Herbert Wertheim
College of Medicine

2025 Eleventh Annual Research Symposium
Herbert Wertheim College of Medicine
Florida International University
Graham Center Ballroom (GC), Modesto Maidique Campus
Friday August 8, 2025

Program Overview

2025 Eleventh Annual Research Symposium, Graham Center Ballrooms (GC), Modesto A. Maidique Campus,
Florida International University, 11200 SW 8th Street, Miami, FL 33199

TIME	Activity	LOCATION
4:30 - 5:00 pm	**Registration / Poster set-up**	Lobby GC Ballroom
5:00 - 5:05 pm	**Welcome Remarks** Juan Cendan, MD Dean and Senior Vice President for Health Affairs Professor – Department of Surgery Herbert Wertheim College of Medicine Florida International University	Ballroom
5:05 - 6:55 pm	**Open Poster Session***	**Ballroom**
6:55 - 7:00pm	Closing Remarks	Closing

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

Poster presentations

5:05 to 6:55 pm
Ballroom

Order	Title	Authors	Fields
P1	Does Prehabilitation Improve Perioperative Outcomes When Compared to a Matched Cohort?	Regina Knudsen, MS, Benjamin Cipion, MS, Mayank Kotadia, BSc, Ken Porche, MD, Daniel Hoh, MD, Basma Mohamed, MBChB	Anesthesiology, Surgery
P2	Integrating Bioelectric Impedance Analysis into Cardiac Rehabilitation: A Quality Improvement Initiative at Tallahassee Memorial Healthcare	David W. Smith, MD, Brittani Kongala, BA, Amber Dudek, BS, Nancy Cenedella, RN, Sara Lirosi, BS, Katherine Obiaja Hernandez, MS	Cardiology, Nutrition and Dietetics
P3	The Skin-Deep Truth: An Analysis of Oral Isotretinoin's Portrayal on TikTok	Kimia Targhi, BS, Catalina Villafane, BS, Karen Geletko, MPH	Dermatology, Digital Health/eHealth
P4	Evaluating 3D Stereoscopy as a Supplementary Tool in Dermoscopy Education	Vanya Shivashankar, BS, Maria J. Lalama, MS, Alejandra Avila, MD, Natalia Jaimes, MD, MS	Dermatology, Education for Health Professionals
P5	The Influence of Social Media on Acne Treatment Decisions and Perceptions in a U.S. Dermatology Clinic Population	Rita Benkirane, BS, George Rust, MD, MPH, Margaret Rinker, MD, Julianna Gregory	Dermatology, Public Health
P6	Regional Patterns of Involvement in Stage 2 Lipedema: A Retrospective Cohort Study	Yasmine Mohseni, BS, David Amron, MD, David Smart, MD, Shawn Moshrefi, MD, Aria Vazirnia, MD	Dermatology, Surgery
P7	Endocrine Disruption Associated With Cranial Surgeries	Siya Bhutani, BS, Khushi Saigal, BS, Grace Hey, BS, Chloe DeYoung, BS, Arthur Perez, MS, Asia Elbooz, BS, Brandon Lucke-Wold, MD, PhD	Endocrinology, Neurology
P8	Epidemiological Trends In South Florida’s Newborn Screening Program: A Retrospective Study Of Incidence And Prevalence	Emily Perez, MPH, Stephanie Hacker, MS, Deborah Barbouth, MD	Epidemiology, Public Health
P9	National Epidemiology of Go-Kart–Related Craniofacial Injuries in the United States, 2015 – 2024: An Analysis of the National Electronic Injury Surveillance System	Carlota Gimenez Lynch BS, Soumil Prasad BS, Nicholas DiStefano BA, Janice Huang BS, Nicholas Mirskky BS, Rohan Mangal MSc, Seth Thaller MD, DMD	Epidemiology, Surgery
P10	Disease progression in adult patients with alpha-1 antitrypsin deficiency-associated liver cirrhosis: a retrospective cohort study of the US Veterans Affairs Health Database	Dustin Bastaich, MS, Bassam Dahman, PhD, Suna Park, MS, May Hagiwara, PhD, Chitra Karki, MPH, Tami Nussbaum, MD, Raphaella Ferreira, MD, Austen Hentschel, BS, David Kaplan, MD, Andres Samos, BS, Binu V. John, MD, MPH	Gastroenterology, Epidemiology
P11	Association of Preoperative Functional Status with Short-term Major Adverse Outcomes after Cardiac Surgery	Julio E. Sanchez Gonzalez, BS, Barbara Chiu, BS, Isabel Diaz, BS, Pura Rodriguez de la Vega, MPH, Rupa Seetharamaiah, MD, Georgeta Vaidean, MD, MPH, PhD	Internal Medicine, Surgery

