



2026 12th Annual Research Symposium

Herbert Wertheim College of Medicine

Florida International University, 11200 SW 8th Street, Miami, FL 33199

Graham Center Ballrooms (GC), Modesto Maidique Campus

Friday, August 7, 2026

Program Overview

TIME	Activity	LOCATION
11:00 - 12:00 pm	Registration / Poster set-up	Lobby GC Ballrooms
12:00 - 1:00 pm	Networking & Reception Hour	Ballrooms
1:00 - 1:05 pm	Welcome Remarks Juan C. Cendan, M.D. Dean and Senior Vice President for Health Affairs Professor – Department of Surgery Herbert Wertheim College of Medicine Florida International University	Ballrooms
1:05 - 3:00 pm	Open Poster Session	Ballrooms
3:00 - 3:15pm	Awards to Best Posters and Closing Remarks	Ballrooms

*Posters will be available to view in the Graham Center Ballrooms with the presenters standing by their posters on display.

Poster presentations

1:05 to 3:00 pm

GC Ballrooms

Order	Title	Authors	Fields
Orthopedic Surgery			
P1	Two-Year Outcomes of Bridge Enhanced ACL Repair Versus ACL Reconstruction: A Systematic Review and Meta-Analysis	Caden R. Moenning, Teana Tee, Trisha Tee, Vahini Srikakulapu, Benjamin J. Kailes, Devon T. Foster, Jason Mirharooni, & Joseph L. Whalen	Orthopedic Surgery, Surgery
P2	Meniscal Repair versus Partial Meniscectomy in Anterior Cruciate Ligament Reconstruction: A Covariate-Controlled Institutional Registry Analysis	Elliot A Santaella Aguilar, Luis Hernandez, Alexandra Diane Moutafis, Yael Amozeg, Matthias Schurhoff, Luis A Vargas, John E Zvijac, Keith S Hechtman, & John William Uribe	Surgery, Orthopedic Sports Medicine
P3	Patient Recorded Outcome Measures After Fibular Nail Fixation: A Retrospective Review	Kyle A. Lorenzo, Vraj Parikh, Christina-Laura Chapman, Katherine Canada, Taylor N. Wingo, Jorge N. Gil, & Cary B. Chapman	Orthopedic Surgery, Surgery
P4	Use of a Minimally Invasive Surgical Intervention in the Repair of Acute Achilles Ruptures in Soccer-Related Injuries	Kyle A. Lorenzo, Fady Attalla, Katherine Canada Christina-Laura Chapman, Taylor N. Wingo, & Cary B. Chapman	Orthopedic Surgery, Surgery
P5	Mindfulness in Orthopedic Surgery and the Emerging Role of AI-Delivered Interventions	Ryan Rossow, Cameron Kurz, & Michael G. Rizzo	Surgery, Orthopedic Surgery
P6	Soccer-related ACL Injury Mechanisms and Associated Findings: Sex- Based Analysis	Halle Kurit, Camila A. Torres-Caiaffa, Mymuna Monem, Matthias R. Schurhoff, Luis A. Vargas, Keith S. Hechtman, William A. Davis III, Gautam P. Yagnik, John E. Zvijac, & John W. Uribe	Sports Medicine-Orthopedic Surgery, Surgery
Surgery			
P7	Postoperative Complications Following Autologous and Implant-Based Breast Reconstruction: An Analysis of 19,144 Patients from ACS NSQIP	Natalie B. Carter, Meredith Rosenberg, Alexander Rodriguez, Grettel Castro, & Juan M. Lozano	Surgery, Oncology
P8	Complementary Intraoperative Adjuncts for Glioblastoma Resection: A Structured Evidence Synthesis of 5-ALA, Intraoperative Ultrasound, and Intraoperative MRI	Audrey McAnally, Ashley Castresana, Neelesh Pandey, Vratko Himic, & Ricardo Komotar	Surgery, Oncology
P9	Global Publication Trends in Religion and Plastic Surgery: A Bibliometric Analysis	Carlota Gimenez Lynch, Sofia Kone, & Seth Thaller	Surgery, Religious Studies
P10	Evolution of Ethical Priorities Within Plastic Surgery: A Bibliometric Analysis of the 50 Most Influential Publications	Carlota Gimenez Lynch, Ainsley Hanrahan, & Seth Thaller	Surgery, Medical Ethics
P11	Is there a "Sweet Spot"? Glucose Metabolism during Normothermic Regional Perfusion and Association with Peri-operative Outcomes	Anastasia L. Kelarakos, Michelle Nguyen, Shennen Mao, Burcin Taner, Amit K. Mathur, & Kristopher P. Croome	Transplant Medicine, Surgery

P12	Risk Factors for 30-Day Surgical Site Infection Following Open Hip Fracture Repair: Analysis of the ACS NSQIP Database, 2016-2023	Sebastian Verrier Paz, Luis Hernandez, Alexander Gonzalez, Grettel Castro, Noël Christopher Barengo, & Juan Gabriel Ruiz	Surgery, Infectious Diseases
P13	Pre-existing Diabetes and Postoperative Sepsis After Amputation Procedures: A Non-Concurrent Cohort Study of ACS NSQIP Data, 2005–2024	Mendel Shloush, Brayden Tolman, Aaron Abrishami, Grettel Castro, Noël C. Barengo, & Juan Gabriel Ruiz-Pelaez	Surgery, Internal Medicine
P14	Comparing ChatGPT, OpenEvidence, and DocsGPT for Patient Education on Autologous Breast Reconstruction: A Quality, Readability, and Actionability Analysis	Jennifer Gomez, Logan Spiegelman, Adriana Grewe, Cassidy Marino, & David Mattos	Surgery, Oncology
P15	Educational Effectiveness of a 3D-Printed Appendix Model in the Third-Year Surgery Clerkship	Angela Slaybe, Christina Bien-Aime, Tracy Cassagnol, & Rakesh Ravikumaran Nair	Surgery, Medical Education
P16	Time-Kill of Preserved Artificial Tear Formulations Against Ocular Fungal Isolates	Nikki Jagid, Felipe Echeverri Tribin, Heather Durkee, Alexander Jesus Alfonso, Suraj Paudyal, Alison Rodriguez Leiva, Mariela C. Aguilar, Jorge Maestre Mesa, Maribel Hernandez, Beatriz Munoz Lorenzo, Harry W. Flynn, Guillermo Amescua, & Darlene Miller	Ophthalmology, Microbiology
P17	In vitro antimicrobial activity povidone-iodine and chlorhexidine against nontuberculosis mycobacterium	Jaelyn Alan Chang, Felipe Echeverri Tribin, Heather Durkee, Suraj Paudyal, Pramita Regmi, Alexander Jesus Alfonso, Mariela C. Aguilar, Jorge Maestre Mesa, Maribel Hernandez, Beatriz Munoz Lorenzo, Harry W. Flynn, Guillermo Amescua, & Darlene Miller	Ophthalmology, Microbiology
P18	Top 30 Cited Articles on Festoons, Malar Mounds, and Malar Bags: A Bibliometric Analysis	Henry Chi, Ainsley Hanrahan, Anshumi Desai, & Seth R. Thaller	Surgery, Education for Health Professionals
P19	Early Clinical Experience and Learning Curve Associated with Motion-Preserving Posterior Stabilization Using the Total Posterior Spine (TOPS) System	Adoniah Cummings, Sonia S. Majid, Adam S. Levy, Bhavjeet S. Sanghera, Adham M. Khalafallah, & S. Shelby Burks	Neurosurgery, Surgery
P20	Targeting Mitochondrial Dysfunction Improves Wound Healing in Aging Skin	Ana Monzant, Ryan Lee, Monica Rodriguez Silva, Sarah M. Antonevich, Emmy Dugi, Sara Danker, Shasa Hu, Marjana Tomic-Canic, Carlos T. Moraes, Ivan Jozic	Dermatology, Geriatrics
Gastroenterology			
P21	Socioeconomic analysis of pediatric onset inflammatory bowel disease at age 30: A population-based matched cohort study of patients and their siblings	Hunter Moran, Mads Lie, Anne Vinkel Hansen, Gry Juul Poulsen, & Tine Jess	Gastroenterology, Epidemiology
P22	Influenza Worsens Clinical Outcomes in Patients Hospitalized with Upper Gastrointestinal Bleeding: A Nationwide Analysis	Zeeshan Malik, Nura Salhadar, Venkataraghavan Ramamoorthy, Sankalp Das, Anshul Saxena, & Muni Rubens	Gastroenterology, Infectious Diseases

P23	Racial Disparities in Clinical Characteristics and Hospital Outcomes Among ERCP Hospitalizations: A National Inpatient Sample Analysis	Brian Murillo, Venkataraghavan Ramamoorthy, Carmen Priego Perez, Sankalp Das, Anshul Saxena, & Muni Rubens	Gastroenterology, Internal Medicine
P24	Impact of Artificial Intelligence-Assisted Colonoscopy on Clinically Meaningful Outcomes Beyond Adenoma Detection Rate: A Systematic Review	Brian A. Murillo, Venkataraghavan Ramamoorthy, Carmen Priego Perez, Sankalp Das, Anshul Saxena, & Muni Rubens	Gastroenterology, Internal Medicine
P25	Racial and Ethnic Disparities in Mortality Among U.S. Adults With Colorectal Cancer: A SEER-Based Cohort Study	Arthur Martinyan, Karin Avnery, Chrisnel Lamy, Frederick Anderson, Catherine Busatto, Francisco Fajardo, & Noël C. Barengo	Gastroenterology, Epidemiology
P26	Frailty Is Associated with Worse Outcomes in Patients Hospitalized with Variceal Hemorrhage: A Nationwide Analysis	Nura Salhadar, Zeeshan Malik, Venkataraghavan Ramamoorthy, Sankalp Das, Anshul Saxena, Muni Rubens	Gastroenterology, Internal Medicine
Oncology & Urology			
P27	Race as a Predictor of 10-Year Overall Survival in Small Bowel Adenocarcinoma: A Retrospective Cohort Study	Adis Kukuljac, Mohamad Srouf, Mateen Sheikh, Grettel Castro, & Marcia Varella	Oncology, Gastroenterology
P28	Association Between Online Search Interest and PSA Screening Prevalence Across Florida Metropolitan Areas: A Descriptive Study	Melissa Ruprich, David Harbaugh, Andrea Guzman, & Noël C. Barengo	Urology, Public Health
P29	Stage Migration in Prostate Cancer Among Men Aged 40-54 Years: A SEER Analysis, 2004-2022	David Harbaugh, Melissa Ruprich, Andrea Guzman, Qingyun Liu, & Noël C. Barengo	Urology, Oncology
P30	Prognostic Role of TERT Mutations in Chondrosarcoma: Associations with Dedifferentiation, Survival, and IDH/TERT Co-Mutations	Alyan Zafar, Daisy Ference, Brooke M. Crawford, Sergio Jose Torralbas Fitz, Francis J. Hornicek, & H. Thomas Temple	Oncology, Surgery
P31	Improving Clinical Trial Awareness Through Community Education: A Retrospective Survey of Diverse South Florida Participants	Leanne Dumeny, Yolcar Chamorro, Lauren Carcas, Cynthia Thiry, Mukesh Roy, Muni Rubens, Naomi Dempsey, Reshma Mahtani, & Ana Sandoval-Leon	Oncology, Community Education
P32	Racial and Ethnic Disparities in Breslow Depth at Melanoma Diagnosis: Analysis of SEER Data from 2010 to 2022	Anthony Membreno, Sebastian Acosta, Hadi Hemaïdan, Grettel Castro, & Georgeta Vaidean	Dermatology, Oncology
P33	Comparative In Vitro Activity of Copper–Hydroxychloroquine and Copper–Hydroxychloroquine–Paclitaxel Complexes in Ovarian Cancer Cells	Capri Persaud, Sienna Persaud, & Thomas Manning	Oncology, Obstetrics & Gynecology
P34	Exploring the association between rural residency status, marital status, and sex on Breslow thickness of melanoma at diagnosis	Cara E. Gillespie, Katrina A. Fernandez, Julianna Motoa, Andrew Avarbock, Qingyun Liu, Pura Rodríguez de la Vega, & Noël C Barengo	Dermatology, Public Health
Cardiology & Critical Care			
P35	Association Between Serum Chloride Levels and Mortality Among Critically Ill Heart Failure Patients: A Retrospective Cohort Study	Carlos Andrews Grant, Venkataraghavan Ramamoorthy, Sankalp Das, Anshul Saxena, Muni Rubens, & Gustavo Serrano	Cardiology, Internal Medicine

P36	Hypomagnesemia in Critically Ill Children: Prevalence, Risk Factors, and Outcomes.	Madison Capote, Prithvi Sendi, & Balagangadhar R. Totapally	Pediatrics, Critical Care
P37	Pre-Ablation Lipid Profiles and Atrial Fibrillation Recurrence After Catheter Ablation: A Systematic Review and Meta-Analysis	Joseph Munoz, Arushi Sharma, & Matthew Tavares	Cardiology, Internal Medicine
P38	Association of Endothelial Dysfunction and Hospital Mortality Among Critically Ill Patients	Elaine Saugar, Venkataraghavan Ramamoorthy, Sankalp Das, Anshul Saxena, & Muni Rubens	Critical Care, Internal Medicine
P39	Association between Serum Lipase and Mortality among Critically Ill Heart Failure Patients	Ashley Rodriguez, Venkataraghavan Ramamoorthy, Sankalp Das, & Anshul Saxena	Cardiology, Internal Medicine
Neurology			
P40	Psychiatric-First Presentations of Autoimmune Encephalitis and Autoimmune Psychosis: A Narrative Review	Karla Perera, Peter Kim, Sarah Simon, & Jose Espinosa	Neurology, Psychiatry
P41	Cannabidiol Modulates Neuroinflammatory and Senescence-Associated Pathways in the Aging Brain	Alycia Shariff, Dileepkumar Veeragoni, Candy Carbajal, Florida Owens, Nicole Stone, Nazira El-Hage, & Myosotys Rodriguez	Neuroimmunology, Neurology
P42	Insight into HEK293 Cells Lipidome Changes Using Fatty Acid Synthesis Inhibition	Melanny Moya, Susanna Li, Ruminder Preet Kaur, & Sanjoy K. Bhattacharya	Ophthalmology, Axon Regeneration Laboratory
P43	Investigating the Role of RAB10 in Intracellular Trafficking and Organelle Homeostasis Pathways Associated with Alzheimer's Disease Resilience	Marco Hanna, Gabriel Burdman, Juliet Akkaoui, & Madepalli Lakshmana	Neurology, Geriatrics
P44	Comparative Diagnostic Yield of DSM, CT Myelography, Cone-Beam CT, and Photon-Counting CT for CSF-Venous Fistula Detection in Spontaneous Intracranial Hypotension	Alexa Warren, Heetanshi Joshi, & Sheryl Strasser	Radiology, Neurology
P45	Integrated Proteomic and Genomic Signatures of Ischemic Stroke Thrombi	Anya Shroff, Joohyung Lee, George Dong, Dileep Yavagal, & Roshni Thakkar	Neurology, Cardiology
Pediatrics & Obstetrics & Gynecology			
P46	The Association Between Women's Vitamin Intake Before Pregnancy and Breastfeeding Practices in the US	Madison Capote, Chloe Joseph, Dima Mutawe, Daisy De La Rosa, Qingyum Liu, Juan Manuel Lozano Leon, & Marcia Herdy Varella	Obstetrics & Gynecology, Family Medicine
P47	Kangaroo mother care initiation and its impact on the duration of KMC in preterm infants	Zubayr Ahmad, Lucia Martinez, Michelle Moats, & Juan Gabriel Ruiz-Pelaez	Pediatrics, Family Medicine
P48	Comprehensive Analysis of the Utilization of a Metagenomic Next-Generation Sequencing Assay for Microbiological Detection in a Free-Standing Children's Hospital	Nishka Jakkidi, Pablo M. Laufer, & Balangadhar R. Totapally	Infectious Diseases, Pediatrics
P49	Longitudinal Trajectories of Glucose, Lactate, and the Glucose-to-Lactate Ratio in Children with Septic Shock: Insights into Metabolic Recovery and Outcome	Jacquelyn Nguyen, Jacqueline Jones, & Balagangadhar Totapally	Pediatrics, Pediatric Critical Care Medicine

P50	Implementation of Bolus-Dose Epinephrine and Changes in Pediatric Intensive Care Unit Cardiac Arrest Rates	Gabriela Canel Rivero, Prithvi Sendi, & Balagangadhar Totapally	Pediatrics, Critical Care
P51	Preliminary Analysis of the Effectiveness of Single-Dose Methotrexate Regimen in Ectopic Pregnancy Management	Ashley Martinez, Samantha Flyer, Israel Castillo Gonzalez, Marie Rossique-Gonzalez, Nkemdilim N. Nwosa, Rafine Moreno-Jackson, & Katia Apollon	Obstetrics & Gynecology, Emergency Medicine
Psychiatry & Mental Health			
P52	Pandemic Stress, Anxiety, and the Role of Coping Strategies Among Recent Latino/a Immigrants in South Florida	Alexa Lopez, Enmanuel Hernandez Suarez, Sui-Ling Perez, Noel C. Barengo, Gira J. Ravelo, Mariana Sanchez, & Weize Wang	Psychiatry, Public Health
P53	Comorbid Insomnia and Mental Health Risk in Lesbian and Bisexual Women Veterans	Justin Yang, Alexander Erickson, Dana Fakhoury, & Jennifer Martin	Psychiatry, Public Health
P54	Association between Pre-pregnancy Diabetes and Hypertension with Postpartum Depressive Symptoms	Samantha Siu, Lauren Csete, Anabel Lin, Marcia H. Varella, Amalia Londono Tobon, & Juan M. Lozano	Psychiatry, Obstetrics & Gynecology
P55	The Association Between Maternal Depression and Breastfeeding Duration in Florida	Natalia Klamut, Melanie Beceiro, Samantha Flyer, Qingyun Liu, & Marcia Varella	Obstetrics & Gynecology, Psychiatry
P56	The Association of Mental Health Disorders and Pediatric Type 2 Diabetes	Claudia Morales, Juliana Quintero, Lynette Martinez, Grettel Castro, & Juan Manuel Lozano	Pediatrics, Psychiatry
P57	Younger age and minority race/ethnicity status are associated with depressive symptom severity among women veterans at risk for sleep apnea	Dana R. Fakhoury, Justin Yang, Alexander Erickson, Gwendolyn C. Carlson, Michelle R. Zeidler, Monica R. Kelly, Yeonsu Song, Constance H. Fung, Michael N. Mitchell, Karen R. Josephson, M. Safwan Badr, Cathy A. Alessi, Donna L. Washington, Elizabeth M. Yano, & Jennifer L. Martin	Sleep Medicine, Pulmonology
Public Health			
P58	Osteoporosis Treatment Misconceptions and Their Association with Knowledge Deficits and Fracture Risk in Underserved South Florida Communities	Christopher Varela, Siddharth Jasti, Alexander L Shear, Aaron Davidson, Caden R Moenning, & Amalia M Landa-Galindez	Public Health, Geriatrics
P59	Bridging the Gap: Addressing Colorectal Cancer Disparities in West Grove through Community-Based Screening Initiatives	Carlota Gimenez Lynch, Andrea Guzman, William Yang, Adrian Rodriguez, Alexandra Gil, Rachel Cabauy, & Nana Garba	Public Health, Gastroenterology
P60	COVID-19 Adherence as an Effect Modifier of the Association Between Sociocultural and Socioeconomic Factors and Mental Health Among Recent Latino Immigrants in Miami-Dade County, Florida	Samantha Sooman, Darla Gelin, J'Zaria Simpson, Mariana Sanchez, Gira J. Ravelo, Weize Wang, & Noël C Barengo	Public Health, Epidemiology
P61	Exploring the Impact of Socioeconomic Status (SES) on Antihypertensive Medication Adherence	Alexander Gasper, Zachary Ofenloch, Neal Luthra, & Marcia Varella	Public Health, Cardiology

P62	Mapping Global Evidence Gaps in Triple-Negative Breast Cancer Stage-at-Diagnosis Research: A Scoping Review	Amalia Abraham, Isabella Martinez Alvarez, Jennifer Gomez, Gabriela Perez-Alvarez, & Noël C. Barengo	Epidemiology, Public Health
P63	Student-Run Clinic Initiative to Develop Culturally Tailored Dietary Interventions for Diabetes Management Among Miami's Haitian Population	Rupabali Samanta, Ashwini Prasanna, Elle Mezzio, Rodney Michel, Urja Patel, Aditi Vijendra, Hunter Kessous, & Jenny Keenan	Public Health, Nutrition & Dietetics
P64	Sociodemographic and Socioeconomic Factors Associated with Influenza Vaccine Uptake Among U.S. Adults with Chronic Diseases: Analysis of NHIS Data from 2023	Leyli Azizinamini, Ruby Trejo Varón, Grettel Castro, & Noël C. Barengo	Public Health, Epidemiology
Education for Health Professionals			
P65	Artificial Intelligence and Algorithmic Bias in Burn Care: A Literature Review of Ethical Challenges	Jason Mirharooni, Joshua Khorsandi, Abu-Bakr Ahmed, Michael Kahen, Joshua Ahdout, Dimitri Franzoni, & Joshua MacDavid	Education for Health Professionals, Surgery
P66	Caring for Caregivers: System-Level Solutions to Moral Injury in Burn Teams	Jason Mirharooni, Joshua Khorsandi, Joshua Ahdout, Justin Kahen, Eli Nazarian, Dimitri Franzoni, & Joshua MacDavid,	Education for Health Professionals, Healthcare Quality Improvement and Organizational Ethics
P67	Effect of Anatomy-Guided Pilates Instruction on Anatomy Knowledge in First-Year Medical Students	Meredith Rosenberg, Chelsea Calero, & Patrick Chen See	Education for Health Professionals, Physical Medicine and Rehabilitation
P68	Evaluating Medical Students' Perceived Impact of a Longitudinal Global Health Experience on Clinical Confidence and Professional Development	Susana Garcia, Kristina Wantman, Rebecca Ubeda, Rachel Clarke, & Jessica B. Oliveira	Education for Health Professionals, Public Health
P69	The Role of 3D Printing and History in Neuroanatomy Medical Education: Phineas Gage Reimagined	Brianna Rosner, Angela Slaybe, Brianna Santiago, & Tracy Cassagnol	Education for Health Professionals, Medical Innovations
Anesthesiology & Emergency Medicine			
P70	Impact of Spinal vs. General Anesthesia on Postoperative Recovery Time in Emergency Leg Amputation Surgery	Sarah Simon, Alexandra Martinez, Karla Perera, Qingyun Liu, Rupa Seetharamaiah, & Noël C. Barengo	Anesthesiology, Anesthesiology, Emergency Medicine
P71	Postoperative Venous Thromboembolism After Hip Fracture Repair: Association With Anesthesia Type and Effect Modification by Sex	Carlota Gimenez Lynch, Emery Perrin, Saba Khan, Grettel Castro, Rose Berkun, & Juan Ruiz-Pelaez	Anesthesiology, Surgery
P72	Association Between Anesthesia Type and Postoperative Cardiovascular Events Following Total Hip Arthroplasty	Brett Petersen, Christopher Pelliccio, Leovany Noa Oramas, Grettel Castro, Marcia Varella, & Francisco Fajardo	Anesthesiology, Cardiology
P73	Development and External Validation of a Simple Bedside Risk Score to Predict Early Vasopressor Initiation in Critically Ill Adults	Zia Coblentz, Van Thang, & Juan Manuel Lozano	Anesthesiology, Critical Care

Abstracts

Poster Presentations

P1. Two-Year Outcomes of Bridge Enhanced ACL Repair Versus ACL Reconstruction: A Systematic Review and Meta-Analysis

Caden R. Moenning, B.S., Florida International University; Teana Tee, B.S., Florida International University; Trisha Tee, M.S., Florida International University; Vahini Srikakulapu, B.S., Florida International University; Benjamin J. Kailes, B.S., Florida International University; Devon T. Foster, B.S., Florida International University; Jason Mirharooni, B.A., Florida International University; Joseph L. Whalen, M.D., Ph.D., Mayo Clinic

Introduction and Objective: Anterior cruciate ligament (ACL) tears are among the most common knee injuries, with >100,000 ACL reconstructions performed annually in the United States. ACL reconstruction (ACLR) is the standard surgical treatment; however, it requires graft harvest and does not restore native ligament tissue. Bridge-enhanced ACL repair (BEAR) is an emerging biologic technique that facilitates native ACL healing by utilizing a collagen scaffold. Comparative, long-term evidence on patient-reported outcomes between BEAR and ACLR remains limited.

Methods: A systematic review was conducted per PRISMA 2020 guidelines. Embase, PubMed, and CENTRAL were searched through November 26, 2025. Records were screened in Covidence. Peer-reviewed, English-language prospective or retrospective comparative studies of skeletally mature adults (≥ 18 years) with ACL tear/rupture comparing BEAR to conventional ACLR were eligible. Studies without a direct comparison, primary data, or separately reported BEAR outcomes were excluded. Two reviewers independently screened studies, with conflicts resolved by a third reviewer. Random-effects meta-analysis was performed for 2-year IKDC and APLAX scores using inverse-variance weighting with REML estimation of between-study variance and Knapp-Hartung adjustment for standard errors. Complications and reoperations were extracted when reported and summarized descriptively due to overlapping cohorts and nonuniform outcome definitions/reporting.

