pathology and Laboratory Medicine
Murga-Zamalloa C, Stone MB, Gutierrez MG, Hippalgaonkar NR, Tariq H, Sadeh M, Mehta A, Khan I, Alkan S, **Inamdar KV**, Wilcox R, and Behdad A. Characterization of T-/natural killer cell lymphoproliferative neoplasms associated with systemic, chronic, active Epstein-Barr virus in adults: A report of 5 cases in a Western population. *Am J Clin Pathol* 2024; Epub ahead of print. PMID: 38345307. Full Text

Department of Pathology, University of Illinois at Chicago, Chicago, IL, US.
Department of Internal Medicine, University of Michigan, Ann Arbor, MI, US.
Department of Internal Medicine, University of Illinois at Chicago, Chicago, IL, US.
Department of Pathology, Northwestern University, Chicago, IL, US.
Department of Neurosurgery, University of Illinois at Chicago, Chicago, IL, US.
Department of Pathology and Laboratory Medicine, Cedars-Sinai Medical Center, Los Angeles, CA, US.
Department of Pathology and Laboratory Medicine, Henry Ford Health, Detroit, MI, US.
Department of Pathology & Laboratory Medicine, Cleveland Clinic Florida, Weston, FL, US.

OBJECTIVES: Because of its low frequency in adult populations and clinical and laboratory overlap with hemophagocytic lymphohistiocytosis and other T-cell lymphomas, T-cell/natural killer (NK) cell systemic, chronic, active Epstein-Barr virus (EBV) (T/NK sCAEBV) infection remains underdiagnosed, preventing critical, prompt therapeutic interventions. METHODS: We report a 5-case series that included 2 adult patients with T/NK sCAEBV and 3 additional adult patients with T/NK lymphomas with concomitant systemic EBV infection to review these entities' overlapping diagnostic and clinical features. RESULTS: Approximately 95% of the world population has been infected with EBV during their lifetime, and infection is usually asymptomatic, with symptomatic cases eventually resolving spontaneously. A small subset of immunocompetent patients develops CAEBV, a life-threatening complication resulting from EBV-infected T-cell or NK cell neoplastic lymphocytes. The sites of end-organ damage in T/NK sCAEBV demonstrate pathologic findings such as reactive lymphoid proliferations, making the diagnosis difficult to establish, with the only curative option being an allogeneic hematopoietic stem cell transplant. CONCLUSIONS: This diagnosis is most prevalent in Asia, with few cases reported in Western countries. Adult age is an independent risk factor for poor outcomes, and most cases are diagnosed in pediatric populations.

Pathology and Laboratory Medicine
Palathingal Bava E, **Gupta N**, **Alruwaii FI**, **Nelson R**, and **Al-Obaidy KI**. Recurrent MTOR Mutations in Renal Cell Carcinoma With Fibromyomatous Stroma: A Report of 2 Tumors. *Int J Surg Pathol* 2024; Epub ahead of print. PMID: 38311893. Full Text

Department of Pathology and Laboratory Medicine, Henry Ford Health, Detroit, MI, USA. RINGGOLD: 2971
Department of Medicine, College of Human Medicine, Michigan State University, East Lansing, MI, USA.
Department of Urology, Henry Ford Health, Detroit, MI, USA. RINGGOLD: 2971

Renal cell carcinoma with fibromyomatous stroma, recognized as a provisional entity in the current 2022 World Health Organization classification of renal neoplasms, is rare. Recent evidence suggests recurrent alterations in the mTOR pathway, supporting its recognition as a distinct entity. Herein, we report 2 renal cell carcinomas with fibromyomatous stroma with MTOR mutations occurring in 62- and 72-year-old women and review the literature to support its recognition as a distinct entity, focusing on the characteristic morphology, immunohistochemical staining patterns as well as genetic alterations.

Pathology and Laboratory Medicine
Tran PTC, **Zhang Z**, **Chang Q**, **Jaratli H**, and **Ahsan BU**. A tumour with two-and-a-half faces-Primary lung adenosquamous carcinoma causing secondary squamous cell carcinoma in the colon. *Cytopathology* 2024; Epub ahead of print. PMID: 38356462. Full Text

College of Osteopathic Medicine, Western University of Health Sciences, Pomona, California, USA.
Department of Pathology, Henry Ford Health, Detroit, Michigan, USA.

Department of Medicine, Michigan State University College of Human Medicine, East Lansing, Michigan, USA.

Pathology and Laboratory Medicine

Vitale AM, **Alruwaii F**, **Chitale DA**, and **Ahsan B**. Gastric Perineurioma: A Rare Entity with Molecular Analysis and Literature Review. *Int J Surg Pathol* 2024; Epub ahead of print. PMID: 38314695. Full Text

Pathology, Henry Ford Health System, Detroit, MI, USA. RINGGOLD: 2971
Henry Ford Health System, Detroit, MI, USA. RINGGOLD: 2971
Henry Ford Hospital, Detroit, MI, USA. RINGGOLD: 24016

BACKGROUND: Perineuriomas of the gastrointestinal tract are benign neoplasms that commonly develop in the distal colon and are identified during screening colonoscopy; however, perineuriomas of the stomach are exceedingly rare and less frequently identified. Differentiating gastric perineuriomas from other more serious gastric neoplasms is critical to avoid unnecessarily aggressive treatments. Thus far, only six patients with gastric perineurioma have been described, and the molecular characterization of this entity is still lacking. CASE PRESENTATION: We report a 52-year-old woman who presented with abdominal pain and gastric acid reflux and was found to have a 1.5 cm subepithelial gastric neoplasm composed of bland spindle cells displacing the gastric glands with no cytologic atypia or mitotic activity, suggesting a benign spindle cell neoplasm. Immunohistochemical analysis showed reactivity for perineurial markers glucose transporter-1 and epithelial membrane antigen, consistent with benign gastric perineurioma. DNA extracted from the tissue was used for a capture-based target sequence enrichment panel followed by Illumina next-generation sequencing and targeted bioinformatic analysis for oncogenic alterations within defined disease-associated target regions. No sequence variants in the BRAF gene were identified. CONCLUSIONS: This rare case of gastric perineurioma helps solidify our understanding of how to discern various types of gastric neoplasms through traditional laboratory analysis alongside genetic sequencing approaches. Although extremely rare, gastric perineurioma should be kept in the differential diagnosis when assessing spindle cell gastric tumors to avoid unnecessary therapies, and physicians should understand the molecular characteristics of benign versus malignant tumors.

Public Health Sciences

Adjei Boakye E, Sykes KJ, Hamilton JL, Cash ED, Duffy NM, Maurer S, and Williams AM. Head and neck oncology professionals' perceptions of suicide risk screening among patients. *Oral Oncol* 2024; 151:106728. PMID: 38402846. Full Text

Henry Ford Health + Michigan State University Health Sciences, Detroit, MI, USA; Department of Public Health Sciences, Henry Ford Health, Detroit, MI, USA; Department of Otolaryngology - Head and Neck Surgery, Henry Ford Health, Detroit, MI, USA; Department of Epidemiology and Biostatistics, Michigan State University College of Human Medicine, East Lansing, MI, USA. Electronic address: eadjei1@hfhs.org.
Health and Wellness Center, Baylor Scott & White Health, Dallas, TX, USA.
Department of Psychiatry and Behavioral Sciences, University of Kansas Medical Center, Kansas City, KS, USA.
Department of Otolaryngology-Head and Neck Surgery and Communicative Disorders, University of Louisville, Louisville, KY, USA; Brown Cancer Center, University of Louisville Health, Louisville, KY, USA.
Helen F. Graham Cancer Center & Research Institute, Christiana Care Health System, Newark, DE, USA.
Department of Psychiatry and Behavioral Sciences, Medical University of South Carolina, Charleston, SC, USA.
Office of Physician Well-being and Professionalism, Corewell Health, Southfield, MI, USA.

Public Health Sciences

Al-Antary N, Hirko KA, **Elsiss F**, **Zatirka T**, **Ryan M**, **Movsas B**, **Chang SS**, **Adjei Boakye E**, and **Tam SH**. Clinic-based perspectives on the integration of patient-reported outcomes (PROs) in a tertiary cancer center. *Support Care Cancer* 2024; 32(3):148. PMID: 38326573. Full Text

Department of Public Health Sciences, Henry Ford Health, One Ford Place, Detroit, MI, 48202, USA.

Department of Epidemiology and Biostatistics, College of Human Medicine, Michigan State University, East Lansing, MI, USA.
Center for Health Policy & Health Services Research, Henry Ford Health, Detroit, MI, USA.
Henry Ford Cancer, Henry Ford Health, Detroit, MI, USA.
Department of Radiation Oncology, Henry Ford Health, Detroit, MI, USA.
Department of Otolaryngology - Head and Neck Surgery, Henry Ford Health, Detroit, MI, USA.
Department of Public Health Sciences, Henry Ford Health, One Ford Place, Detroit, MI, 48202, USA. eadjei1@hfhs.org.
Department of Epidemiology and Biostatistics, College of Human Medicine, Michigan State University, East Lansing, MI, USA. eadjei1@hfhs.org.
Department of Otolaryngology - Head and Neck Surgery, Henry Ford Health, Detroit, MI, USA. eadjei1@hfhs.org.

PURPOSE: This study examines providers' and clinic staff's perspectives on patient-reported outcomes (PROs) implementation at an academic medical center. METHODS: An anonymous and voluntary survey was administered to Henry Ford Cancer providers and clinic staff 18 months after PROs program implementation in September 2020, to obtain their feedback on perceived barriers, impact on workflows, and PROs administration frequency in routine cancer care. RESULTS: A total of 180 providers and 40 clinic staff were invited to complete the survey; 31% and 63% completed the survey, respectively. Approximately 68% of providers reported that electronically integrated PROs scores were either beneficial or somewhat beneficial to their patients, while only 28% of the clinic staff reported that PROs were beneficial or somewhat beneficial to patients. According to the clinic staff, the most common barriers to PROs completion included lack of patients' awareness of the utility of the program with respect to their care, patients' health status at check-in, and PROs being offered too frequently. CONCLUSION: There is favorable acceptance of the PROs program by providers, but clinic staff found it less favorable. Interventions to address barriers and improve program engagement are needed to ensure broad adoption of PROs in oncology practice.

Public Health Sciences

Boyd ED, **Zhang L**, **Ding G**, **Li L**, **Lu M**, **Li Q**, **Huang R**, **Kaur J**, Hu J, **Chopp M**, **Zhang Z**, and **Jiang Q**. The Glymphatic Response to the Development of Type 2 Diabetes. *Biomedicines* 2024; 12(2). PMID: 38398003. Full Text

Department of Neurology, Henry Ford Health System, E&R B126, 2799 West Grand Boulevard, Detroit, MI 48202, USA.
Department of Radiology, Michigan State University, East Lansing, MI 48824, USA.
Department of Public Health Sciences, Henry Ford Health System, Detroit, MI 48202, USA.
Department of Physics, Oakland University, Rochester, MI 48309, USA.
Department of Radiology, Wayne State University, Detroit, MI 48202, USA.
Department of Neurology, Wayne State University, Detroit, MI 28202, USA.

The glymphatic system has recently been shown to be important in neurological diseases, including diabetes. However, little is known about how the progressive onset of diabetes affects the glymphatic system. The aim of this study is to investigate the glymphatic system response to the progressive onset of diabetes in a rat model of type 2 diabetic mellitus. Male Wistar rats (n = 45) with and without diabetes were evaluated using MRI glymphatic tracer kinetics, functional tests, and brain tissue immunohistochemistry. Our data demonstrated that the contrast agent clearance impairment gradually progressed with the diabetic duration. The MRI data showed that an impairment in contrast clearance occurred prior to the cognitive deficits detected using functional tests and permitted the detection of an early DM stage compared to the immuno-histopathology and cognitive tests. Additionally, the quantitative MRI markers of brain waste clearance demonstrated region-dependent sensitivity in glymphatic impairment. The improved sensitivity of MRI markers in the olfactory bulb and the whole brain at an early DM stage may be attributed to the important role of the olfactory bulb in the parenchymal efflux pathway. MRI can provide sensitive quantitative markers of glymphatic impairment during the progression of DM and can be used as a valuable tool for the early diagnosis of DM with a potential for clinical application.

Public Health Sciences

Chiarelli G, **Davis M**, **Stephens A**, **Cirulli GO**, **Finati M**, **Corsi NJ**, Sood A, **Tinsley S**, Carrieri G, Briganti A, Montorsi F, Lughezzani G, Buffi N, **Rogers C**, and **Abdollah F**. Comparison of patient background between a real-world North American cohort and the Göteborg-2 trial. *Int J Urol* 2024; Epub ahead of print. PMID: 38334296. Full Text

VUI Center for Outcomes Research, Analysis, and Evaluation, Henry Ford Health System, Detroit, Michigan, USA.
Department of Urology, IRCCS Humanitas Research Hospital, Humanitas University, Milan, Italy.
Public Health Sciences, Henry Ford Health System, Detroit, Michigan, USA.
Division of Oncology, Unit of Urology, IRCCS Ospedale San Raffaele, Vita-Salute San Raffaele University, Milan, Italy.
Department of Urology and Renal Transplantation, University of Foggia, Foggia, Italy.
MD Anderson, Houston, Texas, USA.

OBJECTIVES: To analyze the generalizability of the Göteborg-2 findings to a North American cohort. METHODS: We replicated the Göteborg-2 inclusion criteria in our Henry Ford Health (HFH) cohort, by identifying all patients 50-60 years old who had a PSA test from 2013 to 2018. The first PSA within the study period was considered PSA at entry, and included in the analysis. Chi-square test was used to compare categorical variables between the Göteborg-2 and HFH cohort, with a particular focus on Black men, who were also analyzed separately. RESULTS: The HFH patients included in the cohort were 49 456, of which 8562 were Black. In patients within the entire HFH cohort, HFH Black cohort, Göteborg Reference cohort, and Göteborg Experimental cohort, the rate of PSA ≥3 ng/mL was, respectively, 6.8%, 10.2%, 6.8%, and 6.6%. The rate of biopsy performed was, respectively, 1.8%, 4.1%, 5.8%, and 2.5%. PCa was found in, respectively, 1.4%, 3.0%, 2.3%, and 1.5%; Gleason score 3 + 3 in, respectively, 0.5%, 0.8%, 1.2%, and 0.6%; Gleason score > 3 + 3 in, respectively, 0.9%, 2.2%, 1.1%, and 0.9%. CONCLUSIONS: Our cohort had a lower biopsy rate and a lower incidence of non-csPCa diagnosis than both Göteborg cohorts, while still maintaining the same incidence of csPCa. This implies that the benefits of reducing non-csPCa diagnosis, as observed in the Experimental Göteborg cohort, are not necessarily replicable in U.S. "real-world practice" patients. Also noteworthy, we had a significantly higher percentage of Black men, who showed more aggressive disease.

Public Health Sciences

Cho J, Allore H, Rahimighazikalayeh G, and **Vaughn I**. Multimorbidity Patterns, Hospital Uses and Mortality by Race and Ethnicity Among Oldest-Old Patients. *J Racial Ethn Health Disparities* 2024; Epub ahead of print. PMID: 38381325. Request Article

Department of Family and Community Medicine, Saint Louis University School of Medicine, 1008 S. Spring SLUCare Academic Pavilion 3rd Floor, 63110, St. Louis, MO, USA. jinmyoung.cho@health.slu.edu.
Baylor Scott & White Research Institute, Temple, TX, USA. jinmyoung.cho@health.slu.edu.
Department of Biostatistics, School of Public Health, Yale University, New Haven, CT, USA.
Section of Geriatrics, Department of Internal Medicine, School of Medicine, Yale University, New Haven, CT, USA.
Baylor Scott & White Research Institute, Temple, TX, USA.
Henry Ford Health + Michigan State University Health Science, Detroit, MI, USA.
Department of Public Health Sciences , Henry Ford Health , Detroit, MI, USA.
Department of Epidemiology and Biostatistics, College of Human Medicine, Michigan State University, East Lansing, MI, USA.

BACKGROUNDS: Adults aged 85 years and older ("oldest-old") are perceived as survivors resilient to age-related risk factors. Although considerable heterogeneity has been often observed in this population, less is known about the unmet needs in health and healthcare service utilization for diverse patients in healthcare systems. We examined racial-ethnic variation in patterns of multimorbidity associated with emergency department (ED), clinic visits, and mortality among the oldest-old patients with multimorbidity. METHODS: Administrative and clinical data from an integrated healthcare system for five years included

25,801 oldest-old patients with two or more chronic conditions. Hierarchical cluster analysis identified patterns of multimorbidity by four racial-ethnic groups (White, Black, Hispanic, & Other). Clusters associated with ED and clinic visits, and mortality were analyzed using generalized estimation equations and proportional hazards survival model, respectively. RESULTS: Hypothyroidism, Alzheimer's disease and related dementia, bone & joint conditions, metabolism syndrome, and pulmonary-vascular clusters were commonly observed across the groups. While most clusters were significantly associated with ED and clinic visits among White patients, bone & joint conditions cluster was the most significantly associated with ED and clinic visits among Black (RR = 1.32, p <.01 for ED; RR = 1.67, p <.0001 for clinic) and Hispanic patients (RR = 1.36, p <.0001 for ED; RR = 1.39, p <.0001 for clinic). Similar patterns were observed in the relationship between multimorbidity clusters and mortality. CONCLUSIONS: Patterns of multimorbidity and its significant association with the uses of ambulatory and emergency care varied by race-ethnicity. More studies are needed to explore barriers when minoritized patients are faced with the use of hospital services.

Public Health Sciences

Harmon QE, Patchel S, Denslow S, **Wegienka G**, and Baird DD. Body Mass Index and Uterine Fibroid Development: A Prospective Study. *J Clin Endocrinol Metab* 2024; Epub ahead of print. PMID: 38298165. Full Text

National Institute of Environmental Health Sciences, Epidemiology Branch, Durham, NC, United States.
Westat, Public Health Practice, Durham, NC, United States.
Social & Scientific Systems Inc., a DLH holdings company, Durham, NC, United States.
Henry Ford Health, Department of Public Health Sciences, Detroit, MI, United States.

OBJECTIVE: Fibroids are hormonally dependent uterine tumors. The literature on adiposity and fibroid prevalence is inconsistent. Previous work usually combined all those with body mass indexes (BMIs) ≥30kg/m2 into a single category and relied on clinically diagnosed fibroids which misclassifies the many women with undiagnosed fibroids. We used a prospective cohort design with periodic ultrasound screening to investigate associations between repeated measures of BMI and fibroid incidence and growth assessed at each follow-up ultrasound. METHODS: The Study of Environment, Lifestyle & Fibroids (SELF) followed 1,693 Black/African American women, ages 23-35 from Detroit, Michigan with ultrasound every 20 months for 5 years. Measured height and repeated weight measures were used to calculate BMI. Fibroid incidence was modeled using Cox models among those who were fibroid-free at the enrollment ultrasound. Fibroid growth was estimated for individual fibroids matched across visits as the difference in log-volume between visits and was modeled using linear mixed models. All models used time-varying BMI and adjusted for time-varying covariates. RESULTS: Compared to BMI <25kg/m2 those with BMI 30-<35kg/m2 had increased fibroid incidence (adjusted hazard ratio (aHR) 1.37, (95% Confidence Interval (CI): 0.96-1.94)), those with BMI ≥40kg/m2 had reduced incidence (aHR 0.61, (95% CI: 0.41-0.90)). Fibroid growth had mostly small magnitude associations with BMI. CONCLUSION: BMI has a non-linear association with fibroid incidence that could be driven by effects of BMI on inflammation and reproductive hormones. More detailed measures of visceral and subcutaneous adiposity and their effects on hormones, DNA damage, and cell death are needed.

Public Health Sciences

Miyake K, **Chau LC**, **Trudeau S**, **Kitajima T**, **Wickramaratne N**, **Shimada S**, **Nassar A**, **Gonzalez HC**, **Venkat D**, **Moonka D**, **Yoshida A**, **Abouljoud MS**, and **Nagai S**. Improved Waitlist Outcomes in Liver Transplant Patients With Mid-MELD-Na Scores Listed in Centers Receptive to Use of Organs Donated After Circulatory Death. *Transplantation* 2024; Epub ahead of print. PMID: 38409687. Full Text

Division of Transplant and Hepatobiliary Surgery, Henry Ford Health, Detroit, MI.
Department of Public Health Sciences, Henry Ford Health, Detroit, MI.
Division of Gastroenterology and Hepatology, Henry Ford Health, Detroit, MI.

BACKGROUND: Liver transplant (LT) using organs donated after circulatory death (DCD) has been increasing in the United States. We investigated whether transplant centers' receptiveness to use of DCD organs impacted patient outcomes. METHODS: Transplant centers were classified as very receptive

(group 1), receptive (2), or less receptive (3) based on the DCD acceptance rate and DCD transplant percentage. Using organ procurement and transplantation network/UNOS registry data for 20 435 patients listed for LT from January 2020 to June 2022, we compared rates of 1-y transplant probability and waitlist mortality between groups, broken down by model for end-stage liver disease-sodium (MELD-Na) categories. RESULTS: In adjusted analyses, patients in group 1 centers with MELD-Na scores 6 to 29 were significantly more likely to undergo transplant than those in group 3 (aHR range 1.51-2.11, $P < 0.001$). Results were similar in comparisons between groups 1 and 2 (aHR range 1.41-1.81, $P < 0.001$) and between groups 2 and 3 with MELD-Na 15-24 (aHR 1.19-1.20, $P < 0.007$). Likewise, patients with MELD-Na score 20 to 29 in group 1 centers had lower waitlist mortality than those in group 3 (scores, 20-24: aHR, 0.71, $P = 0.03$; score, 25-29: aHR, 0.51, $P < 0.001$); those in group 1 also had lower waitlist mortality compared with group 2 (scores 20-24: aHR0.69, $P = 0.02$; scores 25-29: aHR 0.63, $P = 0.03$). One-year posttransplant survival of DCD LT patients did not vary significantly compared with donation after brain dead. CONCLUSIONS: We conclude that transplant centers' use of DCD livers can improve waitlist outcomes, particularly among mid-MELD-Na patients.