P12	Exploring the Association Between Gastrointestinal Autoimmune Disorders and Dementia: Implications for Early Recognition and Intervention	Madeline Sardinas, Holly Haywood, Ashmita Thakur, MS, Isabella Schwartz, MS, Vaibhav Mittal, Donovan Russo-Mingle, Rojin Fatirkhorani, Shreya Kalavala, MS, Kanwal Jussa, MS, Dzana Kovacevic, Mayur Parmar, PhD	Neurology, Family Medicine
P13	CRISPR-Cas9-Mediated Knockout of PLD1 in Human Astrocytes: A Targeted Approach to Explore Neuroinflammatory Pathways	Indira Medina-Reséndiz, BS, Santiago Villafaña-Rauda, PhD, Maricarmen Hernández-Rodríguez, PhD	Neurology, Pathology
P14	Development of BBB-Permeable Proteasome Inhibitors for Brain Cancer	Valerie Delgado Maceira, BS, Til Bahadur Thapa Magar, PhD, Eun Young Choi, PhD, Ji Eun Park, PhD, Kyung Bo Kim, PhD	Neurology, Pharmacology
P15	Prevalence of Abnormal Clinical Breast Exams Among Women Without Access to Mammography in Rural Dominican Republic	Jose F. Eduardo Jr., MS, Sam Budney, BS	Obstetrics and Gynecology, Oncology
P16	The Role of Fertility-Enhancing Drugs and/or Infertility Treatment in Cyanotic Congenital Heart Diseases of Newborns	Melissa Fernandez, BS, Shree Patel, BS, Juan Ruiz-Pelaez, MD, MSc, Ligia Perez, PhD, MBA, MLS	Obstetrics and Gynecology, Pediatrics
P17	Investigating Pre-Pregnancy and Late-Pregnancy E-Cigarette Use Exposure and Gestational Diabetes Mellitus	Elizabeth Burgess, Hope Cherian, Carter Wegner, Grettel Castro, MPH, Marcia Varella, MD, PhD, MHS	Obstetrics and Gynecology, Public Health
P18	High Prevalence of Abnormal Pelvic Exams Among Women in Rural Dominican Republic: A Cross-Sectional Analysis of a Global Health Outreach Population	Jose F. Eduardo Jr., MS, Sam Budney, BS	Obstetrics and Gynecology, Public Health
P19	Modeling In Vitro Intrauterine Growth Restriction via DEHP-Phthalates Exposure Using a Transwell Co-Culture of the Blood-Placenta Barrier	Dr. Michal Toborek, MD, PhD, Cassandra Fernande Coriolan, MPH, MS Candidate	Obstetrics and Gynecology, Toxicology
P20	Nitrated Hsp90 molecular control of tumor cell metabolism	Nirbachita Adrita, BPharm, MPharm, Inge Claassen, BPharm, MS, Kyle T Nguyen, PhD, Pallavi Chaudhary, PhD, Oszkar Szentirmai, MD, Maria Clara Franco, PhD	Oncology, Neurology
P21	The role of Nitrated Hsp90 in glioblastoma	Inge Claassen, MSc., Bhagyashree Manivannan, PhD, Nirbachita Adrita, MPharm, Manivannan Yegambaram, PhD, Stephen M. Black, PhD, Oszkar Szentirmai, MD, Maria Clara Franco, PhD	Oncology, Neurology
P22	Design and Validation of Quantitative Live-Cell Sensors for Specific Phosphoinositide Species	Samantha Manuel, PhD, Arthur Perez, MS, Erika Bilenka, BS, M. Gupta, PhD, Vincent T. Moy, PhD, Ralf Landgraf, PhD	Oncology
P23	Leveraging Galectin-9 to Potentiate Elotuzumab-Based Therapy in Multiple Myeloma	Rajib Kumar Shil, MS, Olivia V. Jose, Guenther Koehne, PhD, Charles J. Dimitroff, PhD	Oncology