Results: The search identified 780 records; after duplicate removal, 515 studies underwent title/abstract screening and 12 underwent full-text review. Seven studies including 240 patients were included in the final analysis. At 2 years, the pooled mean difference for APLAX favored BEAR but was not statistically significant (MD = -0.449; 95% CI, -1.276 to 0.378; $p = 0.182$). For IKDC, the pooled mean difference demonstrated significantly higher scores following BEAR compared to ACLR (MD = 4.594; 95% CI, 2.654 to 6.533). No statistical heterogeneity was detected in the pooled IKDC and APLAX analyses ($I^2 = 0.0\%$). Among two independent 2-year reports with extractable complication data, clinically meaningful complications were reported in 2/10 BEAR patients versus 4/10 ACLR patients in the first-in-human cohort and 16/64 versus 5/35 patients, respectively, in the randomized trial cohort.

Conclusions and Implications: BEAR demonstrated comparable anterior-posterior knee stability to ACLR at 2 years, while IKDC scores were significantly higher in the BEAR group. Complications and reoperations were summarized descriptively and should be interpreted cautiously because reporting was nonuniform and cohorts overlapped. These findings suggest BEAR may provide similar mechanical outcomes with higher patient-reported knee function at 2 years. Larger independent studies with standardized complication reporting and longer follow-up are needed to clarify durability, reinjury risk, and comparative safety.

Fields: Orthopedic Surgery, Surgery

Key Words: Anterior cruciate ligament (ACL), ACL repair, ACL reconstruction, Knee laxity, Patient-reported outcomes

P2. Meniscal Repair versus Partial Meniscectomy in Anterior Cruciate Ligament Reconstruction: A Covariate-Controlled Institutional Registry Analysis

Elliot A Santaella Aguilar, BS, Florida International University; Luis Hernandez, BS, Florida International University; Alexandra Diane Moutafis, BS, Baptist Health Orthopedic Institute; Yael Amozeg, MD, Baptist Health Orthopedic Institute; Matthias Schurhoff, MD, Baptist Health Orthopedic Institute; Luis A Vargas, MD PhD, Baptist Health Orthopedic Institute; John E Zvijac, MD, Baptist Health Orthopedic Institute; Keith S Hechtman, MD, Baptist Health Orthopedic Institute; John William Uribe, MD, Baptist Health Orthopedic Institute

Introduction and Objective: ACL injuries frequently include concomitant meniscal tears. Current consensus guidelines advocate prioritizing meniscus repair (MR) over arthroscopic partial meniscectomy (APM), reserved for irreparable tears. There remains a lack of evidence comparing both procedures while controlling for prognostic factors, thereby supporting individual patient counseling. The purpose of this study was to compare PROs following concomitant MR versus APM at the time of primary ACL reconstruction (ACLR). We hypothesized that when confounding factors are controlled for, meniscal repair results would be similar to those of non-reparable meniscus tears treated with APM in both compartments at short-term follow-up.

Methods: The retrospective study of a prospectively maintained institutional registry included ACLRs with concomitant meniscal procedures (2020-2024) in patients with linked baseline and a minimum of one follow-up timepoint. Multi-ligament, revision, and isolated ACLs were excluded, as well as concomitant chondral lesions, bicompartamental meniscal injuries, and meniscal pathology left in situ. PROs included IKDC, KOOS-JR, VAS-Pain, and PROMIS GMH/GPH. The endpoints were based on PRO improvement and achievement of minimal clinically important difference (MCID) for IKDC and KOOSJR stratified by meniscal intervention (MR versus APM). Multivariable linear and logistic regression models were used to compare meniscal procedures controlling for age, sex, BMI, graft type/choice, and baseline PROs.

Results: 72.8% of ACLR in our institutional registry had a concomitant meniscal injury (n=1070). 328 (30.7%) with linked PROs were included (214 males, 114 females, mean age: 27.8±11.0 years, mean BMI: 25.9±4.1 kg/m²). Surgical acuity, sex, last follow-up duration, and baseline PROs were similar between meniscal repair (n=159) and meniscectomy (n=169) (p>0.05). The majority of APM were performed in the lateral compartment (82.8%), while most MRs were performed in the medial compartment (58.5%). At a mean follow-up of 22.5±16.1 months, all PROs except for GMH (p=0.092) significantly improved from baseline in both groups and were similar between meniscal procedures: IKDC (β : -0.77, 95% CI: -4.93-3.38, p=0.715), KOOS-JR (β : -1.81, 95% CI: -5.47-1.84, p=0.330), VAS-Pain (β : -0.06, 95% CI: -0.53-0.41, p=0.802), GPH (β : 0.07, 95% CI: -1.87-2.01, p=0.942), GMH (β : 0.41, 95% CI: -1.32-2.15, p=0.638). MCID achievement was also similar between meniscal procedures: IKDC (OR: 1.05, 95% CI: 0.54-2.07, p=0.880), KOOS-JR (OR: 0.95, 95% CI: 0.50-1.81, p=0.872).

Conclusions and Implications: In the medial and lateral compartments, no significant differences were observed between MR and APM for PRO improvement and MCID achievement. Conclusion - Implications: Uni-compartmental concomitant meniscal repairs and partial meniscectomies demonstrated similar short term functional improvement and pain relief after ACLR.

Fields: Surgery, Orthopedic Sports Medicine

Key Words: ACL reconstruction, Meniscal repair, Partial meniscectomy, Patient-reported outcomes improvement, Meniscal tears

P3. Patient Recorded Outcome Measures After Fibular Nail Fixation: A Retrospective Review

Kyle A. Lorenzo, B.A., Baptist Health Orthopedic Care; Vraj Parikh, B.S., Florida International University Herbert Wertheim College of Medicine; Christina-Laura Chapman, M.S., Baptist Health Orthopedic Care; Katherine Canada, B.S., Baptist Health Orthopedic Care; Taylor N. Wingo, M.D., Baptist Health Orthopedic Care; Jorge N. Gil, M.D., Baptist Health Orthopedic Care; Cary B. Chapman, M.D., Baptist Health Orthopedic Care.

Introduction and Objective: Open reduction and internal fixation (ORIF) traditionally have been considered the gold standard for the management of unstable lateral malleolus fractures. Despite its efficacy in achieving anatomical alignment, the technique is associated with notable post-operative complications. Recent advances in orthopedic surgical techniques and medical technology have facilitated the adoption of intramedullary fibular nailing as a minimally invasive alternative, potentially reducing soft tissue disruption and implant-associated complications.

Methods: An analysis was conducted on a retrospectively collected patient cohort of 54 patients who underwent an open reduction and internal fixation (ORIF) of an unstable fibular fractures using a distal fibular intramedullary nail by three foot and ankle surgeons. Inclusion criteria included completion of preoperative and postoperative Patient reported outcome measures (PROMs): PROMIS-Global Health: Physical (GPH), Mental (GMH), Euroqol-5D-5L (EQ) Foot and ankle mobility measure (FAAM) for activities of daily living (ADL), sports, and overall, with a Visual Analog Scale

(VAS) for pain intensity. PROMs time points including preoperatively, 12-weeks, 24-weeks, and 1-year. Radiographic evaluation was conducted to assess maintenance of reduction, fracture healing, and complication rates. Statistical analyses were performed comparing between preoperative and postoperative time points using paired samples t-test. Statistical significance was defined as $p < 0.05$.

Results: All patients achieved radiographic union and returned to normal activities at an average of 21.27 ± 8.37 and 20.76 ± 13.92 weeks respectively. No cases of delayed union, nonunion, malunion, hardware failure, or postoperative loss of reduction were observed. PROMs were collected at a mean follow-up of 55.14 ± 4.54 weeks. Two patients underwent elective syndesmotom hardware removal due to hardware-related discomfort after fracture healing. Significant improvements were observed across all PROMs. FAAM overall scores improved ($+70.24$, $p < 0.001$), with similar improvements in the ADL ($+68.08$, $p < 0.001$) and sports subscale ($+72.37$, $p < 0.001$). EQ improved ($+0.15$, $p < 0.001$). PROMIS GPH improved ($+12.29$, $p = 0.001$) and PROMIS GMH improved ($+1.92$, $p < 0.05$). VAS pain scores decreased significantly (-3.72 , $p < 0.001$).

Conclusions and Implications: Intramedullary fibula nailing utilizing a mini-open technique provides a reliable, minimally invasive alternative to traditional ORIF for unstable fibular fractures, demonstrating high union rates, low complication rates, and significant improvements in functional outcomes and pain. These findings support the broader adoption of fibular nailing with distal locking fixation in appropriately selected patients. Prospective, randomized comparative studies are warranted to further elucidate its role relative to plate and screw fixation.

Fields: Orthopedic Surgery, Surgery

Key Words: Intramedullary nail, Fixation, Fibular fracture, Outcomes

P4. Use of a Minimally Invasive Surgical Intervention in the Repair of Acute Achilles Ruptures in Soccer-Related Injuries

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Introduction and Objective: Achilles tendon rupture is a common orthopedic injury, frequently occurring in athletes with sport-related injuries. The typical open surgical intervention, while effective, has increased risk of wound complications, potentially causing a delay in the athlete's return to play. Recently, minimally invasive surgical (MIS) techniques and devices, such as the Percutaneous Achilles Repair System (PARS), have been developed to help mitigate the risk of complications. Through minimizing incision size, soft tissue vascularity is preserved while maintaining improved patient-reported outcome measures (PROMs) and low complication rates (10%). A recent systematic review with a pooled cohort of athletes undergoing open and MIS surgical intervention for acute Achilles rupture found that 77.4% of athletes returned to weight-bearing sports on average at 8.1 ± 4.5 months. However, to our knowledge, no study has specifically reported outcomes of MIS Achilles repair in soccer players with acute rupture. This study aims to report complication rates and patient-reported outcomes in acute soccer-related ruptures.

Methods: A retrospective chart review analysis of 13 adult patients that underwent MIS intervention using the PARS device between 2020-2023, specifically for soccer-related Achilles ruptures, was conducted. PROMs being recorded pre-operatively and post-operatively included: Foot and Ankle Ability Measure (FAAM) subscales for sports (SS), activities of daily living (ADL), and overall function; EuroQol-5DL (EQ-5D) health utility score; and PROMIS-Global Health T-scores for physical (GPH) and mental (GMH). Categorical variables were presented as frequencies and percentages and continuous as mean $\pm$ standard deviation. Statistical significance was defined as $p < 0.05$.

Results: The cohort had an average final follow-up of 154.41 ± 72.17 weeks, with an average age of 38.31 ± 10.86 years and a mean BMI of 29.02 ± 2.86 . Pre-operative and post-operative scores showed significant improvements ($p < 0.05$) respectively in the following PROMS categories: FAAM-SS 4.3 ± 8.32 to 90.39 ± 14.63 , FAAM-ADL 29.67 ± 25.83 to 97.8 ± 3.14 , FAAM-Overall 22.68 ± 20.49 to 95.76 ± 6.13 , EQ-5D 0.64 ± 0.09 to 0.81 ± 0.06 , and GPH 43.24 ± 6.49 to 58.1 ± 7.41 .

No significant improvement was found in the GMH with a pre-operative score of 55.61 ± 7.64 and a post-operative score of 58.1 ± 7.4 ($p = 0.141$). There was one case with a superficial wound infection and one with a deep wound infection.

Conclusions and Implications: Overall, the study confirms what was previously hypothesized in the literature for the general use of MIS techniques in sports-related injuries. These results demonstrated that primary repair of acute Achilles ruptures in soccer-related injuries with the use of MIS techniques resulted in significantly improved results for the majority of PROMS, while maintaining a low complication rate. With this data, we would ultimately support the continued research and use of MIS techniques for acute soccer injuries.

Fields: Orthopedic Surgery, Surgery

Key Words: Minimally Invasive Surgery, Achilles Rupture, Soccer injury, PROMS, Percutaneous Achilles Repair System (PARS)

P5. Mindfulness in Orthopedic Surgery and the Emerging Role of AI-Delivered Interventions

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Introduction and Objective: Preoperative anxiety, pain catastrophizing, and kinesiophobia are independent predictors of postoperative pain intensity, opioid consumption, and delayed return to sport in orthopedic patients. Mindfulness-based interventions (MBIs) target these mechanisms through attentional retraining and acceptance-based pain modulation, yet their perioperative application in orthopedic surgery- and the potential for AI-enabled scalable delivery- has not been systematically synthesized. This review evaluates the mechanistic rationale, clinical evidence, and translational potential of MBIs and AI-delivered mindfulness in orthopedic surgical patients, with particular focus on the sports medicine population.

Methods: A narrative review was conducted examining: (1) neurobiological mechanisms of mindfulness analgesia; (2) perioperative MBI trials across orthopedic and related surgical populations; (3) AI-enabled and app-based mindfulness delivery platforms; and (4) implementation and safety considerations. Randomized controlled trials, systematic reviews, and meta-analyses were identified through structured database searches across 87 synthesized sources.

Results: MBIs significantly reduced preoperative anxiety (SMD = -0.36 vs. usual care). In total joint arthroplasty, 15-20 minute preoperative sessions reduced pain intensity by 24-27%, anxiety by 29-43%, and accelerated PROMIS Physical Function recovery by 5.5 points at 6 weeks. Mindfulness techniques reduced postoperative opioid consumption versus psychoeducation controls ($F[8,83] = 16.66$, $p < .001$). Approximately 80% of orthopedic studies reported improvements in opioid-related outcomes (Cohen's $d = -0.70$). Despite 88% initial patient interest in app-based delivery, only 8% completed the full recommended regimen, underscoring adherence as a critical barrier. AI-enabled just-in-time adaptive interventions demonstrated a pooled effect of Hedges' $g = 0.89$ for psychological outcomes. Sports medicine patients — including those undergoing ACL reconstruction, rotator cuff repair, and meniscus repair — represent a high-priority understudied population, with fear of reinjury rates of 33–92% following ACL reconstruction.

Conclusions and Implications: MBIs produce clinically meaningful reductions in perioperative anxiety, pain, and opioid use in orthopedic patients. Adherence remains the primary implementation barrier. AI-enabled, procedure-specific delivery offers a scalable solution particularly suited to sports medicine populations, where psychological readiness is central to return-to-sport outcomes. These findings directly support prospective trials of AI-integrated mindfulness platforms as perioperative adjuncts in orthopedic sports medicine.

Fields: Surgery, Orthopedic Surgery

Key Words: Mindfulness, Artificial Intelligence, Sports Medicine, Perioperative, Return to Sport

P6. Soccer-related ACL Injury Mechanisms and Associated Findings: Sex- Based Analysis

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Introduction and Objective: Soccer remains the sport causing the most ACL injuries in women, yet there is insufficient sex specific research to identify differences in ACL mechanisms of injury (MOI) across sexes. Identifying the predominant mechanism of injury can mitigate future injuries through the generation of ACL prevention programs tailored to the sex specific risk.

Methods: A retrospective review of a prospectively maintained institutional registry was performed. Patients undergoing primary isolated ACL reconstruction (ACLR) between 2020 and 2024 following a soccer-related injury were included. Revision ACLR, multi-ligament injuries, and non-soccer-related injuries were excluded. Baseline demographic and injury characteristics were compared between males and females. The primary endpoint was a comparison of contact versus non-contact ACL mechanism of injury between sexes. Subgroup analysis evaluated mechanism of injury by the categories: change of direction, landing, and direct knee contact. Statistical methods used in this analysis included Welch's t-tests, Pearson chi-square tests, univariable logistic regression, and multivariable logistic regression, adjusted for age and BMI.

Results: A total of 327 soccer athletes met inclusion criteria, including 248 males (75.8%) and 79 females (24.2%). Males were older (28.1 ± 9.3 vs. 21.8 ± 9.0 years, $p < 0.001$) and had greater BMI (25.8 ± 3.7 vs. 23.4 ± 3.2 kg/m², $p < 0.001$). Right and left knee injuries were similarly distributed (51.1% vs. 48.9%), while secondary contralateral ACL injuries were uncommon (8.9%). Most injuries (75.5%) were non-contact for both females (68.4%) and males (77.8%), showing no statistically significant difference ($p > 0.05$). Male athletes had 40% lower odds of sustaining a contact injury compared with female athletes, although this association did not reach statistical significance (adjusted OR 0.60, 95% CI 0.33–1.11; $p = 0.103$). Overall, change of direction was the most common MOI (61.2%) for both females (55.7%) and males (62.9%). Compared with injuries sustained during a change of direction, female athletes had similar odds of sustaining injuries through direct knee contact (adjusted OR 1.59, 95% CI 0.85–2.94; $p = 0.146$) and landing (adjusted OR 0.77, 95% CI 0.33–1.79; $p = 0.541$).

Conclusions and Implications: Among soccer athletes undergoing primary ACLR, males and females did not demonstrate a statistically significant difference in ACL mechanism of injury. Although females exhibited greater odds of sustaining a direct knee contact ACL injury, sex was not independently associated with injury mechanism.

Fields: Sports Medicine Orthopedic Surgery, Surgery

Key Words: ACL, Mechanism of injury, ACL reconstruction, Gender differences

P7. Postoperative Complications Following Autologous and Implant-Based Breast Reconstruction: An Analysis of 19,144 Patients from ACS NSQIP

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Introduction and Objective: Breast reconstruction following mastectomy is an important component of breast cancer care. Although both autologous and implant-based reconstruction are widely utilized, the comparative risk of short-term postoperative complications remains controversial. The objective of this study was to determine whether postoperative complication rates differ between autologous and implant-based breast reconstruction in adult women undergoing mastectomy due to breast cancer. We hypothesized that autologous reconstruction would be associated with increased 30-day postoperative complications.

Methods: A retrospective cohort study was conducted using the 2023-2024 American College of Surgeons National Surgical Quality Improvement Program (ACS NSQIP), a nationally representative clinical registry with standardized outcome reporting. Women aged ≥ 18 years with breast cancer who underwent breast reconstruction following mastectomy were identified using Current Procedural Terminology codes and classified as undergoing autologous or implant-based reconstruction. The primary outcome was a composite of 30-day postoperative complications, including surgical site infection, wound disruption, sepsis, unplanned readmission, return to the operating room, and mortality. Logistic regression was used to evaluate the association between reconstruction type and complications while adjusting for age, body mass index (BMI), diabetes, hypertension, and smoking status.

Results: A total of 19,144 women were included, of whom 12,597 (65.8%) underwent implant-based reconstruction and 6,547 (34.2%) autologous reconstruction. Overall, 2,238 patients (11.7%) experienced at least one postoperative complication, most commonly returning to the operating room (6.8%), surgical site infection (3.6%) and unplanned readmission (3.6%). Complications occurred more frequently following autologous reconstruction than implant-based reconstruction (17.8% vs. 8.5%, $p < 0.001$). Autologous reconstruction was associated with increased odds of complications in both unadjusted (OR 2.3, 95% CI 2.1–2.5) and adjusted analyses (aOR 2.2, 95% CI 2.0–2.4; $p < 0.001$). Obesity (aOR 1.6, 95% CI 1.5–1.8), overweight BMI (aOR 1.2, 95% CI 1.1–1.4), and current smoking (aOR 1.5, 95% CI 1.2–1.7) were also independently associated with complications (all $p < 0.001$).

Conclusions and Implications: Autologous breast reconstruction was independently associated with more than twice the odds of 30-day postoperative complications compared with implant-based reconstruction. Obesity and smoking were additional independent predictors of adverse outcomes. These findings may aid preoperative risk stratification and patient counseling regarding reconstructive options.

Fields: Surgery, Oncology

Key Words: Breast Reconstruction, Mastectomy, Postoperative Complications, ACS NSQIP, Implant-based vs autologous reconstruction

P8. Complementary Intraoperative Adjuncts for Glioblastoma Resection: A Structured Evidence Synthesis of 5-ALA, Intraoperative Ultrasound, and Intraoperative MRI

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Introduction and Objective: Glioblastoma is the most common malignant primary brain tumor in adults, with median survival of 14.6 months. Extent of resection is a key prognostic factor, with gross total resection associated with lower 1-year mortality than subtotal resection (RR 0.62, 95% CI 0.56–0.69). However, infiltrative tumor margins limit maximal safe resection. Adjuncts including 5-aminolevulinic acid fluorescence-guided surgery (5-ALA), intraoperative ultrasound (iUS), and intraoperative magnetic resonance imaging (iMRI) address different limitations of conventional neuronavigation. This structured narrative review synthesized evidence on these three adjuncts and evaluated whether they function as complementary rather than competing tools during glioblastoma resection.

Methods: A structured narrative review followed SANRA guidance. PubMed, Cochrane Library, and Google Scholar were searched from inception through June 2026. Ninety-four studies met inclusion criteria. Studies reporting extent of resection, residual tumor detection, survival, or neurological outcomes for adult glioblastoma or high-grade glioma resection were included. Evidence was hierarchically weighted, prioritizing randomized trials, systematic reviews, and meta-analyses.

Results: The strongest evidence across included studies supports 5-ALA for intraoperative tumor visualization, with most studies reporting higher complete resection rates than white-light surgery, including the Stummer et al. (2006) randomized trial (65% vs. 36%) and the RESECT trial (79.1% vs. 47.8%). Several studies also reported favorable 6-month progression-free survival with 5-ALA; however, the low negative predictive value of absent fluorescence suggests 5-ALA alone cannot reliably exclude residual tumor. For iMRI, meta-analytic and randomized data support its role as a final verification tool for residual enhancing tumor, with most studies reporting higher gross total resection rates, although

added operative time and workflow demands were noted. Evidence for iUS supports real-time localization, brain shift correction, and residual tumor detection, with one randomized trial and pooled diagnostic studies suggesting moderate sensitivity and high specificity; however, the evidence base remains more limited than for 5-ALA and iMRI. Multimodal studies suggest combined 5-ALA/iUS and 5-ALA/iMRI approaches may improve residual tumor detection and resection assessment without clear increased neurological morbidity.

Conclusions and Implications: Evidence supports 5-ALA, iUS, and iMRI as complementary adjuncts with distinct intraoperative roles. A phase-based workflow — iUS for pre-resection assessment, 5-ALA for real-time margin visualization, and iMRI for final residual tumor verification — may optimize multimodal integration. Prospective trials should evaluate standardized multimodal protocols and determine whether improved resection metrics translate into durable survival and functional benefits.

Fields: Surgery, Oncology

Key Words: Glioblastoma, 5-Aminolevulinic Acid, Intraoperative Ultrasound, Intraoperative MRI, Neurosurgery

P9. Global Publication Trends in Religion and Plastic Surgery: A Bibliometric Analysis

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Introduction and Objective: As plastic and reconstructive surgery evolves, debate regarding its moral implications has driven research into the intersection of religion and plastic surgery. However, publication trends in this emerging field have not been comprehensively evaluated, in our opinion. Goal of this study is to characterize publication trends, geographic distribution, authorship, impact, and thematic evolution within currently available literature on religion and plastic surgery

Methods: A bibliometric analysis of Scopus-indexed publications was conducted, searching a combination of "plastic surgery", "cosmetic surgery", "aesthetic surgery", "reconstructive surgery", "religion", "religious", "religiosity", "spirituality", "Islam", "Muslim", "Christianity", "Christian", "Judaism", "Jewish", "Catholic", "attitude", "belief", "ethic", "bioethic", "decision", and "willingness". 155 results were screened for articles that discussed the relationship between plastic surgery and religion. Foreign language articles were translated to reduce linguistic bias. VOSviewer was employed to analyze article data.

Results: Fifty-three publications published between 1982 and 2026 met inclusion criteria, accumulating 677 citations. Output increased since 2013 (average 3.07 vs prior 1.18 publications/year). A peak of 7 publications was found in 2025. Ten most-cited articles accounted for 73.5% of citations. Publications originated from 27 countries, led by the United States (22%), Turkey (11.3%) and Malaysia (7.5%). Eight countries were represented among the 10-most-cited articles. Within 183 unique authors, only three contributed more than one article. Only two institutions contributed more than two publications. Leading keywords include cosmetic surgery (12 occurrences), aesthetic surgery (9), religion (7), and body image (6). Keyword analysis demonstrated a thematic shift from ethics and self-esteem to discussions of attitude, awareness, media, public perception, and gender-affirming care. Among abstracts mentioning specific religions, Islam and Christianity were most prevalent. Judaism, Buddhism, and Hinduism are less frequently discussed.

Conclusions and Implications: These findings represent the first bibliometric analysis of religion in plastic surgery. Data suggests growing scholarly interest. It remains an emerging field with a fragmented author base and limited long-term continuity. Publication activity was concentrated in the United States, West Asia and Southeast Asia. Future research should evaluate underrepresented faith traditions and geographic regions, as well as the influence of new procedures and technology on patient attitudes toward plastic surgery worldwide.

Fields: Surgery, Religious Studies

Key Words: Plastic Surgery, Religion, Bibliometric Trends

P10. Evolution of Ethical Priorities Within Plastic Surgery: A Bibliometric Analysis of the 50 Most Influential Publications

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Introduction and Objective: Changing cosmetic preferences, societal pressures and public attitudes have impacted plastic surgery practice. However, to the best of our knowledge, no bibliometric study has evaluated the evolution of ethics-focused plastic surgery publications. This study aimed to characterize trends in research themes, authorship, geographic origin, and citation of the most impactful publications in plastic surgery ethics.

Methods: A bibliometric analysis was conducted by querying Scopus with a combination of “ethics”, “plastic surgery”, “professionalism”, and various plastic surgery procedures. 688 articles were ranked by citation count and screened to obtain the 50-most-cited articles that discussed the intersection of ethics and plastic surgery, by author consensus. Only English language reviews and articles were included. VOSviewer was used to analyze article data trends.