Public Health Sciences

Oken E, Musci RJ, Westlake M, Gachigi K, Aschner JL, Barnes KL, Bastain TM, Buss C, Camargo CA, Jr., Cordero JF, Dabelea D, Dunlop AL, Ghassabian A, Hipwell AE, Hockett CW, Karagas MR, Lugo-Candelas C, Margolis AE, O'Connor TG, Shuster CL, **Straughen JK**, and Lyall K. Demographic and health characteristics associated with fish and n-3 fatty acid supplement intake during pregnancy: results from pregnancy cohorts in the ECHO program. *Public Health Nutr* 2024; 1-20. Epub ahead of print. PMID: 38410088. Full Text

Division of Chronic Disease research across the Lifecourse, Department of Population Medicine, Harvard Medical School and Harvard Pilgrim Health Care Institute, Boston, Massachusetts, USA.
Department of Mental Health, Johns Hopkins Bloomberg School of Public Health, Baltimore, Maryland, USA.
RTI International, Raleigh, North Carolina, USA.
Johns Hopkins Bloomberg School of Public Health, Baltimore, Maryland, USA.
Department of Pediatrics, Joseph M. Sanzari Children's Hospital, Hackensack Meridian School of Medicine, Nutley, New Jersey, USA.
Albert Einstein College of Medicine, Bronx, New York, USA.
Marshfield Clinic Research Institute, Marshfield, Wisconsin, USA.
Department of Population and Public Health Sciences, University of Southern California, Los Angeles, California, USA.
Department of Medical Psychology, Charité University of Medicine Berlin, Berlin, Germany.
Development, Health, Disease Research Program, University of California Irvine, Irvine, California, USA.
Department of Emergency Medicine, Massachusetts General Hospital, Harvard Medical School, Boston, Massachusetts, USA.
Department of Epidemiology and Biostatistics, College of Public Health, University of Georgia, Athens, Georgia, USA.
Lifecourse Epidemiology of Adiposity and Diabetes (LEAD) Center, University of Colorado Anschutz Medical Campus, Aurora, Colorado, USA.
Department of Gynecology & Obstetrics, Emory University School of Medicine, Atlanta, Georgia, USA.
Department of Pediatrics, New York University Grossman School of Medicine, New York, New York, USA.
Department of Psychiatry, University of Pittsburgh, Pittsburgh, PA, USA.
Avera Research Institute, Sioux Falls, South Dakota, USA.
Department of Epidemiology, Geisel School of Medicine at Dartmouth, Lebanon, New Hampshire, USA.
New York State Psychiatric Institute, New York, New York, USA.
Columbia University Irving Medical center, New York, New York, USA.
Departments of Psychiatry, Psychology, Neuroscience, Obstetrics and Gynecology, University of Rochester, Rochester, New York, USA.
Brown Center for the Study of Children at Risk, Women and Infants Hospital, Providence, Rhode Island, USA.
Department of Public Health Sciences, Henry Ford Health System, Detroit, Michigan, USA.

AJ Drexel Autism Institute, Philadelphia, Pennsylvania, USA.

OBJECTIVE: Omega-3 (n-3) fatty acid consumption during pregnancy is recommended for optimal pregnancy outcomes and offspring health. We examined characteristics associated with self-reported fish or omega-3 supplement intake. DESIGN: Pooled pregnancy cohort studies. SETTING: Cohorts participating in the Environmental influences on Child Health Outcomes (ECHO) consortium with births from 1999-2020. PARTICIPANTS: A total of 10,800 pregnant women in 23 cohorts with food frequency data on fish consumption; 12,646 from 35 cohorts with information on supplement use. RESULTS: Overall, 24.6% reported consuming fish never or less than once per month, 40.1% less than once a week, 22.1% 1-2 times per week, and 13.2% more than twice per week. The relative risk (RR) of ever (vs. never) consuming fish was higher in participants who were older (1.14, 95% CI: 1.10, 1.18 for 35-40 vs. <29 years), were other than non-Hispanic White (1.13, 95% CI: 1.08, 1.18 for non-Hispanic Black; 1.05, 95% CI: 1.01, 1.10 for non-Hispanic Asian; 1.06, 95% CI: 1.02, 1.10 for Hispanic), or used tobacco (1.04, 95% CI: 1.01, 1.08). The RR was lower in those with overweight vs. healthy weight (0.97, 95% CI: 0.95, 1.0). Only 16.2% reported omega-3 supplement use, which was more common among individuals with a higher age and education, a lower BMI, and fish consumption (RR 1.5, 95% CI: 1.23, 1.82 for twice-weekly vs. never). CONCLUSIONS: One-quarter of participants in this large nationwide dataset rarely or never consumed fish during pregnancy, and omega-3 supplement use was uncommon, even among those who did not consume fish.

Public Health Sciences

Santarossa S, **Redding A**, **Connell M**, **Kao K**, **Susick L**, and Kerver JM. Exploring preliminary dietary intake results using a novel dietary assessment tool with pregnant participants enrolled in a birth cohort. *BMC Res Notes* 2024; 17(1):42. PMID: 38303032. Full Text

Department of Public Health Sciences, Henry Ford Health, 1 Ford Place, Detroit, MI, USA. ssantar1@hfhs.org.
Department of Obstetrics, Gynecology and Reproductive Biology, College of Human Medicine, Michigan State University, East Lansing, MI, USA. ssantar1@hfhs.org.
Department of Public Health Sciences, Henry Ford Health, 1 Ford Place, Detroit, MI, USA.
Department of Pediatrics and Human Development, College of Human Medicine, Michigan State University, East Lansing, MI, USA.
Epidemiology and Biostatistics, Michigan State University, East Lansing, MI, USA.

OBJECTIVE: We aimed to describe preliminary dietary intake results using DietID(™) for dietary assessment during pregnancy. A sub-sample of participants in the Research Enterprise to Advance Children's Health (REACH) prospective birth cohort from Detroit, MI received a unique web link to complete the DietID(™) assessment multiple times during pregnancy. We present results for the first dietary assessment completed during pregnancy by each participant. DietID(™) uses an image-based algorithm to estimate nutrient intake, dietary patterns, and diet quality and provides immediate results to participants. Descriptive statistics were used to summarize participant characteristics, nutrient intakes, dietary patterns, diet quality, and participant-rated accuracy of individual dietary assessment results. Differences in diet parameters were assessed by participant race with an independent t-test. RESULTS: Participants (n = 84) identified as majority Black (n = 47; 56%), reflective of the source population. Mean (SD) maternal age and gestational age at dietary assessment were 32 (5.6) years and 14.3 (4.8) weeks, respectively. Mean dietary quality, as reported in the DietID(™) data output as the Healthy Eating Index (HEI), was 68 (range 12-98; higher scores indicate higher diet quality) and varied significantly between Black (mean [SD] 61 [23]) and White (mean [SD] 81 [19]) race ($p < 0.01$). Mean participant-rated accuracy of individual dietary assessment results was high at 87% on a scale of 0-100% ("not quite right" to "perfect"; range 47-100%).

Public Health Sciences

Schildroth S, Bethea TN, Wesselink AK, Friedman A, Fruh V, Calafat AM, **Wegienka G**, Gaston S, Baird DD, Wise LA, and Claus Henn B. Personal Care Products, Socioeconomic Status, and Endocrine-Disrupting Chemical Mixtures in Black Women. *Environ Sci Technol* 2024; 58(8):3641-3653. PMID: 38347750. Request Article

Department of Epidemiology, Boston University School of Public Health, Boston, Massachussetts 02118, United States.
Office of Minority Health & Health Disparities Research, Georgetown Lombardi Comprehensive Cancer Center, Washington D. C. 20007, United States.
National Institute of Environmental Health Sciences, Durham, North Carolina 27709, United States.
Department of Environmental Health, Boston University School of Public Health, Boston, Massachusetts 02118, United States.
Division of Laboratory Sciences, Centers for Disease Control and Prevention, Atlanta, Georgia 30333, United States.
Henry Ford Health System, Detroit, Michigan 48202, United States.

Personal care products (PCPs) are sources of exposure to endocrine-disrupting chemicals (EDCs) among women, and socioeconomic status (SES) may influence these exposures. Black women have inequitable exposure to EDCs from PCP use, but no study has investigated how exposure to EDCs through PCPs may vary by SES, independent of race. Using data from the Study of Environment, Lifestyle, and Fibroids, a cohort of reproductive-aged Black women (n = 751), we quantified associations between PCPs and urinary biomarker concentrations of EDC mixtures (i.e., phthalates, phenols, parabens) within SES groups, defined using k-modes clustering based on education, income, marital status, and employment. Information about PCP use and SES was collected through questionnaires and interviews. We used principal component analysis to characterize the EDC mixture profiles. Stratified linear regression models were fit to assess associations between PCP use and EDC mixture profiles, quantified as mean differences in PC scores, by SES group. Associations between PCP use and EDC mixture profiles varied by SES group; e.g., vaginal powder use was associated with a mixture of phenols among lower SES women, whereas this association was null for higher SES women. Findings suggest that SES influences PCP EDC exposure in Black women, which has implications for public health interventions.

Public Health Sciences

Zanobetti A, Ryan PH, Coull BA, Luttmann-Gibson H, Datta S, Blossom J, Brokamp C, Lothrop N, Miller RL, Beamer PI, Visness CM, Andrews H, Bacharier LB, Hartert T, **Johnson CC**, Ownby DR, Khurana Hershey GK, **Joseph CLM**, Mendonça EA, Jackson DJ, **Zoratti EM**, Wright AL, Martinez FD, Seroogy CM, Ramratnam SK, Calatroni A, Gern JE, and Gold DR. Early-Life Exposure to Air Pollution and Childhood Asthma Cumulative Incidence in the ECHO CREW Consortium. *JAMA Netw Open* 2024; 7(2):e240535. PMID: 38416497. Full Text

Department of Environmental Health, Harvard T.H. Chan School of Public Health, Boston, Massachusetts.
Department of Pediatrics, University of Cincinnati, College of Medicine, Cincinnati, Ohio.
Division of Biostatistics and Epidemiology, Cincinnati Children's Hospital Medical Center, Cincinnati, Ohio.
Department of Biostatistics, Harvard T.H. Chan School of Public Health, Boston, Massachusetts.
Channing Division of Network Medicine, Brigham and Women's Hospital and Harvard Medical School, Boston, Massachusetts.
Center for Geographic Analysis, Harvard University, Cambridge, Massachusetts.
Asthma and Airways Disease Research Center, University of Arizona, Tucson.
Department of Community, Environment, and Policy, Mel and Enid Zuckerman College of Public Health, University of Arizona, Tucson.
Division of Clinical Immunology, Icahn School of Medicine at Mount Sinai, New York, New York.
Rho Inc, Federal Research Operations, Durham, North Carolina.
Department of Biostatistics, Mailman School of Public Health, Columbia University, New York, New York.
Monroe Carell Jr Children's Hospital at Vanderbilt, Division of Pediatric Allergy, Immunology, and Pulmonary Medicine, Nashville, Tennessee.
Vanderbilt University School of Medicine, Division of Allergy, Pulmonary, and Critical Care Medicine, Nashville, Tennessee.
Department of Public Health Sciences, Henry Ford Health, Detroit, Michigan.

Division of Allergy and Immunology, Augusta University, Augusta, Georgia.
Cincinnati Children's Hospital, Division of Asthma Research, Cincinnati, Ohio.
Department of Pediatrics, Indiana University, Indianapolis.
Department of Pediatrics, University of Wisconsin School of Medicine and Public Health, Madison.
Department of Medicine, Henry Ford Health, Detroit, Michigan.
Division of Pulmonary and Sleep Medicine, Department of Pediatrics, College of Medicine, University of Arizona, Tucson.

IMPORTANCE: Exposure to outdoor air pollution contributes to childhood asthma development, but many studies lack the geographic, racial and ethnic, and socioeconomic diversity to evaluate susceptibility by individual-level and community-level contextual factors. OBJECTIVE: To examine early life exposure to fine particulate matter (PM2.5) and nitrogen oxide (NO2) air pollution and asthma risk by early and middle childhood, and whether individual and community-level characteristics modify associations between air pollution exposure and asthma. DESIGN, SETTING, AND PARTICIPANTS: This cohort study included children enrolled in cohorts participating in the Children's Respiratory and Environmental Workgroup consortium. The birth cohorts were located throughout the US, recruited between 1987 and 2007, and followed up through age 11 years. The survival analysis was adjusted for mother's education, parental asthma, smoking during pregnancy, child's race and ethnicity, sex, neighborhood characteristics, and cohort. Statistical analysis was performed from February 2022 to December 2023. EXPOSURE: Early-life exposures to PM2.5 and NO2 according to participants' birth address. MAIN OUTCOMES AND MEASURES: Caregiver report of physician-diagnosed asthma through early (age 4 years) and middle (age 11 years) childhood. RESULTS: Among 5279 children included, 1659 (31.4%) were Black, 835 (15.8%) were Hispanic, 2555 (48.4%) where White, and 229 (4.3%) were other race or ethnicity; 2721 (51.5%) were male and 2596 (49.2%) were female; 1305 children (24.7%) had asthma by 11 years of age and 954 (18.1%) had asthma by 4 years of age. Mean values of pollutants over the first 3 years of life were associated with asthma incidence. A 1 IQR increase in NO2 (6.1 μg/m3) was associated with increased asthma incidence among children younger than 5 years (HR, 1.25 [95% CI, 1.03-1.52]) and children younger than 11 years (HR, 1.22 [95% CI, 1.04-1.44]). A 1 IQR increase in PM2.5 (3.4 μg/m3) was associated with increased asthma incidence among children younger than 5 years (HR, 1.31 [95% CI, 1.04-1.66]) and children younger than 11 years (OR, 1.23 [95% CI, 1.01-1.50]). Associations of PM2.5 or NO2 with asthma were increased when mothers had less than a high school diploma, among Black children, in communities with fewer child opportunities, and in census tracts with higher percentage Black population and population density; for example, there was a significantly higher association between PM2.5 and asthma incidence by younger than 5 years of age in Black children (HR, 1.60 [95% CI, 1.15-2.22]) compared with White children (HR, 1.17 [95% CI, 0.90-1.52]). CONCLUSIONS AND RELEVANCE: In this cohort study, early life air pollution was associated with increased asthma incidence by early and middle childhood, with higher risk among minoritized families living in urban communities characterized by fewer opportunities and resources and multiple environmental coexposures. Reducing asthma risk in the US requires air pollution regulation and reduction combined with greater environmental, educational, and health equity at the community level.

Public Health Sciences

Zephyrin L, Ayo-Vaughan M, **Bossick A**, Noroña-Zhou A, Higginbotham E, Richardson M, Rodriguez H, and Bryant A. Stakeholders' Viewpoints on Working to Advance Health Equity. *Health Equity* 2024; 8(1):14-25. PMID: 38304261. Full Text

Senior Vice President, Advancing Health Equity, The Commonwealth Fund, New York, New York, USA.
Program Officer, Advancing Health Equity, The Commonwealth Fund, New York, New York, USA.
Assistant Scientist, Henry Ford Health, Detroit, Michigan, USA.
Assistant Director of Developmental Medicine, University of California, San Francisco, California, USA.
Vice Dean for Inclusion, Diversity, and Equity, University of Pennsylvania Perelman School of Medicine, Philadelphia, Pennsylvania, USA.
Visiting Assistant Professor, University of Alabama at Birmingham School of Public Health, Birmingham, Alabama, USA.
Kaiser Permanente Endowed Professor of Health Policy and Management, University of California, Berkeley, School of Public Health, Berkeley, California, USA.

Maternal-Fetal Medicine Specialist, Associate Chief Health Equity Officer, Massachusetts General Hospital, Boston, Massachusetts, USA.

Public Health Sciences

Zhang Q, Zhu S, Grady SC, **Wang A**, **Hutchings H**, Cox J, **Popoff A**, and **Okereke I**. Spatial and spatio-temporal clusters of lung cancer incidence by stage of disease in Michigan, United States 1985-2018. *Geospat Health* 2024; 19(1). PMID: 38357855. Full Text

Department of Public Health Sciences, Henry Ford Health, Detroit, Michigan. qzhang2@hfhs.org.
Department of Geography, Environment and Spatial Sciences, Michigan State University, East Lansing, Michigan. zhushang@msu.edu.
Department of Geography, Environment and Spatial Sciences, Michigan State University, East Lansing, Michigan. gradys@msu.edu.
Department of Public Health Sciences, Henry Ford Health, Detroit, Michigan. awang7@hfhs.org.
Department of Surgery, Henry Ford Health, Detroit, Michigan. hjohans1@hfhs.org.
School of Medicine, University of Texas Medical Branch, Galveston, Texas. jrcox@utmb.edu.
Department of Surgery, Henry Ford Health, Detroit, Michigan. apopoff2@hfhs.org.
Department of Surgery, Henry Ford Health, Detroit, Michigan. iokerek1@hfhs.org.

Lung cancer is the most common cause of cancer-related death in Michigan. Most patients are diagnosed at advanced stages of the disease. There is a need to detect clusters of lung cancer incidence over time, to generate new hypotheses about causation and identify high-risk areas for screening and treatment. The Michigan Cancer Surveillance database of individual lung cancer cases, 1985 to 2018 was used for this study. Spatial and spatiotemporal clusters of lung cancer and level of disease (localized, regional and distant) were detected using discrete Poisson spatial scan statistics at the zip code level over the study time period. The approach detected cancer clusters in cities such as Battle Creek, Sterling Heights and St. Clair County that occurred prior to year 2000 but not afterwards. In the northern area of the lower peninsula and the upper peninsula clusters of late-stage lung cancer emerged after year 2000. In Otter Lake Township and southwest Detroit, late-stage lung cancer clusters persisted. Public and patient education about lung cancer screening programs must remain a health priority in order to optimize lung cancer surveillance. Interventions should also involve programs such as telemedicine to reduce advanced stage disease in remote areas. In cities such as Detroit, residents often live near industry that emits air pollutants. Future research should therefore, continue to focus on the geography of lung cancer to uncover place-based risks and in response, the need for screening and health care services.

Pulmonary and Critical Care Medicine

Mhanna A, Beran A, **Srour O**, Mhanna M, Assaly A, Elsayed A, Horen NG, and Assaly R. Balanced crystalloids versus isotonic saline in pediatric sepsis: a comprehensive systematic review and meta-analysis. *Proc (Bayl Univ Med Cent)* 2024; 37(2):295-302. PMID: 38343480. Full Text

Department of Pediatrics, Carver College of Medicine, University of Iowa, Iowa City, Iowa, USA.
Department of Gastroenterology, Indiana University, Indianapolis, Indiana, USA.
Department of Pulmonary and Critical Care Medicine, Henry Ford Health System, Detroit, Michigan, USA.
Department of Cardiology, University of Iowa, Iowa City, Iowa, USA.
Department of Pediatrics, University of Toledo, Toledo, Ohio, USA.
Department of Internal Medicine, University of Toledo, Toledo, Ohio, USA.
Department of Pulmonary and Critical Care Medicine, University of Toledo, Toledo, Ohio, USA.

PURPOSE: We conducted a comprehensive meta-analysis to compare the effects of balanced crystalloids (BC) and isotonic saline (IS) in pediatric sepsis. METHODS: A systematic search was performed for studies comparing BC and IS in pediatric sepsis. Outcomes included mortality, acute kidney injury (AKI), need for renal replacement therapy (RRT), hospital length of stay (LOS), and pediatric intensive care unit (PICU) LOS. A random-effect models was used to calculated pooled odds ratios (OR) and mean differences (MD) with 95% confidence intervals (CIs). RESULTS: The analysis included six studies with 8753 children. BC demonstrated significant reductions in overall mortality (OR 0.84, 95% CI 0.71 to 0.98, P = 0.03, I(2) = 0%) and AKI (OR 0.74, 95% CI 0.57 to 0.96, P = 0.03, I(2) = 37%) compared

to IS. RRT need was similar between the BC and IS groups (OR 0.79, 95% CI 0.60 to 1.02, P = 0.07, I(2) = 0%). Hospital and PICU LOS did not differ significantly. However, subgroup analysis of randomized controlled trials revealed significantly shorter hospital LOS in the BC group (mean difference -0.66 days, 95% CI -1.10 to -0.23, P = 0.003, I(2) = 0%). CONCLUSION: Our meta-analysis demonstrates that using BC in pediatric sepsis is associated with reduced mortality, AKI, and hyperchloremia rates compared to IS, while maintaining similar hospital and PICU LOS. Large-scale randomized controlled trials are needed to validate these findings.

Radiation Oncology

Al-Antary N, Hirko KA, **Elsiss F**, **Zatirka T**, **Ryan M**, **Movsas B**, **Chang SS**, **Adjei Boakye E**, and **Tam SH**. Clinic-based perspectives on the integration of patient-reported outcomes (PROs) in a tertiary cancer center. *Support Care Cancer* 2024; 32(3):148. PMID: 38326573. Full Text

Department of Public Health Sciences, Henry Ford Health, One Ford Place, Detroit, MI, 48202, USA.
Department of Epidemiology and Biostatistics, College of Human Medicine, Michigan State University, East Lansing, MI, USA.
Center for Health Policy & Health Services Research, Henry Ford Health, Detroit, MI, USA.
Henry Ford Cancer, Henry Ford Health, Detroit, MI, USA.
Department of Radiation Oncology, Henry Ford Health, Detroit, MI, USA.
Department of Otolaryngology - Head and Neck Surgery, Henry Ford Health, Detroit, MI, USA.
Department of Public Health Sciences, Henry Ford Health, One Ford Place, Detroit, MI, 48202, USA. eadjei1@hfhs.org.
Department of Epidemiology and Biostatistics, College of Human Medicine, Michigan State University, East Lansing, MI, USA. eadjei1@hfhs.org.
Department of Otolaryngology - Head and Neck Surgery, Henry Ford Health, Detroit, MI, USA. eadjei1@hfhs.org.