P24	Understanding Workflow of Inpatient Chemotherapy and Developing Strategies to Improve Provider Coordination and Treatment Delivery	Stephanie Bogdan, BS, Jonathan W Lee, BS, MSc, MD, Christine Garcia, MPH, MD	Oncology, Public Health
P25	Evaluation of the Survival Benefit of Adjuvant Chemotherapy in Stage II Early-Onset Colorectal Cancer: A SEER-Based Analysis	Christopher Lopez, MS, Samantha Sipe, Sameh Hany Emile, MBBCh, MSc, MD, FACS, Abel Abraham, James Burns, Spencer Barnes, Anjelli Wignakumar, MBBS, BSc (Hons), Steven D. Wexner, MD, PhD (Hon)	Oncology, Surgery
P26	Outcomes following Multiligamentous Knee Surgery: A Retrospective Case Series	Adam V. Daniel, MD, Warren A. Williams, MD, Griffin R. Rechter, MD, Alexander K. Bishop, BS, Abhishek S. Kannan, MD, Stanley J. Kupiszewski, MD	Orthopedic Surgery, Surgery
P27	Risk Factors for Revision Following Primary Total Shoulder Arthroplasty in a Single Health System (HCA)	Aghdas Movassaghi BS, Connor Donley MD, Camberly Moriconi BS, Keith Sims BS, Vani Sabesan, MD	Orthopedic Surgery, Surgery
P28	Striving for Representation: Aligning Future Medical Students with the Communities They Serve through the Panther Cub Pediatrics Pathway Program	Juliana Quintero, BS, Nayade Caldes, BS, Nicole Perez, BS, Katherine Semidey, MD	Pediatrics
P29	Kangaroo mother care initiation and its impact on the duration of KMC in preterm infants	Zubayr Ahmad, BSC, Lucia Martinez, BS, Michelle Moats, BS, Juan Gabriel Ruiz-Pelaez, MD	Pediatrics, Obstetrics and Gynecology
P30	Association Between Parental Military Active Duty States and Childhood Behavioral Problems	Kayla Haydon, MSc, Vanessa Kady, Chrisnel Lamy, MS, Juan Gabriel Ruiz-Pelaez, MD, MMedSci, Marcia Varella, MD, PhD, MHS	Pediatrics, Psychiatry
P31	Long-Term Outcomes of Laparoscopic Adjustable Gastric Banding vs. Sleeve Gastrectomy in Adolescents	Sanjita Choudhary, BS, Emily Breidbart, MD	Pediatrics, Surgery
P32	Interactive effects of Morphine and the HIV integrase inhibitor, Cabotegravir, in Male and Female Mice	Candy Carbajal, MSc, Florida Owens, BSc, Nicole Stone, BSc, Jordan BSc, Matthew Jordan, BSc, Lilian Valadares, PhD, Francisco Fernandez-Lima, PhD, Adel Nefzi, PhD, Shilpa Buch, PhD, Myosotys Rodriguez, PhD, Nazira El-Hage, PhD	Pharmacology
P33	The Hidden Curriculum of Stigma: Mental Health Attitudes from MS1 to MS3	Sakhi Shah, Jessica Barcelo, Katrina Amie, PhD, Rebecca Mathew, Nathaly Desmarais, PsyD	Psychiatry, Education for Health Professionals
P34	Redefining Therapeutic Onset in Postpartum Depression: A Systematic Comparative Meta-Analytic Review of Neuroactive Steroids and Traditional Serotonergic Antidepressants as Pharmacologic Strategies for the Treatment of Postpartum Depression	Dhenu Patel, BS	Psychiatry, Obstetrics and Gynecology
P35	A Journey into the Demographics, Socioeconomic Factors and Behavioral Risk Factors Associated with Use of Psychedelics	Megan Messina, RDN, Craig Warlen, MBME, Luke Myers, BS, Grettel Castro, Juan Lozano, MD	Psychiatry, Pharmacology