Results: Fifty articles (2000-2024) with 2,173 total citations were included. Average number of highly cited articles increased after 2018 (3.57 vs 1.39 publications/year). 10-most-cited articles received 39.7% of citations. Keyword analysis showed thematic evolution. From 2000-2009, literature focused on bioethics, morality, and tissue transplantation. 2010-2019 demonstrated a shift towards discussions of cosmetic surgery, genital surgery, facial feminization, and social media ethics. Lastly, 2020-2024 is characterized by a focus on artificial intelligence (AI) and machine learning. AI-related publications ranked 1st and 2nd in publication density. Facial transplantation remained the most cited and 2nd largest in citation density. Most articles were published by North American authors (51.4%; United States contributed 48.6%), followed by Europe (31.9%), Asia (12.5%), South America (2.8%) and Oceania (1.4%). 80% of the 10-most-cited articles had United States authors, with 40% from Europe, 2% from Asia, and 1% from Brazil. Among 190 authors, only 22 contributed to multiple publications. Out of 42 institutions, only four produced two or more publications.

Conclusions and Implications: Findings suggest that ethical scholarship in plastic surgery has evolved alongside emerging technologies while remaining geographically concentrated in the United States and Europe. Future research should expand collaboration with underrepresented regions and evaluate perspectives across diverse patient and surgeon populations. Likewise, further investigation of allotransplantation and surgical applications of AI is warranted given their sustained scholarly interest.

Fields: Surgery, Medical Ethics

Key Words: Ethics, Plastic Surgery, Bibliometric Trends

P11. Is there a "Sweet Spot"? Glucose Metabolism during Normothermic Regional Perfusion and Association with Peri-operative Outcomes

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Background: Normothermic regional perfusion (NRP) is a rapidly emerging technique for organ recovery during DCD procurements. The liver acts as the body's primary glucose regulator, acting as a "glucose buffer" to maintain steady blood sugar levels. When severe liver damage occurs, the liver fails to release glucose, causing blood sugar levels to drop. The present study aimed to investigate whether glucose metabolism on NRP could be used as a reliable predictor of post-transplant outcomes and whether a “sweet spot” glucose threshold exists.

Methods: The study population included all DCD LT performed with NRP at Mayo Clinic Florida and Mayo Clinic Arizona between 2022-2025 in which documented glucose concentrations were available. For the present study it was decided a priori that 4 glucose phenotypes would be investigated: starting glucose ≥ 180 mg/dL with a negative slope over the NRP run (Low-Lower), starting glucose ≥ 180 mg/dL with a positive slope over the NRP run (Low-Higher), starting glucose

≥ 180mg/dL with a negative slope over the NRP run (High-Lower), and starting glucose ≥ 180mg/dL with a positive slope over the NRP run (High-Higher).

Results: Median first glucose measurement on NRP was 245.5 mg/dL (IQR 188-306 mg/dL), while median terminal glucose was 211.5 mg/dL (IQR 159-260 mg/dL). There was no correlation between initial glucose level and initial lactate level on NRP. Recipient and donor variables were similar between the four glucose phenotypes. There were no significant differences in PNF, EAD, return to the OR, IC, or AKI between the four glucose phenotypes. Out of the ten cases with the lowest initial glucose value on NRP (<100mg/dL), all had functioning grafts at the time of maximal follow-up with no IC.

Conclusions and Implications: A low initial glucose value during NRP alone does not appear to be a reliable predictor of subsequent graft dysfunction or poor post-transplant outcomes. Our data does not support the rejection of livers solely on the basis of low glucose levels during NRP.

Fields: Transplant Medicine, Surgery

Key Words: Glucose, Lactate, Sequential, A-NRP, DCD

P12. Risk Factors for 30-Day Surgical Site Infection Following Open Hip Fracture Repair: Analysis of the ACS NSQIP Database, 2016-2023

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Introduction and Objective: Hip fractures primarily affect older adults, and their incidence increases with age. Postoperative surgical site infections (SSIs) are associated with increased morbidity, prolonged hospitalization, and higher healthcare costs. This study aimed to identify demographic, clinical, and operative factors independently associated with 30-day postoperative SSI following open hip fracture repair.

Methods: A retrospective cohort study used the American College of Surgeons National Surgical Quality Improvement Program database from 2016 to 2023. Adults undergoing open hip fracture repair were identified using Current Procedural Terminology codes. Records with SSI present at surgery were excluded. The primary outcome was composite 30-day postoperative SSI, including superficial incisional, deep incisional, or organ/space SSI. Demographic, clinical, and operative variables were evaluated using multivariable logistic regression with backward stepwise selection. Temporal trends in annual SSI incidence were assessed using Join point regression.

Results: A total of 176,030 patients were included; 2,297 developed 30-day postoperative SSI, corresponding to an incidence of 1.30%. In the final multivariable model, higher adjusted odds of SSI were independently associated with increasing BMI, longer operative time, preoperative transfusion, current smoking, chronic steroid use, congestive heart failure, preoperative systemic inflammatory response syndrome/sepsis/septic shock, and later study years. BMI and operative time showed graded associations with SSI. The largest adjusted ORs were observed for class III obesity (BMI ≥40 kg/m²) compared with normal BMI (adjusted OR 3.34; 95% CI 2.65–4.22) and operative time >180 minutes compared with ≤60 minutes (adjusted OR 3.47; 95% CI 2.65–4.54). Annual SSI incidence increased from 2016 to 2020 and remained stable thereafter.

Conclusions and Implications: In this national cohort, 30-day postoperative SSI after open hip fracture was uncommon but associated with several patient and operative factors. The strongest graded associations with SSI were observed for BMI and operative time. Future studies should address risk-stratification tools and targeted SSI prevention strategies.

Fields: Surgery, Infectious Diseases

Key Words: Hip fracture repair, Surgical site infection, ACS NSQIP, Risk factors

P13. Pre-existing Diabetes and Postoperative Sepsis After Amputation Procedures: A Non-Concurrent Cohort Study of ACS NSQIP Data, 2005–2024

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Introduction and Objective: Diabetes mellitus (DM) is associated with impaired host defense, poor wound healing, and increased infection risk. Whether pre-existing DM is independently associated with postoperative sepsis after amputation, beyond comorbid disease and perioperative physiological severity, remains uncertain.

Methods: A non-concurrent cohort study was conducted using ACS NSQIP data from 2005 through 2024. Adults undergoing selected amputation procedures were included. Patients with sepsis, systemic inflammatory response syndrome, or septic shock within 48 hours before surgery, or sepsis present at surgery, were excluded. The main exposure was pre-existing DM, defined as insulin-dependent or non-insulin-dependent diabetes. The primary outcome was postoperative sepsis. Covariates included sex, race, ASA classification, BMI category, smoking status within one-year, renal failure, and dialysis dependence. Unadjusted and adjusted odds ratios (ORs) with 95% confidence intervals (CIs) were estimated using logistic regression models.

Results: The cohort included 21,700 patients: 14,640 with DM and 7,060 without DM. Postoperative sepsis occurred in 472 patients (2.2%) and was similar among patients with and without DM (2.2% vs 2.1%; $p=0.514$). After adjustment, DM was not independently associated with postoperative sepsis (adjusted OR [aOR] 0.97; 95% CI 0.80–1.21). ASA class 4/5 (aOR 1.96; 95% CI 1.13–3.39) and dialysis dependence (aOR 1.33; 95% CI 1.04–1.71) were independently associated with higher odds. Obesity and current smoking were associated with lower odds.

Conclusions and Implications: In this national surgical cohort, pre-existing DM was not independently associated with postoperative sepsis after amputation. Perioperative physiological severity and dialysis dependence showed stronger associations with sepsis than DM status alone.

Fields: Surgery, Internal Medicine

Key Words: Diabetes mellitus, Amputation, Postoperative sepsis, Surgical complications, Cohort study

P14. Comparing ChatGPT, OpenEvidence, and DocsGPT for Patient Education on Autologous Breast Reconstruction: A Quality, Readability, and Actionability Analysis

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Introduction and Objective: Autologous breast reconstruction is a complex, preference-sensitive procedure that requires patients to understand candidacy, operative options, risks, recovery, and expected outcomes. Despite patients' increasing use of artificial intelligence (AI) chatbots for health information, the quality, readability, and actionability of AI-generated educational materials remain unclear. This study compares the quality, readability, and actionability of patient education responses generated by ChatGPT, OpenEvidence, and DocsGPT regarding autologous breast reconstruction.

Methods: Fifteen questions about autologous breast reconstruction were selected from Google Trends to reflect common patient searches on candidacy, risks, recovery, and outcomes. Each question was entered separately into ChatGPT, OpenEvidence, and DocsGPT, yielding 45 responses. Two blinded reviewers rated each response for quality using DISCERN (16–80; higher is better) and for understandability and actionability using PEMAT (0%–100%; higher is better, with 70% or above generally considered acceptable). Reading level was assessed with six tests, including the

Flesch-Kincaid Grade Level (FKGL); NIH compliance required an FKGL of 6 or lower. Reviewer agreement was measured using intraclass correlation coefficients (ICC).

Results: DocsGPT scored highest for quality (DISCERN 58.43/80), followed by OpenEvidence (55.30/80) and ChatGPT (42.17/80, rated “fair quality”; $p < 0.001$ vs. both). ChatGPT was most understandable (PEMAT 75%) versus OpenEvidence (62%) and DocsGPT (60%; both $p < 0.001$). Actionability was low and similar across platforms (7%, 3%, 6%; $p = 0.305$), with none reaching the 70% benchmark. Reviewer agreement was good for quality (ICC = 0.89) but weaker for understandability (ICC = 0.64) and actionability (ICC = 0.26), so the actionability findings warrant caution. No response met the NIH’s sixth-grade reading level; average grade levels ranged from 14th to 23rd grade.

Conclusions and Implications: DocsGPT and OpenEvidence gave higher-quality responses, while ChatGPT was easier to understand but lower in quality. All three, however, exceeded most patients’ reading level and offered few actionable next steps. AI chatbots may help as a starting point for patient education but should not replace surgeon discussions, and more work is needed to improve readability and actionability.

Fields: Surgery, Oncology

Key Words: Artificial Intelligence, Breast Reconstruction, Patient Education, Readability, Health Literacy

P15. Educational Effectiveness of a 3D-Printed Appendix Model in the Third-Year Surgery Clerkship

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Introduction and objective: The appendix demonstrates substantial positional variability, which can influence the clinical presentation of appendicitis and complicate diagnostic evaluation and operative management. Despite its clinical importance, appendiceal positional variation is often underemphasized in traditional anatomy curricula that rely on two-dimensional (2D) resources. Three-dimensional (3D) printing enables creation of anatomically accurate, tactile models that enhance learner engagement and reinforce clinically relevant anatomy. However, limited educational data exist evaluating 3D printed models specifically designed to demonstrate appendiceal positional variability in surgical trainees. The objective is to develop and evaluate a 3D printed model of the appendix depicting common positional variants and assess its perceived educational value among medical students.

Methods: Two 3D printed models of the cecum with multiple appendices were designed to demonstrate common appendiceal positions: retrocecal, pelvic, pre-ileal, and post-ileal. The cecum and appendices were printed in contrasting colors, with interchangeable appendices secured using a fixed hole-and-peg mechanism to represent distinct insertion points. The model was incorporated into a surgical anatomy bootcamp for 23 third-year medical students. Participants completed anonymous pre and post exposure surveys assessing baseline knowledge, confidence in identifying appendiceal positions, perceived clinical relevance, and overall educational value. Survey data were collected for quantitative analysis.

Results: Presurvey results showed a mean score of 67.5%, compared with 86.8% on the postsurvey, indicating improved knowledge of the appendix. For repeated questions, correct responses increased by 14% for identifying uncommon appendiceal positions and by 24% for recognizing positions associated with urinary tract infection–like symptoms.

Conclusions and implications: 3D printing use in medical education has been associated with improved understanding of anatomy. To our knowledge, no prior study has specifically evaluated the educational utility of 3D printed models for teaching appendix anatomy. Following interaction with the model, students demonstrated improved understanding of appendiceal positional variation and related clinical reasoning. This study demonstrates that a 3D printed appendix model is a valuable adjunct to anatomy education and may enhance medical student learning when included in the standard curriculum.

Fields: Surgery, Medical Education

Key Words: Appendix, Anatomy, 3D-printing

P16. Time-Kill of Preserved Artificial Tear Formulations Against Ocular Fungal Isolates

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Introduction and Objective: Over the counter (OTC) artificial tears (ATs) are frequently used in ophthalmology and differ greatly in their formulations and preservative choice. Preservatives protect against microbial contamination but may increase the risk of ocular surface damage. However, little is known about the antifungal activity of preserved AT formulations. This study examines the growth-inhibition effects of AT preservatives on different fungal keratitis isolates.

Methods: Six clinical fungal keratitis isolates (*Candida* spp., n = 5; *Fusarium* spp., n = 1) and one reference strain (ATCC 10231) were tested using time-kill assays. The ATs evaluated contained benzalkonium chloride (BAK), edetate disodium (EDTA) with hexadienoic acid (HDA), polyquaternium-1 (PQ-1), stabilized oxychloro complex (SOC), sodium perborate (SP), and BAK combined with EDTA. Isolates were inoculated into AT solutions at 1.5×10^5 CFU/mL. Antifungal activity was monitored at 1 min, 15 min, 30 min, and 24 hrs. At each time point, samples were plated on Sabouraud dextrose agar and incubated (35°C for 48 hours) before growth was evaluated by log changes in colony counts. Growth was classified as non-inhibitory (log₁₀ increase), fungistatic (2.99 to 0 log₁₀ reduction), or fungicidal (≥ 3 log₁₀ reduction). Diameters of *Fusarium* colonies were also recorded using ImageJ to analyze morphological changes.

Results: BAK showed the strongest antifungal activity against all ocular isolates. BAK alone was fungicidal from 15 minutes, while BAK with EDTA was fungicidal more rapidly, within 1 min. EDTA with HDA was fungistatic at all time points for all isolates, reaching a maximum log₁₀ reduction of 1.24. PQ-1 showed organism-specific activity, being fungistatic against *C. glabrata* but becoming fungicidal by 24 hours against *C. parapsilosis*, 2/3 *C. albicans*, and *F. oxysporum*. At 24 hours, SP was fungistatic for two *C. albicans* isolates, while SOC was fungistatic against the remaining *C. albicans* isolate. *Fusarium* colony diameters were reduced 54-73% relative to controls for EDTA, SOC, and SP.

Conclusion and Implications: BAK demonstrated consistent fungicidal activity, whereas the remaining preserved ATs were either fungistatic or non-inhibitory. These findings suggest that OTC ATs may be susceptible to *Candida* or *Fusarium* contamination, while BAK-containing ATs provide greater protection; however, the potential tradeoff of BAK's potency on the ocular surface should also be considered.

Fields: Ophthalmology, Microbiology

Key Words: Ophthalmology, Microbiology, Basic Science, Fungal Keratitis, Artificial Tears

P17. In vitro Antimicrobial Activity Povidone-Iodine and Chlorhexidine Against Nontuberculosis Mycobacterium

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Introduction and Objective: Nontuberculous mycobacteria (NTM), particularly *Mycobacterium* (*Mycobacteroides*) abscessus and *M. chelonae*, are increasingly recognized causes of ocular infections. These organisms are difficult to treat due to their lipid-rich cell walls and ability to form biofilms further complicated by the rise of antimicrobial resistance.

There is a need for additional therapies in order to treat these difficult infections. This study evaluates the inhibitory effect of povidone-iodine (PI) and chlorhexidine (CHX) against *M. abscessus* isolates in vitro.

Methods: Clinical isolates of *M. abscessus* were cultured in Middlebrook 7H9 broth and standardized to 1×10^6 CFU/mL using a 0.5 McFarland standard. Time-kill assays were performed using three concentrations of PI (1.0%, 0.625%, and 0.0039%) and CHX (0.2%, 0.05%, and 0.0015%), with exposure times of 1, 5, 10, and 60 minutes. Following antiseptic exposure, the isolates were plated on Mueller–Hinton agar and incubated for seven days, after which antimicrobial activity was assessed qualitatively based on the presence or absence of bacterial growth.

Results: PI showed greater antimicrobial activity than CHX across all tested concentrations and exposure times. PI at 1.0% produced complete growth inhibition following 1, 5, 10, and 60-minute exposures. Additionally, PI at 0.625% produced moderate inhibition whereas the lowest concentration (0.0039%) showed limited activity. In contrast, CHX inhibited bacterial growth only at the highest tested concentration (0.2%) after 60 minutes of exposure, while lower concentrations and shorter exposure times showed minimal or no inhibition. Overall, PI achieved stronger and more rapid inhibition of *M. abscessus* than CHX under the tested conditions.

Conclusions and Implications: PI demonstrated greater antimicrobial activity than CHX in time-kill assays. PI achieved complete inhibition at 1.0%, while the 0.625% concentration produced partial growth inhibition. In contrast, CHX demonstrated inhibition only at 0.2% after 60 minutes of exposure. Future studies will evaluate PI at subinhibitory concentrations in combination with conventional therapies to assess its potential role as an adjunct treatment against NTM isolates. Additional CHX studies will evaluate longer exposure durations; however, its use may be more appropriate for applications such as disinfection. Both agents will also be evaluated for their effects on NTM biofilms.

Fields: Ophthalmology, Microbiology

Key Words: Microbiology, Ocular Surface, Cornea Infection, Ophthalmology, Antibiotics

P18. Top 30 Cited Articles on Festoons, Malar Mounds, and Malar Bags: A Bibliometric Analysis

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Introduction and Objectives: Festoons, malar mounds, malar bags, and malar edema are recognized sources of patient dissatisfaction following lower-eyelid and midface rejuvenation, and they remain among the more treatment-resistant problems in periorbital aesthetics. Despite this burden, no study has characterized the literature guiding their diagnosis and management. Using citation frequency as a proxy for scholarly impact, this study aimed to identify and analyze the 30 most-cited articles on these findings to provide clinicians and trainees a consolidated reference to the field's most influential work and to recognize where evidence is most lacking.

Methods: A Web of Science Core Collection search using a comprehensive set of terms for the target entities yielded 1,241 records, sorted by Times Cited (WoS Core Collection) in descending order. Two reviewers (Grader 1 and Grader 2) independently screened records against pre-specified inclusion and exclusion criteria. Disagreements were resolved in a reconciliation meeting. Extending the candidate list beyond 30 was considered, but articles ranked below that point frequently carried as few as one citation, so the top 30 was retained as the final set. Each included article was then examined by the two reviewers to assign topic category, study design, Oxford level of evidence, and anatomic subfocus.

Results: The 30 included articles were cited a combined 1,066 times. Surgical correction was the most represented topic category ($n=12$, 40%), followed by injectable/sclerotherapy ($n=6$) and anatomy/pathophysiology studies ($n=6$); the latter carried the highest mean citation count of any category (101.0). Case series ($n=10$) and narrative reviews ($n=5$) were the predominant study designs. No article met Oxford Level I or II evidence; 60% were Level IV and 37% Level V. Plastic and Reconstructive Surgery contributed the most articles (23.3%), and corresponding authors were most frequently based in the United States (67%). By anatomic subfocus, festoon-specific articles were most numerous ($n=16$), though malar mound articles carried a disproportionately high mean citation count (78.3) driven by two highly-cited anatomic papers.

Conclusions and Implications: Current literature on festoons, malar mounds, malar bags, and malar edema is dominated by low-level evidence. Our bibliometric analysis highlights the most influential publications in this field and aims to provide clinicians and trainees with a reference point for the field's research trends to guide future work.

Fields: Surgery, Education for Health Professionals

Key Words: Festoon, Malar mound, Malar edema, Bibliometric review, Citation analysis

P19. Early Clinical Experience and Learning Curve Associated with Motion-Preserving Posterior Stabilization Using the Total Posterior Spine (TOPS) System

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Introduction and Objective: Motion-preserving posterior stabilization is an alternative to rigid lumbar fusion for degenerative lumbar spinal stenosis, aiming to preserve segmental motion while providing stability following decompression. However, real-world clinical and radiographic data for the Total Posterior Spine (TOPS™) system remain limited. We evaluated early clinical, radiographic, safety, and operative learning-curve outcomes following single-level TOPS implantation.

Methods: We performed a retrospective case series of adults who underwent single-level lumbar decompression with TOPS stabilization by a single surgeon at an academic institution. Demographic, clinical, radiographic, and operative variables were collected. Radiographic outcomes included segmental range of motion (ROM) and slip ratio on flexion-extension and neutral lateral radiographs. Pain was assessed using paired preoperative and postoperative visual analog scale (VAS) scores. Preoperative and postoperative outcomes were evaluated using paired statistical testing. A sensitivity analysis compared operative time between the early and late halves of isolated TOPS cases using a Welch two-sample t-test. Statistical significance was defined as $p \leq 0.05$.

Results: Twenty-four patients were included (mean age, 68.6 ± 10.4 years); most had low-grade degenerative spondylolisthesis and multicomponent lumbar stenosis. Mean operative time for isolated TOPS cases ($n = 18$) was 178.6 ± 35.8 minutes, with no intraoperative complications. Operative time decreased from early to later cases (201.0 ± 25.0 vs 156.2 ± 31.1 minutes, $p = 0.004$). Among patients with paired imaging ($n = 13$), mean slip ratio decreased from 0.190 ± 0.058 preoperatively to 0.152 ± 0.057 postoperatively ($p = 0.008$), without progression in listhesis grade or postoperative instability. Segmental ROM demonstrated a nonsignificant decrease ($p = 0.21$). Among patients with paired pain scores ($n = 10$), mean VAS improved from 7.8 ± 2.5 to 1.5 ± 1.9 , a mean reduction of 6.3 ± 3.3 points ($p \leq 0.001$). No hardware failures occurred. One superficial wound infection resolved with oral antibiotics. Median follow-up was 9.0 months (range, 3.9–19.4 months).

Conclusions and Implications: TOPS stabilization was associated with significant improvements in pain and slip ratio without postoperative instability or hardware failure. Operative efficiency improved with experience, suggesting a learning curve. These findings support the feasibility and early clinical effectiveness of TOPS in carefully selected patients and warrant further study with longer follow-up and comparative cohorts.

Fields: Neurosurgery, Surgery

Key Words: Lumbar spinal stenosis, Degenerative spondylolisthesis, Posterior dynamic stabilization, TOPS system, Clinical Outcomes

P20. Targeting Mitochondrial Dysfunction Improves Wound Healing in Aging Skin

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Introduction and Objective: Aging is accompanied by progressive mitochondrial dysfunction, impaired redox homeostasis, and reduced keratinocyte migration, contributing to delayed cutaneous wound repair and chronic wounds in older adults. However, whether pharmacologic restoration of mitochondrial function can reverse these defects in human skin remains incompletely defined. This study evaluated whether mitochondrial-targeted interventions improve keratinocyte migration, mitochondrial function, oxidative stress, and re-epithelialization in in vitro and ex vivo models of skin aging.

Methods: Primary human keratinocytes from five independent donors, with five technical replicates per condition, underwent scratch-wound migration assays under aging-mimicking conditions. Cells were treated with SIRT1 activators (SRT1460, SRT2104, SRT2183, and SRT3025), redox-modulating agents (Sonlicromanol and Vatiquinone), the mitochondrial membrane stabilizer Elamipretide, or electron transport chain inhibitors. Ex vivo partial-thickness wounds were generated in human skin from young and aged donors (n=4). Wound closure and re-epithelialization were quantified by digital image analysis and histology. Exploratory assays assessed mitochondrial membrane potential using JC-1 and intracellular reactive oxygen species using CellROX.

Results: Vehicle-treated keratinocytes achieved 57% normalized wound closure. SIRT1 activators increased migration to 82–91%, Sonlicromanol and Vatiquinone to 80–91%, and Elamipretide to approximately 82% ($p<0.001$). Electron transport chain inhibition reduced closure to 15–35%. In ex vivo aged skin, vehicle-treated wounds demonstrated 37% re-epithelialization, whereas SIRT1 activators improved closure to 81–100%, redox-modulating treatments to 86–100%, and Elamipretide to approximately 92% ($p<0.01$). Histology demonstrated enhanced epithelial migration and granulation tissue formation. Preliminary JC-1 analysis showed that Elamipretide increased signal by 28.5% at 24 hours and 21.2% at 48 hours relative to vehicle. In a single-donor CellROX assay, Sonlicromanol reduced ROS-associated fluorescence by approximately 37% versus hydrogen peroxide alone and 29% versus rotenone alone, indicating attenuation of oxidant-induced intracellular ROS.

Conclusions and Implications: Mitochondrial dysfunction is a modifiable contributor to impaired repair in aged human skin. SIRT1 activation, redox modulation, and mitochondrial membrane stabilization improved keratinocyte migration and re-epithelialization, while preliminary JC-1 and CellROX findings support improved mitochondrial function and reduced oxidant-induced ROS as potential mechanisms. These findings support mitochondrial-targeted gerotherapeutics as promising strategies for wound healing in older adults and warrant validation in additional donors and wound models.

Fields: Gastroenterology, Internal Medicine

Key Words: Mitochondria, Wound healing, Gerotherapeutics, Skin aging, Keratinocytes

P21. Socioeconomic analysis of pediatric onset inflammatory bowel disease at age 30: A population-based matched cohort study of patients and their siblings

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Introduction and Objective: Evidence of the socioeconomic consequences of pediatric-onset inflammatory bowel disease (IBD) is conflicting. A Norwegian study found children with IBD have lower odds of completing upper secondary education,¹ while a Danish study found the opposite.² Therefore, we investigated the socioeconomic impact of IBD on both patients and their siblings to study this hypothesis in the context of potential within a family.