PURPOSE: This study examines providers' and clinic staff's perspectives on patient-reported outcomes (PROs) implementation at an academic medical center. METHODS: An anonymous and voluntary survey was administered to Henry Ford Cancer providers and clinic staff 18 months after PROs program implementation in September 2020, to obtain their feedback on perceived barriers, impact on workflows, and PROs administration frequency in routine cancer care. RESULTS: A total of 180 providers and 40 clinic staff were invited to complete the survey; 31% and 63% completed the survey, respectively. Approximately 68% of providers reported that electronically integrated PROs scores were either beneficial or somewhat beneficial to their patients, while only 28% of the clinic staff reported that PROs were beneficial or somewhat beneficial to patients. According to the clinic staff, the most common barriers to PROs completion included lack of patients' awareness of the utility of the program with respect to their care, patients' health status at check-in, and PROs being offered too frequently. CONCLUSION: There is favorable acceptance of the PROs program by providers, but clinic staff found it less favorable. Interventions to address barriers and improve program engagement are needed to ensure broad adoption of PROs in oncology practice.

Radiation Oncology

Beydoun H, Griffith KA, Jagsi R, Burmeister JW, Moran JM, Vicini FA, Hayman JA, Paximadis P, Boike TP, **Walker EM**, Pierce LJ, and Dominello MM. Are We Missing Acute Toxicities Associated with Hypofractionated Breast Irradiation? A Report from a Large Multi-Center Cohort Study. *Int J Radiat Oncol Biol Phys* 2024; Epub ahead of print. PMID: 38364950. Full Text

Department of Radiation Oncology, Barbara Ann Karmanos Cancer Institute, Wayne State University School of Medicine, Detroit, MI.
Department of Biostatistics, University of Michigan, Ann Arbor, MI.
Department of Radiation Oncology, University of Michigan, Ann Arbor, MI.
Michigan Health Professionals, Farmington Hills, MI.
Department of Radiation Oncology, Corewell Health South St. Joseph, MI.
Henry Ford Health System, Detroit, MI.

PURPOSE/OBJECTIVE(S): The efficacy and long-term safety of hypofractionated whole breast irradiation (HF-WBI) has been established through multiple randomized trials, yet data about acute toxicities remains more limited. Since 2013, our group has prospectively collected acute toxicity data from weekly treatment evaluations and additional assessment after completion. In 2016, we intentionally shifted the post-treatment assessment follow-up (f/u) visit from 1 month to 2 weeks in order to evaluate for missed acute toxicity occurring in that immediate post-treatment window. Here we report whether 2-wk f/u has resulted in increased detection of acute toxicities as compared with 4-wk f/u. MATERIALS/METHODS: We prospectively compared acute toxicity for patients treated with HF-WBI between 1/1/2013 and 8/31/2015 ("4 wk f/u cohort") to patients treated between 1/1/2016 - 8/31/2018 ("2 wk f/u cohort"). Analyses included a multivariable model that adjusted for other factors known to correlate with toxicity. We prospectively defined acute toxicity as maximum breast pain (moderate or severe rating) and/or occurrence of moist desquamation reported 7 days prior to the completion of RT until 42 days following completion. RESULTS: 2689 patients who received post-lumpectomy radiation and boost were analyzed, 1862 patients in the 2-wk f/u cohort and 827 in the 4-wk f/u cohort. All acute toxicity measures assessed were statistically similar between follow-up cohorts when compared in an unadjusted fashion. Overall acute composite toxicity was 26.4% and 27.7% for patients during the 4-week follow-up and 2-week follow-up cohorts, respectively. Overall acute composite toxicity remained similar between follow-up cohorts in a multivariable, adjusted model and was significantly related to patient's age, BMI, smoking status, and with treatment technique (IMRT vs 3D-CRT) but not follow-up cohort. CONCLUSION: An earlier post-treatment follow-up for HF-WBI patients did not reveal a significant increased incidence of acute toxicities at 2 weeks compared to 4 weeks. This study provides physicians and patients with additional data on the safety and tolerability of HF-WBI for early stage breast cancer.

Radiation Oncology

Mann T, Ploquin N, Faruqi S, Loewen S, and **Thind K**. Stereotactic Optimized Automated Radiotherapy (SOAR): a novel automated planning solution for multi-metastatic SRS compared to HyperArc™. *Biomed Phys Eng Express* 2024; 10(2). PMID: 38364285. Full Text

Department of Physics and Astronomy, University of Calgary, AB, Canada.
Division of Medical Physics, Department of Oncology, Tom Baker Cancer Centre, University of Calgary, AB, Canada.
Division of Radiation Oncology, Department of Oncology, Tom Baker Cancer Centre, University of Calgary, Alberta, Canada.
Department of Medical Physics, Henry Ford Health Systems, Detroit, MI, United States of America.

Objective.Automated Stereotactic Radiosurgery (SRS) planning solutions improve clinical efficiency and reduce treatment plan variability. Available commercial solutions employ a template-based strategy that may not be optimal for all SRS patients. This study compares a novel beam angle optimized Volumetric Modulated Arc Therapy (VMAT) planning solution for multi-metastatic SRS to the commercial solution HyperArc.Approach.Stereotactic Optimized Automated Radiotherapy (SOAR) performs automated plan creation by combining collision prediction, beam angle optimization, and dose optimization to produce individualized high-quality SRS plans using Eclipse Scripting. In this retrospective study 50 patients were planned using SOAR and HyperArc. Assessed dose metrics included the Conformity Index (CI), Gradient Index (GI), and doses to organs-at-risk. Complexity metrics evaluated the modulation, gantry speed, and dose rate complexity. Plan dosimetric quality, and complexity were compared using double-sided Wilcoxon signed rank tests (α= 0.05) adjusted for multiple comparisons.Main Results.The median target CI was 0.82 with SOAR and 0.79 with HyperArc ($p < .001$). Median GI was 1.85 for SOAR and 1.68 for HyperArc ($p < .001$). The median V12Gy normal brain volume for SOAR and HyperArc were 7.76 cm(3)and 7.47 cm(3)respectively. Median doses to the eyes, lens, optic nerves, and optic chiasm were statistically significant favoring SOAR. The SOAR algorithm scored lower for all complexity metrics assessed.Significance.In-house developed automated planning solutions are a viable alternative to commercial solutions. SOAR designs high-quality patient-specific SRS plans with a greater degree of versatility than template-based methods.

Sleep Medicine

Reffi AN, **Moore DA**, and **Drake CL**. Objective sleep disturbance in nightmares: Is prolonged sleep onset latency a proxy for fear-of-sleep-related arousal? *Sleep* 2024; Epub ahead of print. PMID: 38353132. Full Text

Thomas Roth Sleep Disorders & Research Center, Henry Ford Health, 1 Ford Place, Detroit, MI 48202 USA.
Department of Psychiatry, Michigan State University College of Human Medicine, 15 Michigan St NE, Grand Rapids, MI.
Department of Surgery, Division of Acute Care Surgery, Henry Ford Hospital, 2799 W. Grand Blvd, Detroit, MI 48202 USA.
Department of Psychiatry and Behavioral Health, Division of Consultation Liaison Psychiatry, Henry Ford Hospital, 2799 W. Grand Blvd, Detroit, MI 48202 USA.

Sleep Medicine

Uygur H, Ahmed O, Uygur OF, Miller CB, Hursitoglu O, Bahar A, Demiroz D, and **Drake CL**. Validity and Reliability of the Turkish Version of the Sleep Condition Indicator: A Clinical Screening Instrument Based on the DSM-5 Criteria for Insomnia. *Nat Sci Sleep* 2024; 16:63-74. PMID: 38318264. Full Text

Department of Psychiatry, Erzurum Training and Research Hospital, Erzurum, Turkey.
Department of Psychology, University of Chittagong, Chattogram, Bangladesh.
Department of Psychiatry, Ataturk University School of Medicine, Erzurum, Turkey.
Big Health Ltd, London, UK.
Department of Clinical Neurosciences, Sleep and Circadian Neuroscience Institute, University of Oxford, Oxford, UK.
Department of Psychiatry, Sular Academy Hospital, Kahramanmaras, Turkey.
Department of Psychiatric Nursing, Gaziantep University Faculty of Health Sciences, Gaziantep, Turkey.
Department of Psychiatry, Karamanoglu Mehmetbey University, Karaman, Turkey.
Henry Ford Hospital Sleep Disorders and Research Center, Detroit, MI, USA.
Department of Psychiatry and Behavioral Neurosciences, Wayne State College of Medicine, Detroit, MI, USA.

PURPOSE: We aimed to adapt the Turkish Sleep Condition Indicator (SCI) version and examine its psychometric properties among the general population. METHODS: This study was a cross-sectional study. The item-total correlation, standard error of measurement, Cronbach's α, and McDonald's ω were used for internal consistency. We ran confirmatory factor analysis (CFA) and network analysis to confirm the factor structure. Multigroup CFA was run to assess the measurement invariance across gender, whether clinical insomnia or not, and poor sleep quality. We correlated SCI scores with Insomnia Severity Index (ISI) and Pittsburgh Sleep Quality Index (PSQI) scores to evaluate construct validity. A receiver operating characteristic (ROC) curve analysis was conducted to calculate the cut-off score of the SCI. The temporal stability was examined with the intraclass correlation coefficient. RESULTS: Eight hundred thirty-four participants attended. Over half of the participants were women (63.2% n = 527); the mean age was 36.15 ± 9.64. Confirmatory factor and network analysis results show that the two-factor correlated model had a good model fit for the SCI. The SCI had scalar level invariance across gender, having clinical insomnia and poor sleep quality in the Multigroup CFA. ROC curve analysis shows that the SCI has good sensitivity (90.3%) and specificity (91.8%) for cut-off ≤ 15. The intraclass correlation coefficient computed between the first and second SCI total scores was significant (r=0.80 with a 95% confidence interval from 0.78 to 0.87; $p < 0.001$). CONCLUSION: The Turkish SCI is a practical self-reported insomnia scale with good psychometric properties that can be used to screen for insomnia disorder.

Sleep Medicine

Valente V, Machado D, Jorge S, **Drake CL**, and Marques DR. Does valerian work for insomnia? An umbrella review of the evidence. *Eur Neuropsychopharmacol* 2024; 82:6-28. PMID: 38359657. Full Text

University of Aveiro, Department of Education and Psychology, Campus Universitário de Santiago, 3810-193 Aveiro, Portugal.

Sleep Disorders and Research Center, Henry Ford Hospital, Detroit, MI 48202, USA.
University of Aveiro, Department of Education and Psychology, Campus Universitário de Santiago, 3810-193 Aveiro, Portugal; CINEICC - Center for Research in Neuropsychology and Cognitive Behavioral Intervention, Faculty of Psychology and Educational Sciences, University of Coimbra, Portugal. Electronic address: drmarques@ua.pt.

Valerian is one of the most used herbal agents (phytotherapeutics) to manage sleep disturbances, in particular, sleep-onset difficulties in young adults. However, the evidence based on primary studies and systematic reviews that supports its use in this domain is weak or inconclusive. In the current study, an umbrella review was performed on the efficacy of valerian for sleep disturbances with a focus on insomnia. As such, only systematic reviews (with or without meta-analysis) were considered for this study. Systematic searches in PubMed, Web of Science, Scopus, Cochrane Database of Systematic Reviews, PROSPERO and CNKI databases retrieved 70 records. Only 8 articles were considered eligible for qualitative analysis. Overall, data suggested that valerian has a good safety profile, however, the results showed no evidence of efficacy for the treatment of insomnia. Moreover, valerian appears to be effective concerning subjective improvement of sleep quality, although its effectiveness has not been demonstrated with quantitative or objective measurements. Despite its widespread use and prescription by general practitioners, psychiatrists and other professionals, valerian does not have empirical support for insomnia. Further studies, in particular high quality randomized controlled trials, are highly recommended since there are scarce studies and the existing ones are quite heterogeneous and with low methodological quality. The implications of our findings for clinical practice are critically discussed.

Surgery
Ertas YN, Ertas D, Erdem A, Segujja F, **Dulchavsky S**, and Ashammakhi N. Diagnostic, Therapeutic, and Theranostic Multifunctional Microneedles. *Small* 2024; e2308479. Epub ahead of print. PMID: 38385813. Request Article

Department of Biomedical Engineering, Erciyes University, Kayseri, 38039, Türkiye.
ERNAM-Nanotechnology Research and Application Center, Erciyes University, Kayseri, 38039, Türkiye.
UNAM-National Nanotechnology Research Center, Bilkent University, Ankara, 06800, Türkiye.
Department of Biomedical Engineering, Kocaeli University, Umuttepe Campus, Kocaeli, 41380, Türkiye.
Department of Chemistry, Kocaeli University, Umuttepe Campus, Kocaeli, 41380, Türkiye.
Department of Surgery, Henry Ford Health, Detroit, MI, 48201, USA.
Institute for Quantitative Health Science and Engineering (IQ) and Department of Biomedical Engineering (BME), Colleges of Engineering and Human Medicine, Michigan State University, East Lansing, MI, 48824, USA.

Microneedles (MNs) have maintained their popularity in therapeutic and diagnostic medical applications throughout the past decade. MNs are originally designed to gently puncture the stratum corneum layer of the skin and have lately evolved into intelligent devices with functions including bodily fluid extraction, biosensing, and drug administration. MNs offer limited invasiveness, ease of application, and minimal discomfort. Initially manufactured solely from metals, MNs are now available in polymer-based varieties. MNs can be used to create systems that deliver drugs and chemicals uniformly, collect bodily fluids, and are stimulus-sensitive. Although these advancements are favorable in terms of biocompatibility and production costs, they are insufficient for the therapeutic use of MNs. This is the first comprehensive review that discusses individual MN functions toward the evolution and development of smart and multifunctional MNs for a variety of novel and impactful future applications. The study examines fabrication techniques, application purposes, and experimental details of MN constructs that perform multiple functions concurrently, including sensing, drug-molecule release, sampling, and remote communication capabilities. It is highly likely that in the near future, MN-based smart devices will be a useful and important component of standard medical practice for different applications.

Surgery
Kwong AJ, Schnellinger E, Foutz J, Cafarella M, **Nagai S**, Biggins SW, Pomposelli J, and Trotter J. Excess waitlist mortality among candidates for multivisceral liver-intestine transplant in acuity circle allocation. *Am J Transplant* 2024; Epub ahead of print. PMID: 38408641. Full Text

Division of Gastroenterology and Hepatology, Stanford University, Palo Alto, CA. Electronic address: ajk@stanford.edu.
United Network for Organ Sharing, Richmond, VA.
Henry Ford Health, Detroit, MI.
University of Washington, Seattle, WA.
University of Colorado Anschutz Medical Center, Aurora, CO.
Baylor University Medical Center, Baylor Scott and White Health, Dallas, TX.

Candidates for multivisceral transplant (MVT) have experienced decreased access to transplant in recent years. Using OPTN data, transplant and waiting list outcomes for MVT (i.e., liver-intestine, liver-intestine-pancreas, and liver-intestine-kidney-pancreas) candidates listed 2/4/2018-2/3/2022 were analyzed, including MELD/PELD and exception scores by era (before and after acuity circle [AC] implementation 2/4/2020) and age group (pediatric and adult). Of 284 MVT waitlist registrations (45.6% pediatric), fewer had exception points at listing post-AC compared to pre-AC (10.0% vs. 19.1%), and they were less likely to receive transplant (19.1% vs. 35.9% at 90 days; 35.7% vs. 57.2% at 1 year). Of 177 MVT recipients, exception points at transplant were more common post-AC compared to pre-AC (30.8% vs. 20.2%). Post-policy, adult MVT candidates were more likely to be removed due to death/too sick compared to liver-alone candidates (13.5% v. 5.6% at 90 days; 24.2% v. 9.8% at 1 year), whereas no excess waitlist mortality was observed among pediatric MVT candidates. Under current allocation policy, multivisceral candidates experience inferior waitlist outcomes compared to liver-alone candidates. Clarification of guidance around submission and approval of multivisceral exception requests may help improve their access to transplantation and achieve equity between multivisceral and liver-alone candidates on the liver transplant waiting list.

Surgery

Leong SP, **Nathanson SD**, and Zager JS. Cancer metastasis through the lymphovascular system: molecular mechanisms of cancer metastasis. *Clin Exp Metastasis* 2024; Epub ahead of print. PMID: 38416300. Full Text

California Pacific Medical Center and Research Institute, San Francisco, CA, USA. Stanley.Leong@sutterhealth.org.
University of California San Francisco School of Medicine, San Francisco, CA, USA. Stanley.Leong@sutterhealth.org.
Department of Surgery, Henry Ford Health, 2799 W. Grand Blvd, Detroit, MI, 48202, USA.
Cancer Center, Henry Ford Health, Detroit, MI, USA.
Department of Cutaneous Oncology, Moffitt Cancer Center, Tampa, FL, USA.
Department of Oncologic Sciences, University of South Florida Morsani College of Medicine, Tampa, FL, USA.

Surgery

Miyake K, **Chau LC**, **Trudeau S**, **Kitajima T**, **Wickramaratne N**, **Shimada S**, **Nassar A**, **Gonzalez HC**, **Venkat D**, **Moonka D**, **Yoshida A**, **Abouljoud MS**, and **Nagai S**. Improved Waitlist Outcomes in Liver Transplant Patients With Mid-MELD-Na Scores Listed in Centers Receptive to Use of Organs Donated After Circulatory Death. *Transplantation* 2024; Epub ahead of print. PMID: 38409687. Full Text

Division of Transplant and Hepatobiliary Surgery, Henry Ford Health, Detroit, MI.
Department of Public Health Sciences, Henry Ford Health, Detroit, MI.
Division of Gastroenterology and Hepatology, Henry Ford Health, Detroit, MI.

BACKGROUND: Liver transplant (LT) using organs donated after circulatory death (DCD) has been increasing in the United States. We investigated whether transplant centers' receptiveness to use of DCD organs impacted patient outcomes. METHODS: Transplant centers were classified as very receptive (group 1), receptive (2), or less receptive (3) based on the DCD acceptance rate and DCD transplant percentage. Using organ procurement and transplantation network/UNOS registry data for 20 435 patients listed for LT from January 2020 to June 2022, we compared rates of 1-y transplant probability

and waitlist mortality between groups, broken down by model for end-stage liver disease-sodium (MELD-Na) categories. RESULTS: In adjusted analyses, patients in group 1 centers with MELD-Na scores 6 to 29 were significantly more likely to undergo transplant than those in group 3 (aHR range 1.51-2.11, P < 0.001). Results were similar in comparisons between groups 1 and 2 (aHR range 1.41-1.81, P < 0.001) and between groups 2 and 3 with MELD-Na 15-24 (aHR 1.19-1.20, P < 0.007). Likewise, patients with MELD-Na score 20 to 29 in group 1 centers had lower waitlist mortality than those in group 3 (scores, 20-24: aHR, 0.71, P = 0.03; score, 25-29: aHR, 0.51, P < 0.001); those in group 1 also had lower waitlist mortality compared with group 2 (scores 20-24: aHR0.69, P = 0.02; scores 25-29: aHR 0.63, P = 0.03). One-year posttransplant survival of DCD LT patients did not vary significantly compared with donation after brain dead. CONCLUSIONS: We conclude that transplant centers' use of DCD livers can improve waitlist outcomes, particularly among mid-MELD-Na patients.

Surgery

Reffi AN, **Moore DA**, and **Drake CL**. Objective sleep disturbance in nightmares: Is prolonged sleep onset latency a proxy for fear-of-sleep-related arousal? *Sleep* 2024; Epub ahead of print. PMID: 38353132. Full Text

Thomas Roth Sleep Disorders & Research Center, Henry Ford Health, 1 Ford Place, Detroit, MI 48202 USA.
Department of Psychiatry, Michigan State University College of Human Medicine, 15 Michigan St NE, Grand Rapids, MI.
Department of Surgery, Division of Acute Care Surgery, Henry Ford Hospital, 2799 W. Grand Blvd, Detroit, MI 48202 USA.
Department of Psychiatry and Behavioral Health, Division of Consultation Liaison Psychiatry, Henry Ford Hospital, 2799 W. Grand Blvd, Detroit, MI 48202 USA.

Surgery

Schwartz T. At the Speed of SOUND: The Pace of Change for Axillary Management in Breast Cancer. *Ann Surg Oncol* 2024; Epub ahead of print. PMID: 38347331. Full Text

Department of Surgery, Henry Ford Cancer Institute, Detroit, MI, USA. tschwar2@hfhs.org.

Surgery

Taleb I, Kyriakopoulos CP, Fong R, Ijaz N, **Demertzis Z**, Sideris K, Wever-Pinzon O, Koliopoulou AG, Bonios MJ, Shad R, **Peruri A**, Hanff TC, Dranow E, Giannouchos TV, Krauspe E, Zakka C, Tang DG, **Nemeh HW**, Stehlik J, Fang JC, Selzman CH, Alharethi R, Caine WT, **Cowger JA**, Hiesinger W, Shah P, and Drakos SG. Machine Learning Multicenter Risk Model to Predict Right Ventricular Failure After Mechanical Circulatory Support: The STOP-RVF Score. *JAMA Cardiol* 2024; Epub ahead of print. PMID: 38294795. Full Text

U.T.A.H. (Utah Transplant Affiliated Hospitals) Cardiac Transplant Program: University of Utah Health and School of Medicine, Intermountain Medical Center, George E. Wahlen Department of Veterans Affairs Medical Center, Salt Lake City, Utah.
Department of Cardiothoracic Surgery, Stanford University, Stanford, California.
Heart Failure, Mechanical Circulatory Support & Transplant, Inova Heart & Vascular Institute, Falls Church, Virginia.
Henry Ford Medical Center, Detroit, Michigan.
Onassis Cardiac Surgery Center, Athens, Greece.
Division of Cardiovascular Surgery, Hospital of the University of Pennsylvania, Philadelphia.
Department of Health Policy and Organization, School of Public Health, The University of Alabama at Birmingham, Birmingham.