P36	Association Between Positive and Negative Alcohol Outcome Expectancies on Alcohol Intake Among Adult Latino Immigrants	Jake S. Cabassa, BS, Brianna Rosner, BS, Karla L. Ubeda Arias, BS, Weize Wang, MPH, BA, Mario De La Rosa, PhD, MSSA, BA, Juan M. Lozano, MD, PhD, Mariana Sanchez, PhD, BA	Public Health, Education for Health Professionals
P37	The Relationship Between Race and Gestational Diabetes	Sakhi Shah, BS, Sarah Stumbar, MD, MPH, Pura Rodriguez, MPH, Juan M. Lozano, MD, MSc	Public Health, Family Medicine
P38	Influence of Socioeconomic and Cultural Factors on Having a Regular Healthcare Provider Among Recent Young Latino Immigrants	Melissa Suarez Silverio, BS, Alex Fernandez BS, Joceline Wheelock BS, Juan M. Lozano MD, MSc, Mariana Sanchez PhD	Public Health, Family Medicine
P39	Urine Luck: A Quality Improvement Initiative Aimed at Preventing Urine Contamination	Stephanie Connor, BS, Benjamin Linkous, BS, Angeli Canekeratne, BS, Abigail Serda BS	Public Health, Infectious Diseases
P40	Enhancing WASH Practices and Health Outcomes in San Juan de Yanayaku, Peru: A Community-Based Intervention	Rosemary Wright MPH, Sakhi Shah BS, Venus Liu MD MS, Noel Barengo MD PhD	Public Health, International Health
P41	Breaking Barriers: A Review Identifying and Addressing Key Limitations to Early Prenatal Care Access in Little Haiti Neighborhood in Miami 33127	Brianna Rosner, BS, Jake Cabassa, BS, Julie Mallinger, BS, Karla L. Ubeda Arias, BS, Melissa Ruprich, BS, Rachel Kraan, BS, Nana Aisha Garba, MD, PhD, MPH	Public Health, Obstetrics and Gynecology
P42	Sante Nou Se Avni Nou: Health Literacy and Beliefs About Cancer Causation and Prevention in a Haitian Immigrant Population	Mame Dioum, MPH, Jovanka Ravix, cMD/PhD, Maurice Junior, PhD, Sandy St-Hillaire, MS, Sophia George, PhD	Public Health, Oncology
P43	The Association Between Teenage Pregnancy and the Development of Asthma in Children Between 0-5 Years Old	Valentina Roa Forster, BS, Lisett Castellanos, BS, Alejandra Viera Plasencia, BS, Juan Gabriel Ruiz Pelaez, MD, Chrisnel Lamy, MPH	Public Health, Pediatrics
P44	The influence of adverse mental health outcomes on unhealthy eating habits among Latino/a immigrants in South Florida.	Audrey Petersen, Cameron Spangler, David Ortega, Weize Wang, MPH, Mariana Sanchez, PhD, MSW, Noel Barengo, MD, PhD, MPH	Public Health, Psychiatry
P45	Hyperoxia Impairs Shear-Sensitive Gene Expression in Congenital Heart Disease-Associated PAH	Santiago Moreno-Caceres, Amber Eliason, David Marciano	Pulmonology, Cardiology
P46	A CRISPR-Based Strategy to Reverse HIV-Tat and Smoking-Induced Mucociliary Dysfunction via SIRT1 Restoration	Kingshuk Panda, Md. Sohanur Rahman, PhD, Hoshang J. Unwalla, PhD, Srinivasan Chinnapaiyan, PhD	Pulmonology, Infectious Diseases
P47	Particulate matter enhances cellular glycolysis through METTL3-mediated m6A RNA methylation	Yishu Dong, MS, Anlin Feng, PhD, Panfen Fu, PhD, Stephen M. Black, PhD, Ting Wang, PhD	Pulmonology, Public Health
P48	CT-Derived Body Composition and Machine Learning Models for Predicting Platinum Resistance in Ovarian Cancer	Jatin Singh BS, Xin Meng, PhD, Grant Kokenberger, BS; Jianbing Zhu, MD, Lauren Borho, BS, Esther Elishaev, MD, Sarah Taylor, MD, PhD, Francesmary Modugno, MS, PhD, MPH, Jiantao Pu, PhD	Radiology, Oncology

P49	Association of Sunlight Exposure and Rheumatoid Arthritis Among Adults in the United States	Da Young Lee, Andrea Marie Javier, Aaliyah Shaikh, Marcia Varella, MD, PhD, Pura Rodriguez de la Vega, MPH	Rheumatology, Public Health
P50	Correlation between Reduction of Renal Sinus Fat and Improvement of Blood Pressure after Bariatric Surgery	Carlos E Rivera, MD, Roberto J Valera, MD, Mauricio Sarmiento-Cobos, MD, Vicente Cogollo, MD, Lisandro Montorfano, MD, Eliot Wasser, MD, Emanuele Lo Menzo, MD, PhD, FACS, FASMBS, Samuel Szomstein, MD, FACS, FASMBS, Raul J. Rosenthal, MD, FACS, FASMBS	Surgery, Cardiology
P51	Beyond the Scalpel: Non-Clinical Factors Drive the Majority of One-Star Yelp Reviews for Plastic Surgeons in Four Major U.S. Cities	Soumil Prasad, BS, Carlota Gimenez Lynch, BS, Christina Barrett, BS, Seth Thaller MD DMD	Surgery, Education for Health Professionals

Abstracts
Poster Presentations

P1 Does Prehabilitation Improve Perioperative Outcomes When Compared to a Matched Cohort?