Methods: We performed two matched cohort studies: one comparing socioeconomic outcomes of patients with pediatric-onset IBD born in Denmark between 1983-1994 to controls, and the other comparing socioeconomic outcomes of siblings of pediatric-onset IBD cases to controls. Study participants were identified using the Danish Civil Registrations System. Cases were matched 1:10 with controls on sex, year of birth, birth order, and municipality of residence at birth. Covariates included were household income, parental educational level, maternal labor market position prior to birth, and severity of IBD. Outcomes were evaluated at age 30 and included completion of secondary education, duration of completed education in years, and weeks not in the labor force between ages 29-30.

Results: In total, 1,482 pediatric-onset IBD patients, their 14,625 controls, 1,717 siblings of IBD patients, and their 16,893 controls were included in the study. IBD patients had the same mean probability of completing secondary education as controls (95% CI: -1.79 – 1.82), while siblings had a significantly higher mean probability than controls (95% CI: 1.33 – 4.68). IBD patients had significantly more weeks not in labor force than controls (95% CI: 2.10 – 3.85), while siblings had fewer than controls (95% CI: -1.80 – -0.17).

Conclusions and Implications: We found no impact on socioeconomic achievements for patients at age 30 following pediatric-onset IBD; however, when compared to the unaffected siblings of pediatric-onset IBD patients, it appears that the IBD patient population possessed a higher potential for socioeconomic achievement which they were unable to fulfill.

Fields: Gastroenterology, Epidemiology

Key Words: Inflammatory bowel disease, Pediatrics, Socioeconomic status, Cohort study, Siblings

P22. Influenza Worsens Clinical Outcomes in Patients Hospitalized with Upper Gastrointestinal Bleeding: A Nationwide Analysis

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Introduction and Objective: Upper gastrointestinal bleeding (UGIB) is a common medical emergency associated with significant morbidity and mortality. Influenza infection is associated with systemic inflammation, respiratory compromise, and multiorgan dysfunction, which may worsen outcomes in patients hospitalized with acute UGIB. In this study, we evaluated the association between influenza infection and hospital outcomes among patients hospitalized with UGIB using a nationally representative inpatient database.

Methods: We performed a retrospective cohort study using the National Inpatient Sample. Adult hospitalizations with a primary diagnosis of UGIB were identified using ICD-10-CM diagnosis codes and stratified according to the presence or absence of concomitant influenza infection. Propensity score matching with conditional logistic regression analyses were performed to determine the independent association between influenza infection and in-hospital outcomes. The primary outcome was in-hospital mortality. Secondary outcomes included prolonged length of stay, discharge disposition other than home, respiratory failure, mechanical ventilation, acute kidney injury (AKI), and cardiac arrest.

Results: Among 1,514,029 hospitalizations for UGIB, 3,215 (0.3%) had concurrent influenza infection. Compared with patients without influenza, those with influenza experienced higher crude rates of in-hospital mortality (3.3% vs. 2.2%; $P=0.042$), prolonged length of stay (44.6% vs. 30.0%; $P<0.001$), respiratory failure (15.1% vs. 8.4%; $P<0.001$), mechanical ventilation (6.4% vs. 3.9%; $P<0.001$), AKI (24.3% vs. 21.5%; $P=0.033$), and cardiac arrest (1.6% vs. 0.8%; $P=0.021$). After multivariable adjustment, influenza remained independently associated with increased odds of in-hospital mortality (adjusted odds ratio [aOR] 1.22, 95% CI 1.09-1.79), prolonged length of stay (aOR 2.21, 95% CI 1.86-2.61), respiratory failure (aOR 2.11, 95% CI 1.66-2.67), mechanical ventilation (aOR 1.61, 95% CI 1.14-2.28), AKI (aOR

1.35, 95% CI 1.11-1.64), and cardiac arrest (aOR 1.26, 95% CI 1.12–1.59). Influenza was not independently associated with discharge disposition other than home (aOR 1.06, 95% CI 0.88-1.26).

Conclusions and Implications: Findings of our study suggest that influenza identifies a particularly high-risk subset of patients with UGIB and underscore the importance of preventive vaccination, early recognition of influenza, aggressive supportive care, and multidisciplinary management to improve inpatient outcomes. Further studies are warranted to determine whether early antiviral therapy and optimized supportive interventions can mitigate these adverse outcomes.

Fields: Gastroenterology, Infectious Diseases

Key Words: Upper gastrointestinal bleeding, Influenza, National Inpatient Sample, In-hospital mortality, Respiratory failure

P23. Racial Disparities in Clinical Characteristics and Hospital Outcomes Among ERCP Hospitalizations: A National Inpatient Sample Analysis

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Introduction and Objective: Endoscopic retrograde cholangiopancreatography (ERCP) is a cornerstone therapeutic procedure for biliary and pancreatic pathologies, yet it carries significant complication risks including post-ERCP pancreatitis, bleeding, perforation, and mortality. Though racial and ethnic disparities in gastrointestinal procedural outcomes have been documented, comprehensive national-level analyses examining racial differences in clinical characteristics, complication profiles, and hospital outcomes among ERCP hospitalizations remain limited.

Methods: A retrospective cross-sectional analysis was conducted using the National Inpatient Sample (NIS) database from 2020 to 2023. Adult hospitalizations (≥ 18 years) involving ERCP were identified using ICD-10-PCS codes. The primary outcome was in-hospital mortality and secondary outcomes included post-ERCP pancreatitis, perforation, hemorrhage, and cholecystitis. Multivariable binary logistic regression models assessed the independent association between race and adverse outcomes, adjusting for age, insurance, hospital characteristics, comorbidities, and Elixhauser Comorbidity Index. Analyses incorporated complex survey design weights per NIS methodology.

Results: Among an estimated 280,080 ERCP hospitalizations, 64.3% were White, 9.9% African American, 17.6% Hispanic, and 8.2% other races. African American patients were younger, had higher comorbidity burden including hypertension (62.7%), diabetes (17.1%), obesity (31.5%), and chronic kidney disease (14.7%) and were predominantly treated in Southern urban teaching hospitals. After multivariable adjustment, African American race was independently associated with higher in-hospital mortality (adjusted odds ratio [aOR], 1.52; 95% CI, 1.19-1.95) and prolonged length of stay (aOR, 1.45; 95% CI, 1.36-1.55) compared with White race. Notably, African American race was not associated with increased rates of post-ERCP pancreatitis, perforation, hemorrhage, or cholecystitis. Hispanic patients demonstrated lower adjusted odds of post-ERCP pancreatitis (aOR, 0.81; 95% CI, 0.74-0.88) and perforation (aOR, 0.74; 95% CI, 0.69-0.79) compared with White patients.

Conclusions and Implications: In this nationally representative analysis, African American patients undergoing ERCP experienced significantly higher in-hospital mortality and prolonged hospitalization independent of procedural complications, suggesting that systemic and structural factors beyond technical performance drive these disparities. Hispanic patients demonstrated a comparatively favorable complication profile. These findings underscore the need for targeted interventions addressing equitable access to high-volume centers, standardized peri-procedural protocols, and systemic healthcare inequities to improve ERCP outcomes across all racial and ethnic groups.

Fields: Gastroenterology, Internal Medicine

Key Words: ERCP, Gastroenterology, NIS, Racial Disparities, Endoscopy

P24. Impact of Artificial Intelligence-Assisted Colonoscopy on Clinically Meaningful Outcomes Beyond Adenoma Detection Rate: A Systematic Review

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Introduction and Objective: Whether Artificial intelligence (AI) based systems translate into clinically meaningful outcomes in colorectal cancer (CRC) remains uncertain. This study systematically evaluate the impact of AI-assisted colonoscopy on outcomes beyond adenoma detection rate (ADR), including advanced adenoma detection, sessile serrated lesion (SSL) detection, non-neoplastic polypectomy rates, surveillance burden, cost-effectiveness, real-world implementation effectiveness, and the effect of endoscopist experience on AI-mediated benefits.

Methods: A systematic search of MEDLINE, EMBASE, Cochrane Central, Scopus, and Web of Science was conducted through March 2026. Eligible studies included randomized controlled trials (RCTs), meta-analyses, cost-effectiveness analyses, real-world implementation studies, and clinical practice guidelines evaluating CAde-assisted colonoscopy. Data were extracted on ADR, adenoma miss rate (AMR), advanced adenoma detection rate (AADR), SSL detection, non-neoplastic polyp resection, withdrawal time, cost-effectiveness, and real-world performance metrics. Quality assessment was performed using the Cochrane Risk of Bias 2.0 tool for RCTs and the GRADE framework for certainty of evidence.

Results: Forty-eight RCTs encompassing 34,106 participants and 12 real-world implementation studies were identified. AI-assisted colonoscopy consistently improved ADR (pooled RR, 1.20–1.24; $P < .001$) and reduced AMR by approximately 55%. However, the effect on advanced colorectal neoplasia (ACN) per colonoscopy was not significant (IRD = 0.01; 95% CI, –0.01 to 0.02), although ACN detection rate showed a small but significant increase (RR, 1.16; 95% CI, 1.02–1.32). SSL detection results were conflicting across meta-analyses. CAde increased non-neoplastic polyp resection by approximately 39% and was associated with a potential increase in downstream surveillance colonoscopies. Cost-effectiveness modeling projected an incremental 4.8% reduction in CRC incidence and 3.6% reduction in CRC mortality with annual savings of \$290 million at the US population level. Real-world studies demonstrated attenuated benefits compared with RCTs. AI benefit was independent of endoscopist experience level.

Conclusions and Implications: AI-assisted colonoscopy reliably improves surrogate detection metrics but has not yet demonstrated direct reductions in CRC incidence, interval cancers, or mortality in prospective clinical studies. The predominant detection of diminutive, low-risk adenomas raises concerns about overdiagnosis and increased surveillance burden. Bridging the gap between surrogate endpoint improvement and patient-important outcomes represents the critical next frontier for AI in endoscopy.

Fields: Gastroenterology, Internal Medicine

Key Words: Colonoscopy, Gastroenterology, Adenoma, Artificial Intelligence, Polyps

P25. Racial and Ethnic Disparities in Mortality Among U.S. Adults With Colorectal Cancer: A SEER-Based Cohort Study

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Introduction and Objective: Colorectal cancer remains one of the most commonly diagnosed cancers in the United States, with an estimated 58,850 deaths expected in 2026. Prior studies have shown racial and ethnic differences in survival, with non-Hispanic Black and Hispanic patients often experiencing higher mortality than non-Hispanic White patients. However, whether these disparities persist after accounting for demographic and clinical characteristics

remains incompletely understood. This study aimed to determine whether race and ethnicity are associated with all-cause mortality among U.S. adults aged 18–85 years diagnosed with colorectal cancer.

Methods: A non-concurrent, population-based cohort study was conducted using Surveillance, Epidemiology, and End Results (SEER) Program data from 2016–2022. Adults aged 18–85 years with primary colorectal cancer were included. Patients with missing data for race/ethnicity, survival status, age, sex, or tumor stage were excluded. Race/ethnicity was the primary exposure and categorized as non-Hispanic White, non-Hispanic Black, Hispanic, and non-Hispanic Asian. The primary outcome was all-cause mortality. Age at diagnosis, sex, and tumor stage at diagnosis were included as covariates. Cox proportional hazards regression models were used to estimate unadjusted and adjusted hazard ratios (HRs) with 95% confidence intervals (CIs).

Results: A total of 27,363 adults were included (18,428 non-Hispanic White, 2,640 non-Hispanic Black, 2,978 Hispanic, and 3,317 non-Hispanic Asian). Non-Hispanic Black participants had the highest proportion of distant-stage disease at diagnosis. During follow-up, 20,470 participants remained alive and 6,893 died. Compared with non-Hispanic White participants, non-Hispanic Black participants had a higher adjusted hazard of death (HR 1.40; 95% CI 1.23–1.59), as did Hispanic participants (HR 1.18; 95% CI 1.04–1.35). No significant difference in survival was observed between non-Hispanic Asian and non-Hispanic White participants (HR 0.97; 95% CI 0.85–1.11). Tumor stage was the strongest predictor of mortality.

Conclusions and Implications: Racial and ethnic disparities in all-cause mortality persisted after adjustment for age, sex, and tumor stage. These findings support efforts to identify and address drivers of disparities in colorectal cancer outcomes, including differences in screening, diagnosis, treatment access, care quality, and survivorship care. Further research should examine whether treatment, socioeconomic, geographic, and healthcare access factors mediate these associations.

Fields: Gastroenterology, Epidemiology

Key Words: Colorectal Cancer, Health Disparities, Cancer Disparities, Health Equity

P26. Frailty Is Associated with Worse Outcomes in Patients Hospitalized with Variceal Hemorrhage: A Nationwide Analysis

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Introduction and Objective: Variceal hemorrhage remains a major cause of morbidity and mortality in patients with portal hypertension. Frailty, a state of diminished physiologic reserve, has been associated with adverse outcomes across multiple medical and surgical conditions, yet its impact on hospitalized patients with variceal hemorrhage has not been well characterized. We aimed to evaluate the association between frailty status and clinical outcomes in patients hospitalized with variceal hemorrhage using a nationally representative database.

Methods: We performed a retrospective cross-sectional analysis of adult hospitalizations for variceal hemorrhage using the National Inpatient Sample (NIS). Frailty status was assessed using the Hospital Frailty Risk Score (HFRS), which utilizes ICD-10 diagnostic codes to classify patients into low-risk (non-frail), intermediate-risk (pre-frail), and high-risk (frail) categories. Outcomes included in-hospital mortality, prolonged length of stay, disposition other than home, mechanical ventilation, acute kidney injury, and hepatic encephalopathy. Univariate and multivariate logistic regression analyses were performed, adjusting for demographics, hospital characteristics, and clinical comorbidities.

Results: A total of 36,450 hospitalizations for variceal hemorrhage were identified, of which 22,940 (62.9%) were non-frail, 13,290 (36.4%) were pre-frail, and 220 (0.7%) were frail. Frail patients were older, more likely to have Medicare insurance, and had higher rates of hypertension, peripheral vascular disease, and chronic renal failure (all $p < 0.001$). In-hospital mortality was significantly higher among frail (13.6%) and pre-frail (10.1%) patients compared with non-frail patients (2.0%, $p < 0.001$). On multivariate analysis, high frailty risk was independently associated with increased odds

of in-hospital mortality (aOR 12.29, 95% CI 3.18-47.50), prolonged length of stay (aOR 7.32, 95% CI 2.49-21.47), disposition other than home (aOR 11.53, 95% CI 4.01-33.16), mechanical ventilation (aOR 12.28, 95% CI 3.97-38.00), acute kidney injury (aOR 17.50, 95% CI 6.11-50.09), and hepatic encephalopathy (aOR 3.35, 95% CI 1.29-8.69; all $p < 0.001$).

Introduction and Objective: In this nationwide analysis, frailty was independently associated with significantly worse clinical outcomes in patients hospitalized with variceal hemorrhage, including a greater than 12-fold increase in the odds of in-hospital mortality. These findings underscore the importance of frailty assessment in risk stratification and clinical decision-making for patients presenting with variceal hemorrhage.

Fields: Gastroenterology, Internal Medicine

Key Words: Variceal hemorrhage, Frailty, Portal hypertension

P27. Race as a Predictor of 10-Year Overall Survival in Small Bowel Adenocarcinoma: A Retrospective Cohort Study

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Introduction and Objective: The small intestine is the longest organ in the gastrointestinal (GI) tract, yet small intestine cancer (SIC) accounts for only 3.46% of GI malignancies.¹ Despite advances in screening and early detection, recent data show a rising prevalence of SIC in both sexes and across certain racial groups. Long-term survival data for SIC remain limited, and it is unclear whether racial disparities observed in short-term outcomes persist over extended follow-up. This study aims to investigate how race affects 10-year survivorship in patients diagnosed with SIC.

Methods: We conducted a retrospective cohort study using data from the SEER program, covering cases of small intestine cancer diagnosed between 2010 and 2021, with follow-up through 2021 to allow assessment of 10-year survival outcomes. The study included patients diagnosed with primary SIC, classified under ICD-O codes C17.0–C17.9. Ten-year overall survival was compared across racial groups (White, Black, Asian, Hispanic, and Other). Multivariable Cox proportional hazards regression were used to estimate race-specific hazard ratios, adjusting for relevant demographic and clinicopathologic covariates. Kaplan Meier curves were used to illustrate survival over time according to races.

Results: Among 7514 patients with primary SIC diagnosed between 2010 and 2021, race was significantly associated with overall survival (log-rank $p < 0.001$). In unadjusted analyses, Asian/Pacific Islanders had higher mortality (HR 1.50, 95% CI 1.29–1.76) and Hispanics had lower mortality (HR 0.80, 95% CI 0.66–0.97) than Whites. After adjusting for age, sex, marital status, stage, histology, and primary site, these disparities were largely attenuated, with only Asian/Pacific Islanders retaining a modest, borderline-significant excess hazard (HR 1.19, 95% CI 1.00–1.40).

Introduction and Objective: Racial and ethnic disparities in SIC survival were present in unadjusted analyses but were largely explained by differences in age, stage, histology, and tumor site, with stage remaining the strongest independent predictor of mortality. These findings suggest that improving outcomes in SIC will depend on earlier detection and equitable access to care across racial and ethnic groups, with future research needed to identify the factors driving disparities in disease presentation.

Fields: Oncology, Gastroenterology

Key Words: Small intestine, Disparities, Cancer, Survival, Tumor

P28. Association Between Online Search Interest and PSA Screening Prevalence Across Florida Metropolitan Areas: A Descriptive Study

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Introduction and Objective: Prostate cancer is the most commonly diagnosed cancer among men in the United States, affecting 1 in 8 men in their lifetime. Online search behavior is increasingly used to assess public interest in health topics, however, its relationship with prostate-specific antigen (PSA) screening at the state level remains unclear. Evaluating metropolitan variation may help identify geographic disparities and determine whether digital search trends reflect real world screening practices. This study examines the association between prostate cancer related search interest and PSA screening prevalence across Florida metropolitan areas.

Methods: This descriptive ecological study used Google Trends data were used to evaluate relative search volume (RSV) for prostate cancer related terms in Florida between January 1, 2012, and December 31, 2019. Search terms included “PSA,” “prostate cancer,” and “prostate cancer symptoms.” PSA screening prevalence was obtained from publicly available estimates derived from the Behavioral Risk Factor Surveillance System (BRFSS) and National Health Interview Survey (NHIS). County-level screening prevalence estimates were averaged to calculate metropolitan area prevalence for the periods 2012–2016 and 2018–2019 among men aged 55–69 years who reported receiving a PSA test within the past year.

Results: Linear regression analysis demonstrated a positive but non-statistically significant associations between online search interest and PSA screening prevalence across Florida metropolitan areas. For “PSA” search interest, the slope was 0.24 (95% CI –0.14 to 0.62, $p = 0.17$). For “prostate cancer,” the slope was 0.19 (95% CI –0.09 to 0.47, $p = 0.15$). For “prostate cancer symptoms,” the slope was 0.47 (95% CI –0.01 to 0.95, $p = 0.055$).

Conclusions and Implications: While online search behavior may reflect public engagement, it may not reliably predict screening practices. Despite moderate correlations, online search interest in prostate cancer related topics was not significantly associated with PSA screening prevalence. Further studies using larger or longitudinal datasets are needed to clarify this relationship. Additionally, alternative strategies for distributing prostate cancer screening information, such as community outreach, primary care engagement, and targeted public health campaigns, should be explored, as online search behavior alone may not effectively translate into screening.

Fields: Urology, Public Health

Key Words: Prostate Cancer, Prostate-Specific Antigen (PSA) Screening, Screening; Google Trends, Online Search Behavior, Geographic Variation

P29. Stage Migration in Prostate Cancer Among Men Aged 40-54 Years: A SEER Analysis, 2004-2022

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Introduction and Objective: About 1 in 8 men will have prostate cancer, with incidence being influenced by age and screening. The U.S. Preventive Services Task Force 2012 and 2018 PSA screening recommendations have influenced stage at diagnosis. Although studies have shown increasing rates in advanced disease, the temporal trends of age groups within men 40-54 years of age have not been well described. Our study assessed the stage migration by age group and their demographic variables.

Methods: A retrospective, population-based cohort study was conducted, utilizing Surveillance, Epidemiology, and End Results Program database (2004-2012). The study population was men aged 40-54 years with microscopically confirmed prostate cancer ($N = 84,554$). The primary exposure was year of diagnosis defined as continuous and era groupings of 2004-2011, 2012-2022, and 2004-2022. The primary outcome was stage of diagnosis (localized, regional, and distant). The statistical analysis included delay-adjusted incidence rates, log-linear regression to determine annual percent change (APC), era-based analysis (2004-2011 and 2012-2022), and chi-square testing for demographic comparisons. The data was stratified by age groups, race, ethnicity, median household income, rural vs urban residence, and marital status.

Results: Localized prostate cancer incidence significantly declined across all groups, while regional and distant prostate cancer incidence significantly rose in only the 45-49 (APC –3.90%; 95% CI, –5.11 to –2.69) and 50-54 (APC –2.61%; 95% CI, –3.54 to –1.67) age groups. From 2004-2011, localized incidence significantly increased in the 45-49 age group (APC

2.53%; 95% CI, 0.01 to 5.12). From 2012-2022, localized incidence significantly declined in the 40-44 (APC -5.58%; 95% CI, -8.22 to -2.87) and 45-49 (APC -2.98%; 95% CI, -5.14 to -0.78) age groups.

Conclusions and Implications: These findings suggest a shift toward more advanced-stage prostate cancer among men aged 40–54 years following the 2012 USPSTF PSA screening recommendations, which is not limited to a single age group. The rise can be potentially explained by a change in screening practices, subsequently leading to delayed diagnosis. Future studies should evaluate how screening patterns influence stage at diagnosis and to guide risk-based screening strategies. Conclusion Men aged 40–54 years are increasingly diagnosed with more advanced-stage prostate cancer, potentially reflecting reduced PSA screening and delayed diagnosis.

Fields: Urology, Oncology

Key Words: Prostate cancer, PSA screening, Stage Migration, Incidence trends, Early-onset prostate cancer

P30. Prognostic Role of TERT Mutations in Chondrosarcoma: Associations with Dedifferentiation, Survival, and IDH/TERT Co-Mutations

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Introduction and Objective: Chondrosarcoma is a clinically heterogeneous malignancy, and the prognostic role of its genetic features remains incompletely defined. While isocitrate dehydrogenase (IDH) mutations are well characterized, the significance of less common alterations—particularly telomerase reverse transcriptase (TERT) promoter mutations—remains unclear. This study aimed to define the genomic profile of chondrosarcoma and evaluate the prognostic relevance of TERT mutations, alone and in combination with IDH mutations.

Methods: We retrospectively analyzed 91 patients with chondrosarcoma, including 54 patients with available next-generation sequencing data for genomic analyses. Tumors were assessed for mutations in IDH, TERT, TP53, and groups of genes involved in key cellular functions (e.g., cell cycle control, chromatin regulation). Associations with tumor characteristics were evaluated, recurrence outcomes were assessed using logistic regression, and overall survival was analyzed using Kaplan–Meier and Cox models adjusted for tumor subtype, grade, and size.

Results: IDH mutations were present in 52% of tumors; other alterations included TP53 (16%), TERT (7.7%), chromatin-related genes (14%), and cell cycle genes (8.8%). TERT mutations were enriched in dedifferentiated tumors ($p = 0.017$) and occurred exclusively in grade 3 disease (" $p < 0.001$ "). TERT-mutant tumors were associated with worse overall survival on unadjusted analysis (HR 7.02, $p = 0.024$), but not after adjustment (HR 3.81, $p = 0.160$). All TERT mutations co-occurred with IDH mutations, and this subgroup had particularly poor survival (HR 7.76, $p = 0.022$), though limited by small numbers.

Conclusions and Implications: These findings suggest that specific mutations, alone or in combination, may influence clinical outcomes by reflecting more aggressive tumor biology. TERT mutations, particularly with concurrent IDH mutations, may identify high-risk patients and complement established prognostic factors. Further validation is needed.

Fields: Oncology, Surgery

Key Words: Chondrosarcoma, TERT promoter mutation, IDH mutation, Next-generation sequencing, Prognostic biomarkers

P31. Improving Clinical Trial Awareness Through Community Education: A Retrospective Survey of Diverse South Florida Participants

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Introduction and Objective: Clinical trials (CTs) participation remains low, especially among underrepresented groups due to barriers such as mistrust, limited awareness, and perceived burdens. Community-based educational interventions have proven effective in overcoming these barriers. This study retrospectively evaluated changes in group-level knowledge and willingness to participate in CTs before and after a series of community presentations conducted in diverse South Florida communities.

Methods: Adults residing in Palm Beach (PB), Broward (B), or Miami-Dade (MD) counties attended one of three community-based educational presentations on CTs. Presentations were conducted in English (E) in PB and B, and in Spanish (S) in MD and included patient testimonials. Educational sessions were promoted through grassroots community outreach efforts and were funded by the V Foundation for Cancer Research. Anonymous pre- and post-surveys were distributed to assess self-reported understanding of CTs and willingness to participate. Chi-square tests were used to compare pre- and post- event responses and to assess differences between E and S-language events.