IMPORTANCE: The existing models predicting right ventricular failure (RVF) after durable left ventricular assist device (LVAD) support might be limited, partly due to lack of external validation, marginal predictive power, and absence of intraoperative characteristics. OBJECTIVE: To derive and validate a risk model to predict RVF after LVAD implantation. DESIGN, SETTING, AND PARTICIPANTS: This was a hybrid

prospective-retrospective multicenter cohort study conducted from April 2008 to July 2019 of patients with advanced heart failure (HF) requiring continuous-flow LVAD. The derivation cohort included patients enrolled at 5 institutions. The external validation cohort included patients enrolled at a sixth institution within the same period. Study data were analyzed October 2022 to August 2023. EXPOSURES: Study participants underwent chronic continuous-flow LVAD support. MAIN OUTCOME AND MEASURES: The primary outcome was RVF incidence, defined as the need for RV assist device or intravenous inotropes for greater than 14 days. Bootstrap imputation and adaptive least absolute shrinkage and selection operator variable selection techniques were used to derive a predictive model. An RVF risk calculator (STOP-RVF) was then developed and subsequently externally validated, which can provide personalized quantification of the risk for LVAD candidates. Its predictive accuracy was compared with previously published RVF scores. RESULTS: The derivation cohort included 798 patients (mean [SE] age, 56.1 [13.2] years; 668 male [83.7%]). The external validation cohort included 327 patients. RVF developed in 193 of 798 patients (24.2%) in the derivation cohort and 107 of 327 patients (32.7%) in the validation cohort. Preimplant variables associated with postoperative RVF included nonischemic cardiomyopathy, intra-aortic balloon pump, microaxial percutaneous left ventricular assist device/venoarterial extracorporeal membrane oxygenation, LVAD configuration, Interagency Registry for Mechanically Assisted Circulatory Support profiles 1 to 2, right atrial/pulmonary capillary wedge pressure ratio, use of angiotensin-converting enzyme inhibitors, platelet count, and serum sodium, albumin, and creatinine levels. Inclusion of intraoperative characteristics did not improve model performance. The calculator achieved a C statistic of 0.75 (95% CI, 0.71-0.79) in the derivation cohort and 0.73 (95% CI, 0.67-0.80) in the validation cohort. Cumulative survival was higher in patients composing the low-risk group (estimated <20% RVF risk) compared with those in the higher-risk groups. The STOP-RVF risk calculator exhibited a significantly better performance than commonly used risk scores proposed by Kormos et al (C statistic, 0.58; 95% CI, 0.53-0.63) and Drakos et al (C statistic, 0.62; 95% CI, 0.57-0.67). CONCLUSIONS AND RELEVANCE: Implementing routine clinical data, this multicenter cohort study derived and validated the STOP-RVF calculator as a personalized risk assessment tool for the prediction of RVF and RVF-associated all-cause mortality.

Surgery

Wang BK, Chen AY, Prasadh J, Desai D, Shubin AD, Raschzok N, MacConmara M, **Ivanics T**, Cotter T, Hwang C, Shah JA, Mufti A, Vagefi PA, Hanish SI, and Patel MS. A contemporary analysis of 20,086 deceased donor liver biopsies. *World J Surg* 2024; 48(2):437-445. PMID: 38310313. Full Text

Department of Surgery, Division of Surgical Transplantation, University of Texas Southwestern Medical Center, Dallas, Texas, USA.
Department of Surgery, Campus Charité Mitte | Campus Virchow-Klinikum, Charité - Universitätsmedizin Berlin, Berlin, Germany.
TransMedics Inc., Andover, Massachusetts, USA.
Department of Surgery, Henry Ford Medical Center, Detroit, Michigan, USA.

BACKGROUND: Pre-transplant deceased donor liver biopsy may impact decision making; however, interpretation of the results remains variable and depends on accepting center practice patterns. METHODS: In this cohort study, adult recipients from 04/01/2015-12/31/2020 were identified using the UNOS STARfile data. The deceased donor liver biopsies were stratified by risk based on degree of fibrosis, macrovesicular fat content, and level of portal infiltration (low-risk: no fibrosis, no portal infiltrates, and <30% macrosteatosis; moderate-risk: some fibrosis or mild infiltrates and <30% macrosteatosis; high-risk: most fibrosis, moderate/marked infiltrates, or ≥30% macrosteatosis). Graft utilization, donor risk profile, and recipient outcomes were compared across groups. RESULTS: Of the 51,094 donor livers available, 20,086 (39.3%) were biopsied, and 34,606 (67.7%) were transplanted. Of the transplanted livers, 14,908 (43.1%) were biopsied. The transplanted grafts had lower mean macrovesicular fat content (9.3% transplanted vs. 26.9% non-transplanted, P < 0.001) and less often had any degree of fibrosis (20.9% vs. 39.9%, P < 0.001) or portal infiltration (51.3% vs. 58.2%, P < 0.001) versus non-transplanted grafts. Post-transplant recipient LOS (14.2 days high-risk vs. 15.2 days low-risk, P = 0.170) and 1-year graft survival (90.5% vs. 91.7%, P = 0.137) did not differ significantly between high- versus low-risk groups. Kaplan-Meier survival estimates further revealed no differences in the 5-year graft survival across risk strata (P = 0.833). Of the 5178 grafts biopsied and turned down, PSM revealed 1338 (26.0%) were

potentially useable based on biopsy results and donor characteristics. CONCLUSION: Carefully matched deceased donor livers with some fibrosis, inflammation, or steatosis ≥30% may be suitable for transplantation. Further study of this group of grafts may decrease turndowns of potentially useable organs.

Surgery

Zhang Q, Zhu S, Grady SC, **Wang A**, **Hutchings H**, Cox J, **Popoff A**, and **Okereke I**. Spatial and spatio-temporal clusters of lung cancer incidence by stage of disease in Michigan, United States 1985-2018. *Geospat Health* 2024; 19(1). PMID: 38357855. Full Text

Department of Public Health Sciences, Henry Ford Health, Detroit, Michigan. qzhang2@hfhs.org.
Department of Geography, Environment and Spatial Sciences, Michigan State University, East Lansing, Michigan. zhushang@msu.edu.
Department of Geography, Environment and Spatial Sciences, Michigan State University, East Lansing, Michigan. gradys@msu.edu.
Department of Public Health Sciences, Henry Ford Health, Detroit, Michigan. awang7@hfhs.org.
Department of Surgery, Henry Ford Health, Detroit, Michigan. hjohans1@hfhs.org.
School of Medicine, University of Texas Medical Branch, Galveston, Texas. jrcox@utmb.edu.
Department of Surgery, Henry Ford Health, Detroit, Michigan. apopoff2@hfhs.org.
Department of Surgery, Henry Ford Health, Detroit, Michigan. iokerek1@hfhs.org.

Lung cancer is the most common cause of cancer-related death in Michigan. Most patients are diagnosed at advanced stages of the disease. There is a need to detect clusters of lung cancer incidence over time, to generate new hypotheses about causation and identify high-risk areas for screening and treatment. The Michigan Cancer Surveillance database of individual lung cancer cases, 1985 to 2018 was used for this study. Spatial and spatiotemporal clusters of lung cancer and level of disease (localized, regional and distant) were detected using discrete Poisson spatial scan statistics at the zip code level over the study time period. The approach detected cancer clusters in cities such as Battle Creek, Sterling Heights and St. Clair County that occurred prior to year 2000 but not afterwards. In the northern area of the lower peninsula and the upper peninsula clusters of late-stage lung cancer emerged after year 2000. In Otter Lake Township and southwest Detroit, late-stage lung cancer clusters persisted. Public and patient education about lung cancer screening programs must remain a health priority in order to optimize lung cancer surveillance. Interventions should also involve programs such as telemedicine to reduce advanced stage disease in remote areas. In cities such as Detroit, residents often live near industry that emits air pollutants. Future research should therefore, continue to focus on the geography of lung cancer to uncover place-based risks and in response, the need for screening and health care services.

Urology

Aftab OM, **Davis M**, Obeidallah A, **Rogers A**, Hou L, **Abdollah F**, Ahmed M, and Billah MS. Short-Term Reported Urologic Adverse Events Following COVID-19 Immunization: A Vaccine Adverse Event Reporting System Analysis. *Urol Pract* 2024; 11(2):312-323. PMID: 38377155. Full Text

Division of Urology, Rutgers-New Jersey Medical School, Newark, New Jersey.
Vattikuti Urology Institute-Center for Outcomes Research, Analysis, and Evaluation, Detroit, Michigan.
Hackensack University Medical Center, Hackensack Meridian School of Medicine at Seton Hall University, Hackensack, New Jersey.

INTRODUCTION: Medical misinformation regarding COVID-19 immunization remains rampant and a public concern, and as such, there is a need for national studies evaluating the immunization's safety profile. We sought to quantify and analyze urologic adverse events and symptoms after COVID-19 immunization, compare these events reported between COVID-19 vaccine types, and compare these events reported following COVID-19 immunization relative to those reported following other immunizations. METHODS: We conducted a retrospective case-control disproportionality analysis by querying the Food and Drug Administration Vaccine Adverse Event Reporting System for all reported symptoms following COVID-19 immunization through December 23, 2022, as well as for all non-COVID immunizations. RESULTS: Using a total of 704,231 event reports containing 2,982,187 symptoms related

to COVID vaccination and a total of 770,975 event reports containing 2,198,993 symptoms related to all vaccinations other than COVID-19 for disproportionality analysis, no urologic symptom produced a positive signal when grouping all vaccinations. When stratifying by manufacturer, some symptoms related to Janssen vaccination were positive, but this may be in part due to overreporting secondary to media attention rather than a strong association between Janssen vaccination and urologic adverse events. CONCLUSIONS: Although there have been anecdotal reports of adverse events associated with the COVID-19 vaccine, our review of the Vaccine Adverse Event Reporting System database did not produce positive signals across all 4 measures for any potential adverse event. Our findings do not suggest increased scrutiny is required regarding these adverse events potentially related to the COVID-19 immunization. Further evaluation and analysis of the COVID-19 immunization is ongoing.

Urology

Chiarelli G, **Davis M**, **Stephens A**, **Cirulli GO**, **Finati M**, **Corsi NJ**, Sood A, **Tinsley S**, Carrieri G, Briganti A, Montorsi F, Lughezzani G, Buffi N, **Rogers C**, and **Abdollah F**. Comparison of patient background between a real-world North American cohort and the Göteborg-2 trial. *Int J Urol* 2024; Epub ahead of print. PMID: 38334296. Full Text

VUI Center for Outcomes Research, Analysis, and Evaluation, Henry Ford Health System, Detroit, Michigan, USA.
Department of Urology, IRCCS Humanitas Research Hospital, Humanitas University, Milan, Italy.
Public Health Sciences, Henry Ford Health System, Detroit, Michigan, USA.
Division of Oncology, Unit of Urology, IRCCS Ospedale San Raffaele, Vita-Salute San Raffaele University, Milan, Italy.
Department of Urology and Renal Transplantation, University of Foggia, Foggia, Italy.
MD Anderson, Houston, Texas, USA.

OBJECTIVES: To analyze the generalizability of the Göteborg-2 findings to a North American cohort. METHODS: We replicated the Göteborg-2 inclusion criteria in our Henry Ford Health (HFH) cohort, by identifying all patients 50-60 years old who had a PSA test from 2013 to 2018. The first PSA within the study period was considered PSA at entry, and included in the analysis. Chi-square test was used to compare categorical variables between the Göteborg-2 and HFH cohort, with a particular focus on Black men, who were also analyzed separately. RESULTS: The HFH patients included in the cohort were 49 456, of which 8562 were Black. In patients within the entire HFH cohort, HFH Black cohort, Göteborg Reference cohort, and Göteborg Experimental cohort, the rate of PSA ≥3 ng/mL was, respectively, 6.8%, 10.2%, 6.8%, and 6.6%. The rate of biopsy performed was, respectively, 1.8%, 4.1%, 5.8%, and 2.5%. PCa was found in, respectively, 1.4%, 3.0%, 2.3%, and 1.5%; Gleason score 3 + 3 in, respectively, 0.5%, 0.8%, 1.2%, and 0.6%; Gleason score > 3 + 3 in, respectively, 0.9%, 2.2%, 1.1%, and 0.9%. CONCLUSIONS: Our cohort had a lower biopsy rate and a lower incidence of non-csPCa diagnosis than both Göteborg cohorts, while still maintaining the same incidence of csPCa. This implies that the benefits of reducing non-csPCa diagnosis, as observed in the Experimental Göteborg cohort, are not necessarily replicable in U.S. "real-world practice" patients. Also noteworthy, we had a significantly higher percentage of Black men, who showed more aggressive disease.

Urology

Ditonno F, Licari LC, Franco A, Bologna E, Manfredi C, Soputro NA, Ramos R, Antonelli A, **Nelson RJ**, Ahmed M, Stifelman M, Badani K, Kaouk J, Crivellaro S, and Autorino R. Current Expectations and Opinions on Single-port Robotic Surgery: A Survey Among European Experts by the SPARC Collaborative Group. *Eur Urol Open Sci* 2024; 60:54-57. PMID: 38327978. Full Text

Department of Urology, Rush University Medical Center, Chicago, IL, USA.
Department of Urology, University of Verona, Verona, Italy.
Urology Unit, Department of Maternal-Child and Urological Sciences, La Sapienza University, Policlinico Umberto I Hospital, Rome, Italy.
Department of Urology, Sant'Andrea Hospital, La Sapienza University, Rome, Italy.
Urology Unit, Department of Woman, Child and General and Specialized Surgery, Luigi Vanvitelli University, Naples, Italy.

Department of Urology, Glickman Urological and Kidney Institute, Cleveland Clinic, Cleveland, OH, USA.
Department of Urology, McLaren Macomb Hospital, Mount Clemens, MI, USA.
Department of Urology, Henry Ford Macomb Hospital, Clinton Township, MI, USA.
Michigan Institute of Urology, Livonia, MI, USA.
Department of Urology, Hackensack Meridian School of Medicine, Nutley, NJ, USA.
Department of Urology, Icahn School of Medicine at Mount Sinai, New York, NY, USA.
Department of Urology, University of Illinois at Chicago, Chicago, IL, USA.

Single-port (SP) robotic surgery is a relatively new technology that is expected to become available on the European market within a year. We investigated the current expectations of robotic surgery experts and opinion leaders practicing in Europe. A 17-item online questionnaire was sent to 120 participants identified as "experts" on the basis of their general contributions to the field of robotic surgery. Overall, 90 responses were registered, with a response rate of 75%. Italy (30%), France (15%), and the UK (12%) provided the most participants, who worked mainly in academic-either public (60%) or private (20%)-hospitals. Most respondents (79%) had no previous experience with "single site" surgery, and attendance at scientific meetings (79%) and perusal of the literature (65%) were the sources of SP knowledge most frequently reported. The perceived advantages of SP robotic surgery included lower invasiveness (61%), easier access to the retroperitoneal or extraperitoneal space (53%), better cosmetic results (44%), and lower postoperative pain (44%). The most "appealing" SP procedures were retroperitoneal partial nephrectomy via an anterior approach (43%) and transvesical simple prostatectomy (43%). Within the limitations of this type of analysis, our findings suggest high interest and a positive attitude towards SP technology overall. PATIENT SUMMARY: Technology for single-port (SP) robotic surgery, in which just one skin incision is made in the abdomen to perform the operation, will soon be available in Europe. We conducted a survey on SP surgery among European experts in urological robotic surgery. The results show that there is high interest in and a positive attitude to SP surgery. The SP approach could result in better cosmetic results and lower postoperative pain for patients.

Urology
Hubbard L, **Jamil ML**, and **Shakir NA**. Editorial Comment. *J Urol* 2024; 211(1):161-162. PMID: 37878500. Full Text

Vattikuti Urology Institute, Henry Ford Health, Detroit, Michigan.

Urology
Javid M, **Bhandari M**, Parameshwari P, Reddiboina M, and Prasad S. Evaluation of ChatGPT for Patient Counseling in Kidney Stone Clinic: A Prospective Study. *J Endourol* 2024; Epub ahead of print. PMID: 38411835. Full Text

Department of Urology, Chengalpattu Medical College, Chengalpattu, Tamil Nadu, India.
Vattikuti Urology Institute, Henry Ford Hospital, Detroit, Michigan, USA.
Department of Community Medicine, Chengalpattu Medical College, Chengalpattu, Tamil Nadu, India.
RediMinds, Inc., Southfield, Michigan, USA.

Introduction: The potential of large language models (LLMs) is to improve the clinical workflow and to make patient care efficient. We prospectively evaluated the performance of the LLM ChatGPT as a patient counseling tool in the urology stone clinic and validated the generated responses with those of urologists. Methods: We collected 61 questions from 12 kidney stone patients and prompted those to ChatGPT and a panel of experienced urologists (Level 1). Subsequently, the blinded responses of urologists and ChatGPT were presented to two expert urologists (Level 2) for comparative evaluation on preset domains: accuracy, relevance, empathy, completeness, and practicality. All responses were rated on a Likert scale of 1 to 10 for psychometric response evaluation. The mean difference in the scores given by the urologists (Level 2) was analyzed and interrater reliability (IRR) for the level of agreement in the responses between the urologists (Level 2) was analyzed by Cohen's kappa. Results: The mean differences in average scores between the responses from ChatGPT and urologists showed significant differences in accuracy ($p < 0.001$), empathy ($p < 0.001$), completeness ($p < 0.001$), and practicality ($p < 0.001$), except for the relevance domain ($p = 0.051$), with ChatGPT's responses being rated higher.

The IRR analysis revealed significant agreement only in the empathy domain [k = 0.163, (0.059-0.266)]. Conclusion: We believe the introduction of ChatGPT in the clinical workflow could further optimize the information provided to patients in a busy stone clinic. In this preliminary study, ChatGPT supplemented the answers provided by the urologists, adding value to the conversation. However, in its current state, it is still not ready to be a direct source of authentic information for patients. We recommend its use as a source to build a comprehensive Frequently Asked Questions bank as a prelude to developing an LLM Chatbot for patient counseling.

Urology
Manzar N, Khan UK, Goel A, **Carskadon S**, **Gupta N**, **Palanisamy N**, and Ateeq B. An integrative proteomics approach identifies tyrosine kinase KIT as a therapeutic target for SPINK1-positive prostate cancer. *iScience* 2024; 27(3):108794. PMID: 38384854. Full Text

Molecular Oncology Laboratory, Department of Biological Sciences and Bioengineering, Indian Institute of Technology Kanpur, Kanpur, UP 208016, India.
Vattikuti Urology Institute, Department of Urology, Henry Ford Health System, Detroit, MI 48202, USA.
Department of Pathology, Henry Ford Health System, Detroit, MI 48202, USA.
Mehta Family Center for Engineering in Medicine, Indian Institute of Technology Kanpur, Kanpur, UP 208016, India.
Centre of Excellence for Cancer - Gangwal School of Medical Sciences and Technology, Indian Institute of Technology Kanpur, Kanpur, UP 208016, India.

Elevated serine peptidase inhibitor, Kazal type 1 (SPINK1) levels in ~10%-25% of prostate cancer (PCa) patients associate with aggressive phenotype, for which there are limited treatment choices and dismal clinical outcomes. Using an integrative proteomics approach involving label-free phosphoproteome and proteome profiling, we delineated the downstream signaling pathways involved in SPINK1-mediated tumorigenesis and identified tyrosine kinase KIT as highly enriched. Furthermore, high to moderate levels of KIT expression were detected in ~85% of SPINK1-positive PCa specimens. We show KIT signaling orchestrates SPINK1-mediated oncogenesis, and treatment with KIT inhibitor reduces tumor growth and metastases in preclinical mice models. Mechanistically, KIT signaling modulates WNT/β-catenin pathway and confers stemness-related features in PCa. Notably, inhibiting KIT signaling led to restoration of AR/REST levels, forming a feedback loop enabling SPINK1 repression. Overall, we uncover the role of KIT signaling downstream of SPINK1 in maintaining lineage plasticity and provide distinct treatment modalities for advanced-stage SPINK1-positive patients.

Urology
Palathingal Bava E, **Gupta N**, **Alruwaii FI**, **Nelson R**, and **Al-Obaidy KI**. Recurrent MTOR Mutations in Renal Cell Carcinoma With Fibromyomatous Stroma: A Report of 2 Tumors. *Int J Surg Pathol* 2024; Epub ahead of print. PMID: 38311893. Full Text

Department of Pathology and Laboratory Medicine, Henry Ford Health, Detroit, MI, USA. RINGGOLD: 2971
Department of Medicine, College of Human Medicine, Michigan State University, East Lansing, MI, USA.
Department of Urology, Henry Ford Health, Detroit, MI, USA. RINGGOLD: 2971

Renal cell carcinoma with fibromyomatous stroma, recognized as a provisional entity in the current 2022 World Health Organization classification of renal neoplasms, is rare. Recent evidence suggests recurrent alterations in the mTOR pathway, supporting its recognition as a distinct entity. Herein, we report 2 renal cell carcinomas with fibromyomatous stroma with MTOR mutations occurring in 62- and 72-year-old women and review the literature to support its recognition as a distinct entity, focusing on the characteristic morphology, immunohistochemical staining patterns as well as genetic alterations.