Regina Knudsen, MS, Florida Atlantic University; Benjamin Cipion, MS, University of Florida; Mayank Kotadia, BSc, University of Florida; Ken Porche, MD, University of Florida; Daniel Hoh, MD, University of Florida; Basma Mohamed, MBChB, Duke University

Introduction and Objective: There is growing evidence that frailty has been associated with increased incidence of postoperative adverse events in patients undergoing spine surgery including increased complications, prolonged recovery periods, and elevated mortality rates. This study aimed to determine the impact of a prehabilitation program on the incidence of postoperative complications in patients undergoing elective spine surgery. Secondary outcomes included physiological function (the summation of first day to ambulate, first day to bowel movement, and first day to bladder voiding), length of hospital stay (LOS), discharge disposition, and 30-day readmission rates.

Methods: Retrospective cohort analysis was conducted initially through a quality improvement project initiated in August 2017. Study participants included adults aged 18-89 undergoing elective spine surgery after completing prehabilitation from August 2017 through April 2023. Patients who underwent urgent spine surgery or surgeries due to trauma were excluded. Control participants included frail adults undergoing elective spine surgery after declining participation in prehabilitation who were case matched for age, Charlson Comorbidity Index (CCI), and baseline Fried Frailty Score (FFS). The primary analysis compared total case-matched prehabilitation versus controls.

Results: Of the 134 patients enrolled, 24 Prehab patients were matched to 24 controls. Average age (Prehab 72±7y vs Non-Prehab 69±11y, p=0.749), CCI (4.7±1.9 vs 4.2±1.4, p=0.752), and FFS (3.3±0.8 vs 3.0±1.0, p=0.428), were matched between cohorts. Surgeries included a similar number of decompressions (13% vs 21%, p=0.700) and multilevel (>2 level) fusion (46% vs 67%, p=0.244). 42% of patients who underwent 1-2 level fusions participated in prehabilitation (42% vs 13%, p=0.049). The number of adverse events was lower in the Prehab cohort, but did not achieve statistical significance (45.83% vs 41.67%, p=0.771). Secondary measures were similar between cohorts. A subgroup analysis was performed that only analyzed multilevel fusions with 16 patients in the Prehab cohort and 11 in the Non-Prehab cohort. Average age (Prehab 72±7y vs Non-Prehab 71±6y, p=0.504), CCI (4.0±1.2 vs 4.5±2.3, p=0.918), and FFS (3.3±0.9 vs 3.4±0.7, p=0.830), were matched between cohorts. The number of adverse events was significantly lower in the Prehab cohort (43.75% vs 72.73%, p=0.131). This difference was due to decreased respiratory failure, urinary retention, and hemodynamic instability. Secondary measures were similar between cohorts.

Conclusions and Implications: This study demonstrated that prehabilitation significantly reduced postoperative adverse events in frail patients undergoing multilevel spine fusion surgery. However, prehabilitation was not associated with a change in LOS or discharge disposition. Future randomized clinical trials are recommended to evaluate the impact of prehabilitation in complex spine surgery patients.

Fields: Anesthesiology, Surgery

Keywords: Frailty, Prehabilitation, Spine, Surgery, Anesthesiology

P2 Integrating Bioelectric Impedance Analysis into Cardiac Rehabilitation: A Quality Improvement Initiative at Tallahassee Memorial Healthcare

David W. Smith, M.D., Tallahassee Memorial Healthcare; Brittani Kongala, B.A., Florida State University College of Medicine; Amber Dudek, B.S., Florida State University College of Medicine; Nancy Cenedella, R.N., Tallahassee Memorial Healthcare; Sara Lirosi, B.S., Tallahassee Memorial Healthcare; Katherine Obiaja Hernandez, M.S., Florida State University College of Medicine

Introduction and Objective: Body mass index (BMI) often fails to reflect clinically meaningful changes in body composition. In 2023, the Tallahassee Memorial Healthcare (TMH) Cardiac Rehabilitation Program launched a Quality Improvement Project to integrate bioelectric impedance analysis (BIA) into standard cardiac rehabilitation (CR)

practices. BIA provides detailed assessments of fat-to-muscle ratio, skeletal muscle mass, and visceral fat. The primary objective was to improve body composition, specifically, to reduce fat mass and increase muscle mass, through personalized exercise and educational interventions.

Methods: This prospective observational study included 106 patients with cardiovascular disease enrolled in TMH's 36-session CR program. Inclusion criteria included coronary artery disease (CAD), recent cardiac procedures or events, and heart failure with reduced ejection fraction (HFrEF). Patients with pacemakers or other implanted electronic devices were excluded due to safety concerns with BIA. Phase II of the program included baseline BIA assessment, a senior fitness test (6-minute walk, 30-second sit-to-stand, and 30-second arm curls), and monthly BIA reassessments. Key BIA variables included fat mass, skeletal muscle mass, fat-to-muscle ratio, and total body water. Changes in lean muscle and fat mass were calculated from baseline to discharge.