Results: A total of 115 individuals participated across the three CT educational events: 29 in PB, 42 in B, and 44 in MD. Overall, 84% of participants reported understanding the importance of CTs prior to the event, which increased to 100% post-event ($p<0.05$). Following the sessions, 77% indicated an increased willingness to participate in a CT and 96% reported improved understanding of the types and significance of CT. Among initially hesitant participants, the most frequently cited concern (33%) was fear of side effects or doubts about treatment efficacy. Additionally, 25% of respondents reported they had never been offered the opportunity to participate in a CT, despite expressing interest. In the S-language MD event, willingness to participate increased from 45% pre-event to 74% post-event; however, this change was not statistically significant ($p=0.23$). Minimal differences were observed between E and S-language events in terms of overall attitudes and response patterns.

Conclusions and Implications: This study demonstrates that community-based education can enhance group-level awareness and interest in CTs. The use of patient testimonials and culturally tailored outreach likely contributed to the observed improvements in understanding and willingness to participate. However, the unlinked survey design, small sample size, retrospective analysis, and limited number of repeat questions restrict interpretation of individual-level change and consistency across groups. The gap between interest and opportunity highlights the need for more inclusive recruitment strategies. Future efforts should emphasize education, proactive outreach, and trust-building to address misconceptions and improve access. Targeting these efforts at the point of recruitment may help increase CT diversity and participation.

Fields: Oncology, Community Education

Key Words: Community-Based Education, Clinical Trial Recruitment, Community Engagement, Clinical Trials

P32. Racial and Ethnic Disparities in Breslow Depth at Melanoma Diagnosis: Analysis of SEER Data from 2010 to 2022

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Introduction and Objective: Melanoma is the skin cancer with the highest fatality rates. As Breslow depth at diagnosis strongly predicts prognosis, we evaluated its association with race-ethnicity independent of demographic and tumor characteristics.

Methods: We conducted a registry-based cross-sectional analysis of SEER 2010–2022 data from adults aged ≥ 18 years with histologically confirmed melanoma and recorded Breslow depth. We categorized race/ethnicity as NH White, NH Black, NH American Indian/Alaska Native (AI/AN), NH Asian/Pacific Islander (API), and Hispanic. We classified Breslow depth as ≤ 1.00 , 1.01–2.00, 2.01–4.00, or ≥ 4.00 mm. We used ordered logistic regression to estimate crude and adjusted odds ratios (ORs) for presenting with thicker melanoma, adjusting for age, sex, marital status, primary tumor site, and histologic subtype.

Results: The study included 61,456 adults with melanoma; 55.2% men, 42.0% aged ≥ 65 years, and the cohort was predominantly NH White (95.9%), followed by Hispanic (2.6%), NH API (0.9%), NH AI/AN (0.3%), and Black (0.3%). Overall, Breslow depth distribution was: ≤ 1.00 mm (72.9%), 1.01–2.00 mm (13.2%), 2.01–4.00 mm (7.8%), and > 4.00 mm (6.1%). Melanoma ≤ 1.00 mm was present in 73.4% of NH White patients compared with 40.9% of NH Black, 53.2% of NH API, 65.9% of NH AI/AN, and 65.5% of Hispanic patients. In contrast, melanoma > 4.00 mm was present in 5.8% of NH White patients compared with 24.7% of NH Black, 17.1% of NH API, 11.5% of NH AI/AN, and 10.6% of Hispanic patients. In crude ordered logistic models, all non-White groups had higher odds of presenting with thicker melanoma than NH White patients: NH Black OR 4.76 (95% CI, 3.55–6.39), NH API OR 2.66 (2.26–3.13), NH AI/AN OR 1.52 (1.15–2.02), and Hispanic OR 1.54 (1.39–1.70). Associations persisted after adjustment: NH Black aOR 3.58 (2.59–4.96), NH API aOR 2.49 (2.08–2.98), NH AI/AN aOR 1.49 (1.10–2.04), and Hispanic aOR 1.51 (1.35–1.69).

Conclusions and Implications: Racial/ethnic minority adults, particularly NH Black and NH API patients, presented with thicker melanomas than NH White patients even after multivariable adjustment. These findings support targeted efforts to improve early melanoma detection in diverse populations.

Fields: Dermatology, Oncology

Key Words: Melanoma, Breslow Depth, Health disparities, Race and Ethnicity, SEER

P33. Comparative In Vitro Activity of Copper–Hydroxychloroquine and Copper–Hydroxychloroquine–Paclitaxel Complexes in Ovarian Cancer Cells

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Introduction and Objective: The National Cancer Institute's 60-human-tumor-cell-line panel is a standardized platform for evaluating potential anticancer compounds. Copper is relevant to cancer biology because tumor cells depend on copper-associated processes including mitochondrial respiration, angiogenesis, metastasis, autophagy, and redox homeostasis. This study used NCI-60 screening data to determine whether incorporation of paclitaxel into a Cu(II)-hydroxychloroquine complex was associated with greater anticancer activity against ovarian cancer cell lines than a Cu(II)-hydroxychloroquine complex without paclitaxel.

Methods: NCI-60 one-dose screening data obtained at 1.00×10^{-5} M were descriptively compared for NSC 765601, a Cu(II)-hydroxychloroquine trihydrate complex, and NSC 767033, a dicopper-hydroxychloroquine-paclitaxel chloride complex. Lower growth percentages indicated greater growth inhibition, while negative values indicated net cell loss relative to the initial cell population. Growth percentages at 1.00×10^{-5} M from two multidose screens of paclitaxel were also descriptively compared with NSC 767033. Because the compounds were evaluated in separate NCI experiments, no inferential statistical testing was performed.

Results: NSC 765601 demonstrated little to no anticancer activity in ovarian cancer cell lines. OVCAR-3 and OVCAR-5 exhibited growth percentages of 132.11% and 125.70%, respectively, indicating greater growth than untreated controls. In contrast, NSC 767033 produced substantially greater inhibition, including negative growth percentages in OVCAR-3 (–16.42%) and SK-OV-3 (–9.86%). Across the broader NCI-60 panel, mean growth was 106.76% for NSC 765601 and 17.71% for NSC 767033. Compared with paclitaxel at the same nominal concentration, NSC 767033 was consistently more active only in IGROV1. Paclitaxel was more active in OVCAR-3, OVCAR-4, OVCAR-8, NCI/ADR-RES, and SK-OV-3, while OVCAR-5 results differed between the two paclitaxel experiments.

Conclusions and Implications: The paclitaxel-containing Cu-HCQ complex demonstrated substantially greater growth inhibition than the Cu-HCQ complex without paclitaxel, suggesting that incorporation of paclitaxel was associated with enhanced anticancer activity in ovarian cancer cell lines. The magnitude of this effect varied by cell line, indicating that responsiveness may depend on tumor-specific biology. Because the compounds differed in multiple structural features and were evaluated in separate NCI experiments, the observed improvement cannot be attributed definitively to paclitaxel incorporation alone. Direct comparative dose-response and mechanistic studies are needed to confirm these findings and determine whether the complex provides a reproducible, cell-line-specific advantage.

Fields: Oncology, Obstetrics & Gynecology

Key Words: Ovarian Cancer, Paclitaxel, Hydroxychloroquine, Copper Complexes, NCI-60

P34. Exploring the association between rural residency status, marital status, and sex on Breslow thickness of melanoma at diagnosis

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Introduction and Objective: The incidence of melanoma in the U.S. is 30 in 100,000 people. Breslow thickness at melanoma diagnosis is a critical prognostic factor, with greater thickness associated with worse outcomes. Despite overall mortality improvements, disparities persist, with non-White and lower socioeconomic populations experiencing poorer prognostic disease. This study aimed to evaluate the association between rural residency status, marital status, and sex and Breslow thickness at diagnosis.

Methods: This non-concurrent cohort study used data from years 2000 to 2022 collected by Surveillance, Epidemiology, and End Results (SEER) to identify U.S. patients with primary cutaneous melanoma. Patients with unknown diagnosis or melanoma status and non-melanoma skin cancers will be excluded (n=10,268,798). A total of 65,318 patients were included in the analysis. Residency status (urban vs. rural areas) was the primary exposure. The main outcome was Breslow thickness (mm). Covariates included marital status, sex, socioeconomic status, and race. Unadjusted and adjusted logistic regression were used to calculate odds ratios (OR) and 95% confidence intervals (CI).

Results: Significant differences in Breslow thickness were observed across residency categories in marital status, sex, race, and income (all $p < 0.001$ – 0.004), but not age. Median Breslow thickness was highest in metro-adjacent areas (1.01, IQR 0.51–2.31) and lowest in large urban areas (0.81). After adjustment, rurality was not significantly associated with Breslow thickness (adjacent-metro OR 1.01, 95% CI 0.99–1.06; non-adjacent rural OR 0.96, 95% CI 0.93–1.00). In contrast, widowed status (adjusted OR 1.47, 95% CI 1.42–1.52), male sex (adjusted OR 1.28, 95% CI 1.26–1.31), age ≥ 70 years (adjusted OR 1.37, 95% CI 1.33–1.39), non-White race, and income $< \$60K$ (adjusted OR 1.17, 95% CI 1.14–1.21) were independently associated with greater tumor thickness.

Conclusions and Implications: Our data suggest a diagnostic delay and disparities in access to dermatologic care. These findings support targeted, multilevel interventions — including expanded telehealth dermatology, mobile screening in underserved communities, and culturally tailored education — to improve early melanoma detection among high-risk sociodemographic groups, regardless of rural or urban residence.

Fields: Dermatology, Public Health

Key Words: Melanoma, Breslow Thickness, Rural residency, Health disparities, SEER Database

P35. Association Between Serum Chloride Levels and Mortality Among Critically Ill Heart Failure Patients: A Retrospective Cohort Study

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Introduction and Objective: Electrolyte disturbances are common in critically ill heart failure (HF) patients and are associated with adverse outcomes. While sodium and potassium imbalances have been extensively studied, the prognostic significance of serum chloride levels in this population remains underexplored. This study aimed to evaluate the association between abnormal chloride levels and mortality in critically ill HF patients.

Methods: This retrospective cohort study included 1,760 critically ill HF patients admitted to the intensive care unit (ICU). Patients were stratified into three groups based on serum chloride levels: low (n=368), normal (n=998), and high (n=394). Demographic, clinical, and laboratory characteristics were compared across groups. Cox proportional hazards

regression was used to assess the association between chloride categories and both hospital and ICU mortality, adjusting for age, gender, race, mean blood pressure, temperature, heart rate, respiratory rate, Charlson Comorbidity Index, white blood cell count, hemoglobin, platelet count, sodium, potassium, blood urea nitrogen, and creatinine. Restricted cubic spline analyses and receiver operating characteristic (ROC) curves were also performed.

Results: Overall hospital and ICU mortality rates were 17.5% and 11.4%, respectively. Both low and high chloride levels were significantly associated with increased hospital mortality compared to normal levels (low: adjusted HR 1.56, 95% CI 1.16-2.65, $p=0.007$; high: adjusted HR 1.31, 95% CI 1.08-1.59, $p=0.006$). Similarly, both abnormal chloride groups demonstrated significantly higher ICU mortality (low: adjusted HR 1.61, 95% CI 1.29-2.01, $p<0.001$; high: adjusted HR 1.33, 95% CI 1.10-1.61, $p=0.003$). The low chloride group exhibited higher creatinine, BUN, and pCO_2 levels, while the high chloride group demonstrated lower pH and bicarbonate values. ROC analysis yielded AUC values of 0.6461 and 0.6466 for chloride in predicting hospital and ICU mortality, respectively.

Conclusions and Implications: Both hypochloremia and hyperchloremia are independently associated with increased hospital and ICU mortality in critically ill HF patients, demonstrating a U-shaped relationship. Serum chloride may serve as a readily available prognostic marker in this population, warranting closer monitoring and further prospective investigation.

Fields: Cardiology, Internal Medicine

Key Words: Hyperchloremia, Heart Failure, Hypochloremia, Critically ill, Electrolyte abnormalities

P36. Hypomagnesemia in Critically Ill Children: Prevalence, Risk Factors, and Outcomes

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Introduction and Objective: Hypomagnesemia is present in 3 to 10% of the general population, but its prevalence is increased among those in intensive care units (ICUs). Hypomagnesemia is frequently associated with adverse clinical outcomes. The challenges, implications, and clinical associations of magnesium imbalances are important to understand, as they can have serious effects on children's health. This study aimed to evaluate the prevalence, risk factors, and outcomes of hypomagnesemia in critically ill children admitted to the pediatric intensive care unit (PICU).

Methods: We conducted a single-center, retrospective, observational study of children admitted to the PICU between 2017 and 2024, who had at least one magnesium level drawn during the first 7 days of admission. Hypomagnesemia was defined as a serum magnesium level of <1.6 mg/dL. We extracted demographics, laboratory data, associated medical conditions, medications, and outcomes data. Modified Poisson regression was used to identify risk factors associated with hypomagnesemia. Firth logistic regression was used to evaluate the association between hypomagnesemia and mortality.

Results: Among 16,027 PICU admissions, 2,333 (14.6%) patients had magnesium levels tested, and 362 (15.5%) had hypomagnesemia. The prevalence of hypomagnesemia among all PICU admissions was 2.2%. Patients with hypomagnesemia were younger (months) (69.5 vs. 75.0, $p<0.001$) and had longer length of stay (days) (18 vs. 5, $p<0.001$). On multivariable regression analysis, higher severity of illness score, hypokalemia, hypocalcemia, postoperative status, diabetic ketoacidosis, and diuretic use were independently associated with increased risk of hypomagnesemia. After adjusting for the severity of illness and other clinical conditions, hypomagnesemia was independently associated with higher mortality (13.8% vs. 2.4%, $p<0.001$).

Conclusions and Implications: Hypomagnesemia is a frequent electrolyte disturbance in critically ill children and is independently associated with greater illness severity and increased mortality. Its close association with other electrolyte abnormalities, underlying disease processes, and medication exposures underscores the need to monitor serum magnesium levels in high-risk PICU patients. These findings warrant further investigation into whether timely identification and correction of hypomagnesemia can improve clinical outcomes.

Fields: Pediatrics, Critical Care

Key Words: Hypomagnesemia, Critically Ill, Mechanical Ventilation, Sepsis, Medication

P37. Pre-Ablation Lipid Profiles and Atrial Fibrillation Recurrence After Catheter Ablation: A Systematic Review and Meta-Analysis

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Introduction and Objective: Catheter ablation is established for rhythm control in symptomatic atrial fibrillation (AF). However, recurrence occurs in 20-40% of patients. Lipid profiles are routinely measured, but not included as pre-ablation risk stratification. The study aims to determine whether LDL and triglyceride levels are associated with AF recurrence after ablation.

Methods: A systematic review and meta-analysis were done following the PRISMA 2020 guidelines. PubMed was searched through December 2025. Studies reporting fully adjusted hazard ratios for lipid profile and AF recurrence (arrhythmia $\geq$ 30 seconds after a 3-month blanking period) were included. A random-effects model was used to pool hazard ratios for LDL-C and triglycerides. Studies that did not use time-to-event analysis were excluded. All the eligible studies we found originated from Chinese cohorts.

Results: Of forty-three studies reviewed, four cohort studies (N=1,616; 360 recurrence events) were included in the systematic review and three in the meta-analysis. Although lipid levels were within normal limits, differences within the normal range were associated with AF recurrence. Higher LDL-C levels were associated with a lower risk of AF recurrence (HR 0.70, 95% CI 0.57–0.87; $I^2=0\%$), and higher triglyceride levels were associated with an increased risk of recurrence (HR 1.35, 95% CI 1.13–1.62; $I^2=18\%$). HDL and total cholesterol were not independently associated with recurrent AF in the selected studies.

Conclusion and Implications: These findings of low LDL and high triglycerides likely reflect distinct pathophysiologic pathways. The use of lipid-lowering agents, cardiovascular comorbidities, and metabolic risk factors introduces potential confounding. Prospective multicenter studies in a more diverse population are warranted to validate or contradict these findings.

Fields: Cardiology, Internal Medicine

Key Words: Atrial Fibrillation, Catheter Ablation, LDL Cholesterol, Triglycerides, Atrial Fibrillation Recurrence

P38. Association of Endothelial Dysfunction and Hospital Mortality Among Critically Ill Patients

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Introduction and Objective: Accurate prediction of mortality in critically ill patients is crucial for clinical decision-making and resource allocation. The Sequential Organ Failure Assessment (SOFA) score is commonly used tool for mortality prediction, but it relies on several laboratory and clinical parameters which are highly confounded. The Endothelial Activation and Stress Index (EASIX) is a simple composite biomarker of endothelial dysfunction calculated using lactate dehydrogenase, creatinine, and platelet count. The present study compared the predictive performance of EASIX and SOFA scores for hospital and ICU mortality.

Methods: We conducted a retrospective cohort study based on the Medical Information Mart for Intensive Care (MIMIC-IV) database (2008-2019). Adult patients $\geq$ 18 years of age were included in the study. EASIX scores were dichotomized into low and high categories using the 75% percentile. Kaplan-Meier survival analysis, multivariable Cox proportional hazards regression, restricted cubic spline modeling and receiver operating characteristic (ROC) curve analyses were carried out. Hospital and ICU mortality were the primary endpoints.

Results: Among 15,627 critically ill patients, high EASIX scores were significantly associated with higher comorbidity burden, SOFA scores and in-hospital mortality. Kaplan-Meier analysis showed significantly lower survival probability in the high EASIX group for both hospital (log-rank $P < 0.001$) and ICU (log-rank $P < 0.001$) stay. Multivariable adjustment revealed that high EASIX was independently associated with hospital mortality (HR 3.88; 95% CI: 2.19-7.21, $P < 0.001$) and ICU mortality (HR 4.44; 95% CI: 3.12-7.54, $P < 0.001$). Restricted cubic spline analysis showed a positive nonlinear association between EASIX and hazard of death. ROC analysis showed higher discriminative ability of EASIX than SOFA for both hospital mortality (AUROC 0.697 versus 0.629) and ICU mortality (AUROC 0.712 versus 0.639).

Conclusions and Implications: EASIX is an independent predictor of hospital and ICU mortality in critically ill patients with modest but superior discriminative capacity as compared to the SOFA score. The non-linear dose-response relationship suggests a pathophysiologic threshold above which endothelial dysfunction disproportionately contributes to adverse outcomes. EASIX is an inexpensive, easily calculated bedside tool based on three routine laboratory parameters, which has the potential to facilitate early risk stratification in critical care settings. Further multicenter prospective studies with serial EASIX measurements and external validation are desirable.

Fields: Critical Care, Internal Medicine

Key Words: Critical illness, Endothelial dysfunction, Sequential Organ Failure Assessment (SOFA), Endothelial Activation and Stress Index (EASIX), Hospital mortality

P39. Association between Serum Lipase and Mortality among Critically Ill Heart Failure Patients

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Introduction and Objective: Heart failure (HF) remains a leading cause of intensive care unit (ICU) admission, with in-hospital mortality exceeding 12% among critically ill patients. Serum lipase, traditionally a diagnostic marker for acute pancreatitis, is frequently elevated in critically ill patients without primary pancreatic disease and may reflect splanchnic hypoperfusion and end-organ dysfunction. However, the prognostic significance of serum lipase in critically ill HF patients has not been systematically evaluated.

Methods: This retrospective cohort study utilized the Medical Information Mart for Intensive Care IV (MIMIC-IV) database, which includes critically ill patients admitted to Beth Israel Deaconess Medical Center between 2008 and 2019. Adult patients with a diagnosis of heart failure and available serum lipase measurements at ICU admission were included and those with acute pancreatitis were excluded. Patients were stratified by elevated versus normal lipase levels. The primary outcomes were hospital and ICU mortality. Multivariable Cox proportional hazards regression, Kaplan-Meier survival analysis, restricted cubic spline modeling, and receiver operating characteristic analysis were performed.

Results: Among 2,664 critically ill HF patients (mean age 71.9 ± 13.7 years; 57.6% male), 338 (12.7%) had elevated lipase levels. Patients with elevated lipase demonstrated higher ICU mortality (14.8% vs 9.9%; $P = 0.006$), higher hospital mortality (21.3% vs 14.5%; $P = 0.001$), and prolonged ICU (8.8 ± 9.1 vs 3.8 ± 4.5 days; $P < .001$) and hospital length of stay (17.9 ± 14.7 vs 11.2 ± 10.8 days; $P < 0.001$). After multivariable adjustment for demographics, clinical variables, laboratory parameters, and comorbidities, elevated lipase was independently associated with increased hospital mortality (adjusted HR, 1.83; 95% CI, 1.11-3.01; $P = 0.017$) and ICU mortality (adjusted HR, 2.10; 95% CI, 1.17-3.76; $P = 0.012$). Restricted cubic spline analyses demonstrated an approximately linear dose-response relationship between lipase concentration and mortality risk for both endpoints.

Conclusions and Implications: Elevated serum lipase at ICU admission is independently and dose-dependently associated with increased hospital and ICU mortality among critically ill HF patients. As an inexpensive and universally available laboratory test, serum lipase may serve as a novel integrative biomarker reflecting splanchnic hypoperfusion and multiorgan dysfunction in this high-risk population. Prospective multicenter validation is warranted.

Fields: Cardiology, Internal Medicine

Key Words: Lipase, Heart failure, ICU

P40. Psychiatric-First Presentations of Autoimmune Encephalitis and Autoimmune Psychosis: A Narrative Review

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Introduction and Objective: Autoimmune psychosis and anti-N-methyl-D-aspartate receptor (anti-NMDAR) encephalitis are increasingly recognized as potentially reversible causes of severe neuropsychiatric illness. Psychiatric manifestations may precede neurological symptoms, contributing to delayed diagnosis and misclassification as primary psychiatric disorders.

Methods: A narrative review was conducted using PubMed to evaluate autoimmune psychosis, anti-NMDAR encephalitis, and related autoimmune neuropsychiatric syndromes. 274 records were identified and screened using the Rayyan review platform. Following title and abstract review, 26 articles meeting eligibility criteria were included. Eligible studies involved adult populations and investigated autoimmune psychosis, anti-NMDAR encephalitis, or related autoimmune neuropsychiatric syndromes.

Results: Six major themes emerged. Anti-NMDAR encephalitis and autoimmune psychosis frequently presented with hallucinations, delusions, affective instability, cognitive dysfunction, and behavioral dysregulation that often preceded neurological abnormalities. Catatonia emerged as a key diagnostic red flag and was reported in up to 70% of anti-NMDAR encephalitis cases. Studies supported targeted screening for autoimmune etiologies in first-episode psychosis patients with atypical features or neurological findings. Across studies, a multimodal diagnostic approach integrating cerebrospinal fluid analysis, electroencephalography, neuroimaging, and antibody testing was consistently recommended. The literature also emphasized the limited diagnostic value of isolated serum antibody positivity and the importance of cerebrospinal fluid-confirmed findings in appropriate clinical contexts. Finally, early recognition and immunotherapy were associated with substantial psychiatric and neurological improvement and more favorable long-term outcomes.

Conclusions and Implications: Autoimmune psychosis represents an important diagnostic consideration in patients with atypical or rapidly progressive psychosis. Recognition of key clinical warning signs and implementation of a clinically guided multimodal diagnostic strategy may facilitate earlier diagnosis and treatment. Further prospective studies are needed to refine diagnostic criteria, validate biomarkers, and optimize treatment approaches.

Fields: Neurology, Psychiatry

Key Words: Autoimmune psychosis, Anti-NMDA receptor encephalitis, First-episode psychosis, Autoimmune encephalitis, Catatonia

P41. Cannabidiol Modulates Neuroinflammatory and Senescence-Associated Pathways in the Aging Brain

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Introduction and Objective: Advancing age is accompanied by chronic neuroinflammation, cellular senescence, and impaired synaptic function, all of which contribute to cognitive decline and increased susceptibility to neurodegenerative disease. Although cannabidiol (CBD) has demonstrated anti-inflammatory and immunomodulatory properties, its effects on molecular and cellular mechanisms associated with brain aging remain incompletely understood.

Methods: To address this question, we evaluated the effects of CBD in 16-month-old male C57BL/6J mice. Postmortem brain tissue was analyzed for the expression of senescence-associated genes, inflammatory cytokines, tissue morphology, and synaptic plasticity markers using quantitative PCR, ELISA, and immunohistochemistry.

Results: CBD treatment significantly downregulated multiple genes associated with cellular senescence and reduced the pro-inflammatory cytokines IL-6 and IL-1 β . In addition, CBD altered the expression of proteins involved in synaptic plasticity. Histological analyses revealed increased cellular clustering, changes in staining patterns, and a marked reduction in GFAP immunoreactivity, consistent with decreased astrocyte activation.

Conclusions and Implications: Together, these findings suggest that CBD attenuates age-associated neuroinflammation while modulating pathways involved in synaptic remodeling. These effects may be mediated, in part, through regulation of NF- κ B signaling and support the therapeutic potential of CBD for mitigating molecular and cellular changes associated with brain aging. Ongoing studies are further investigating the mechanisms underlying these effects and their relevance in other age-related comorbidities. We gratefully acknowledge the support of the National Institutes of Health, grants DA057146-01 (M.R.), AG090170-01A1 (M.R., N.E.H.), DA057145-01 (N.E.H.), DA057884-01 (N.E.H.). No Conflicts of Interest Reported.