Urology
Russo GI, Saleh R, Finocchi F, Juma AR, Durairajanayagam D, Kahraman O, Sögütdelen E, Sokolakis I, Vishwakarma RB, Bahar F, Harraz AM, Kavoussi P, Atmoko W, Chung ER, Kumar N, Zohdy W, **Rambhatla A**, Arafa M, Phuoc NHV, Salvio G, Calogero AE, Toprak T, Pinggera GM, Cannarella R, Colpi

G, Abdel-Meguid TAA, Shah RP, and Agarwal A. Impact of Varicocele on Testicular Oxidative Stress and Sperm Parameters in Experimental Animals: A Systematic Review and Meta-Analysis. *World J Mens Health* 2024; Epub ahead of print. PMID: Not assigned. Full Text

Urology
Wang Y, **Butaney M**, **Wilder S**, Ghani K, **Rogers CG**, and Lane BR. The evolving management of small renal masses. *Nat Rev Urol* 2024; Epub ahead of print. PMID: 38365895. Request Article

Vattikuti Urology Institute, Henry Ford Health System, Detroit, MI, USA.
Department of Urology, University of Michigan Medical School, Ann Arbor, MI, USA.
Division of Urology, Corewell Health West, Grand Rapids, MI, USA. brian.lane@corewellhealth.org.
Department of Surgery, Michigan State University College of Human Medicine, Grand Rapids, MI, USA. brian.lane@corewellhealth.org.

Small renal masses (SRMs) are a heterogeneous group of tumours with varying metastatic potential. The increasing use and improving quality of abdominal imaging have led to increasingly early diagnosis of incidental SRMs that are asymptomatic and organ confined. Despite improvements in imaging and the growing use of renal mass biopsy, diagnosis of malignancy before treatment remains challenging. Management of SRMs has shifted away from radical nephrectomy, with active surveillance and nephron-sparing surgery taking over as the primary modalities of treatment. The optimal treatment strategy for SRMs continues to evolve as factors affecting short-term and long-term outcomes in this patient cohort are elucidated through studies from prospective data registries. Evidence from rapidly evolving research in biomarkers, imaging modalities, and machine learning shows promise in improving understanding of the biology and management of this patient cohort.

Urology
Wang Y, **Wilder S**, Van Til M, Qi J, Mirza M, Gadzinski A, Maatman T, Lane BR, and **Rogers CG**. Reply by Authors. *Urol Pract* 2024; 11(1):134. PMID: 38117966. Full Text

Vattikuti Urology Institute, Henry Ford Health, Detroit, Michigan.
Department of Urology, University of Michigan Medical School, Ann Arbor, Michigan.
Comprehensive Urology, Beaumont Hospital, Royal Oak, Michigan.
Michigan Urological Clinic, Grand Rapids, Michigan.
Corewell Health Hospital System, Grand Rapids, Michigan.
Michigan State University College of Human Medicine, Grand Rapids, Michigan.

Urology
Wright HC, **Kachroo N**, Jain R, Omar M, Fedrigon D, Corrigan D, Zampini A, De S, Noble M, Isac W, Monga M, and Sivalingam S. Can Perioperative Antibiotic Choice Impact Rates of Infectious Complications After Percutaneous Nephrolithotomy? A Single-Blind, Prospective Randomized Trial. *J Endourol* 2024; 38(1):2-7. PMID: 37917100. Full Text

Northwestern Medicine, Huntley, Illinois, USA.
Henry Ford Health System, Detroit, Michigan, USA.
University of Rochester, Rochester, New York, USA.
Urology Department, Menofia University, Menofia, Egypt.
Emory University School of Medicine, Atlanta, Georgia, USA.
Glickman Urological and Kidney Institute, Cleveland Clinic, Cleveland, Ohio, USA.
University of California San Diego, San Diego, California, USA.

Objective: National guidelines recommend periprocedural antibiotics before percutaneous nephrolithotomy (PCNL), yet it is not clear which is superior. We conducted a randomized trial to compare two guideline-recommended antibiotics: ciprofloxacin (cipro) vs cefazolin, on PCNL outcomes, focusing on the development of systemic inflammatory response syndrome (SIRS) criteria. Methods: Adult patients who were not considered high risk for surgical or infectious complications and undergoing PCNL were randomized to receive either cipro or cefazolin perioperatively. All had negative preoperative urine

cultures. Demographic and perioperative data were collected, including SIRS criteria, intraoperative urine culture, duration of hospitalization, and need for intensive care. SIRS is defined by ≥2 of the following: body temperature <96.8°F or >100.4°F, heart rate >90 bpm, respiratory rate >20 per minute, and white blood cell count <4000 or >12,000 cells/mm(3). Results: One hundred forty-seven patients were enrolled and randomized (79 cefazolin and 68 cipro). All preoperative characteristics were similar ($p > 0.05$), except for mean age, which was higher in the cipro group (64 vs 57 years, $p = 0.03$). Intra- and postoperative findings were similar, with no difference between groups ($p > 0.05$), except a longer mean hospital stay in the cefazolin group (2 hours longer, $p = 0.02$). There was no difference between SIRS episodes in both univariate and multivariate analyses. Conclusions: Despite the relatively broader coverage for urinary tract pathogens with ciprofloxacin, this prospective randomized trial did not show superiority over cefazolin. Our findings therefore support two appropriate options for perioperative antibiotic prophylaxis in patients undergoing PCNL who are nonhigh risk for infectious complications.

Conference Abstracts

Allergy and Immunology
Gaberino C, Altman M, Gill M, Bacharier L, Gruchalla R, O'Connor G, Pongracic J, Hershey GK, Kattan M, Liu A, Teach S, **Zoratti E**, Gergen P, Visness C, Busse W, and Jackson D. Airway and Systemic Dysregulation of Interferon Responses Promote Asthma Exacerbations in Urban Children. *J Allergy Clin Immunol* 2024; 153(2):AB253. Full Text

Rationale: To understand the molecular pathways that differ during colds that progress to asthma exacerbation versus resolve without intervention, we compared differential gene expression in peripheral blood and airway samples during illnesses. Methods: 208 urban children (6-17 years) with exacerbation-prone asthma and blood eosinophils ≥150/microliter were prospectively monitored for cold symptoms. Exacerbation illnesses (Ex+), defined as colds leading to an asthma exacerbation requiring systemic corticosteroid use within 10 days, were compared to colds that resolved without exacerbation (Ex-). Participants had blood and nasal lavage samples collected after cold symptom onset. RNA sequencing of blood and nasal airway samples and differential gene expression analysis were performed comparing Ex+ versus Ex- illnesses using mixed effects modeling. Results: 106 participants were evaluated during 153 colds [46 Ex+ (33 virus-positive) and 107 Ex- (69 virus-positive)]. Significant differentially expressed genes comparing Ex+ to Ex- illnesses included: blood (502 total: 433 up-regulated, 69 down-regulated), airway (3144 total: 1712 up-regulated, 1432 down-regulated) [FDR<0.05]. Blood and airway samples had 252 overlapping significant differentially expressed genes. Gene set enrichment analysis identified interferon pathways (including CXCL10, IRF7, IFIT2, STAT1) as the most significantly up-regulated pathways in both blood and airway samples during illnesses resulting in exacerbation [FDR<0.05] (Hallmark/C2 Pathways). Conclusions: While viral infections exist in both Ex+ and Ex- illnesses, illnesses that resulted in asthma exacerbations exhibited significantly greater up-regulation of interferon pathways in both peripheral blood and airway samples. These results suggest that both local and systemic dysregulation of interferon responses play an important role in asthma exacerbations in urban children.

Allergy and Immunology
Gao Y, Choi T, Devries M, Tetreault K, Gangnon R, Bacharier L, Busse W, Camargo C, Cohen R, DeMuri G, Fitzpatrick A, Gergen P, Grindle K, Gruchalla R, Hartert T, Hasegawa K, Hershey GK, Holt P, Homil K, Jartti T, Kattan M, Kercsmar C, **Kim H**, Laing I, Le Souef P, Liu A, Mauger D, Pappas T, Patel S, Phipatanakul W, Pongracic J, Seroogy C, Sly P, Tisler C, Wald E, Wood R, Lemanske R, Jackson D, Bochkov Y, Gern J, and Wilson J. Rhinovirus circulation patterns and age predilection of infection in children from 1997-2018. *J Allergy Clin Immunol* 2024; 153(2):AB145. Full Text

Rationale: Of the 3 rhinovirus (RV) species, RV-A and RV-C most frequently cause illnesses, and RV-C is closely associated with childhood wheezing. The large number of RV types (> 160) presents a challenge for vaccine development. Little is known about RV type-specific age predilection. Methods: Multicenter data were pooled from 14 cohorts (n = 4344 patients aged 0-18, 10329 samples) including partial sequencing of nasal swab samples collected from 1997-2018. We identified RV of each species that were consistently most prevalent. Mean age of infection for each type was evaluated amongst the top circulating viruses (Tukey's test). Results: The top 5 circulating RV-C types were: C2(4.8%), C11(4.7%), C6(4.0%), C43(3.7%), and C15(3.4%). The top 5 circulating RV-A types were: A78(5.4%), A12(4.4%), A101(4.4%), A21(3.6%), and A36(3.4%). The frequency of these predominant types remained highly stable over the study period. Types C2 and C40 showed the lowest mean ages of infection, 1.54 and 2.31 years respectively. RV types A12, A78, and A56 demonstrated the lowest mean age of infection among RV-A viruses, 1.9, 2.2 and 2.4 years, respectively. This age variation was statistically significant when compared against other commonly circulating RVs. Species of viruses with the lowest mean age of infection were observed to be closely related phylogenetically. Conclusions: We documented remarkable stability of predominant types of all 3 RV species over 20 years. and a lower mean age of infection for certain types. The close phylogenetic relationship between RV with the lowest mean age of infection suggests a possible biologic mechanism for their age-related infectivity patterns.

Allergy and Immunology

O'Reilly D, **Zoratti E**, **Eapen A**, **Kim H**, **Sitarik A**, **Joseph C**, Ownby D, **Todter E**, **Wegienka G**, and **Johnson CC**. Is Cord Blood IgE Associated with Allergic Sensitization, Total IgE, FeNO, Lung Function, and Atopic Diseases During Pre-Adolescence? *J Allergy Clin Immunol* 2024; 153(2):AB175. Full Text

Rationale: Atopic conditions are common and represent a substantial healthcare burden. Investigation of cord blood IgE as a predictor of future atopic disease has yielded varying results. We aimed to investigate these associations in a racially diverse population through our Wayne County Health, Environment and Allergy Longitudinal (WHEALS) population-based birth cohort. Methods: Of the 1258 original WHEALS participants, 839 were included in at least one analysis. The association between cord blood IgE and childhood characteristics of atopy and allergic disorders was evaluated. Ten-year atopic outcomes included allergen sensitization via skin prick test (SPT), serum allergen-specific IgE (sIgE), fractional exhaled nitric oxide (FeNO), spirometric measures, and diagnosis of current asthma, atopic dermatitis (AD), and allergic rhinitis. Total IgE was assessed at multiple timepoints to 10 years. Models were adjusted for several variables including race, maternal sensitization, maternal prenatal antibiotic use, maternal marital status, household income, and firstborn status of child. Results: Cord IgE was associated with higher serum total IgE at 6-month, 1-year, 2-year, and 10-year visits ($p<0.001$). Significant associations were also observed with binary sIgE sensitization ($p<0.001$), and sIgE multi-sensitization ($p=0.012$). No associations were apparent with SPT, FeNO, airway obstruction (FEV1/FVC) or diagnosis of current asthma, AD, or allergic rhinitis. Conclusions: Higher cord IgE was associated with higher future serum IgE and allergen sensitization at 10 years measured by serum sIgE testing. However, cord IgE did not predict sensitization measured by SPT, clinical atopic disease diagnosis or other common characteristics of atopy among a diverse cohort of children.

Anesthesiology

Alghanem F, **Pieczarka P**, **Boudreau B**, **Chamseddine M**, **Jacobsen G**, **Nowak K**, **Fayed M**, and **Chhina A**. EFFECTS OF FLOW RATE DURING HIGH-FLOW NASAL CANNULA USE IN COVID-19 RESPIRATORY FAILURE. *Crit Care Med* 2024; 52. Full Text

Cardiology/Cardiovascular Research

Aujla S, and **Nazzaro W**. Severe Right Heart Failure In A Patient With Peripartum Cardiomyopathy And Large Secundum Atrial Septal Defect. *J Card Fail* 2024; 30(1):308-309. Full Text

Approximately 4% of patients with atrial septal defect will develop pulmonary hypertension. We present a challenging case of a young female with an atrial septal defect who developed pulmonary hypertension in the setting of peripartum cardiomyopathy. A 22 year-old African-American female status-post normal spontaneous vaginal delivery 2 months ago presented to the hospital with a 2-month history of dyspnea, orthopnea, bilateral leg swelling, and paroxysmal nocturnal dyspnea. She had no hypoxemia or cyanosis. She presented with blood pressure 120/93 mmHg, heart rate 106 beats/minute, and respiratory rate 23 breaths/minute. She had significant jugular venous distension, grade III systolic murmur at left upper sternal border, and bilateral lower extremity 1+ pitting edema. Transthoracic echocardiogram showed an ejection fraction of 30%, hypokinesis of the left ventricular wall, dilated left and right atria, grade 2 diastolic filling dysfunction, pulmonary arterial pressure of 52 mmHg, and an atrial septal defect. Patient claims she has a heart murmur since birth that has not been followed up on. BNP was 1134. Troponin levels were unremarkable. EKG showed an incomplete right bundle branch block with right axis deviation and no overt ischemic changes. Left and right cardiac catheterization revealed no coronary artery disease but did demonstrate severe pre-capillary pulmonary hypertension, severe RV dysfunction, mean pulmonary arterial pressure of 49, Qp/Qs 1.3, and PVR 4.2 Wood units. Transesophageal echocardiogram showed a large secundum atrial septal defect with bidirectional shunting. She was discharged on Metoprolol succinate 12.5 mg once daily. One month later, she was managed for cardiogenic shock and was transferred to a facility with congenital heart services, where she was not deemed a candidate for atrial septal defect closure. Cardiac MRI showed late gadolinium enhancement in the interventricular septum in a pattern consistent with pulmonary hypertension. She was started on Tadalafil, Valsartan, Torsemide, Metoprolol succinate, and Ferrous sulfate, aiming for ventricular and symptomatic improvement and if there is necessity for potential cardiopulmonary transplant and candidacy for atrial septal defect closure. Peripartum cardiomyopathy and a large secundum atrial septal

defect are rarely seen in combination and unfortunately can cause both severe left and right heart failure. Pathophysiology alludes to endothelial vascular dysfunction, which guides our current therapy guidelines. We are hopeful that pulmonary vasodilator therapy will improve her exercise capacity and symptoms before progression to Eisenmenger syndrome, which has been shown to have a high mortality in the 30-40 year-old demographic. We must also acknowledge that other aspects of her life are greatly influenced, such as her ability to work and care for her young infant, and having to avoid pregnancy due to the potential of maternal and fetal harm.

Cardiology/Cardiovascular Research

Baran DA, Billia F, Randhawa V, **Cowger JA**, Barnett CM, Chih S, Ensminger S, Hernandez-Montfort J, Sinha SS, Vorovich E, Proudfoot A, Lim HS, Blumer V, Jennings DL, Reshad Garan A, Renedo MF, Hanff TC, Kanwar MK, Overgaard C, Teuteberg J, Rosner C, Nagpal D, Taimeh Z, Abraham J, Ton VK, Drakos S, Tehrani B, Bernhardt A, Meeran T, Douglas Greig P, Farrero M, Katz J, Luk A, Bennett C, Bertolotti A, Tedford RJ, Cogswell R, Klein L, Guerrero-Miranda CY, Rampersad P, Potena L, Boeken U, Copeland H, Hall S, González-Costello J, Kapur NK, Loforte A, Burkhoff D, LePrince P, Gustafsson F, Uriel N, Kataria R, Arora S, Masetti M, and Saeed D. Consensus statements from the International Society for Heart and Lung Transplantation consensus conference: Heart failure–related cardiogenic shock. *J Heart Lung Transplant* 2024; 43(2):204-216. Full Text

D.A. Baran, Heart Failure, Transplant and MCS, Cleveland Clinic Florida, 2950 Cleveland Clinic Blvd, Weston, FL, United States
M.K. Kanwar, Allegheny Health Network, Pennsylvania, United States

The last decade has brought tremendous interest in the problem of cardiogenic shock. However, the mortality rate of this syndrome approaches 50%, and other than prompt myocardial revascularization, there have been no treatments proven to improve the survival of these patients. The bulk of studies have been in patients with acute myocardial infarction, and there is little evidence to guide the clinician in those patients with heart failure cardiogenic shock (HF-CS). An International Society for Heart and Lung Transplant consensus conference was organized to better define, diagnose, and manage HF-CS. There were 54 participants (advanced heart failure and interventional cardiologists, cardiothoracic surgeons, critical care cardiologists, intensivists, pharmacists, and allied health professionals) with vast clinical and published experience in CS, representing 42 centers worldwide. This consensus report summarizes the results of a premeeting survey answered by participants and the breakout sessions where predefined clinical issues were discussed to achieve consensus in the absence of robust data. Key issues discussed include systems for CS management, including the “hub-and-spoke” model vs a tier-based network, minimum levels of data to communicate when considering transfer, disciplines that should be involved in a “shock team,” goals for mechanical circulatory support device selection, and optimal flow on such devices. Overall, the document provides expert consensus on some important issues facing practitioners managing HF-CS. It is hoped that this will clarify areas where consensus has been reached and stimulate future research and registries to provide insight regarding other crucial knowledge gaps.

Cardiology/Cardiovascular Research

Chang J, Javaheri A, Sauer A, Windsor S, Fu Z, Jones P, Margulies K, **Lanfear D**, Nassif MJ, Husain M, Inzucchi S, McGuire D, Pitt B, Scirica B, and Kosiborod M. Cardiac And Kidney Benefits Of Dapagliflozin Are Associated With ApoM Levels In Patients With Heart Failure With Reduced Ejection Fraction. *J Card Fail* 2024; 30(1):236. Full Text

Background: Apolipoprotein M (ApoM) is protective in the heart and kidney via interactions with sphingosine-1 phosphate in the myocardium and endothelium. Sodium-glucose cotransporter-2 inhibitors (SGLT2i) increase ApoM levels, reduce inflammation, and improve cardiac function. SGLT2i improve outcomes for patients with heart failure (HF); however, the mechanisms are not fully understood. We aimed to investigate the effect of the SGLT2i dapagliflozin in the heart and kidney by examining its association with ApoM in patients with HF with reduced ejection fraction (HFrEF) in the DEFINE-HF Trial. Objective: To explore the relationship between ApoM and cardiac and renal biomarkers and its association with dapagliflozin treatment in patients with HFrEF. Methods: We performed a secondary analysis of the DEFINE-HF trial, which included 263 patients with HFrEF randomized to dapagliflozin 10

mg daily or placebo for 12 weeks. We examined the effects of dapagliflozin on change in ApoM from baseline to 12 weeks. We also evaluated the association between changes in ApoM and NT-proBNP and urine albumin-creatinine ratio (UACR) from baseline to 12 weeks using multivariable linear regression adjusted for baseline value of the respective covariate, baseline ApoM, age, race, sex, eGFR, and type 2 diabetes mellitus; additional models included change in ApoM*treatment interaction terms. Results: 236 (89.7%) patients had available ApoM values (mean 0.641 ± 0.181 uM). In the overall population, dapagliflozin vs. placebo had no significant effect on change in ApoM (-0.002 uM, 95% CI -0.029 to 0.247; P = 0.89 for the dapagliflozin group). However, each 0.1 uM increase in ApoM level at 12 weeks was associated with a significantly decreased log-transformed NT-proBNP in the overall cohort (-0.11, 95% CI -0.18 to -0.03, P = 0.006). This association was evident in the dapagliflozin group (-0.19; 95% CI -0.28 to -0.09, P<0.001) but not in the placebo group (0.04; 95% CI -0.09 to 0.16, P = 0.57; P for interaction = 0.025). The inverse relationship between ApoM and log-transformed NT-proBNP levels also varied by change in UACR. Dapagliflozin-treated patients with a reduction in UACR at 12 weeks (n = 53, 22%) experienced a mean reduction in log-transformed NT-proBNP of -0.28 per 0.1 uM increase in ApoM (95% CI -0.41 to -0.15; P < 0.001); versus -0.07 (95% CI -0.19 to - 0.06; P = 0.47) for dapagliflozin-treated patients without a change or increase in UACR. Placebo-treated patients with reduced UACR over twelve weeks did not have a significant reduction in log-transformed NT-proBNP per 0.1 uM increase in ApoM (-0.17, -0.37 to 0.035, P = 0.11). Conclusion: In the DEFINE-HF trial of patients with HFrEF, dapagliflozin did not significantly affect overall ApoM levels. However, an increase in ApoM at 12 weeks was associated with a decline in log-transformed NT-proBNP levels. This relationship was only seen in dapagliflozin-treated patients, especially if significant albuminuria was present at baseline and was reduced over 12 weeks. These data suggest that favorable effects of SGLT2i in HFrEF may be associated with increases in ApoM.