Results: Among the 70 patients with complete follow-up data, average lean muscle mass decreased by 0.90 lbs., and average fat mass decreased by 0.60 lbs. 38 participants showed positive changes (muscle gain and/or fat loss), while 30 showed negative changes. No statistically significant improvements in fat-to-muscle ratios were observed across the cohort. Distribution changes were minimal (±1–3 patients per category), and no consistent trends appeared by diagnosis group (CAD, HFrEF, Valvular Disease). Sarcopenic obesity, low muscle mass with high fat, was common, even in patients with normal BMI.

Conclusions and Implications: Although improvements in muscle and fat mass were limited, BIA proved valuable in identifying subtle body composition changes and uncovering hidden risk factors. Barriers included insufficient exercise intensity, low attendance, and limited nutrition support. Planned enhancements include transitioning to an intensive CR model and incorporating structured nutritional counseling to improve outcomes.

Fields: Cardiology, Nutrition and Dietetics

Keywords: Cardiac rehabilitation, bioelectric impedance analysis (BIA), body composition, sarcopenic obesity, fat-to-muscle ratio

P3 The Skin-Deep Truth: An Analysis of Oral Isotretinoin's Portrayal on TikTok

Kimia Targhi, BS, Florida State University; Catalina Villafane, BS, Florida State University; Karen Geletko, MPH, Florida State University

Introduction and Objective: Oral isotretinoin is the most effective treatment for acne vulgaris, yet it has faced online controversy due to concerns about its side effects, including the potential links to depression and suicide. Given that individuals with acne seek treatment advice from social media, understanding how oral isotretinoin is portrayed on TikTok is important.

Methods: Two independent reviewers analyzed the top 75 videos generated by the TikTok algorithm from the search term "Accutane". Each video was assessed for various predetermined topics related to oral isotretinoin. Videos were subcategorized based on their dominant perspective determined by the amount of time the content creator spent discussing the predetermined topics.

Results: A total of 75 videos were analyzed. 77.3% (58/75) of videos discussed the negative aspects of oral isotretinoin including its side effects, contraindications/precautions, the initial acne flare, and acne worsening/no change. Among these videos, 58.6% (34/58) focused on discussing one or more of these negative topics, with minimal to no mention of positive and/or neutral aspects of oral isotretinoin. While 60% (45/75) of videos mentioned the positive aspects of oral isotretinoin, it was the primary subject of discussion in only 28.9% (13/45) of these videos.

Conclusions and Implications: The negative aspects of oral isotretinoin were mentioned more frequently than its positive effects. The findings of this study suggest there is a lack of balance in the discussions surrounding oral isotretinoin on TikTok. This knowledge can assist dermatologists in addressing patient concerns and improving patient education.

Fields: Dermatology, Digital Health/eHealth

Keywords: Acne vulgaris, Isotretinoin, Accutane, TikTok

P4 Evaluating 3D Stereoscopy as a Supplementary Tool in Dermoscopy Education

Vanya Shivashankar, B.S., Maria J. Lalama, M.S., Alejandra Avila, M.D., Natalia Jaimes, M.D., M.S., Dr. Phillip Frost Department of Dermatology and Cutaneous Surgery, University of Miami Miller School of Medicine; Sylvester Comprehensive Cancer Center, University of Miami Miller School of Medicine

Introduction and Objective: Dermoscopy is a cost-effective tool for the early diagnosis of skin cancer, yet its diagnostic accuracy depends on effective training. Most current teaching methods—such as dermoscopy images and case-based learning—rely primarily on two-dimensional (2D) magnified images that lack the depth, scale, and perspective encountered during real clinical settings. Stereoscopy, or three-dimensional (3D) imaging, simulates human depth perception using paired images taken from slightly different angles. This technique has been successfully applied in other areas of medical education, enhancing spatial understanding, clarity, and knowledge retention. However, it has not yet been explored in dermoscopy training. This study aimed to assess the perceived educational value of a stereoscopic retroviewer as a supplemental tool during a dermoscopy course.

Methods: A descriptive survey study was conducted during a two-day dermoscopy course in November 2023, attended by 60 participants, including dermatology residents, attending physicians, and other healthcare professionals involved in skin cancer diagnosis. Each attendee received a stereoscopic retroviewer with five image reels, each depicting benign and malignant lesions from various anatomic sites. After the course, participants completed a survey assessing the tool's usability, educational value, recall of dermoscopic features, and likelihood of future use. Responses were collected using Likert scales and open-ended feedback.