Fields: Neuroimmunology, Neurology

Key Words: Cannabidiol (CBD), Neuroinflammation, Brain Aging, Cellular senescence, Synaptic Plasticity

P42. Insight into HEK293 Cells Lipidome Changes Using Fatty Acid Synthesis Inhibition

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Introduction and Objectives: Fatty acid synthesis (FAS) is a complex metabolic process involving the production of essential lipids used in membrane rearrangement during cell division, as well as general cellular function and signaling pathways. We evaluated whether inhibition of fatty acid synthesis (FAS) results in pan-lipidomics alterations. We also evaluated whether inhibition of different FAS branchpoints results in similar lipidomic outcomes.

Methods: We used the following fatty acid synthesis inhibitors: GSK2194069, ND630, CP-640186, C75, and Cerulenin and asynchronous HEK293 cells (less than 5 passages) at ~80% confluency to gain insight into fatty acid and pan lipidome changes. Each inhibitor and control were used as independent triplicates. All lipid extractions were performed using standard Bligh and Dyer method with (PC13:0/13:0) for extraction assessment and Equisplash lipid standard mix (2mg/mL)(Avanti Polar Lipids, Alabaster, AL) served as internal standards. Lipids were analyzed using Liquid Chromatography-Tandem Mass Spectrometry (LC-MS/MS), identified and quantified using LipidSearch, and statistical analysis using MetaboAnalyst 6.0.

Results: As expected due to usage of asynchronous cells, varying lipidome changes were observed in different batches despite usage of same inhibitor at same concentration (3-5-fold from their respective K_i values). However, a volcano plot suggested all lipids were down regulated across the board except O-linked lipids for all inhibitors used. Phosphatidylcholine (PC), Sphingomyelin (SM), Phosphatidylethanolamine (PE), and Triglycerides (TG) classes showed significant and common decreased amounts.

Conclusion and Implications: C75, GSK, and Cer resulted in the highest amount of significant decrease in lipids, while ND and CP resulted in relatively lower decrease in lipid amounts suggesting differences in inhibition resulting different degrees of inhibition. However, again due to usage of asynchronous cells a head-to-head comparison is infeasible with our current experimental design.

Fields: Ophthalmology, Axon Regeneration Laboratory

Key Words: Fatty Acid Synthesis, Insight into HEK293 Cells Lipidome, Fatty Acid Synthesis Inhibition

P43. Investigating the Role of RAB10 in Intracellular Trafficking and Organelle Homeostasis Pathways Associated with Alzheimer's Disease Resilience

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Introduction and Objective: Alzheimer's disease (AD) is characterized by the accumulation of amyloid- β plaques and hyperphosphorylated tau; however, some individuals maintain cognitive function despite significant AD neuropathology, a phenomenon known as cognitive resilience. Genetic studies have identified RAB10, a small GTPase involved in

intracellular vesicle trafficking, as a potential regulator of pathways associated with AD resilience. Given the importance of endosomal transport, organelle homeostasis, and protein clearance mechanisms in AD pathogenesis, understanding the cellular effects of altered RAB10 expression may provide insight into mechanisms that influence neuronal vulnerability and protection. This study aimed to investigate how RAB10 overexpression affects intracellular trafficking, organelle organization, and autophagy-related pathways in a neuronal cell model.

Methods: Human NT2 neuronal precursor cells were utilized as an in vitro model to evaluate the cellular effects of increased RAB10 expression. Lentiviral transduction was performed to generate RAB10-overexpressing cells, which were compared with NT2 control cells. Western blot analysis was performed to evaluate protein expression changes associated with autophagy and lysosomal regulation using markers including LC3B, p62, TFEB, and PINK1. Protein detection and imaging were performed using the ChemiDoc MP Imaging System. Immunocytochemistry was conducted to assess changes in intracellular trafficking and organelle organization using markers associated with the Golgi apparatus (GOLGA1), mitochondrial structure (TOM20), mitochondrial quality control (PINK1), and endosomal compartments (Rab5/Rab7). Fluorescence imaging was performed using the Keyence BZ-X710 microscope to evaluate differences in protein localization, organelle morphology, and staining patterns between NT2 control and RAB10-overexpressing cells.

Results: RAB10 overexpression is expected to alter intracellular trafficking pathways and organelle dynamics compared with control NT2 cells. Increased RAB10 expression is predicted to influence Golgi organization, endosomal maturation, mitochondrial regulation, and autophagy-related signaling, reflected by changes in Rab5/Rab7, TOM20, PINK1, LC3B, p62, and TFEB expression patterns. These findings will help determine whether altered RAB10 expression modifies cellular pathways involved in protein clearance and neuronal homeostasis.

Conclusions and Implications: This study examines the role of RAB10 in regulating cellular processes associated with AD resilience. Characterizing the effects of RAB10 overexpression on endosomal trafficking, mitochondrial quality control, and autophagy-lysosomal pathways may provide insight into mechanisms that influence neuronal resistance to AD pathology and identify pathways involved in maintaining cellular homeostasis during neurodegenerative disease.

Fields: Neurology, Geriatrics

Key Words: Rab10, Autophagy, Alzheimer's Disease, Resilience, Trafficking

P44. Comparative Diagnostic Yield of DSM, CT Myelography, Cone-Beam CT, and Photon-Counting CT for CSF-Venous Fistula Detection in Spontaneous Intracranial Hypotension

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Introduction and Objective: Spontaneous intracranial hypotension (SIH) is often caused by spinal cerebrospinal fluid (CSF) leaks, causing orthostatic headaches. Cerebrospinal fluid-venous fistulas (CVFs) are increasingly recognized as an important cause of SIH and may account for up to 50% of spontaneous spinal CSF leaks but have been challenging to diagnose using conventional imaging. Advances including digital subtraction myelography (DSM), CT myelography (CTM), cone-beam CT myelography (CBCTM), and photon-counting CT myelography (PCD-CTM) have improved CVF detection. This review compares the diagnostic yield of advanced imaging modalities for CVF detection and highlights adjunctive maneuvers that may improve detection.

Methods: PubMed and Embase were searched for studies evaluating DSM, CTM, CBCTM, and PCD-CTM for CVF detection in patients with SIH. Search terms included combinations of SIH, spinal CSF leak, CVF, DSM, CT myelography, cone-beam CT, photon-counting CT, and lateral decubitus positioning. Reviews, case reports, treatment-focused studies, and studies lacking diagnostic yield, detection, or localization outcomes were excluded. Of 70 records identified, 21 studies met inclusion criteria and were analyzed.

Results: Reported diagnostic yields were similar across contemporary lateral decubitus imaging modalities, including DSM (74% 17/23, up to 87% 27/31 in enriched cohorts), CTM (73% 49/67), CBCTM (69.4% 59/85), and PCD-CTM (66.7% 38/57). Most studies reported descriptive proportions without statistical comparisons, limiting formal cross-modality comparisons. The only within-patient comparison demonstrated significantly greater CVF detection with CT myelography than DSM (39 vs 10; $P < 0.001$). Cone-beam CT and photon-counting CT were assessed only in single-arm

or incremental study designs, with cone-beam CT providing a 24.8% incremental yield over DSM. Following a negative DSM, CT myelography yielded positive or equivocal findings in up to 38.6% (32/83), with definitive leaks identified in 13.3% (11/83), including five CVFs. Reported yields varied substantially with patient selection, ranging from 10% (95% CI, 3.8-20.5%) in patients with normal conventional imaging to 87% in highly enriched cohorts.

Conclusions and Implications: Diagnostic yields for identifying CVFs in patients with SIH are broadly comparable across advanced imaging modalities, although evidence supporting the superiority of one modality over another is limited by heterogeneous patient populations, protocol differences, and rare head-to-head comparisons. The single comparative study suggested that advanced CT myelography may outperform DSM but acknowledged differences in contrast density and acquisition timing. Lateral decubitus positioning remained essential for CVF detection, and a negative imaging study did not exclude the diagnosis. Prospective within-patient comparative studies using standardized imaging protocols are needed to determine the optimal imaging strategy.

Fields: Radiology, Neurology

Key Words: Spontaneous intracranial hypotension, Cerebrospinal fluid-venous fistula, CT myelography, Digital subtraction myelography, Diagnostic imaging

P45. Integrated Proteomic and Genomic Signatures of Ischemic Stroke Thrombi

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Introduction and Objective: Globally, approximately 13.7 million people experience a stroke each year. In the United States, someone has a stroke every 40 seconds, creating a substantial socio-economic burden. Of all stroke cases, nearly 87% are ischemic strokes, caused by blockage of a cerebral blood vessel by a clot. Despite current standard of care such as intravenous thrombolysis and mechanical thrombectomy, more than half of stroke survivors are left with permanent disability. These outcomes highlight the urgent need for newer and more effective therapies. One promising strategy for identifying novel therapeutic targets is the discovery of proteins and biomarkers involved in stroke pathogenesis. Examining the molecular composition of ischemic stroke clots may provide critical insights into disease mechanisms and reveal new opportunities for targeted intervention. In particular, comparative analysis of clots originating from atrial fibrillation versus carotid stenosis may help identify source-specific biomarkers, improve understanding of clot biology, and guide more personalized strategies for stroke prevention and treatment. In this study, we aimed to collect and analyze human ischemic stroke clots retrieved from patients with atrial fibrillation-associated stroke and carotid stenosis-associated stroke using high-throughput genomic and proteomic approaches. Identification of key biomarkers through integrated proteomic, genomic, and transcriptomic analyses will provide valuable insight into the mechanisms underlying stroke pathogenesis, prevention, and clinical management. Furthermore, defining the molecular signatures of clots arising from these two distinct etiologies may uncover source-specific pathways and reveal novel therapeutic targets for ischemic stroke.

Methods: In this ongoing IRB-approved prospective study, ischemic stroke thrombi were collected from consented patients undergoing mechanical thrombectomy. Clot specimens were processed, biobanked, and prepared for RNA sequencing and mass spectrometry. Integrated bioinformatic and statistical analyses were performed to characterize molecular profiles and compare atrial fibrillation- and carotid stenosis-derived thrombi, with correlations to relevant clinical variables where available.

Results: Initial results from our experiments show a significant difference in >990 proteins between the two groups. Further, detailed analysis is underway.

Conclusions and Implications: Preliminary analyses identified >990 differentially expressed proteins between atrial fibrillation- and carotid stenosis-derived thrombi. Ongoing multi-omic analyses will further characterize the molecular mechanisms underlying ischemic stroke clot biology.

Fields: Neurology, Cardiology

Key Words: Acute Ischemic stroke, Multi-omics, Biomarkers, Thromboembolism, Precision medicine

P46. The Association Between Women's Vitamin Intake Before Pregnancy and Breastfeeding Practices in the US

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Introduction and Objective: Proper consumption of nutrients from pre-gestation to post-gestation has been found to increase the supplemented nutrient concentration in human milk. Yet, scarce evidence exists on whether supplementation of vitamins before pregnancy is independently associated with breastfeeding practices. The goal of this study is to assess whether there exists an association between vitamin use before pregnancy and a woman's likelihood to breastfeed.

Methods: We performed a secondary analysis of data from participants of the Pregnancy Risk Assessment Monitoring System Phase 8 from years 2016-2022. Subjects were women-infant dyads for whom women were aged between 20 and 39 years old and who delivered a liveborn within the past year. The exposure variable was the frequency of vitamin use in the month before her pregnancy ("didn't take vitamins," "1-3 times/week," "4-6 times/week," or "everyday/week"). The outcome was whether the newborn was ever breastfed. Multivariate logistic regression was used to assess the association between the variables and outcome while controlling for potential confounders.

Results: Among 4,106 women studied, 13.2% reported pre-pregnancy vitamin use and 90.9% reported ever breastfeeding. Breastfeeding was more common among women who used pre-pregnancy vitamins than among non-users (94.7% vs. 90.0%). However, after adjustment for demographic, socioeconomic, behavioral, maternal, and neonatal factors, pre-pregnancy vitamin use was not independently associated with breastfeeding (aOR = 1.0, 95% CI: 0.6–1.6, $p = 0.946$).

Conclusions and Implications: Pre-pregnancy use of vitamins was not independently associated with higher breastfeeding frequency. These findings suggest that pre-pregnancy vitamin use may serve as a potential indicator of healthier maternal behavior rather than a contributor to better breastfeeding practices.

Fields: Obstetrics & Gynecology, Family Medicine

Key Words: Lactation, Supplement, Prenatal, Antenatal, Nutrition

P47. Kangaroo mother care initiation and its impact on the duration of KMC in preterm infants

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Introduction and Objective: Worldwide, preterm delivery is the leading cause of neonatal mortality and represents most of the low birth weight (LBW) burden. Strong evidence shows that Kangaroo Mother Care (skin-to-skin contact, breastmilk-based feeding, and early discharge with close follow-up) reduces mortality and improves outcomes among LBW preterm infants. Evidence on how the timing of initiation affects sustained practice of KMC is limited. Our study investigated the association between the timing of initiation and sustaining KMC position until at least 37 weeks PCA among preterms 30-34 weeks PCA at birth.

Methods: We assembled a historical cohort of mother-infant dyads from the 'Programa Integral Madre Canguro' in Bogota, Colombia (2020-2022). Study population were preterm infants 30-34 weeks old free from significant malformations, congenital infection or perinatal conditions requiring intensive care for 7 or more days. Exposure was timing of KMC initiation, dichotomized as early vs. late (within 7 days vs. greater than 7 days). The primary outcome was maintenance of KMC until at least 37 weeks PCA. Unadjusted and multivariable-adjusted logistic regression analyses were fitted, controlling for maternal sociodemographic characteristics, infant clinical factors, and care setting.

Results: Out of 1329 preterm infants, 226 were excluded and the final sample was 1,103. Overall, 907 infants (82.2%) maintained KMC until at least 37 weeks PCA. The proportion was lower among early initiators: 79.2% versus 86.7% late

initiators. Furthermore, early initiation was associated with significantly lower odds of achieving this in both, unadjusted (OR 0.58, 95% CI 0.42 - 0.78) and adjusted analyses (OR 0.49, 95% CI 0.34 - 0.70). Other factors independently associated with increased odds were small for gestational age, maternal age under 18 years, and female sex.

Conclusions and Implications: Contrary to the hypothesis, early initiation was associated with lower proportion of sustained practice, which might be explained by early initiation happening prior to discharge. Further research on gestational age with appropriate time for discharge from KMC position needs to be further refined, instead of the assumed 37 PCA target age of KMC duration.

Fields: Pediatrics, Family Medicine

Key Words: Preterm, Delivery, Low birth Weight, Kangaroo mother care

P48. Comprehensive Analysis of the Utilization of a Metagenomic Next-Generation Sequencing Assay for Microbiological Detection in a Free-Standing Children's Hospital

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Introduction and Objective: Diagnosing infections in children is complicated by nonspecific presentations and limitations of conventional culture-based methods. The Karius® Test is a plasma-based metagenomic next-generation sequencing (mNGS) assay that detects microbial cell-free DNA, enabling broad pathogen identification from a single blood draw. We evaluated the utilization, diagnostic yield, and clinical impact of The Karius® Test at a freestanding children's hospital.

Methods: This retrospective chart review included all pediatric inpatients who underwent Karius® Testing between January 2018 and May 2025 at Nicklaus Children's Hospital. Demographic, clinical, microbiologic, and antimicrobial management data were extracted from the electronic medical record. Concordance between mNGS and conventional culture results was assessed at the organism level. Descriptive statistics summarized test utilization and outcomes, and associations were evaluated using chi-square analysis and logistic regression.

Results: A total of 807 Karius® tests were performed across 748 admissions in 651 children, with utilization increasing steadily from 2018 to 2025. Median age was 9.3 years; 23.3% had hematologic malignancy and 13.5% had severe sepsis. The test was positive in 55.7% of encounters, identifying 220 distinct microbial species, most frequently *Escherichia coli*. Median turnaround time was 2 days. Antimicrobial therapy was modified in 92.2% of encounters, significantly more often following a positive than negative result (95.2% vs 88.4%, $p=0.003$). For patients with both positive Karius® and conventional cultures detecting organisms, the patient-level concordance rate was 58.6%. Of 747 total organism detections, 75 were confirmed by conventional culture, yielding an organism-level confirmation rate of 10.0%, reflecting the known limitations of culture for detecting viruses and fastidious organisms.

Conclusions and Implications: In this large pediatric cohort, the Karius® Test demonstrated broad diagnostic reach, frequently changing antimicrobial management. These findings support its role as a complementary diagnostic tool in pediatric infectious disease and critical care.

Fields: Infectious Diseases, Pediatrics

Key Words: Metagenomic next-generation sequencing (mNGS), Pediatric infectious diseases, Antimicrobial management, Microbiological diagnosis, Karius Test

P49. Longitudinal Trajectories of Glucose, Lactate, and the Glucose-to-Lactate Ratio in Children with Septic Shock: Insights into Metabolic Recovery and Outcome

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Introduction and Objective: Disrupted cellular metabolic pathways in septic shock can acutely affect serum glucose and lactate levels. In adults, glucose-to-lactate ratio (GLR) independently predicts 28-day mortality, but its prognostic value remains unestablished in children. The objective of this study was to evaluate longitudinal trajectories of glucose, lactate, and GLR and their association with survival in children with Phoenix Sepsis Criteria (PSC)-defined septic shock receiving vasoactive support.

Methods: We performed a retrospective longitudinal cohort study of children admitted to the pediatric intensive care unit (PICU) with septic shock between 2017 and 2025. Eligible patients were required to meet PSC criteria, receive vasoactive support during the first day of their PICU admission, and have at least one available GLR, glucose, or lactate measurement during the first 11 PICU days. Hospital mortality was the primary outcome, and patients were categorized as survivors or non-survivors. Trajectories for each biomarker were modeled using linear mixed-effects models, with β coefficients quantifying the magnitude and direction of significant associations. The model included fixed effects for time (hospital day), mortality status (survivor versus non-survivor), and their interaction (day $\times$ mortality). The time-by-mortality interaction term (trajectory) was used to determine whether biomarker trajectories differed between survivors and non-survivors over time. Analyses were performed in R. Two-sided $p < 0.05$ was considered significant. The IRB approved the study.

Results: A total of 459 children were included (343 survivors [74.7%], 116 non-survivors [25.3%]). There was an overall decline in glucose over time ($\beta = -0.055/\text{day}$, $p < 0.001$) and higher glucose levels among non-survivors ($\beta = 0.255$, $p < 0.001$) with similar trajectories in survivors and non-survivors ($p = 0.4739$). There was a temporal decline in lactate ($\beta = -0.133/\text{day}$, $p < 0.001$) and a higher lactate concentration among non-survivors ($\beta = 0.508$, $p < 0.001$) with non-significant trajectories in the two groups ($p = 0.1805$). In contrast, GLR increased over time ($\beta = 0.077/\text{day}$, $p < 0.001$) and had lower GLR values among non-survivors ($\beta = -0.270$, $p < 0.001$). The time $\times$ mortality interaction approached statistical significance ($\beta = -0.015/\text{day}$, $p = 0.0758$), suggesting slower GLR recovery among non-survivors.

Conclusions and Implications: Both glucose and lactate demonstrated progressive declines over time with largely parallel trajectories between survivors and non-survivors. In contrast, GLR exhibited substantially greater divergence over time. Our findings suggest that GLR captures prognostically relevant metabolic recovery information that is not fully reflected by glucose or lactate alone. Serial GLR monitoring may better predict metabolic recovery than either metabolite alone and warrants consideration as a mortality risk stratification marker in pediatric septic shock.

Fields: Pediatrics, Pediatric Critical Care Medicine

Key Words: Pediatric septic shock, Glucose-to-lactate ratio, Mortality, Sepsis, Biomarkers

P50. Implementation of Bolus-Dose Epinephrine and Changes in Pediatric Intensive Care Unit Cardiac Arrest Rates

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Introduction and Objective: Pediatric in-hospital cardiac arrest (IHCA) is frequently preceded by progressive hemodynamic deterioration, creating a critical window for early intervention before cardiovascular collapse occurs. Bolus-dose epinephrine is sometimes used as rescue therapy for patients with impending cardiac arrest, but data describing its clinical use and its association with IHCA rates remain limited. This study aims to describe the use of bolus-dose epinephrine administration and assess changes in the cardiac arrest rates in the Pediatric Intensive Care Unit (PICU) following implementation.

Methods: We conducted a retrospective, single-center study of PICU admissions that received bolus-dose epinephrine between 2014 and 2025. After IRB approval, we reviewed medication administration records for the number of boluses, cumulative dose, and dosing intervals. An interrupted time series analysis with segmented regression was performed to assess changes in annual PICU code rates before and after implementation of bolus-dose epinephrine. Effect estimates are reported as odds ratios with 95% confidence intervals.

Results: A total of 156 PICU admissions received 393 bolus-dose epinephrine administrations during the study period. Bolus-dose epinephrine was most commonly administered as one or two low-dose boluses during short treatment episodes, with a median cumulative dose of 19.5 mcg (IQR 6.9 – 44.9 mcg). The mean interval between boluses was 7.2 minutes. Interrupted time series analysis demonstrated a significant increase in the code rates during the pre-intervention period from 2014 to 2018 (OR 1.10, 95% CI 1.03–1.17; $p=0.005$). Upon introduction of bolus-dose epinephrine during 2019 to 2020 a statistically significant immediate reduction in PICU code rates were observed (OR 0.73, 95% CI 0.61–0.88; $p<0.001$) and a significant decline in slope (OR 0.83, 95% CI 0.78–0.89; $p<0.001$) suggesting reversal of previous upward trend. In the post intervention period from 2021 to 2025, there was not statistically significant reduction in code rates (OR 0.54, 95% CI 0.27–1.08; $p=0.08$).

Conclusions and Implications: Implementation of a standardized bolus-dose epinephrine was associated with immediate significant reduction in PICU code rates and reversal of the pre-intervention upward trend. These findings support bolus-dose epinephrine as a potential strategy for stabilizing pediatric patients during the peri-arrest period.

Fields: Pediatrics, Critical Care

Key Words: Bolus-Dose Epinephrine, Pediatric Intensive Care Unit, In-Hospital Cardiac Arrest, Peri-Arrest Hemodynamic Deterioration, Interrupted Time Series Analysis

P51. Preliminary Analysis of the Effectiveness of Single-Dose Methotrexate Regimen in Ectopic Pregnancy Management

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Introduction and Objective: Ectopic pregnancy is a potentially life-threatening condition that requires prompt diagnosis and management. At our institution, the standardized ectopic pregnancy order utilizes a single-dose methotrexate (MTX) 50 mg/m²/dose intramuscularly with subsequent doses depending on post-dose serum β -human chorionic gonadotropin (β -hCG) levels. The primary objective of this medication use evaluation (MUE) is to evaluate the effectiveness of single-dose methotrexate regimen used in the management of ectopic pregnancy at our institution.

Methods: A retrospective chart review was conducted in patients admitted between January 1, 2020, and August 18, 2022. Eligible patients were those with a suspected or confirmed ectopic pregnancy who received at least one methotrexate dose. Data collected included demographics, clinical, treatment, radiologic, and laboratory. Data was analyzed using descriptive statistics.

Results: One hundred patients were identified; eight-seven met inclusion criteria and were included in the analysis. Adnexal mass location was reported in 56/87 (80%) and tubal mass location in 14/87 (20%) of patients. Median ectopic mass size of 1.85 cm (IQR 1.4-2.3). Fetal cardiac activity was absent in all cases. Median baseline serum β -hCG concentration was 898 IU/L (IQR 205-2874.5). Of the 87 patients that met inclusion criteria, 67 (77%) received only one dose of MTX and 20 (23%) received a second dose of MTX. Surgical intervention was required in 14/87 (16.1%) patients. Of the 67 patients that received one MTX dose, 8 underwent surgical intervention (11.9%) and of the 20 patients that received a second dose of MTX 6 (30%) required surgery. Secondary analysis of patients that received one MTX dose showed that 37/67 (55.22%) had no documented post-MTX β -hCG levels documented in electronic health record (EHR). Adherence to day 4 and 7 serum β -hCG monitoring was seen in 13/87 (14.9%) patients.

Conclusions and Implications: This preliminary evaluation demonstrated that approximately one-third of patients that received one dose of MTX required treatment escalation of either a second dose of MTX or surgical intervention. A limitation of this review was that over half of patients treated with methotrexate had no post-MTX β -hCG levels documented in EHR. Additional analysis will further characterize treatment response and identify predictors of MTX treatment success and failure.

Fields: Obstetrics & Gynecology, Emergency Medicine

Key Words: Ectopic Pregnancy, Methotrexate, Single-Dose Regimen, Surgical Intervention

P52. Pandemic Stress, Anxiety, and the Role of Coping Strategies Among Recent Latino/a Immigrants in South Florida

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Introduction and Objective: The COVID-19 pandemic disproportionately harmed the mental health of Latino/a immigrants, compounding vulnerabilities tied to economic instability, limited healthcare access, and immigration-related stress. Few studies have examined how coping shapes this stress–anxiety relationship in this population. We aimed to determine whether 14 coping strategies modifies the association between pandemic-related stress and anxiety among recent Latino/a immigrants in South Florida.

Methods: This analytical cross-sectional study analyzed secondary data from 522 recent Latino/a immigrants aged 18–34 in Miami-Dade County, Florida, recruited by respondent-driven sampling between February 2021 and July 2022. Pandemic stress (17-item scale, 0–17), anxiety (GAD-7, 0–21), and 14 Brief COPE coping subscales were assessed. Multiple linear regression estimated the adjusted stress–anxiety association, controlling for age, sex, marital status, employment, income, education, country of origin, and documentation status. Effect modification by each coping strategy was tested with the PROCESS macro (Model 1), examining simple slopes at low (–1 SD), moderate, and high (+1 SD) coping.