Cardiology/Cardiovascular Research

Cowger JA, Guichard J, Miranda D, Kiernan M, Khumri T, Macaluso G, Craig W, Saraon T, Mullens W, Chaparro S, Mahr C, and Klein L. Patient And Clinician Engagement With Remote Pulmonary Artery Pressures: 12-month Data From Substudy Of The Proactive-hf Trial. *J Card Fail* 2024; 30(1):226. Full Text

PROACTIVE-HF was redesigned from a randomized control trial to a single-arm trial, with pre-specified safety and efficacy endpoints. All patients enrolled were implanted with a pulmonary artery pressure (PAP) sensor, provided with a system allowing for vital sign measurements (blood pressure (BP), weight, and heart rate (HR)), and, initially, randomized 1:1 to either treatment or control groups. In the control arm, only vital signs were visible to the clinicians and patients. At the time of trial redesign, patients and clinicians in the control group were unblinded to PAP and patients were managed by protocol using seated mean PAP (mPAP). In these former control patients, we examined the trend in seated mPAP, BP, weight, and HR in the 12 months following unblinding. Additionally, heart failure hospitalizations (HFH) and patient surveys regarding PAP were examined. Changes in PAP, BP, weight, and HR were assessed in the 12 months following unblinding patients and clinicians to PAP using a mixed linear model regression method. We compared HFH in the 12 months following unblinding to the 12 months prior to PAP sensor implant. Patients were surveyed on their experience with PAP following unblinding. There were 72 patients enrolled in the former control group. At the time of this analysis, 42 patients had completed 12 months of unblinding with all follow-up data (all will be completed by 6/2023). Of the 42 patients, 23 (57.6%) were men, 19 (45.2%) had HF with preserved ejection fraction, and mean BMI was 35.5 kg/m2. For the PAP and vital sign analysis, 3 patients were excluded due to sparse data. In the 12 months following unblinding, seated mPAP, BP, and weight all saw significant decreases (all p values < 0.001). Subgroup analyses indicated that the mPAP decline was driven by patients above target mPAP at un-blinding (p < 0.001) compared to patients who were at target mPAP at unblinding (p = 0.57). HR saw a significant increase over the course of 12 months (p =0.001) (Figure 1A-B). The average number of HFH was significantly higher in the 12 months prior to PAP sensor implant than in the 12 months post unblinding (1.2 ± 0.9 vs 0.2 ± 0.7, p < 0.001). Following unblinding, subjects were surveyed on their engagement with PAP and 76% reported making lifestyle choices based on their PAP trends and 86% reported that PAP readings and resultant clinician care had a positive impact on their health. Unblinding patients and clinicians to PAP was associated with significant decreases in seated mPAP, BP, and weight

over the following 12 months while HR increased. Patients reported positive impacts from PAP management, and HFH were significantly reduced compared to the year prior to implant.

Cardiology/Cardiovascular Research
Kanwar MK, Billia F, Randhawa V, **Cowger JA**, Barnett CM, Chih S, Ensminger S, Hernandez-Montfort J, Sinha SS, Vorovich E, Proudfoot A, Lim HS, Blumer V, Jennings DL, Reshad Garan A, Renedo MF, Hanff TC, Baran DA, Overgaard C, Teuteberg J, Rosner C, Nagpal D, Taimeh Z, Abraham J, Ton VK, Drakos S, Tehrani B, Bernhardt A, Meeran T, Douglas Greig P, Farrero M, Katz J, Luk A, Bennett C, Bertolotti A, Tedford RJ, Cogswell R, Klein L, Guerrero-Miranda CY, Rampersad P, Potena L, Boeken U, Copeland H, Hall S, González-Costello J, Kapur NK, Loforte A, Burkhoff D, LePrince P, Gustafsson F, Uriel N, Kataria R, Arora S, Masetti M, and Saeed D. Heart failure related cardiogenic shock: An ISHLT consensus conference content summary. *J Heart Lung Transplant* 2024; 43(2):189-203. Full Text

M.K. Kanwar, Cardiovascular Institute at Allegheny Health Network, Pittsburgh, PA, United States
D.A. Baran, Heart Failure, Transplant and MCS, Cleveland Clinic Florida, 2950 Cleveland Clinic Blvd, Weston, FL

In recent years, there have been significant advancements in the understanding, risk-stratification, and treatment of cardiogenic shock (CS). Despite improved pharmacologic and device-based therapies for CS, short-term mortality remains as high as 50%. Most recent efforts in research have focused on CS related to acute myocardial infarction, even though heart failure related CS (HF-CS) accounts for >50% of CS cases. There is a paucity of high-quality evidence to support standardized clinical practices in approach to HF-CS. In addition, there is an unmet need to identify disease-specific diagnostic and risk-stratification strategies upon admission, which might ultimately guide the choice of therapies, and thereby improve outcomes and optimize resource allocation. The heterogeneity in defining CS, patient phenotypes, treatment goals and therapies has resulted in difficulty comparing published reports and standardized treatment algorithms. An International Society for Heart and Lung Transplantation (ISHLT) consensus conference was organized to better define, diagnose, and manage HF-CS. There were 54 participants (advanced heart failure and interventional cardiologists, cardiothoracic surgeons, critical care cardiologists, intensivists, pharmacists, and allied health professionals), with vast clinical and published experience in CS, representing 42 centers worldwide. State-of-the-art HF-CS presentations occurred with subsequent breakout sessions planned in an attempt to reach consensus on various issues, including but not limited to models of CS care delivery, patient presentations in HF-CS, and strategies in HF-CS management. This consensus report summarizes the contemporary literature review on HF-CS presented in the first half of the conference (part 1), while the accompanying document (part 2) covers the breakout sessions where the previously agreed upon clinical issues were discussed with an aim to get to a consensus.

Cardiology/Cardiovascular Research
Shah Y, Shah T, Schwartz A, Poddar K, **O'Neill W**, Anderson M, Wohns D, Meraj P, Palacios I, Kapur N, Almedhychy A, and Lansky A. Safety And Efficacy Of Impella RP Support For Acute Right Ventricular Failure Complicated By Cardiogenic Shock: Post Market Approval Sub-Analysis Of The CVAD Registry. *J Card Fail* 2024; 30(1):269. Full Text

Introduction: There is limited data on the use of Impella RP, a percutaneous right ventricular assist device (pRVAD) for hemodynamic support in acute right ventricular failure (RVF). This study aims to address this knowledge gap. Hypothesis: pRVAD support is safe and efficacious in patients with RVF. Methods: This observational, prospective, multicenter study includes patients from the global cVAD registry who had RVF causing cardiogenic shock (CS) after left ventricular assist device placement (LVAD) or due to acute myocardial infarction (AMI) or post-cardiotomy CS treated with pRVAD. Patients were divided into a non-salvage and salvage group. The non-salvage group included adult patients who received Impella RP for acute RVF within 48 hours of the precipitating event (LVAD implantation, AMI, or surgery), while the salvage group included patients who received Impella RP support for rapidly deteriorating/refractory shock or any non-approved indications, such as delayed (> 48 hours) support. We report clinical and safety outcomes of the pRVAD from the final analysis of this study. Results: Between Sept. 2017 to Nov. 2020, a total of 110 patients (mean age 63.8, 67.3% male) were treated with pRVAD (23 post LVAD and

87 AMI or post-cardiotomy CS). Prior to pRVAD implantation, salvage patients (n=73) significantly more often had a duration of shock > 48 hours compared to non-salvage patients (n=37) (42.5% vs. 0%, p=0.0054) and higher rates of out-of-hospital cardiac arrests (20.8% vs. 5.7%, p=0.04). They also had numerically higher ongoing cardiopulmonary resuscitation at the time of pRVAD insertion (21.8% vs. 13.8%, p=0.37) and ischemic brain injury (10% vs. 0%, p=0.10) prior to Impella implant. Greater than 85% of patients in both groups were on inotropes/vasopressors (median 3.0). pRVAD support resulted in a numerical decrease in CVP (-0.8 ± 6.21 mmHg) and increase in cardiac index (0.1 ± 0.61 L/min/m2) in treated patients. In-hospital mortality was 32.4% in the non-salvage group and 80.8% in the salvage group (p<0.001) with no difference by etiology of RVF. For patients surviving to hospital discharge, survival at 1-year follow-up was 94.9%. Rates of in-hospital adverse events were comparable in each group and the totals were as follows: major bleeding (19.1%), hemolysis (10.9%), PE (0%), and device malfunction (4.5%). Conclusion: Patients treated with pRVAD early, before developing refractory shock and/or ischemic brain injury had favorable mortality compared to historical cohorts. pRVAD support in patients with acute RVF causing CS appears to be safe with complication rates comparable to percutaneous LVADs. Larger trials to further evaluate the efficacy of Impella RP are needed.

Cardiology/Cardiovascular Research

Siems C, Cogswell R, Masotti M, Schultz J, **Cowger J**, Shaffer A, and John R. Impact of left ventricular assist device complications on heart transplant outcomes under the 2018 heart transplant allocation policy. *J Thorac Cardiovasc Surg* 2024; 167(3):1049-1059.e1045. Full Text

R. John, Division of Cardiothoracic Surgery, Department of Surgery, 420 Delaware St SE, MMC 207, Minneapolis, MN, United States

Objective: The study objective was to determine the impact of left ventricular assist device complications on post–heart transplant survival before and after the 2018 US heart transplant allocation policy change. Methods: Adult patients (age >18 years) supported by left ventricular assist devices at the time of listing or transplantation in the United Network for Organ Sharing between October 18, 2015, and December 31, 2021, were included. Left ventricular assist device complications were defined by status at transplant (nonelective 1A in the prior era or new era status 2 or 3). Post-transplant survival (primary analysis) and baseline characteristics were compared among those with and without left ventricular assist device complications and by allocation era using multivariable Cox regression analyses. Results: The primary analysis included 4160 patients with left ventricular assist devices who underwent heart transplant (prior era n = 2458, new era n = 1702). Patients who underwent heart transplant with left ventricular assist device complications were on left ventricular assist device support longer under the new era (498 days vs 423 days P < .001). Post-transplant survival was highest in the prior era among those without left ventricular assist device complications. Patients who underwent transplantation in the prior era with a complication and in the new era without complications were not statistically different. Left ventricular assist device complications in the new era were associated with the highest post-transplant mortality (status 2 adjusted hazard ratio, 1.87, 95% confidence interval, 1.31-2.67, P < .001, status 3 adjusted hazard ratio, 1.50, 95% confidence interval, 1.11-2.04, P = .009). Conclusions: Left ventricular assist device complications in the new era are associated with increased post-transplant mortality. As a heart allocation score is being considered, modeling time on left ventricular assist device support to promote heart transplant before development of left ventricular assist device–related complications may improve outcomes for patients with left ventricular assist devices.

Dermatology

Siri D, Lee LW, **Gold LS**, Armstrong A, Brar K, Holland K, Shepard J, Devani A, Sturm D, Angel B, Li Q, and Eichenfield L. Demographics and Baseline Characteristics of Children With Atopic Dermatitis Enrolled in a Randomized Phase 3 Study (TRuE-AD3). *J Allergy Clin Immunol* 2024; 153(2):AB8. Full Text

Rationale: Atopic dermatitis (AD), a highly pruritic inflammatory skin disease, typically begins during childhood and affects up to 23% of children globally. Ruxolitinib cream was effective and well tolerated to 8 weeks in a phase 3 study of children 2–<12 years old (y/o) with AD (TRuE-AD3 [NCT04921969]), consistent with data in adults/adolescents (TRuE-AD1/TRuE-AD2). Baseline clinical characteristics in TRuE-AD3 are reported. Methods: Patients 2–<12 y/o with AD for ≥3 months, Investigator's Global

Assessment (IGA) 2/3, 3%–20% affected body surface area (BSA) and, in patients 6–<12 y/o, baseline itch numerical rating scale (NRS) score ≥4 were randomized (2:2:1) to apply twice-daily ruxolitinib cream (0.75%/1.5%) or vehicle for 8 weeks. Enrollment for IGA 2 was capped at ≤25% of patients. Results: Patients (N=330; 0.75%/1.5% ruxolitinib cream, n=134/n=131; vehicle, n=65) had median (range) age of 6 (2–11) years; 179 (54.2%) were female; 180 (54.5%) were White; 106 (32.1%) Black; 21 (6.4%) Asian; 252 (76.4%) had IGA of 3. Median (range) AD duration was 4.8 (0.3–11.3) years. Mean (SD) affected BSA was 10.5% (5.40%). Mean (SD) baseline Eczema Area and Severity Index score was 8.6 (5.40). In patients 6–<12 y/o, mean (SD) by-visit baseline itch NRS score was 6.7 (1.70). Most patients received AD therapy in the prior 12 months (222 [67.3%]), most commonly topical corticosteroids (208 [63.0%]). Conclusions: Most children enrolled in TRuE-AD3 had moderate AD (based on IGA) and substantial itch. The majority had long-standing AD and received prior AD therapy, highlighting disease burden and unmet need in this population.

Hematology-Oncology

Chen DYB, **Farhan S**, Lekakis LJ, Schiller GJ, Yared JA, Mapara MY, Assal A, Choe H, DeFilipp Z, Lee DD, Lane H, Burns LJ, Zhang MJ, Bye M, Gooley TA, and Saad A. RGI-2001 with CNI-Based Prophylaxis Demonstrates Better Acute Gvhd-Free Survival Following Myeloablative Allohct without Increased Relapse: Comparison of a Multi-Center Phase 2b Study with a Contemporaneous CIBMTR Cohort. *Transplant Cell Ther* 2024; 30(2):S29. Full Text

Z. DeFilipp, Hematopoietic Cell Transplant and Cellular Therapy Program, Massachusetts General Hospital, Boston, MA

Background: Despite the use of prophylactic immunosuppressive therapy, acute graft-versus-host disease (aGVHD) has historically occurred in 40-60% of subjects following allogeneic hematopoietic cell transplantation (HCT); severe cases represent a major cause of morbidity and mortality. RGI-2001 is a liposomal glycolipid that binds the CD1d receptor of antigen-presenting cells resulting in activation of invariant natural killer cells and regulatory T cell proliferation that leads to host-specific tolerance in the transplanted donor cells. Repeat dosing of RGI-2001 in RGI-2001-003 was shown to be safe with no serious infusion reactions or related SAEs and low rates of aGVHD (Blood. 2022;140(S1): 1877–1878). Here we compare GVHD, relapse, and survival outcomes to a contemporaneous CIBMTR cohort that did not receive RGI-2001. Methods: RGI-2001-003, an open-label Phase 2b study, evaluated RGI-2001 added to a calcineurin inhibitor (CNI) with methotrexate (MTX) or mycophenolate mofetil for the prevention of aGVHD following myeloablative HCT (without T-cell depletion). PTCy and ATG were prohibited. RGI-2001 100 µg/kg was infused weekly × 6, starting on the day of HCT. The primary endpoint was grade II-IV aGVHD by Day 100. A cohort was obtained from CIBMTR using the same eligibility criteria. The primary and key secondary endpoints were compared between groups using logistic regression. Results: Comparisons of preliminary data were performed on 48 RGI-2001 subjects (median age 52 yrs) and 207 CIBMTR subjects (median age 50 yrs) who received HCT from a matched related or unrelated donor at the same 7 U.S. centers from 11/2019-11/2021 and 1/2018-10/2019, respectively. The majority were transplanted for AML (RGI 54%, CIBMTR 52%) or ALL (23%, 27%) from an 8/8 URD (67%, 61%) and received PBSCs (81%, 83%). All RGI and 99% of CIBMTR subjects received tacrolimus (tac)/MTX; there were no graft failures. Grade II-IV aGVHD was lower, and overall and aGVHD-free survival were each higher in the RGI-2001 group. Relapse was not increased and chronic GVHD was similar (Table 1; Figure 1). Conclusions: RGI-2001 added to tac/MTX resulted in less aGVHD without an increase in relapse compared to a CIBMTR cohort. RGI-2001 demonstrates a potential role in aGVHD prophylaxis in the myeloablative HCT setting. A Phase 3 study is planned.

Hematology-Oncology

Cuenca J, Moscoso B, **Cardenas D**, Schettino M, Gonzalez-Mosquera D, Tobar P, **Gonzalez-Mosquera L**, and Nates J. HEALTHCARE-ASSOCIATED INFECTIONS IN PATIENTS WITH HEMATOLOGIC MALIGNANCIES: A NATIONWIDE ANALYSIS. *Crit Care Med* 2024; 52. Full Text

Hematology-Oncology
Cukierman E, Franco-Barraza J, Luong T, Raghavan K, Wong JK, **Costa DBV**, **Francescone R**, Gardiner JC, Reddy SS, Handorf EA, and Meyer JE. Pulsed low dose rate radiation to mitigate tumor-permissive responses in pancreatic cancer-associated fibroblasts: Introducing the HOST-factor. *J Clin Oncol* 2024; 42(3). Full Text

E. Cukierman

Background: Pancreatic ductal adenocarcinoma (PDAC) features a distinctive tumor microenvironment comprising cancer-associated fibroblasts (CAFs) and their self-produced extracellular matrix (ECM), forming functional CAF units (CAFu). The current total neoadjuvant therapy (TNT), involving conventional chemoradiotherapy (CRT), yields suboptimal responses while promoting a tumor-permissive CAFu state. To address this, we explored pulsed low dose rate radiation (PLDR)-based TNT, as an alternative to CRT, to treat three-dimensional in vivolike human PDAC CAFu cultures. We assessed gemcitabine combined with PLDR versus CRT using theHOST Factor, a harmonized output of stroma traits factor, comprising several established CAFu functional indicators, which inform on the functional status of the PDAC microenvironment. Methods: The unique CAFu functional values used corresponded to: i) ECM anisotropy; ii) persistent cell-ECM signaling; iii) sustained cytokine-induced activation; iv) cytoskeletal bundling; and v) systemic features of fibroblastic activation. The validity of the resultant HOST factor was assessed using the unit's ECM ability to elicit fibroblastic activation, indicated by a high aSMA/F-actin ratio value. Results: Ex-vivo CRT led to a HOST factor that was 2-fold greater than chemotherapy alone (p=0.6), which was functionally gauged as a tumor-permissive CAFu. In contrast, PLDR averted CRT-induced tumor-permissive response and established a 6-fold lower HOST factor, suggestive of a normalized CAFu, when compared to the HOST factor value established when using conventional TNT (P=0.0016 vs. CRT, and P= 0.0086 vs. gemcitabine alone). The multi-parameter HOST factor validity was confirmed as CRT treated CAFu's ECM activated human pancreatic fibroblasts (aSMA/F-actin = 70% 6 29) while PLDR-treated CAFu's ECM failed to do so (aSMA/F-actin = 32% 6 26), reaching a 30% mean rank difference (P ,0.0001). Conclusions: PLDR mitigates conventional CRT-based TNT-induced tumor-permissive responses, restoring the fibroblastic units' tumor-suppressive function. These results lend support to a phase 1 trial designed to evaluate whether radiation with PLDR-based TNT, constitutes a safe and more effective treatment for PDAC patients. The novel HOST factor is being used to appraise specimens from NCT04452357.

Hematology-Oncology
Gonzalez-Mosquera LF, **Neme MK**, **Mikulandric N**, **Mazur I**, **Emole J**, **Alavi A**, **Peres E**, **Abidi MH**, and **Farhan S**. Abatacept with FluBu2: To Use or Not to Use. *Transplant Cell Ther* 2024; 30(2):S159. Full Text

L.F. Gonzalez-Mosquera, Hematology and oncology, Henry Ford Hospital, Detroit, MI, United States

Introduction: In 2021, the FDA approved using abatacept (ABA) for acute graft versus host disease (aGVHD) prevention in adults and pediatric patients 2 years of age and older undergoing hematopoietic stem cell transplantation (SCT) from a matched (MUD) or 1 allele-mismatched unrelated donor (MMUD), based on the phase II ABA2 study. In that study, there was no difference in engraftment or relapse between patients who received ABA and those who did not. However, this study included a significant number of young patients (median age <50) and less than 30% of patients received reduced intensive conditioning (RIC), and none received RIC Fludarabine + Busulfan (FluBu2). In addition, recently another retrospective study that included 22 patients with median age at SCT of 66 years looked at ABA as GVHD prophylaxis however 20 patients received fludarabine/melphalan and two received busulfan/cyclophosphamide conditioning. None received FluBu2. Methods: We conducted a retrospective analysis including only patients who received RIC FluBu2 and unrelated peripheral blood (PB) SCT with available day30 and day100 chimerism between January 2017 to July 2023. Chimerism was measured with short tandem repeats (STR) around day +30 and day +100. The study's primary endpoint was to explore impact of ABA on early donor chimerism in these patients with secondary outcomes of overall survival (OS) and relapse free survival (RFS). Results: A total of 26 patients were identified, with 18 males and 8 females. Median age at SCT was 70 (range 39-81). All patients had disease risk index (DRI)

intermediate or high. Six received ABA plus methotrexate and tacrolimus, and 20 received tacrolimus with either methotrexate or mycophenolate mofetil, without ABA or ATG or PTCy. Any decrease in chimerism from Day 30 to Day 100 was seen in 100% (6/6) in ABA patients versus 15% (3/20) of non-ABA patients (p=0.0218) (Figure 1). Chimerism of < 98% on Day100 was seen in 100% (6/6) of ABA patients versus 25% (5/20) in non-ABA patients (p=0.0014). There were 3/6 (50%) deaths and 3/6 (50%) relapses in the ABA group compared with 8/20 (40%) deaths and 3/20 (15%) relapses in the non-ABA group. The ABA group had a worst mean OS, with 5.16 months versus 31.85 months (p= 0.0035) in the non-ABA group (Figure 2). The mean RFS was 2.7 months vs. 27.85 months in the ABA versus non-ABA group, respectively, p= 0.0064 (Figure 3). On multivariate analysis that included donor MUD/MMUD, DRI and comorbidity index, ABA versus no ABA seems to be independent predictor of OS and RFS Conclusions: In this small single center retrospective analysis of older patients receiving unrelated PB SCT using FluBu2, the use of ABA was associated with decrease chimerism from day 30 to day 100, increased relapse, and worse survival. Larger studies are needed to corroborate these results. Continuing with that premise, we submitted a proposal to the CIBMTR to use the more extensive database.