Results: Of the 60 attendees, 21 (35%) completed the post-course survey. Among respondents, 70% reported that the retroviewer improved their ability to recall dermoscopic structures, and 71.4% felt "slightly" or "very comfortable" using the tool. Additionally, 61.9% indicated they were "likely" or "very likely" to use the retroviewer again. Open-ended responses emphasized increased learner engagement and interest in incorporating the tool into future educational sessions.

Conclusions and Implications: These preliminary findings suggest that the stereoscopic retroviewer may serve as a useful adjunct to dermoscopy education by enhancing learner engagement and visual recall. The study is limited by its small sample size and low survey response rate, which may affect generalizability. Therefore, future studies should incorporate objective assessments and larger, more diverse populations to evaluate its impact on skill acquisition and diagnostic accuracy.

Fields: Dermatology, Education for Health Professionals

Keywords: dermoscopy, diagnosis, education, gamified learning, dermatology training

P5 The Influence of Social Media on Acne Treatment Decisions and Perceptions in a U.S. Dermatology Clinic Population

Rita Benkirane, B.S., Medical Student, Florida State University College of Medicine, George Rust, M.D., M.P.H., Florida State University College of Medicine, Margaret Rinker, M.D., Attending Dermatologist, PHDermatology, Julianna Gregory, Medical Student, Florida State University College of Medicine, B.S.N, Nova Southeastern University

Introduction and Objective: Social media has emerged as a major source of health information, particularly among young adults managing acne. While dermatologists remain the clinical standard for acne care, online influencers and free-range content have the potential to shape treatment behaviors significantly. This study examines the influence of social media on acne treatment choices across age groups, with a focus on comparative patterns between adults aged 18–24, 25-34, 35-44, and 45 years and older This study aims to identify how adults with acne trust social media as a source of information for managing their skin as compared to their dermatologist.

Methods: A 21-item cross-sectional survey was distributed to 50 patients diagnosed with acne in a U.S. dermatology clinic. Key domains included acne history, treatment history, social media platform usage, perceived influence of social media on treatment behaviors, trust in influencers, and content engagement. Participants were stratified into four age cohorts: 18–24, 25-34, 35-44, and 45 years and older. Chi-square tests were used to compare categorical outcomes, and effect sizes (Cramér's V) were calculated to assess the strength of associations.

Results: Among 50 respondents, 18 were aged 18–24, 9 were 25–34, 10 were 35–44, and 13 were aged 45 and older. Reported influence of social media on treatment behaviors decreased with age: 83.3% (18–24), 66.7% (25–34), 30.0% (35–44), and 15.4% (≥45) reported starting or stopping treatments based on content seen online ($p < 0.001$, Cramér's $V = 0.61$). The youngest cohort engaged most frequently with content on TikTok and Instagram, particularly influencer skincare routines and before-and-after posts. In contrast, participants aged ≥35 reported greater trust in board-certified dermatologists online and lower trust in influencer recommendations: 61.1% of respondents aged 18–34 reported moderate to high trust in influencers vs. 13.6% of those aged ≥35 ($p = 0.004$, Cramér's $V = 0.48$). Across all age groups, 73% expressed interest in seeing dermatologists actively debunking acne-related myths on social media.

Conclusions and Implications: Social media plays a large role in shaping acne treatment decisions among younger adults, who are more likely to engage with and act on the online content they consume. These findings highlight a critical opportunity for dermatology professionals to engage with digital platforms, promote accurate information, and mitigate misinformation. Further studies should evaluate clinical outcomes and digital health literacy to inform more targeted public health interventions. It is also worth evaluating gender-based differences in acne treatment decisions and social media engagement among male and female patients.

Fields: Dermatology, Public Health

Keywords: Acne, Survey, Social Media, Ages, Dermatology

P6 Regional Patterns of Involvement in Stage 2 Lipedema: A Retrospective Cohort Study

Yasmine Mohseni, B.S., University of Miami Miller School of Medicine; David Amron, M.D., FAAD, The Roxbury Institute; David Smart, M.D., FAAD, The Roxbury Institute; Shawn Moshrefi, M.D., The Roxbury Institute; Aria Vazirnia, M.D., FAAD, The Roxbury Institute

Introduction and Objective: Lipedema is a progressive disorder of adipose tissue characterized by symmetric, painful fat accumulation that is typically resistant to diet and exercise. Stage 2 lipedema is defined by subdermal fibrosis and uneven skin, but little is known about the regional patterns of involvement within this stage. Understanding common anatomical distributions may guide treatment planning and staging accuracy. This study aimed to characterize the prevalence and combinations of regional involvement, thighs, calves/ankles, and upper arms, in patients with stage 2 lipedema undergoing surgical intervention.