Results: After adjustment, pandemic stress was positively associated with anxiety ($\beta = 0.15$; 95% CI: 0.06–0.24; $p < 0.001$). All 14 coping strategies significantly moderated this relationship (all $p < 0.001$); interaction coefficients were uniformly negative ($b = -0.14$ to -0.21), weakening the association as coping increased. Venting explained the most incremental variance ($\Delta R^2 = 0.04$). At low coping, conditional effects ranged from $b = 0.19$ (self-blame) to $b = 0.41$ (instrumental support); at high coping, the association became non-significant for most strategies. Income was inversely associated with anxiety ($p = 0.006$), with lower-income participants ($\leq \$999/\text{month}$) reporting the highest mean anxiety ($M = 4.90$ vs. 2.86 for $\$2,000$ – $\$2,999$).

Conclusions and Implications: Coping strategies meaningfully buffered the pandemic stress–anxiety association among recent Latino/a immigrants, with both adaptive and maladaptive strategies weakening the link at higher use. Findings support culturally responsive, community-based interventions that strengthen coping resources, particularly social support, acceptance, and religious practices— while recognizing that traditionally maladaptive strategies may serve protective functions during acute crises. Longitudinal studies with biological stress markers are needed to clarify temporal and mechanistic pathways.

Fields: Psychiatry, Public Health

Key Words: Brief COPE, COVID-19, Pandemic Stress, Health Disparities, Mental Health

P53. Comorbid Insomnia and Mental Health Risk in Lesbian and Bisexual Women Veterans

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Introduction and Objective: Lesbian and bisexual (LB) women veterans face compounded health disparities due to minority stress and lasting effects of exclusionary institutional policies such as “Don’t Ask, Don’t Tell.” Compared to heterosexual veterans, sexual minority veterans often have elevated rates of mental health risks, such as PTSD, depression, and anxiety. Insomnia is highly prevalent in women veterans, with bidirectional associations with PTSD and depression. However, no prior research has examined whether both sleep and mental health outcomes differ by sexual orientation in women veterans. Our objective is to characterize and compare baseline insomnia severity, sleep quality,

objectively estimated total sleep time, PTSD, depression, and anxiety severity between LB and heterosexual women veterans enrolled in a randomized controlled trial of behavioral insomnia treatments.

Methods: This is a secondary analysis of data from an RCT comparing two behavioral treatments for insomnia disorder in women veterans (N = 334) in a large VA healthcare system. Sexual orientation was self-reported (heterosexual, lesbian/gay, or bisexual). Sleep measures included the Insomnia Severity Index, Pittsburgh Sleep Quality Index, and total sleep time from wrist actigraphy. Mental health measures included the PCL-5, PHQ-9, and GAD-7. Group differences were assessed using independent-samples t-tests for continuous variables and Fisher's Exact tests for categorical variables.

Results: LB and heterosexual women veterans did not differ significantly on baseline insomnia severity ($p=0.77$), sleep quality ($p=0.75$), PTSD severity ($p=0.77$), or depressive symptoms ($p=0.87$). LB veterans reported modestly higher anxiety (GAD-7: 11.0 vs. 9.5, $p=0.088$) and greater actigraphy-derived TST (393.9 vs. 369.3 minutes, $p=0.067$), though neither reached statistical significance. There were no significant interaction effects, indicating that the association between insomnia symptoms and mental health outcomes may not differ by sexual orientation.

Conclusions and Implications: LB and heterosexual women veterans showed similarly high levels of sleep and mental health burden, with no evidence that sexual orientation moderates the insomnia–mental health relationship. This may be due to a “ceiling effect” in a sample already clinically selected for insomnia.

Fields: Psychiatry, Public Health

Key Words: LGBT, Mental Health, Minority Stress, Sleep, Veterans

P54. Association between Pre-pregnancy Diabetes and Hypertension with Postpartum Depressive Symptoms

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Introduction and Objective: Postpartum depression disrupts mother-child bonding, child development, and maternal wellbeing. Chronic conditions such as hypertension and diabetes mellitus are strongly associated with increased risk of depression and anxiety in the general population. This study examines the relationship between pre-pregnancy diabetes and hypertension and postpartum depressive symptoms.

Methods: We conducted a retrospective cohort study using data from the Pregnancy Risk Assessment Monitoring System (PRAMS) Phase 8 (2016-2022). Women with a live birth were included; those with a pregnancy or infant loss within 12 months of delivery were excluded. The independent variable was pre-pregnancy diagnosis of hypertension and/or diabetes. The dependent variable was the presence of postpartum depressive symptoms, defined as feeling down, depressed, or hopeless and/or lacking interest in usually enjoyed activities. Confounders adjusted for included maternal age, education, income, marital status, pregnancy intention, and history of abuse or trauma. Bivariate analyses assessed unadjusted associations between exposure, confounders, and outcome. Logistic regression then estimated the adjusted association between preexisting hypertension and/or diabetes and postpartum depressive symptoms.

Results: Of 233,911 participants, 17,664 (7.6%) reported a pre-pregnancy diagnosis of diabetes and/or hypertension. Postpartum depressive (PPD) symptoms were more frequent among women with these conditions than among those without them (16.2% vs. 12.3%). Unadjusted analysis showed increased odds of PPD symptoms with pre-pregnancy diabetes and/or hypertension (OR 1.38; 95% CI: 1.29-1.48; $p<0.001$); after adjustment, this association reversed (aOR 0.86; 95% CI: 0.79-0.93; $p<0.001$). History of depression (aOR 3.47; 95% CI: 3.30-3.64), abuse (aOR 2.14; 95% CI: 1.92-2.39), and unintended pregnancy (aOR 1.71; 95% CI: 1.58-1.85) remained the strongest independent predictors of PPD symptoms (all $p<0.001$).

Conclusions and Implications: Among women with a live birth in the PRAMS Phase 8 survey, preexisting diabetes and/or hypertension were associated with a decreased odds of postpartum depressive symptoms after adjustment for relevant confounders. Psychosocial and mental health factors may play a more important role in postpartum depression risk than chronic medical comorbidity alone. Future research should clarify the mechanisms underlying these relationships and inform targeted screening practices for women at greatest risk.

Fields: Psychiatry, Obstetrics & Gynecology

Key Words: Postpartum depression, Maternal mental health, Hypertension, Diabetes

P55. The Association Between Maternal Depression and Breastfeeding Duration in Florida

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Introduction and Objective: Breastfeeding habits among post-partum women remain suboptimal, despite its significant health benefits for both mothers and infants. Although the impact of post-partum depression on breastfeeding initiation and duration has been described, the influence of maternal mental health prior to conception remains poorly understood. The aim of this study is to assess the relationship between self-reported depression in the three months prior to conception and (1) breastfeeding initiation and (2) breastfeeding duration.

Methods: A retrospective analysis of 4,509 postpartum women was conducted utilizing the 2016–2022 Phase 8 Pregnancy Risk Assessment Monitoring System (PRAMS) database for the state of Florida. Women aged 18–44 with single live births were included. Preconception depression was defined by self-report of depression during the three months preceding pregnancy. Primary outcomes included breastfeeding initiation (ever vs. never) and breastfeeding duration (from birth to the last date reported breastfeeding) among women who initiated breastfeeding. Odds ratios (OR) and 95% confidence intervals (CI) were obtained via multiple logistic regression for breastfeeding initiation, and hazard ratios (HR) were evaluated using Cox proportional hazards models for the outcome breastfeeding duration. Crude and adjusted estimates were estimated.

Results: We analyzed data from 4033 women. Overall, 90.5% reported having breastfed and 13.6% reported preconception depression. After adjusting for maternal age, race/ethnicity, maternal educational attainment, household income, marital status, health insurance status, WIC enrollment, pre-pregnancy BMI, parity, mode of delivery, and Kotelchuk index, preconception depression was not associated with decreased breastfeeding initiation (OR = 1.04; 95% CI 0.72–1.40) or shortened breastfeeding duration (HR = 1.06; 95% CI 0.90–1.24). Other factors independently associated with increased breastfeeding initiation and continuation included higher maternal education, higher income, and advanced maternal age, whereas a repeat cesarean delivery independently predicted earlier cessation.

Conclusions and Implications: No independent association between preconception depression and breastfeeding initiation or duration was observed in this cohort. Yet, results should be interpreted in light of potential misclassification of exposure. Socioeconomic and obstetric factors were important independent predictors of breastfeeding outcomes.

Fields: Obstetrics & Gynecology, Psychiatry

Key Words: Peripartum, Depression, Breastfeeding

P56. The Association of Mental Health Disorders and Pediatric Type 2 Diabetes

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Introduction and Objective: Type 2 diabetes (T2D) and mental health disorders are rising concerns among children in the United States. Shared risk factors, including obesity, physical inactivity, and poor lifestyle behaviors, suggest a potential link between the two conditions. T2D has been associated with higher rates of mood and anxiety disorders, even prior to diagnosis. This study aimed to examine the association between mental health disorders and T2D in children aged 6–17 years using a nationally representative sample.

Methods: A cross-sectional secondary analysis was performed using the 2022 and 2023 National Survey of Children's Health. The study included children aged 6–17 years, with mental health disorders as the main exposure and T2D as the main outcome. Descriptive analyses, bivariate analyses, and multivariable logistic regression were conducted to obtain crude and adjusted odds ratios.

Results: A total of 107,794 children were included in the analysis; 92 (0.09%) had T2D and 18,424 (17.1%) had mental health disorders. Children with mental health disorders had higher odds of T2D (OR 3.12, 95% CI 1.70–5.73, $p < 0.001$). This association remained significant after adjustment (aOR 2.26, 95% CI 1.10–4.64, $p = 0.026$). Older age, Black or other race, obesity, lower parent education, and no sports participation were also associated with increased odds of T2D.

Conclusions and Implications: Mental health disorders were significantly associated with increased odds of T2D in children. These findings highlight the importance of integrating mental health screening into routine pediatric care as a potential strategy for early metabolic risk identification and prevention.

Fields: Pediatrics, Psychiatry

Key Words: Type 2 diabetes mellitus, Mental health disorders, Children and Adolescents

P57. Younger Age and Minority Race/Ethnicity Status are Associated With Depressive Symptom Severity Among Women Veterans at Risk for Sleep Apnea

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Introduction and Objective: Obstructive sleep apnea (OSA) has been proposed to have a bidirectional relationship with psychiatric symptoms, including depression, anxiety, and reduced quality of life. However, a significant knowledge gap remains regarding the intersection of OSA, depression, and women veterans, driven largely by underdiagnosis and limited research. This study aimed to determine the association between OSA severity and depressive symptom severity in women veterans and whether symptom severity differed by race/ethnicity and age.

Methods: This study is a secondary data analysis of baseline data from a randomized controlled clinical trial that included 190 women veterans receiving care through the VA with at least one risk marker for sleep-disordered breathing (SDB) in their medical records. Participants reported demographic characteristics, including race/ethnicity and age, and completed baseline assessments between June 2018 and March 2022, including home sleep apnea testing. The independent variable was OSA severity, which was assessed using the Apnea-Hypopnea Index (AHI). The dependent variable was depressive symptom severity, measured using the Patient Health Questionnaire (PHQ-9). To account for potential pre-existing differences, models were adjusted for the covariates of race/ethnicity and age. Following a power analysis, simple and multiple linear regression models were conducted to test the study hypotheses using Stata (version 19).

Results: The mean AHI and PHQ-9 scores were 15.5 and 8.7, respectively. In an unadjusted linear regression model, AHI was not significantly associated with depressive symptom severity (PHQ-9 score) ($p = .924$, 95% CI [-0.056, 0.062]). After accounting for age and race/ethnicity, which was dichotomized as White vs. Black, Indigenous, and People of Color (BIPOC), AHI remained not significantly associated with depressive symptom severity ($p = .123$, 95% CI [-0.013, 0.110]). Overall, both age and race/ethnicity were significantly associated with depressive symptom severity. Older age was associated with lower depressive symptom severity ($p < .001$, 95% CI [-0.179, -0.058]), whereas BIPOC participants had higher depressive symptom severity than White participants ($p = .032$, 95% CI [0.147, 3.167]).

Conclusions and Implications: A relationship between OSA severity and depressive symptom severity was not observed in either the unadjusted model or the model accounting for age and race/ethnicity. However, older age was associated with fewer depressive symptoms, and BIPOC participants reported greater depressive symptom severity compared with White participants. As the relationship between OSA patient characteristics and depression is complex and likely multifactorial, clinicians should consider demographic factors such as age and race/ethnicity, in addition to OSA severity, when evaluating depressive symptom burden and developing individualized treatment plans for women veterans with OSA.

Fields: Sleep Medicine, Pulmonology

Key Words: Sleep apnea syndromes, Women, Veterans, Depression, Quality of Life

P58. Osteoporosis Treatment Misconceptions and Their Association With Knowledge Deficits and Fracture Risk in Underserved South Florida Communities

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Introduction and Objective: Osteoporosis is a major contributor to fracture-related morbidity, particularly in underserved populations with limited access to preventive education and screening. Treatment misconceptions may contribute to delayed fracture-risk reduction and poor osteoporosis awareness.

Methods: A cross-sectional study was conducted among South Florida community members attending community health fairs between February 2024 and May 2026. Participants completed an osteoporosis knowledge questionnaire and underwent FRAX fracture-risk assessment. Participants were stratified based on their response to the statement: "Medicines used to treat osteoporosis have major side effects and are not worth the risk." Participants answering "True" were classified as having treatment-related misconceptions. Osteoporosis knowledge scores and FRAX-predicted 10-year major osteoporotic and hip fracture risks were compared between groups. Independent-samples t-tests were performed, with statistical significance defined as $p \leq 0.05$.

Results: A total of 175 participants with complete survey responses were included in the analysis. Sixty-nine participants demonstrated treatment-related osteoporosis misconceptions, while 106 participants did not. Participants with and without treatment misconceptions had similar mean ages (56.1 ± 16.2 vs 56.7 ± 15.6 years) and proportions of female participants (89.9% vs 86.8%). Participants endorsing treatment-related misconceptions demonstrated significantly lower osteoporosis knowledge scores compared with participants without treatment misconceptions (68.9% vs 84.6%; $p \leq 0.001$). Participants with treatment misconceptions also demonstrated a higher mean FRAX-predicted 10-year major osteoporotic fracture risk (15.7% vs 8.1%; $p = 0.317$), although this difference did not reach statistical significance. Mean hip fracture risk was similar between groups (1.84% vs 1.97%; $p \geq 0.05$).

Conclusions and Implications: Treatment-related osteoporosis misconceptions were associated with significantly lower osteoporosis knowledge scores among underserved South Florida adults participating in community-based fracture-risk screening. Participants endorsing treatment-related misconceptions also demonstrated numerically higher major osteoporotic fracture-risk estimates, although this finding did not reach statistical significance. These findings suggest treatment-related misconceptions may be associated with poorer osteoporosis literacy and support targeted educational interventions in underserved populations. Further investigation in larger cohorts is warranted to better evaluate the relationship between osteoporosis treatment hesitancy and fracture-risk burden.

Fields: Public Health, Geriatrics

Key Words: Osteoporosis, FRAX, Health literacy, Community screening

P59. Bridging the Gap: Addressing Colorectal Cancer Disparities in West Grove Through Community-Based Screening Initiatives

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Introduction and Objective: Colorectal cancer (CRC) is the second leading cause of cancer-related deaths in the United States. Though research has shown that increased screening rates decreased CRC mortality overall, Black and Hispanic communities continue to experience disproportionately higher CRC incidence and mortality. West Grove is a historically Black neighborhood in Miami, with a CRC incidence of 13.8 per 100,000, greater than the Miami-Dade average of 11.9 and the healthy people 2030 target of 8.9. Contributing factors may include an older population (51.2% aged 40 or older), high uninsured rates (16.3%), and social isolation among older adults (27.8% living alone). This study aims to identify culturally relevant evidence-based strategies to increase CRC screenings in the West Grove area.

Methods: A structured PubMed literature review was conducted to investigate tested colorectal cancer screening promotion programs in the United States targeting Black and Hispanic populations and leveraging community centers. Search string combined “colorectal cancer”, “black”, “African American”, “Hispanic”, “prevention”, “screening”, “United States”, “campaigns”, “community-based”, and “education”. Out of 296 screened studies, 3 were identified by author consensus to describe effective interventions in similar populations.

Results: Evidence supports the effectiveness of community-centered, culturally tailored interventions in increasing CRC screening. Faith-based programs provide trusted infrastructure and scalable delivery for health education and prevention outreach (reaching 41.4% of congregants across 8 churches). Mailed FIT programs improved screening by 16-21%, while financial incentives, such as gift cards, paired with navigation improved FIT return rates by 21.7% in community settings.

Conclusions and Implications: Community-based interventions incorporating faith-based organizations, patient navigation, and mailed FIT testing were effective in increasing CRC screening among Black and Hispanic populations. These strategies may represent promising approaches for adaptation in West Grove. Recommended interventions include the implementation of outreach and health education within local churches, multilingual educational materials, incentive-based FIT testing, and partnerships with local health centers for long-term management.

Fields: Public Health, Gastroenterology

Key Words: Colorectal Cancer Screening, Health Disparities, Community-Based Interventions, Culturally Responsive Care

P60. COVID-19 Adherence as an Effect Modifier of the Association Between Sociocultural and Socioeconomic Factors and Mental Health Among Recent Latino Immigrants in Miami-Dade County, Florida

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Introduction and Objective: Recent Latino immigrants experienced disproportionate social, economic, and psychological stressors during the COVID-19 pandemic. Structural barriers, limited resources, and challenges adhering to public health recommendations may have contributed to adverse mental health outcomes in this population. This study examined whether adherence to COVID-19 mitigation efforts modified the association between sociocultural and socioeconomic factors and mental health outcomes among recent Latino immigrants in Miami-Dade County, Florida.

Methods: This analytical, cross-sectional study used data from 522 recent Latino immigrants aged 18–34 years who had resided in the United States for less than one year at baseline. Participants were recruited through respondent-driven sampling and completed computer-assisted interviews as part of the Impact of COVID-19 among Recent Latinx Immigrants study. Sociocultural factors included social support, family cohesion, neighborhood safety, and negative context of reception. Socioeconomic factors included education, income, and documentation status. Mental health outcomes included anxiety, depressive symptoms, and pandemic-related stress. COVID-19 mitigation adherence was

assessed using a 25-item adherence scale. Multiple linear regression models were used to calculate β coefficients and 95% confidence intervals (CI). Interaction terms were included to assess for effect modification.

Results: Participants were predominantly male (51.4%), authorized immigrants (71.8%), and originated from South America (62.7%). Higher social support was associated with lower anxiety and depressive symptoms, while greater family cohesion was associated with lower depressive symptoms. COVID-19 adherence significantly modified the relationship between social support and anxiety ($\beta=0.114$; 95% CI: 0.033, 0.195) and between social support and pandemic stress ($\beta=-0.122$; 95% CI: -0.213, -0.030). Additionally, COVID-19 adherence significantly modified the association between family cohesion and pandemic stress ($\beta=0.140$; 95% CI: 0.058, 0.223). No significant interaction was observed for other socioeconomic or sociocultural factors.

Conclusions and Implications: COVID-19 mitigation adherence modified the relationship between sociocultural factors and mental health outcomes among recent Latino immigrants. Social support and family cohesion demonstrated protective effects, while adherence behaviors influenced the magnitude of these associations. These findings highlight the importance of culturally responsive public health strategies that strengthen social support networks and promote effective health communication to improve mental health resilience among immigrant communities during future public health emergencies.

Fields: Public Health, Epidemiology

Key Words: COVID-19, Public Health, Socioeconomic factors, Sociocultural factors, Mental health

P61. Exploring the Impact of Socioeconomic Status (SES) on Antihypertensive Medication Adherence

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Introduction and Objective: Hypertension is a major public health concern due to its deadly consequences and widespread prevalence. Despite effective antihypertensive therapies, there remain critical barriers to adequate blood pressure control by medication nonadherence. Individuals of low SES face a disproportionate risk of cardiovascular morbidity and mortality due to the social determinants of health. Despite existing research linking SES to poor hypertension control, the independent association between income level and cost-related prescription nonadherence remains incompletely explored. This study aimed to examine the association between income-to-poverty ratio and cost-related medication nonadherence among U.S. adults with hypertension, highlighting the importance of increasing consistent access to antihypertensive medications.

Methods: This is a secondary data analysis of cross-sectional data from the 2023 National Health Interview Survey. The sample includes individuals aged 18 years and older with a physician-diagnosed history of hypertension. The main exposure is family income relative to the federal poverty threshold (below 200% versus at or above 200%). The primary outcome is cost-related medication nonadherence, defined as skipping doses, taking less medication than prescribed, or failing to obtain medications specifically due to cost. Logistic regression has been used to estimate odds ratios and 95% confidence intervals for the association between income level and nonadherence, with adjustment for sociodemographic and health-related confounders.

Results: Among 11,006 participants, 7.6% reported cost-related medication nonadherence. Participants with income below 200% FPL had significantly higher prevalence of skipping prescriptions compared to those at or above 200% FPL (12.0% vs. 5.9%, $p<0.001$). After multivariable adjustment, lower income remained independently associated with higher odds of nonadherence (adjusted OR 1.5, 95% CI 1.1–1.9, $p=0.003$). Additional independent predictors included lack of insurance (aOR 2.7, $p<0.001$), female sex (aOR 1.4, $p=0.006$), Black race/ethnicity (aOR 1.6, $p=0.002$), unemployment (aOR 1.6, $p=0.001$), diabetes (aOR 1.6, $p=0.001$), and arthritis (aOR 1.6, $p<0.001$). Older age (≥ 70 years) was significantly protective (aOR 0.2, $p<0.001$).

Conclusions and Implications: Lower income is independently associated with higher odds of cost-related medication nonadherence among adults with hypertension. Compounding risk was observed among black adults, women, and those with diabetes or arthritis, underscoring the role of structural and clinical factors in adherence. System-level

interventions including medication cost reduction, expanded coverage, and targeted support for high-risk populations are essential to addressing persistent disparities in hypertension management.

Fields: Public Health, Cardiology

Key Words: Hypertension, Medication Non-Adherence, Health Equity, Social Determinants of Health

P62. Mapping Global Evidence Gaps in Triple-Negative Breast Cancer Stage-at-Diagnosis Research: A Scoping Review

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Introduction and Objective: Triple-negative breast cancer (TNBC) is widely reported to present at a more advanced stage than hormone receptor-positive (HR+) breast cancer, a pattern often cited to explain global disparities in TNBC outcomes. However, the geographic and demographic completeness of the evidence underlying this claim has not been systematically mapped. We conducted a scoping review to characterize both the direction of existing findings and the structural gaps in the evidence base itself.

Methods: Following PRISMA-ScR guidelines, PubMed and Embase (2000–2026, English language) were searched for studies reporting stage at diagnosis stratified by molecular subtype, with TNBC compared to an HR+/luminal comparator. Of 904 records identified, 870 were screened after duplicate removal, yielding 89 full-text assessments; 51 were excluded, most commonly for not reporting stage outcomes by subtype (n=25). This yielded 38 included studies.

Results: The evidence base showed uneven geographic representation: of 23 countries represented, Africa contributed only five studies (13%), limiting the evidence available from a region frequently underrepresented in breast cancer research. Race or ethnicity was reported in just 10 of 38 studies (26.3%), and none of these originated from Africa, South/Southeast Asia, or the Middle East. Consequently, studies from several regions with substantial population diversity provided the least information for evaluating within-region racial or ethnic disparities. Definitions of "advanced stage" also varied substantially, with several studies excluding stage IV at enrollment, limiting cross-study comparability. Within this uneven evidence base, the observed association remained directionally consistent: among 17 studies reporting a formal statistical comparison, 12 (70.6%) found that TNBC was statistically significantly associated with a more advanced stage at diagnosis, four studies (23.5%) did not find a statistical significant difference, and one (5.9%) reported an association in the opposite direction.

Conclusions and Implications: While most available evidence is consistent with TNBC being associated with more advanced stages of diagnosis, this scoping review identifies substantial gaps in geographic representation and demographic reporting that limit how confidently this pattern can be generalized across diverse populations. Closing these evidence gaps, particularly in Africa and South/Southeast Asia, and standardizing stage-by-subtype and race/ethnicity reporting, should be a priority for future disparities research.

Fields: Epidemiology, Public Health

Key Words: Triple-negative breast cancer, Stage at diagnosis, Health disparities, Scoping review, Global evidence gaps

P63. Student-Run Clinic Initiative to Develop Culturally Tailored Dietary Interventions for Diabetes Management Among Miami's Haitian Population

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Introduction and Objective: Haitian Americans have a markedly high prevalence of diabetes, with age-adjusted rates over twice that of the general US population. Dietary changes after immigration, including more processed foods and fewer traditional staples, contribute to higher obesity and metabolic disease rates. Miami-Dade County has one of the largest Haitian communities in America, yet many residents face barriers to healthcare, including low health insurance coverage and limited availability of Creole-speaking translators. The University of Miami DOCS Center for Haitian Studies (CHS) is a free student-run clinic serving the Little Haiti community. On Monday nights, we rotate primary care, cardiology, and women's healthcare services. Patients often come to CHS to manage their chronic conditions, such as pre-diabetes and type 2 Diabetes Mellitus. Our medical student and physician teams suggest lifestyle modifications along with medications to attain a healthy A1c. However, the greatest challenge in addressing dietary habits in Haitian communities is balancing culturally familiar and financially accessible dietary choices. Staple foods, such as soup joumou, diri ak sos pwa, griot, and bouyon, are common cultural dishes with high sodium and sugar content. Additionally, preparation methods and portion sizes vary, affecting nutritional value. Thus, CHS developed a visual chart that depicts balanced portions while maintaining the cultural aspects of a Haitian diet to help patients more easily implement their dietary goals.