Hematology-Oncology

Lieu CH, Yu G, Kopetz S, Puhalla SL, Lucas PC, Sahin IH, Deming DA, **Philip PA**, Hong TS, Rojas-Khalil Y, Loree JM, Wolmark N, Yothers G, George TJ, and Dasari A. NRG-GI008: Colon adjuvant chemotherapy based on evaluation of residual disease (CIRCULATE-NORTH AMERICA). *J Clin Oncol* 2024; 42(3). Full Text

C.H. Lieu

Background: Currently, there are no biomarkers validated prospectively in randomized studies for resected colon cancer (CC) to determine need for adjuvant chemotherapy (AC). However, circulating tumor DNA (ctDNA) represents a highly specific and sensitive approach (especially with serial monitoring) for identifying minimal/molecular residual disease (MRD) postsurgery in CC patients (pts), and may outperform traditional clinical and pathological features in prognosticating risk for recurrence. CC pts who do not have detectable ctDNA (ctDNA-) are at a much lower risk of recurrence and may be spared the toxicities associated with AC. Furthermore, for CC pts with detectable ctDNA (ctDNA+) who are at a very high risk of recurrence, the optimal AC regimen has not been established. We hypothesize that for pts whose CC has been resected, ctDNA status may be used to risk-stratify for making decisions about AC. Methods: In this prospective phase II/III trial, up to 1,912 pts with resected stage IIB, IIC, and III CC will be enrolled. Based on the post-operative ctDNA status using personalized and tumor-informed assay (SignateraO, bespoke assay), those who are ctDNA- (Cohort A) will be randomized to immediate AC with fluoropyrimidine (FP)+oxaliplatin (Ox) for 3-6 mos per established guidelines vs. serial ctDNA monitoring. Patients who are ctDNA+ post-operatively or with serial monitoring (Cohort B) will be randomized to FP+Ox vs. more intensive AC with addition of irinotecan (I) for 6 mos. One cycle of chemotherapy is allowed while awaiting ctDNA testing results for cohort assignment. The primary endpoints for Cohort A are time to ctDNA+ status (phase II) and disease-free survival (DFS) (phase III) in the immediate vs. delayed AC arms. The primary endpoint for Cohort B is DFS in the FP+Ox vs FP+Ox+I arms for both phase II and phase III portions of the trial. Secondary endpoints include prevalence of detectable ctDNA post-operatively, time-to-event outcomes (overall survival and time to recurrence) by ctDNA status, and the assessment of compliance to adjuvant therapy. Biospecimens including archival tumor tissue, as well as post-operative plus serial matched/normal blood samples, will be collected for exploratory correlative research. Active enrollment across the NCTN started in June 2022 with CCTG sites joining in August 2023.

Hematology-Oncology

Ohri N, Jolly S, Cooper BT, Kabarriti R, Bodner WR, Klein J, Guha C, Viswanathan S, Shum E, Sabari JK, Cheng H, Gucalp RA, Castellucci E, Qin A, **Gadgeel SM**, and Halmos B. Selective Personalized RadioImmunotherapy for Locally Advanced Non-Small-Cell Lung Cancer Trial (SPRINT). *J Clin Oncol* 2024; 42(5):562-570. Full Text

N. Ohri, Department of Radiation Oncology, Montefiore-Einstein Comprehensive Cancer Center, 1625 Poplar St, Bronx, NY, United States

PURPOSEStandard therapy for locally advanced non-small-cell lung cancer (LA-NSCLC) is concurrent chemoradiotherapy followed by adjuvant durvalumab. For biomarker-selected patients with LA-NSCLC, we hypothesized that sequential pembrolizumab and risk-adapted radiotherapy, without chemotherapy, would be well-tolerated and effective.METHODSPatients with stage III NSCLC or unresectable stage II NSCLC and an Eastern Cooperative Oncology Group performance status of 0-1 were eligible for this trial. Patients with a PD-L1 tumor proportion score (TPS) of ≥50% received three cycles of induction pembrolizumab (200 mg, once every 21 days), followed by a 20-fraction course of risk-adapted thoracic radiotherapy (55 Gy delivered to tumors or lymph nodes with metabolic volume exceeding 20 cc, 48 Gy delivered to smaller lesions), followed by consolidation pembrolizumab to complete a 1-year treatment course. The primary study end point was 1-year progression-free survival (PFS). Secondary end points included response rates after induction pembrolizumab, overall survival (OS), and adverse events.RESULTSTwenty-five patients with a PD-L1 TPS of ≥50% were enrolled. The median age was 71, most patients (88%) had stage IIIA or IIIB disease, and the median PD-L1 TPS was 75%. Two patients developed disease progression during induction pembrolizumab, and two patients discontinued pembrolizumab after one infusion because of immune-related adverse events. Using RECIST criteria, 12 patients (48%) exhibited a partial or complete response after induction pembrolizumab. Twenty-four patients (96%) received definitive thoracic radiotherapy. The 1-year PFS rate is 76%, satisfying our efficacy objective. One- and 2-year OS rates are 92% and 76%, respectively. The most common grade 3 adverse events were colitis (n = 2, 8%) and esophagitis (n = 2, 8%), and no higher-grade treatment-related adverse events have occurred.CONCLUSIONPembrolizumab and risk-adapted radiotherapy, without chemotherapy, are a promising treatment approach for patients with LA-NSCLC with a PD-L1 TPS of ≥50%.

Hematology-Oncology

Saeed A, Colby S, Oberstein PE, Duda DG, Agarwal R, Figueroa-Moseley C, Vaidya R, Unger JM, Guthrie KA, Rocha FG, Senthil M, Safyan RA, Wainberg ZA, Iqbal S, Chiorean EG, and **Philip PA**. SWOG S2303: Randomized phase II/III trial of 2nd line nivolumab + paclitaxel + ramucirumab versus paclitaxel + ramucirumab in patients with PD-L1 CPS 1 advanced gastric and esophageal adenocarcinoma (PARAMUNE). *J Clin Oncol* 2024; 42(3). Full Text

A. Saeed

Background: Anti-VEGFR2 antibody (ramucirumab) has efficacy in gastric cancer (GC), both as monotherapy & in combination with paclitaxel based on the REGARD & RAINBOW trials that led to its FDA approvals in the 2nd line setting. Preclinical data demonstrate significant tumor immune microenvironment modulatory effects from antiangiogenic agents, supporting the clinical study of dual VEGFR with immune checkpoint blockade. This has resulted in at least 7 FDA-approved combinations of anti-VEGF/VEGFR with anti-PD-1/PD-L1 agents in lung, renal, endometrial & liver cancers. Recent data showed encouraging activity with ramucirumab plus nivolumab & other trials with pembrolizumab and durvalumab in GC & esophageal adenocarcinoma. Notably, the addition of nivolumab to 2nd line ramucirumab plus paclitaxel was evaluated in a multi-center phase I/II trial. Study population consisted of 60% (26/43) harboring tumors positive for PD-L1 CPS $ 1. Results revealed encouraging efficacy (ORR 37.2%, 6-month PFS 46.5%) in the overall population. Median PFS and OS were found to be numerically higher in PD-L1 CPS$1 (6.4 months&13.8 months respectively) compared to CPSnegative participants (5.1 months & 8.0 months), suggesting a predictive impact of PD-L1 CPS in this treatment setting. Methods: SWOG2303 is a national, randomized, open label, phase II/ III trial to assess the efficacy and safety of nivolumab + paclitaxel + ramucirumab versus paclitaxel + ramucirumab in adult patients with advanced stage MSS/pMMR PD-L1 CPS $ 1 gastric and esophageal adenocarcinoma. Patients must have documented MSI and PD-L1 CPS status by standard of care tissue-based analysis, evaluable disease on imaging, and Zubrod performance status (PS) 0-1. They should also have clinical or radiographic progression or intolerance to frontline standard of care systemic therapy with PD-1 inhibitor containing fluoropyrimidine based chemotherapy regimen. Patients with HER2 positive disease are excluded as well as patients with prior significant immunotherapy related adverse events (iRAEs) that prompted permanent discontinuation of the PD-1 agent. Planned enrollment is 224. Participants will be randomized using a dynamic balancing algorithm with stratification based on Zubrod PS (0 vs 1), tumor

location (gastric vs GEJ or esophageal) and PD-L1 CPS ($5 vs ,5). Primary endpoints are PFS for phase II and OS for phase III. Secondary endpoints include overall response rate, disease control rate,&safety. Baseline and pharmacodynamic changes in cellular and plasma angiogenic, inflammatory, and immune biomarkers will be explored & correlated with the efficacy. Other endpoints include health quality of life measured using the Functional Assessment of Cancer Therapy-Gastric (FACT-Ga). Enrollment is ongoing.

Hematology-Oncology
Safyan RA, Colby S, Figueroa-Moseley C, Guthrie KA, Chiorean EG, and **Philip PA**. Diversity of patients enrolled in SWOG gastrointestinal cancers therapeutic trials. *J Clin Oncol* 2024; 42(3). Full Text

R.A. Safyan

Background: Racial/ethnic minorities, elderly, and rural populations are underrepresented in clinical trials. Globally, gastrointestinal (GI) cancers represent more than a quarter of all cancers, and socioeconomic and lifestyle factors impact their incidence. Additionally, racial/ ethnic disparities exist across GI tumor types, including early-onset colorectal cancer, and are associated with survival outcomes. Here we examine the proportion of women and minority participants with GI malignancies enrolled on SWOG Cancer Research Network therapeutic trials. Methods: We analyzed data on participants enrolled to SWOG phase I-III GI cancers treatment trials launched and completed between 2011-2021 according to sex, age (, 70 years vs$70 years), ethnicity (Hispanic vs not Hispanic), Race (Black vs Asian/Pacific Islander (PI) vs Native American vs White), insurance type (Medicaid or no insurance vs other), and residence types (classified as urban, large rural, small rural, and isolated small rural) using Rural-Urban Commuting Area (RUCA) codes based on zip codes. Participants reporting any category of Black, Asian/PI, Native American, or Hispanic were considered minority. Results: In total, n=1486 participants from 10 trials (S1005, S1115, S1201, S1310, S1313, S1406, S1505, S1513, S1613, S1815) conducted in 5 different GI cancers categories were enrolled, of whom 696 (46.8%) were women and 313 (21.1%) were minority. The five cancer types represented were biliary tract (34.0%), colorectal (10.8%), esophageal (4.8%), gastric/gastroesophageal junction (GEJ) (14.5%), and pancreatic (35.9%). Overall, 696 (46.8%) were female, 94 were Black (6.3%), 83 (5.6%) were Asian/PI, 5 (0.3%) were Native American, 132 were Hispanic (8.9%), 349 (23.5%) were $ 70 years, 1263 (85.0%) lived in an urban area, and 155 (10.4%) had Medicaid or no insurance. Minority participants were younger on average than non-minority participants (mean 58.7 vs 63.1, p,0.001), more likely to live in urban settings (92.7% vs. 82.9%, p,0.001) and have Medicaid or no insurance (26.5% vs. 6.1%, p,0.001). Over one-third (37.9%) of Hispanic, 22.3% of Black, and 13.3% Asian/PI participants vs 8.0% of White participants had Medicaid or no insurance. Women's participation varied according to cancer type, ranging from 8.3% for esophageal to 56.2% for biliary tract, as did minority participation, ranging from 5.6% for esophageal to 36.6% for gastric/GEJ. Conclusions: Our findings suggest that racial/ethnic minorities, the elderly, and those residing in non-urban settings were less likely to enroll in SWOG GI cancers treatment trials than were whites, younger patients, and urban residents. Efforts are needed to enhance diverse enrollment, to break down barriers preventing minority participation, and to improve trial access to minimize disparities.

Hematology-Oncology
Shaffer BC, Frigault MJ, Moustafa MA, **Peres E**, Tsai DSB, Levy S, Geffen Y, Mazor DR, and Bachanova V. A Phase I/II Study of GDA-201, Cryopreserved Nicotinamide-Enhanced Allogeneic Natural Killer Cells, in Patients with Relapsed/Refractory B-Cell Lymphoma. *Transplant Cell Ther* 2024; 30(2):S196. Full Text

B.C. Shaffer, Department of Medicine, Adult Bone Marrow Transplant Service, Memorial Sloan Kettering Cancer Center, New York, NY

Background: GDA-201 consists of metabolically enhanced ex-vivo expanded allogeneic Natural Killer (NK) cells, manufactured using nicotinamide-based expansion technology. GDA-201 cells exhibit improved homing to lymphoid organs, decreased expression of inhibitory checkpoints, augmented resistance to oxidative stress and competent cytotoxicity. We have previously shown that a fresh formulation of GDA-201 in combination with rituximab was well tolerated and demonstrated clinical efficacy with long term responses in patients (pts) with relapsed/refractory B-cell non-Hodgkin lymphoma

(R/R B-NHL). This is a phase I/II open label, multicenter study evaluating the safety and efficacy of allogeneic cryopreserved GDA-201 in pts with R/R B-NHL (NCT05296525). Methods: The primary objective was to determine the maximal tolerated dose of GDA-201 based on dose limiting toxicities (DLTs). Eligible pts were adults with follicular lymphoma (FL), diffuse large B-cell lymphoma (DLBCL), high grade B-cell lymphoma (HGBCL), mantle cell lymphoma (MCL), and marginal zone B-cell lymphoma (MZL) who received ≥2 previous lines of therapy and were ineligible for or had relapsed / refractory disease after CAR-T cell therapy. Response was assessed using Lugano criteria. GDA-201 was administered with rituximab after fludarabine/cyclophosphamide lymphodepletion, followed by low dose IL-2. Pts were enrolled using a 3X3 dose escalation design comprising four dose cohorts (2.5x107, 5 x107, 1x108 and 2x108 cells/kg). Results: Ten pts (5 male, 5 female), median age 64.5 years (range: 40-78), with DLBCL/HGBCL (n=6), MZL (n=2), FL (n=1), and MCL (n=1) were enrolled in 3 dose cohorts up to 1x108 cells/kg. Pts had a median of 6 prior lines of therapy (range: 3-8); 6 pts relapsed after CAR-T cell therapy, and 4 pts relapsed after hematopoietic cell transplant (autologous: 2, allogeneic: 2). There were no infusion reactions, DLTs, or related serious adverse events. The most common grade 3-4 adverse event was neutropenia, reported in all pts. Two pts at 1x108 cells/kg had cytokine release syndrome (1 grade 1, 1 grade 2). No cases of immune effector cell associated neurotoxicity syndrome or graft versus host disease were reported. One pt died of disease progression. Two pts had complete response, 2 pts had partial response and one had stable disease. Responders included 3 pts who had relapsed after CAR-T. Response appears to be dose dependent with 2/3 pts in Cohort 3 responding. Cohort 4, at the target GDA-201 dose level of 2x108 cells/kg, is currently enrolling. Conclusion: GDA-201 with rituximab was well tolerated in doses up to 1x108 cells/kg and demonstrated evidence of clinical efficacy in pts with R/R B-cell NHL including in the post-autologous CAR-T setting.

Hematology-Oncology
Shan YS, Li CP, **Khan G**, Lee WJ, Choi HJ, Chang HM, Lee MH, Wallmark JM, and Chen PN. A phase I/II study of antroquinonol in combination with nab-paclitaxel and gemcitabine for patients with metastatic pancreatic cancer. *J Clin Oncol* 2024; 42(3). Full Text

Y.-S. Shan

Background: The survival of metastatic pancreatic cancer (mPC) is still disappointing though advancement in recent regimens. Antroquinonol, a new chemical entity, has been proposed for the treatment of neoplasms. In this phase I/II trial, we investigated the dose and efficacy of antroquinonol combined with gemcitabine and nab-paclitaxel (Gem/Nab-P) on mPC patients. Methods: Patients with chemo-naive, metastatic PDAC were enrolled. In the phase I, run-in drug-drug interaction (DDI) and dose escalation in a 3 + 3 designed to determine the maximal tolerated dose (MTD) of antroquinonol for phase II study. Gem/Nab-P (gemcitabine 1000 mg/ m2 and nab-paclitaxel 125 mg/m2 on days 1, 8, and 15 every 4 weeks) was given from cycle 0 in phase I. The dose of antroquinonol was escalated from 200mg orally three times a day since the first cycle of Gem/Nab-P. The primary end points were median PFS and 6-month PFS rate. This trial is registered at ClinicalTrials.gov: NCT03310632. Results: In the phase I study of 15 patients, the MTD of antroquinonol was 300mg tid. In the phase II study of 40 patients, the median PFS was 5.3 (95% CI: 3.7-7.5) months and 6-month PFS rate was 40% (95% CI: 21%-57%), whereas median OS was 12.6 (95% CI: 8.8-15.8) months and12-month OS rate was 59.9% (95% CI: 37.8%-76.4%), respectively. The adverse events including hematological and non-hematological classes were decreased in the antroquinonol plus Gem/Nab-P, the GI discomforts were increased but manageable. Conclusions: In this phase I/II trial, antroquinonol plus Gem/Nab-P showed good efficacy in survival and less adverse events than a first-line strategy of Gem/Nab-P for mPC patients.

Hematology-Oncology
Yamamoto KL, Henderson N, **Hwang C**, Barata PC, Bilen MA, Kilari D, Graham L, Garje R, Rothstein S, Koshkin VS, Tripathi A, Cackowski FC, Nauseef JT, Schweizer MT, Armstrong AJ, Dorff TB, Alva AS, and McKay RR. The impact of SPOP gene alterations in men with metastatic prostate cancer: Results from the Prostate Cancer Precision Medicine Multi-Institutional Collaborative Effort (PROMISE) consortium. *J Clin Oncol* 2024; 42(4). Full Text

K.L. Yamamoto

Background: Inactivating mutations in the SPOP gene, encoding speckled-type poxvirus and zinc-finger protein, are common among men with localized and metastatic prostate cancer, occurring at a frequency of 6-15%. Previous studies have suggested the presence of an inactivating mutation in SPOP results in increased sensitivity to androgen deprivation therapy (ADT). In this multi-institutional clinical-genomic database, we evaluated the impact of SPOP alterations on survival outcomes in men with metastatic prostate cancer. Methods: Retrospective data from the PROMISE Consortium were utilized for this analysis. Eligible patients had metastatic prostate cancer and had undergone standard of care next-generation sequencing (NGS). Patients with inactivating mutations in SPOP were defined as SPOP mutated, where. as those lacking such alterations were defined as SPOP wild-type. The primary endpoint was overall survival defined as the time from diagnosis of metastatic prostate cancer to death from any cause, censored at the date of last follow-up. Secondary endpoints included time from metastatic disease to castration resistance and time from castration resistance to death. Results: Of the 2097 patients with available NGS testing, 5.5% (n=115) had SPOP alterations. The median age at diagnosis was 63 years, 427 were Black, and 83 were Hispanic. At last assessment, 66% had bone metastases, 7% lung metastases, and 5% liver metastases. The most frequent co-occurring alterations in the SPOP-mutated group were: TP53 (30.4%), APC (25.2%), and AR (21.7%). 1832 patients were included in the survival analysis [n=96 (5.2%) with and n=1736 (94.8%) without SPOP alterations]. Median overall survival was numerically longer, though not statistically significant, in the SPOP-mutated compared SPOP-wild-type group (75.9 versus 59.5 months, p=0.12). In patients with metastatic disease, median time to castration resistance was 14.6 months in the SPOP-mutated group versus 12.2 months in the SPOP-wild-type group (p=0.30). Median time from metastatic castration resistant to death was 45.0 months in the SPOP-mutated group and 40.2 months in the SPOP-wild type group. Conclusions: Our hypothesis generating data support that SPOP-mutated prostate cancer likely represents a unique molecular subtype of prostate cancer that may confer prolonged survival. Future studies of novel androgen-receptor targeting treatments should be tested in this molecular population.

Hospital Medicine

Aljobory O, **Mohammed I**, Patel D, Dweik A, Rasheed W, Gutal A, and Tanami S. UNTREATED SINUSITIS LEADING TO LIFE-THREATENING TOXIC SHOCK SYNDROME. *Crit Care Med* 2024; 52. Full Text

Infectious Diseases

Cuenca J, Moscoso B, **Cardenas D**, Schettino M, Gonzalez-Mosquera D, Tobar P, **Gonzalez-Mosquera L**, and Nates J. HEALTHCARE-ASSOCIATED INFECTIONS IN PATIENTS WITH HEMATOLOGIC MALIGNANCIES: A NATIONWIDE ANALYSIS. *Crit Care Med* 2024; 52. Full Text

Internal Medicine

Bugazia S, **Selim A**, **Rehman M**, and **Mahmoud M**. FIRST REPORT OF SALMONELLA DUBLIN SUBDURAL EMPYEMA: A RARE PRESENTATION OF CNS INFECTION. *Crit Care Med* 2024; 52. Full Text

Neurology

Bugazia S, **Selim A**, **Rehman M**, and **Mahmoud M**. FIRST REPORT OF SALMONELLA DUBLIN SUBDURAL EMPYEMA: A RARE PRESENTATION OF CNS INFECTION. *Crit Care Med* 2024; 52. Full Text

Obstetrics, Gynecology and Women's Health Services

Rattan R. CANCER LETTERS 581 (2024) 216528 216563 TARGETING MITOCHONDRIA IN EOC TO IMPROVE IMMUNITY. *Cancer Lett* 2024; 581. Full Text

Pharmacy

August B, **Gutenschwager D**, **Griebe K**, **Swiderek J**, **Veve M**, and **Smith Z**. PRONING IN ACUTE RESPIRATORY DISTRESS SYNDROME: TO PARALYZE OR NOT TO PARALYZE, THAT'S THE QUESTION. *Crit Care Med* 2024; 52. Full Text

Pharmacy
Brochu J, **Hodges S**, Kantharia S, **Jones M**, and **August B**. CHARACTERIZING FLUID HYDRATION PRACTICES AMONG PATIENTS RECEIVING INTRAVENOUS ACYCLOVIR THERAPY. *Crit Care Med* 2024; 52. Full Text

Pharmacy
Gonzalez-Mosquera LF, **Neme MK**, **Mikulandric N**, **Mazur I**, **Emole J**, **Alavi A**, **Peres E**, **Abidi MH**, and **Farhan S**. Abatacept with FluBu2: To Use or Not to Use. *Transplant Cell Ther* 2024; 30(2):S159. Full Text

L.F. Gonzalez-Mosquera, Hematology and oncology, Henry Ford Hospital, Detroit, MI, United States

Introduction: In 2021, the FDA approved using abatacept (ABA) for acute graft versus host disease (aGVHD) prevention in adults and pediatric patients 2 years of age and older undergoing hematopoietic stem cell transplantation (SCT) from a matched (MUD) or 1 allele-mismatched unrelated donor (MMUD), based on the phase II ABA2 study. In that study, there was no difference in engraftment or relapse between patients who received ABA and those who did not. However, this study included a significant number of young patients (median age <50) and less than 30% of patients received reduced intensive conditioning (RIC), and none received RIC Fludarabine + Busulfan (FluBu2). In addition, recently another retrospective study that included 22 patients with median age at SCT of 66 years looked at ABA as GVHD prophylaxis however 20 patients received fludarabine/melphalan and two received busulfan/cyclophosphamide conditioning. None received FluBu2. Methods: We conducted a retrospective analysis including only patients who received RIC FluBu2 and unrelated peripheral blood (PB) SCT with available day30 and day100 chimerism between January 2017 to July 2023. Chimerism was measured with short tandem repeats (STR) around day +30 and day +100. The study's primary endpoint was to explore impact of ABA on early donor chimerism in these patients with secondary outcomes of overall survival (OS) and relapse free survival (RFS). Results: A total of 26 patients were identified, with 18 males and 8 females. Median age at SCT was 70 (range 39-81). All patients had disease risk index (DRI) intermediate or high. Six received ABA plus methotrexate and tacrolimus, and 20 received tacrolimus with either methotrexate or mycophenolate mofetil, without ABA or ATG or PTCy. Any decrease in chimerism from Day 30 to Day 100 was seen in 100% (6/6) in ABA patients versus 15% (3/20) of non-ABA patients (p=0.0218) (Figure 1). Chimerism of < 98% on Day100 was seen in 100% (6/6) of ABA patients versus 25% (5/20) in non-ABA patients (p=0.0014). There were 3/6 (50%) deaths and 3/6 (50%) relapses in the ABA group compared with 8/20 (40%) deaths and 3/20 (15%) relapses in the non-ABA group. The ABA group had a worst mean OS, with 5.16 months versus 31.85 months (p= 0.0035) in the non-ABA group (Figure 2). The mean RFS was 2.7 months vs. 27.85 months in the ABA versus non-ABA group, respectively, p= 0.0064 (Figure 3). On multivariate analysis that included donor MUD/MMUD, DRI and comorbidity index, ABA versus no ABA seems to be independent predictor of OS and RFS Conclusions: In this small single center retrospective analysis of older patients receiving unrelated PB SCT using FluBu2, the use of ABA was associated with decrease chimerism from day 30 to day 100, increased relapse, and worse survival. Larger studies are needed to corroborate these results. Continuing with that premise, we submitted a proposal to the CIBMTR to use the more extensive database.

Pharmacy
Kantharia S, **Veve M**, **Mulugeta S**, **Beaulac A**, **Vincent S**, and **Patel N**. IMPACT OF METHICILLIN-RESISTANT STAPHYLOCOCCUS AUREUS NASAL PCR ON VANCOMYCIN USE IN PNEUMONIA. *Crit Care Med* 2024; 52. Full Text

Pharmacy
Millard H, Gladden D, **Ridgeway E**, and Moorhouse W. GLUCOSE CONTROL IN ICU PATIENTS DURING THE COVID PANDEMIC. *Crit Care Med* 2024; 52. Full Text

Public Health Sciences
Alghanem F, **Pieczarka P**, **Boudreau B**, **Chamseddine M**, **Jacobsen G**, **Nowak K**, **Fayed M**, and **Chhina A**. EFFECTS OF FLOW RATE DURING HIGH-FLOW NASAL CANNULA USE IN COVID-19 RESPIRATORY FAILURE. *Crit Care Med* 2024; 52. Full Text

Public Health Sciences
O'Reilly D, **Zoratti E**, **Eapen A**, **Kim H**, **Sitarik A**, **Joseph C**, Ownby D, **Todter E**, **Wegienka G**, and **Johnson CC**. Is Cord Blood IgE Associated with Allergic Sensitization, Total IgE, FeNO, Lung Function, and Atopic Diseases During Pre-Adolescence? *J Allergy Clin Immunol* 2024; 153(2):AB175. Full Text

Rationale: Atopic conditions are common and represent a substantial healthcare burden. Investigation of cord blood IgE as a predictor of future atopic disease has yielded varying results. We aimed to investigate these associations in a racially diverse population through our Wayne County Health, Environment and Allergy Longitudinal (WHEALS) population-based birth cohort. Methods: Of the 1258 original WHEALS participants, 839 were included in at least one analysis. The association between cord blood IgE and childhood characteristics of atopy and allergic disorders was evaluated. Ten-year atopic outcomes included allergen sensitization via skin prick test (SPT), serum allergen-specific IgE (sIgE), fractional exhaled nitric oxide (FeNO), spirometric measures, and diagnosis of current asthma, atopic dermatitis (AD), and allergic rhinitis. Total IgE was assessed at multiple timepoints to 10 years. Models were adjusted for several variables including race, maternal sensitization, maternal prenatal antibiotic use, maternal marital status, household income, and firstborn status of child. Results: Cord IgE was associated with higher serum total IgE at 6-month, 1-year, 2-year, and 10-year visits ($p<0.001$). Significant associations were also observed with binary sIgE sensitization ($p<0.001$), and sIgE multi-sensitization ($p=0.012$). No associations were apparent with SPT, FeNO, airway obstruction (FEV1/FVC) or diagnosis of current asthma, AD, or allergic rhinitis. Conclusions: Higher cord IgE was associated with higher future serum IgE and allergen sensitization at 10 years measured by serum sIgE testing. However, cord IgE did not predict sensitization measured by SPT, clinical atopic disease diagnosis or other common characteristics of atopy among a diverse cohort of children.

Pulmonary and Critical Care Medicine
August B, **Gutenschwager D**, **Griebe K**, **Swiderek J**, **Veve M**, and **Smith Z**. PRONING IN ACUTE RESPIRATORY DISTRESS SYNDROME: TO PARALYZE OR NOT TO PARALYZE, THAT'S THE QUESTION. *Crit Care Med* 2024; 52. Full Text

Radiation Oncology
AlKhatib SAR, **Feldman AM**, **Adil K**, and **Movsas B**. Impact of Comorbidity Index on Clinical Outcome after Stereotactic Body Radiation Therapy in High-Risk Early-Stage Non-Small Cell Lung Cancer. *Int J Radiat Oncol Biol Phys* 2024; 118(1):E13-E13. Full Text

Radiation Oncology
Regan S, Dykstra M, Yin H, McLaughlin P, Bhatt A, Boike TP, **Walker EM**, Zaki MA, Kendrick R, Mislmani M, Paluch S, Litzenberg D, Mietzel MA, Narayana V, Smith A, Heimburger DK, Schipper MJ, Jackson WC, and Dess RT. Microboost dose escalation for localized prostate cancer within a statewide radiation oncology quality consortium. *J Clin Oncol* 2024; 42(4). Full Text

S. Regan

Background: The phase III FLAME trial demonstrated that in localized prostate cancer, an external beam radiotherapy (EBRT) simultaneous integrated microboost to an MRI-defined dominant intraprostatic lesion improves biochemical control without affecting toxicity and quality of life. Given the complexity required to deliver high microboost doses, we hypothesized that practice patterns are variable in clinical practice. We aimed to characterize microboost utilization and evaluate dosimetric parameters within the statewide Michigan Radiation Oncology Quality Consortium (MROQC). Methods: Men with intermediate or high-risk prostate adenocarcinoma treated with curative intent radiotherapy for intact disease were included. Data was prospectively collected, including T/N-category, Gleason score, prostate-specific antigen, and percent positive biopsy cores. Full DICOM files were available for dosimetric data. Multivariable analyses (MVA) were used to evaluate associations between receipt of microboost, known prognostic factors, and fiducial marker and rectal spacer placement (advanced image guided radiation therapy (IGRT)). Results: From 10/26/20 to 06/26/23, 741 patients across 26 centers were enrolled, 71% (n=528) with intermediate-risk and 29% (n=213) with high-risk disease. Androgen deprivation therapy was planned in 61%. EBRT +

whole-gland brachytherapy boost was utilized in 29% (n=217/741) of patients. Of those treated with EBRT (71%, n=524/ 741), 10% received a microboost (n = 53/524). Brachytherapy boost and microboost were used in 9 and 7 centers, respectively. Most patients received either conventional fractionation or moderate hypofractionation- 11% and 66% in EBRT without microboost and 21% and 60% with microboost, respectively. Microboost treatment was associated with use of a planning MRI (91% vs. 62%, p <0.0001) as well as fiducial marker and rectal spacer placement (76% vs. 45%, p <0.0001). Median prostate planning target volume (PTV) was smaller in microboost patients (127 cc vs. 91 cc, p = 0.002); median boost volume was 21 cc. Median boost dose (D0.1cc) was 117% (IQR 115% - 119%) of the PTV prescription. Microboost patients had significantly higher mean bladder D1cc[%] (105.7% vs. 103.4%, p = 0.002) and numerically lower rectal D1cc[%] (90.7% vs. 94.1%, p = 0.065). On MVA, receipt of microboost was significantly associated with grade group 4 or 5 disease, planning MRI use, and fiducial and rectal spacer use. Conclusions: Within a large, diverse prospective cohort of men with prostate cancer treated in both academic and community settings, a microboost was utilized in 10% of EBRT cases. Microboost use was associated with higher grade group, MRI planning, and advanced IGRT. EBRT microboost is an emerging dose escalation strategy and further studies confirming safety and improved clinically meaningful outcomes may increase uptake in routine practice.

Sleep Medicine

Ortiz LE, **Roth T**, Morse AM, Thorpy MJ, Harsh J, Kushida CA, Dubow J, Gudeman J, and Dauvilliers Y. Composite response with once-nightly sodium oxybate: symptom improvement in participants with narcolepsy type 1 in REST-ON. *Sleep Med* 2024; 115:210-211. Full Text

Introduction: A novel once-nightly formulation of sodium oxybate (ON-SXB; FT218; LUMRYZ™) was investigated in patients with narcolepsy type 1 (NT1) and 2 (NT2) in the phase 3 REST-ON trial. ON-SXB treatment resulted in statistically significant improvements vs placebo for the coprimary endpoints of 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 attacks, as well as the secondary endpoint of improved excessive daytime sleepiness (EDS) using the Epworth Sleepiness Scale (ESS; all P<0.001 vs placebo). ON-SXB was well tolerated; most common adverse drug reactions were dizziness, nausea, vomiting, headache, and enuresis (consistent with the known safety profile of sodium oxybate). The objective of this responder analysis was to assess the proportion of participants with NT1 achieving clinically significant improvement on a composite of these endpoints. Materials and Methods: REST-ON was a multicenter, randomized, double-blind, placebo-controlled phase 3 clinical trial (NCT02720744) designed to evaluate the efficacy and safety of ON-SXB for the treatment of narcolepsy. Participants (aged ≥16 years with NT1 or NT2) who had continuing presence of excessive daytime sleepiness (sleep latency <11 min on the MWT and ESS score >10) and continuing cataplexy (average of 8 episodes/week) were randomly assigned to ON-SXB or placebo. Doses were 4.5 g week 1; 6 g weeks 2−3; 7.5 g weeks 4−8; and 9 g weeks 9−13. This post hoc analysis examined the proportion of participants with NT1 who had clinically significant improvement according to thresholds defined in the 2021 American Academy of Sleep Medicine Clinical Practice Guidelines in 2, 3, or all 4 of the following endpoints: MWT (2-min improvement), CGI-I (1-point improvement), cataplexy (25% decrease), or ESS (2-point improvement) for each of the doses examined. Results: The mean age of participants with NT1 was 32.1 years, 72.8% were female, and most were white (76.5%). The modified intent-to-treat population included 145 participants with NT1 (ON-SXB, n=73; placebo, n=72). At week 3 (6 g), more participants treated with ON-SXB vs placebo had clinical improvement in ≥2 endpoints (79.5% vs 48.6%; all P<0.01), ≥3 endpoints (54.8% vs 25.0%; P<0.001), and in all 4 endpoints (28.8% vs 11.1%; P=0.012). At week 8 (7.5 g), more participants treated with ON-SXB vs placebo had clinical improvement in ≥2 endpoints (86.4% vs 59.4%; P<0.01), ≥3 endpoints (62.1% vs 31.9%; P<0.001), and in all 4 endpoints (33.3% vs 10.1%; P<0.001). At week 13 (9.5 g), more participants treated with ON-SXB vs placebo had clinical improvement in ≥2 endpoints (87.3% vs 62.9%; P<0.01), ≥3 endpoints (76.4 vs 43.5%; P<0.001), and in all 4 endpoints (47.3% vs 14.5%; P<0.001). Conclusions: These data support the robust clinical efficacy of ON-SXB, a once-at-bedtime oxybate for treatment of cataplexy or EDS in adults with narcolepsy, using multiple disease state metrics compared with placebo. Acknowledgements: This study was funded by Avadel Pharmaceuticals.

Sleep Medicine
Roth T, Dauvilliers Y, Bogan RK, Plazzi G, and Black J. Effects of oxybate on sleep, sleep architecture, and disrupted nighttime sleep. *Sleep Med* 2024; 115(Supplement 1). Full Text.

Henry Ford Hospital, Detroit, United States
Sleep and Wake Disorders Centre, Department of Neurology, Gui de Chauliac Hospital, Montpellier, France
University of Montpellier, INSERM Institute Neuroscience Montpellier (INM), Montpellier, France
Medical University of South Carolina, Charleston, United States
Bogan Sleep Consultants, LLC, Colombia, United States
University of Modena and Reggio-Emilia, Department of Biomedical, Metabolic and Neural Sciences, Modena, Italy
IRCCS Istituto delle Scienze Neurologiche di Bologna, Bologna, Italy
Stanford University Center for Sleep Sciences and Medicine, Palo Alto, United States
Jazz Pharmaceuticals, Palo Alto, United States

Sleep Medicine
Roth T, Morse AM, Bogan R, Roy A, Dubow J, Gudeman J, and Dauvilliers Y. Characterization of patients who had ≥5% weight loss with once-nightly sodium oxybate: post hoc analysis from REST-ON. *Sleep Med* 2024; 115:209. Full Text

Introduction: Narcolepsy, particularly type 1 (NT1), is often comorbid with obesity. Efficacy and safety of a once-at-bedtime oxybate (LUMRYZ™, sodium oxybate for extended-release oral suspension, CIII [FT218; once-nightly sodium oxybate (ON-SXB)]), were shown in the phase 3 REST-ON clinical trial (NCT02720744). Materials and Methods: REST-ON was a 13-week, randomized (1:1), double-blind, placebo-controlled multicenter study in patients ≥16 years old with NT1/NT2. ON-SXB doses were 4.5 g for 1 week, 6 g for 2 weeks, 7.5 g for 5 weeks, and 9 g for 5 weeks. Stable concomitant stimulant use was permitted. A post hoc analysis to further characterize participants in the ON-SXB group experiencing ≥5% weight loss (weight-loss group) in REST-ON was conducted. Results: In REST-ON (n=212), mean participant age was 31.2 years (range, 16–72), 67.9% were female, 75.5% were white, 76.4% had NT1, mean baseline BMI was 28.1 kg/m2 (range, 16.9–71.9), and 61.3% were taking stimulants. At the end of the study, mean (SD) weight had decreased by 1.3 (3.6) kg in the ON-SXB and had increased by 0.2 (2.6) kg in the placebo group; least squares mean (LSM; SE) change from baseline was –0.51 (0.13) kg/m2 with ON-SXB and 0.08 (0.13) kg/m2 with placebo (LSM difference [95% CI], –0.59 [–0.95 to –0.23] kg/m2; P=0.001). At week 13, 17.8% (19/107) of participants receiving ON-SXB experienced ≥5% weight loss vs 3.8% (4/105) of participants receiving placebo (P<0.001). Compared to the REST-ON population without weight loss, the weight-loss group had similar age and proportion of NT1 diagnosis, a smaller proportion was female, and a higher proportion was white and was taking stimulants. At baseline, mean BMI was 25.6 kg/m2 (range, 20.3–34.0) in the weight-loss group, 47.4% (9/19) were overweight (BMI 25.0–29.9kg/m2) or obese (BMI >30kg/m2); none were underweight (BMI <18.5kg/m2). At week 13, 31.6% (6/19) remained overweight or obese; none were underweight. Excessive daytime sleepiness was significantly improved from baseline to week 13 (ON-SXB 9 g) in the weight-loss group vs the group without weight loss (Maintenance of Wakefulness test, P<0.05; Epworth Sleepiness Scale score, P<0.001). On the Clinical Global Impression of Improvement, 84.6% of participants in the weight loss group were classified as “much” or “very much improved” at week 13 vs 69.8% in the group without weight loss (odds ratio, 2.4; 95% CI, 0.5–10.7). Adverse events of nausea and vomiting were more frequent in the weight-loss group (42.1%) vs the group without weight loss (19.7%); however, rate of discontinuations owing to AEs in the weight-loss group was half that of the ON-SXB group without weight loss (10.5% vs 21.1%, respectively). Conclusions: These data expand the body of knowledge regarding weight loss during treatment with sodium oxybate. Given the high proportion of comorbid obesity among people with narcolepsy, the additional benefit of potential weight loss with sodium oxybate may further inform treatment selection. Efficacy of ON-SXB for treatment of narcolepsy symptoms was demonstrated overall; further exploration of possible increased pharmacologic response in certain subgroups should be evaluated. Acknowledgements: Funded by Avadel Pharmaceuticals.

Sleep Medicine

Roth T, Thorpy MJ, Kushida CA, Morse AM, Dubow J, Gudeman J, and Dauvilliers Y. Application of AASM clinical significance thresholds to once-nightly sodium oxybate for improvement in narcolepsy symptoms. *Sleep Med* 2024; 115:205-206. Full Text

Introduction: Extended-release sodium oxybate taken once at bedtime (LUMRYZ™, sodium oxybate for extended-release oral suspension [FT218; once-nightly sodium oxybate (ON-SXB)]), was evaluated for the treatment of narcolepsy in adults in the phase 3 REST-ON clinical trial (NCT02720744). The 3 coprimary endpoints, mean sleep latency on the Maintenance of Wakefulness Test (MWT), Clinical Global Impression-Improvement rating, and weekly number of cataplexy attacks (NCA), and the secondary endpoint of Epworth Sleepiness Scale (ESS) score were significant for ON-SXB vs placebo at weeks 3 (6-g dose), 8 (7.5-g dose), and 13 (9-g dose; all P<0.001) and the treatment was well tolerated (most common adverse drug reactions: dizziness, nausea, vomiting, headache, enuresis). These data were published after the cutoff for inclusion in the 2021 American Academy of Sleep Medicine (AASM) clinical practice guidelines for narcolepsy treatment; thus, REST-ON results were analyzed according to AASM clinical significance thresholds (CSTs). Materials and Methods: Individuals with narcolepsy type 1 [NT1] or 2 [NT2] and age ≥16 years were randomized 1:1 to receive double-blind ON-SXB (4.5 g, 1 week; 6 g, 2 weeks; 7.5 g, 5 weeks; 9 g, 5 weeks) or matching placebo. For each dose (6 g, week 3; 7.5 g, week 8; and 9 g, week 13), least-squares mean (LSM) difference from placebo was calculated for change from baseline in mean sleep latency on the MWT, ESS score, and percentage reduction in NCA. Percentage of participants with improvement (very much/much/minimally improved) on the CGI-I was also calculated. As defined in the 2021 AASM guidelines, CSTs were the following changes from baseline vs placebo: MWT, ≥2-minute increase; ESS, ≥2-point decrease; and cataplexy, ≥25% decrease in NCA. The CST for CGI-I was ≥33% reporting improvement from baseline. Results: 190 participants (ON-SXB, n=97 [NT1, n=73]; placebo, n=93 [NT1, n=72]) were in the modified intent-to-treat population. On the MWT, difference in LSM change from baseline was 5.0, 6.2, and 6.1 minutes for ON-SXB 6, 7.5, and 9 g vs placebo, respectively. Differences in LSM change from baseline ESS scores were −2.1, −3.2, and −3.9 for ON-SXB 6, 7.5, and 9 g vs placebo, respectively. Differences in LSM percentage reduction in NCA were 26.0%, 34.2%, and 36.1% for ON-SXB 6, 7.5, and 9 g vs placebo, respectively. Percentage of participants with improvement (very much/much/minimally improved) on the CGI-I for ON-SXB 6 g (80.5%), 7.5 g (88.0%), and 9 g (92.8%) met the AASM CST. Conclusions: Clinically significant improvement in excessive daytime sleepiness (EDS), cataplexy, and overall condition per AASM-established criteria was met with ON-SXB 6, 7.5, and 9 g doses. FDA-approved ON-SXB is a once-at-bedtime treatment for improving EDS and cataplexy in adults with narcolepsy. Acknowledgements: This study was funded by Avadel Pharmaceuticals.

Books and Book Chapters

Neurology
Bonner K, Memon BB, and **Memon A**. Clinical Aspects of Multiple Sclerosis Essentials and Current Updates. In: Sriwastava S, and Triantafylou-Bernitsas E, eds. *Clinical Aspects of Multiple Sclerosis: Essentials and Current Updates*. Elsevier Science; 2024. Request Book

Surgery
Fish EM, **Shumway KR**, and Burns B. Physiology, Small Bowel. *StatPearls*. StatPearls Publishing LLC.; 2024. PMID: 30335296. Full Text

Henry Ford Health
East Tennessee State University (ETSU)
The small intestine (small bowel) is a hollow, tubular structure with an average adult length of 22 feet (7 meters), making it the longest portion of the gastrointestinal (GI) tract, where the majority of digestion occurs. The small intestine extends from the stomach pylorus to the ileocecal junction and is subdivided into 3 sections: the duodenum, jejunum, and ileum. Processing a single meal through the complete length of the small intestine takes up to 5 hours, coordinating with the stomach, gallbladder, and pancreas to cue digestive juices to break down and absorb 95% of food nutrients. The small intestine extracts excess water and sends the remaining food waste to the large intestine to form stool. The small intestine is positioned inside the inferior portion of the abdominal cavity, caudal to the stomach, and framed circumferentially by the large intestine. When empty and at rest, the width of the small intestine is about the width of an index finger. This small width gives it the name of the small intestine, not its length. Comparatively, the large intestine is shorter and wider.