Methods: We conducted a literature review on current dietary recommendations for diabetes and incorporated community feedback to create a culturally tailored visual guide to help Haitian patients manage their diabetes while preserving their culture. When a patient with pre-diabetes is identified, the student team and/or physician counsels them on dietary modifications using this graphic. With IRB approval, we will track patient adherence through surveys before and after counseling and correlate these data with health outcomes.

Results: Since 9/9/25, eight out of 31 patients (25.8%) were seen for pre-diabetes. All of these patients were counseled about lifestyle modifications, while four were provided medications, such as Metformin. Through the use of our diet graphic, we expect to see increased adherence to dietary counseling via correlation to health outcomes, including A1c and blood glucose levels, as well as patient self-reports via post-intervention survey results.

Conclusions and Implications: Within Miami's large Haitian population, diet quality is poor, with high intake of sugar, salt, and fried foods, and fewer than 1% of adults meeting fruit and vegetable intake recommendations. These patterns highlight the need for culturally tailored nutrition interventions. Our initiative aims to assess whether visual guides and dietary counseling can improve diabetes management in a culturally sensitive manner.

Fields: Public Health, Nutrition & Dietetics

Key Words: Type 2 Diabetes Mellitus, Culturally Tailored Nutrition, Community Health, Dietary Counseling, Haitian Americans

P64. Sociodemographic and Socioeconomic Factors Associated with Influenza Vaccine Uptake Among U.S. Adults With Chronic Diseases: Analysis of NHIS Data from 2023

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Introduction and Objective: Adults with chronic diseases are at increased risk of serious influenza-related complications and are strongly recommended to receive an annual influenza vaccine. However, vaccination uptake remains below recommended levels among many individuals within this high-risk population. Identifying and understanding the factors associated with influenza vaccination may provide insight into the characteristics associated with lower influenza uptake. This study aimed to examine the sociodemographic and socioeconomic factors associated with influenza vaccine uptake among U.S. adults with chronic diseases using data from the 2023 National Health Interview Survey (NHIS).

Methods: Data from the 2023 NHIS database were analyzed using a cross-sectional study design. Participants aged 18 years and older who reported having at least one chronic disease were included in the analysis. Influenza vaccination served as the primary outcome, while sex, age, race, geographical location, education level, insurance coverage, income, marital status, smoking status, sexuality, and BMI were evaluated as potential factors associated with vaccination. Chi-square analyses and multivariable logistic regression models were used to examine these associations while Adjusted Odds Ratios (AORs) with 95% Confidence Intervals (CIs) were calculated for further analysis.

Results: Among the nearly 12,000 study participants, 58.7% reported receiving an influenza vaccine. Several factors remained significantly associated with vaccination after adjustment for potential confounders. Women were more likely than men to receive vaccination (AOR=1.24; 95% CI: 1.12-1.36). Adults aged 65 and older were more than three times as likely to receive the vaccine compared to adults between the ages of 18-34 (AOR=3.38; 95% CI: 2.64-4.31). Higher educational levels were also associated with greater vaccine uptake, with participants holding a master's degree or higher having more than twice the odds of vaccination compared to those who had a high school education or less (AOR=2.11; 95% CI: 1.77-2.51). In addition, adults covered by insurance had higher odds of receiving the influenza vaccine than those who were uninsured (AOR=2.28; 95% CI: 1.71-3.05).

Conclusions and Implications: Influenza vaccine uptake among adults with chronic diseases was associated with several sociodemographic and socioeconomic factors. Female sex, older age, higher education levels, and insurance coverage were associated with higher vaccination uptake. Recognizing these associations may help guide future public health efforts aimed at improving influenza vaccination coverage among adults with chronic diseases to ultimately reduce influenza-related complications in this high-risk population

Fields: Public Health, Epidemiology

Key Words: Influenza Vaccination, Chronic Disease, Sociodemographic Factors, Socioeconomic Factors, Vaccine Uptake

P65. Artificial Intelligence and Algorithmic Bias in Burn Care: A Literature Review of Ethical Challenges

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Introduction and Objective: Artificial intelligence (AI) is increasingly integrated into burn care for burn-depth assessment, prognostic modeling, telemedicine, and pain management. Although these technologies have demonstrated promising diagnostic and clinical utility, concerns remain regarding algorithmic bias, transparency, and equitable implementation. This review aimed to evaluate the current literature on AI applications in burn care through an ethical and health equity framework, identifying sources of algorithmic bias and strategies to promote responsible clinical adoption.

Methods: A structured narrative literature review was conducted using PubMed, Embase, and Scopus to identify English-language studies published between 2010 and 2025. Burn-specific studies evaluating AI, machine learning, predictive modeling, telemedicine, digital wound assessment, and virtual reality were included. Additional literature from emergency medicine, critical care, dermatology, radiology, and oncology was reviewed to contextualize ethical and fairness considerations. Studies were independently screened and coded using predefined domains including dataset representativeness, subgroup performance, transparency, interpretability, governance, and accountability. A thematic synthesis identified recurring ethical challenges and opportunities for mitigation.

Results: Twenty studies met inclusion criteria. AI applications consistently demonstrated promising performance for burn-depth assessment, prognostic prediction, telemedicine, and rehabilitation. However, burn-specific literature rarely reported demographic composition, subgroup performance, or formal fairness evaluations. Common limitations included unrepresentative training datasets, limited external validation, opaque model development, and minimal post-deployment monitoring. Evidence from other medical specialties demonstrated that these shortcomings can contribute to systematic disparities affecting racial and ethnic minorities, socioeconomically disadvantaged populations, women, older adults, and patients with complex comorbidities, highlighting similar risks for AI implementation in burn care.

Conclusions and Implications: Current AI applications in burn care emphasize predictive performance while largely overlooking equity and algorithmic fairness. Future development should incorporate representative datasets, standardized demographic reporting, subgroup performance analyses, external validation across diverse populations, and continuous post-deployment auditing. Embedding ethical governance and fairness-oriented design throughout the AI life cycle may help ensure these technologies improve burn care without exacerbating existing healthcare disparities.

Fields: Education for Health Professionals, Surgery

Key Words: Artificial Intelligence, Burn Care, Medical Ethics, Health Equity

P66. Caring for Caregivers: System-Level Solutions to Moral Injury in Burn Teams

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Introduction and Objective: Burn care teams—nurses, physicians, rehabilitation therapists, respiratory therapists, and unlicensed care providers—routinely care for patients with catastrophic injuries, prolonged recovery, and ethically complex treatment decisions, placing them at increased risk for moral distress, moral injury, and compassion fatigue. While interventions have traditionally focused on individual resilience, emerging evidence suggests these challenges are largely driven by organizational factors. This study synthesized the literature to identify system-level contributors to moral suffering among burn care teams and organizational strategies that mitigate these outcomes.

Methods: A structured, PRISMA-informed narrative review was conducted using PubMed, CINAHL, PsycINFO, and Google Scholar. English-language studies published between 2010 and 2025 were screened, with seminal earlier works retained when foundational. Eligible studies evaluated moral distress, moral injury, compassion fatigue, or ethically mediated workforce outcomes in burn care or analogous high-acuity settings while addressing organizational or team-level factors. Studies focused solely on individual resilience were excluded unless conceptually informative. Forty-eight peer-reviewed publications met inclusion criteria and underwent narrative synthesis.

Results: Evidence directly involving burn care teams was limited but demonstrated findings consistent with intensive care literature. Recurring organizational antecedents included inadequate staffing, resource scarcity, perceived futile care, repeated exposure to trauma, hierarchical role conflict, constrained clinician voice, and psychologically unsafe work environments. These factors were consistently associated with emotional exhaustion, secondary traumatic stress, moral residue, burnout, turnover intention, and potential threats to patient safety and care quality. Across studies, organizational interventions—including supportive leadership, staffing aligned with patient acuity, psychologically safe communication, structured peer support and debriefings, Schwartz Rounds, and proactive ethics consultation services—were consistently identified as more effective long-term strategies than resilience-focused interventions alone because they addressed underlying systemic causes of moral suffering.

Conclusions and Implications: Moral distress, moral injury, and compassion fatigue among burn care teams should be recognized as organizational ethics challenges rather than failures of individual resilience. Burn centers should integrate system-level interventions—including ethics consultation, structured peer support, safe staffing practices, and psychologically safe communication—into institutional quality improvement and workforce well-being initiatives. These approaches have the potential to reduce preventable moral harm, improve workforce retention, and strengthen patient safety and quality of care.

Fields: Education for Health Professionals, Healthcare Quality Improvement and Organizational Ethics

Key Words: Burn Care, Compassion Fatigue, Organizational Ethics, Rehabilitation, Clinician Well-Being

P67. Effect of Anatomy-Guided Pilates Instruction on Anatomy Knowledge in First-Year Medical Students

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Introduction and Objective: Anatomy education often relies on passive memorization, despite evidence that active and embodied learning strategies improve comprehension and retention. Movement-based interventions, such as Pilates, may offer an opportunity to reinforce musculoskeletal anatomy by linking concepts to real-time physical experience, but

few studies have examined whether explicit anatomy instruction delivered during exercise improves learning compared to exercise alone. This study aimed to determine whether first-year medical students who received anatomy-guided instruction during a Pilates class showed greater improvement in musculoskeletal anatomy knowledge and confidence than students who completed the same class without anatomy-focused explanations.

Methods: First-year medical students were recruited and randomly assigned 1:1 to a control group (standard Pilates-based movement class) or an intervention group (the same class with integrated musculoskeletal anatomy instruction, including muscle activation, origins/insertions, and functional anatomy cues). Sessions were matched for duration, instructor, and movement structure. Participants completed a 9-item musculoskeletal anatomy quiz before and after the session, with the post-session survey including a self-reported confidence item (1–5 scale). Pre- and post-session scores were compared within groups using paired t-tests, and change scores compared between groups using an independent-samples t-test.

Results: Twenty participants completed both assessments (n=10 per group). Mean quiz scores declined from pre- to post-session in both the intervention group (6.5 to 5.8 out of 9, mean change -0.7 , $p=0.13$) and the control group (6.6 to 5.9, mean change -0.7 , $p=0.15$); neither change was statistically significant. The between-group difference in change scores was negligible ($p=1.00$). Self-reported confidence was similar between groups (intervention mean 4.0/5 vs. control mean 3.8/5, $p=0.33$), with most participants in both groups reporting feeling “slightly more confident.”

Conclusions and Implications: In this pilot study, integrating real-time anatomy instruction into a Pilates-based class did not produce a measurable improvement in anatomical knowledge or confidence compared to movement alone. Both groups showed a small, non-significant decline in quiz performance after the session, suggesting that a single brief session may be insufficient to produce detectable gains regardless of instructional content. These findings highlight the need for larger samples, longer interventions, and further exploration of how movement-based teaching strategies can support anatomy learning in medical education.

Fields: Education for Health Professionals, Physical Medicine and Rehabilitation

Key Words: Pilates, Medical Education, Anatomy, Musculoskeletal, Embodied Learning

P68. Evaluating Medical Students' Perceived Impact of a Longitudinal Global Health Experience on Clinical Confidence and Professional Development

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Introduction and Objective: Global health experiences have become increasingly integrated into undergraduate medical education; however, evidence evaluating the educational impact of longitudinal, community-engaged models remains limited. This study evaluated the influence of a longitudinal, community-engaged medical outreach program in the Peruvian Amazon on students' clinical confidence, cultural humility, and professional development.

Methods: A mixed-methods longitudinal study was conducted among second-, third-, and fourth-year medical students from Florida International University Herbert Wertheim College of Medicine who participated in global medical outreach trips between 2023 and 2025. Participants completed post-trip surveys containing Likert-scale items and open-ended questions, and were invited to participate in a structured focus group. Quantitative data were analyzed descriptively. Qualitative data from surveys and focus group transcripts were analyzed using thematic analysis by four independent reviewers with consensus coding.

Results: Ten students participated in the survey. Survey responses demonstrated high levels of confidence in communication, patient-centered care, cultural responsiveness, and preparedness to work with underserved populations. All participants agreed that the experience improved their understanding of social determinants of health and facilitated application of their medical education in a resource-limited setting. Qualitative analysis identified several recurring themes, including increased clinical confidence through hands-on patient care, development of cultural humility, improved communication with patients with limited health literacy, enhanced teamwork, and a broader understanding of ethical global health practice emphasizing sustainability and longitudinal community partnerships.

Participants also highlighted the value of early clinical exposure and identified opportunities to strengthen pre-departure preparation through simulation-based training and procedural skills workshops.

Conclusions and Implications: Participation in a longitudinal, community-engaged global health experience was associated with perceived improvements in clinical confidence, cultural humility, communication, and professional identity among medical students. Beyond technical skill development, students reported a deeper understanding of ethical global health practice, emphasizing sustainable partnerships, culturally responsive care, and patient-centered communication. These findings support the incorporation of thoughtfully designed global health experiences into undergraduate medical education while highlighting opportunities to strengthen learner preparation and ongoing program evaluation. Future cohorts should be evaluated using pre/post knowledge assessments, skills checklists, and preceptor evaluations in addition to self-report, allowing the program to track outcomes over time as part of continuous quality improvement.

Fields: Education for Health Professionals, Public Health

Key Words: Medical education, Global health, Longitudinal learning, Professional development, Community engagement

P69. The Role of 3D Printing and History in Neuroanatomy Medical Education: Phineas Gage Reimagined

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Introduction and Objective: Neuroanatomy is a complex yet prominent part of medical education that must be taught effectively while incorporating real-life pathologies. Technological innovations over the years have permitted for the advancement of medical education, including but not limited to 3D printing. 3D printing has allowed for incorporation of visual learning to visualize various intracranial pathologies. Moreover, 3D printing allows for the replication of historical pathologies, such as the injury of Phineas Gage. We took advantage of 3D printing technology to replicate Phineas Gage's injury as an interactive method to teach neuroanatomy and reflect on a historical pathology in the classroom for medical trainees.

Methods: An interactive workshop entitled "Phineas Gage Reimagined: An Anatomical and Historical Analysis" was prepared and executed by an anatomy educator at a U.S. medical school. Thirty-nine medical students (10 first-year, 29 second-year) attended the lunch-hour session, sponsored by the Medical History and Neurosurgery Interest Groups. The workshop focused on the historical event of the injury of Phineas Gage using 3D printed models of Phineas Gage's injury. Students were split into four groups that each focused on a specific aspect of the neuroanatomy and pathology of Phineas Gage's injury including determining injury extent, hemorrhagic risk, infection source, and brain localization of functional deficits. Each group was given a 3D printed model of Phineas Gage's brain or skull or a vascular supply model of the brain, along with excerpts from Dr. John Harlow MD, Gage's physician. The workshop concluded with a group discussion and feedback survey.

Results: The feedback survey yielded a total of 31 responses for a total of five Likert-scale style items: interest and engagement, improved anatomical understanding of the Phineas Gage injury, overall learning of brain anatomy, lobes, and blood supply, desire for more activities incorporating medical history and primary sources, and desire for more activities using 3D printed models. Of these measures, interest and engagement, anatomical understanding, desire for more historical activities, and desire for more 3D printed model activities all yielded overwhelmingly positive feedback, with all respondents rating these measures 5/5 (Mean = 5.00). Overall learning of brain anatomy, lobes, and blood supply was also perceived to be of strong learning benefit with a mean score of 4.90.

Conclusions and Implications: To conclude, the use of 3D printed models combined with Phineas Gage's historical injury provides the potential to be of high learning benefit and well received by students. 3D printed models in neuroanatomy teaching may have the potential to engage students and provide an in-depth understanding while providing the opportunity to replicate unique historical pathologies. Future directions might consider the use of 3D printing in teaching anatomy in other fields, as well as surgical resident education.

Fields: Education for Health Professionals, Medical Innovations

Key Words: Medical Education, 3D Printing, Neuroanatomy, Technological Innovation, Medical History

P70. Impact of Spinal vs. General Anesthesia on Postoperative Recovery Time in Emergency Leg Amputation Surgery

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Introduction and Objective: Emergency lower extremity amputations are high risk procedures associated with prolonged hospitalization. While regional anesthesia offers physiologic advantages, its impact on recovery time in emergent settings remains uncertain. This study evaluated whether anesthetic technique is associated with time to discharge following emergency lower extremity amputation.

Methods: We conducted a non-concurrent cohort study of 679 adult patients undergoing emergency amputation using the 2020 American College of Surgeons National Surgical Quality Improvement Program database. The primary exposure was anesthesia type (spinal vs. general). The primary outcome was recovery time, defined as days from surgery to discharge, categorized as short (0–3 days) or prolonged (≥ 4 days). Multivariable logistic regression was used to estimate adjusted odds ratios (OR) with 95% confidence intervals (CI).

Results: Anesthetic technique was not independently associated with recovery time. Spinal anesthesia did not statistically significantly change the odds of prolonged hospitalization compared to general anesthesia (adjusted OR 1.93; 95% CI 0.84-4.44). Greater illness severity was associated with prolonged hospitalization. Patients with ASA class IV-V had higher odds of extended length of stay compared to ASA III (adjusted OR 1.86; 95% CI 1.22-2.83), and preoperative sepsis was also independently associated with prolonged recovery (adjusted OR 1.70; 95% CI 1.08-2.57). Other variables, including age, diabetes, smoking status, bleeding disorders, and wound infection, were not significant predictors.

Conclusions and Implications: A patient-centered approach to perioperative decision making rather than prioritizing one anesthetic technique over the other is more likely to positively alter hospital length of stay.

Fields: Anesthesiology, Emergency Medicine

Key Words: Emergency Lower Limb Amputation, Spinal Anesthesia, General Anesthesia, Length of Stay, Time to Discharge

P71. Postoperative Venous Thromboembolism After Hip Fracture Repair: Association With Anesthesia Type and Effect Modification by Sex

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Introduction and Objective: Hip fractures are associated with substantial morbidity and mortality in older adults. Anesthesia type may influence postoperative venous thromboembolism (VTE) risk, and this association may differ by patient sex, but current evidence remains inconsistent. This study evaluated the association between anesthesia type and VTE after hip fracture repair and assessed whether this relationship was modified by sex.

Methods: We conducted a retrospective cohort study using National Surgical Quality Improvement Program (NSQIP) data. Adults aged ≥ 18 years who underwent hip fracture repair in NSQIP from 2016 to 2021 were included. The exposure was anesthesia technique, dichotomized as general versus non-general anesthesia (neuraxial and regional). The outcome was 30-day postoperative VTE, defined as pulmonary embolism or deep venous thrombosis requiring therapy.

Multivariable logistic regression was used to estimate the adjusted association between anesthesia type and VTE, including an anesthesia-by-sex interaction term to test effect modification.

Results: 100,560 patients met inclusion criteria. Within this sample, VTE incidence was 1.8% in the general anesthesia group compared with 1.6% with non-general anesthesia. Before adjustment, the odds of VTE were 15% lower among patients receiving non-general anesthesia compared with those receiving general anesthesia (OR: 0.85, 95% CI: 0.77–0.94). After adjustment for potential confounders, this difference was attenuated and was no longer statistically significant (OR: 0.89; 95% CI: 0.79–1.00). The anesthesia-by-sex interaction was also not significant, with a p value of 0.549 (OR: 0.93, 95% CI: 0.73–1.18). However, higher adjusted odds of VTE were associated with age 75–84 (reference: 18–44 years, OR: 2.04, 95% CI: 1.19–3.48), age ≥85 (reference: 18–44 years, OR: 1.95, 95% CI: 1.14–3.34), COPD (OR: 1.40, 95% CI: 1.20–1.64), higher BMI categories relative to underweight (overweight: OR: 1.45, 95% CI: 1.16–1.80; obese: OR: 1.62, 95% CI: 1.29–2.04), and operative time >3.5 hours (OR: 2.48, 95% CI: 1.75–3.51).

Conclusions and Implications: Despite prior studies suggesting differences in thromboembolic risk by anesthetic approach or sex, neither factor was independently associated with postoperative VTE in this cohort. These findings suggest that, specifically for VTE prevention, anesthetic selection should not be guided primarily by concerns about VTE risk or sex-related differences in that risk.

Fields: Anesthesiology, Surgery

Key Words: Hip Fracture Repair, Venous Thromboembolism, NSQIP, Sex Differences, Anesthesia Techniques

P72. Association Between Anesthesia Type and Postoperative Cardiovascular Events Following Total Hip Arthroplasty

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Introduction and Objective: Total hip arthroplasty (THA) is commonly performed using general, spinal, or other regional anesthesia. Yet, whether the type of anesthetic technique is associated with postoperative cardiovascular complications remains uncertain. The present study aimed to test such potential association.

Methods: We conducted a retrospective cohort study using the American College of Surgeons National Surgical Quality Improvement Program database, year 2022. Patients undergoing THA (identifying through CPT codes) were categorized as receiving general, regional, or spinal anesthesia. The primary outcome was considered present if any of the following events were registered: myocardial infarction, cardiac arrest, stroke/cerebrovascular accident, deep vein thrombosis, or pulmonary embolism. Multivariable logistic regression was used to estimate adjusted odds ratios (aORs) and 95% confidence intervals (CIs), controlling for patient's age, race, sex, body mass index, history of diabetes and of hypertension, current smoking status, and operative duration.

Results: Among 133,578 patients assessed, 49.1% received general anesthesia, 2.8% received regional anesthesia, and 48.2% received spinal anesthesia. The composite event occurred in 467 patients (0.35%): 0.4% after general, 0.2% after regional, and 0.3% after spinal anesthesia ($p<0.001$). In unadjusted analyses, regional anesthesia (OR 0.43, 95% CI 0.20–0.90; $p=0.026$) and spinal anesthesia (OR 0.60, 95% CI 0.49–0.72; $p<0.001$) were associated with lower odds of events than general anesthesia. After adjustment, the association for spinal anesthesia was attenuated but remained significant (aOR 0.64, 95% CI 0.52–0.77; $p<0.001$), whereas the association with regional anesthesia was no longer statistically significant (aOR 0.50, 95% CI 0.24–1.06; $p=0.071$).

Conclusions and Implications: Spinal anesthesia was associated with lower odds of 30-day postoperative cardiovascular events after THA compared with general anesthesia. Findings should be interpreted in light of the low event frequency and potential for confounding by indication. Further longitudinal assessments, possibly with randomized controlled trials are needed to best determine whether anesthetic technique directly influences postoperative cardiovascular risk.

Fields: Anesthesiology, Cardiology

Key Words: Total hip arthroplasty, Spinal anesthesia, General anesthesia, Cardiovascular complications, Postoperative outcomes

P73. Development and External Validation of a Simple Bedside Risk Score to Predict Early Vasopressor Initiation in Critically Ill Adults

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Introduction and Objective: Early recognition of evolving shock is essential in critically ill patients, yet intensive care unit (ICU) teams often lack simple, bedside-ready tools to identify patients likely to require vasopressors soon after admission. Traditional severity scores estimate mortality but do not predict imminent vasopressor need, while high-frequency waveform models are difficult to implement broadly. We developed and externally validated an explainable machine learning model to predict vasopressor initiation within 6 hours of ICU admission using routinely available early clinical data.

Methods: We performed a retrospective prediction study using de-identified clinical data from the MIMIC-IV database (16,700 adult ICU admissions) for model derivation/internal testing and the multi-center eICU database (183,910 adult ICU admissions) for external validation. Eligible patients were not receiving vasopressors at ICU admission. Predictors were limited to demographic, clinical and physiologic/laboratory variables collected within the first hour of ICU admission. Logistic regression and XGBoost models were developed to predict new vasopressor initiation within 6 hours. Model performance was evaluated using the area under the receiver operating characteristic curve (AUROC), calibration plots, and risk-stratification performance.

Results: Vasopressor initiation rates within 6 hours in the MIMIC-IV and eICU cohorts were 22.1% and 6.5%, respectively. In internal testing, the XGBoost model outperformed logistic regression (AUROC of 0.829 [95% CI, 0.821-0.836] compared to 0.805 [95% CI, 0.797-0.813]). XGBoost showed excellent calibration and effectively stratified patients into clinically meaningful risk categories: predicted vs observed event rates were 5.1% vs 4.8% in Low-Risk, 17.1% vs 18.4% in Intermediate-Risk, and 54.4% vs 54.0% in High-Risk. In external validation, the XGBoost model maintained moderate discrimination (AUROC of 0.730 [95% CI, 0.725-0.736]). Feature importance analysis identified early hemodynamic variables, such as lactate and blood pressure, as influential predictors, although substantial missingness values may have affected model performance.

Conclusions and Implications: An explainable XGBoost model using routinely available, early ICU admission data successfully predicted vasopressor initiation within 6 hours with strong internal performance and moderate external generalizability. This approach may support clinical decision-making by facilitating earlier risk stratification and proactive clinical preparation. Missingness patterns in clinical data represent a crucial predictive feature but highlight a key challenge in model transportability.

Fields: Anesthesiology, Critical Care

Key Words: Critical Care, Machine Learning, Risk Stratification, Hemodynamic Instability, Vasopressors