Methods: We conducted a retrospective chart review of patients diagnosed with stage 2 lipedema who underwent liposuction during September 2024, October 2024, and February 2025 at a tertiary center. Patient demographics, weight, documented areas of fat accumulation, and skin tightening treatments were collected. Regional involvement was categorized into three primary anatomical sites: thighs, calves/ankles, and upper arms. Frequencies of isolated versus multi-site involvement were assessed. Descriptive statistics were used to analyze prevalence and distribution patterns.

Results: A total of 63 patients met inclusion criteria. Thigh involvement was the most prevalent (90.5%), followed by upper arms (65.1%) and calves/ankles (60.3%). Nearly all patients (98.4%) had multisite disease. The most frequent combination was concurrent thigh and upper arm or mid-arm involvement, present in 49.2% of patients. Among patients with involvement in a given region, subdermal radiofrequency (RF) combined with helium plasma skin tightening was used in 87.5% of those with thigh involvement, 92.7% with upper arm involvement, and 50.0% with calf/ankle involvement.

Conclusions and Implications: Multisite involvement, particularly affecting both thighs and calves, was the predominant presentation among patients with stage 2 lipedema. These findings suggest that lipedema frequently involves multiple contiguous regions by stage 2, and isolated regional disease is uncommon. Recognizing these patterns may help

standardize staging, guide surgical planning, and inform future research on disease progression and phenotype classification.

Fields: Dermatology, Surgery

Keywords: Lipedema, Regional involvement, Stage 2, Liposuction, Skin tightening

P7 Endocrine Disruption Associated With Cranial Surgeries

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Introduction and Objective: Cranial surgeries, while often necessary for the management of a variety of neurological conditions, are associated with a range of postoperative complications, including potential disruption of endocrine function. The hypothalamic-pituitary axis is particularly vulnerable due to its anatomical proximity to common neurosurgical targets, increasing the risk of endocrine disorders such as diabetes insipidus, syndrome of inappropriate antidiuretic hormone secretion (SIADH), and various pituitary hormone deficiencies. Despite individual reports and small-scale studies, a comprehensive synthesis of the endocrine sequelae following cranial surgeries remains lacking. This systematic review aims to evaluate and synthesize the available evidence on endocrine complications arising as a consequence of cranial surgeries in adult patients. Specifically, it seeks to identify the types, frequency, and clinical implications of postoperative endocrine disorders.

Methods: A systematic search was conducted in MEDLINE using the following strategy: (""Neurosurgery""[Mesh] OR ""Neurosurgical Procedures""[Mesh]) AND (""Endocrine System Diseases""[Mesh]) AND (""Complications"" [Subheading] OR ""Postoperative Complications""[Mesh] OR ""Intraoperative Complications""[Mesh]). Studies were eligible for inclusion if they involved adult patients (≥18 years) undergoing any type of cranial surgery and reported an endocrine disorder as a postoperative complication. Eligible study designs included randomized controlled trials (RCTs), quasi-RCTs, and retrospective studies. Two reviewers independently screened titles and abstracts, with full-text review performed by two separate reviewers. One reviewer is currently conducting data extraction. Endocrine outcomes of interest include, but are not limited to, diabetes insipidus, SIADH, hypo/hypernatremia, corticotrophic and thyrotrophic deficiencies, hypogonadism, and growth disorders.

Results: A total of 3040 studies were initially identified for review. After screening and full text assessment, 145 of these studies met the inclusion criteria of this review. At the time of writing, data extraction is ongoing. Final results, including the incidence and types of endocrine complications across study designs and surgical approaches, will be presented upon completion of data synthesis.

Conclusions and Implications: This systematic review will provide a consolidated understanding of endocrine complications following cranial surgery, aiming to inform surgical planning, perioperative monitoring, and postoperative management. The findings may support the development of standardized endocrine screening protocols and highlight areas requiring further research.

Fields: Endocrinology, Neurology

Keywords: Cranial surgery, Endocrine disruption, Hypothalamic-pituitary axis

P8 Epidemiological Trends in South Florida's Newborn Screening Program: A Retrospective Study of Incidence and Prevalence

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Introduction and Objective: Newborn screening (NBS) is a critical public health initiative designed to identify and treat congenital disorders early in life. In Florida, approximately 220,000 infants are screened annually, with tests covering 60 conditions. This study evaluates the incidence, prevalence, and positive predictive value (PPV) of selected conditions included in Florida's NBS panel: Biotinidase Deficiency, Mucopolysaccharidosis Type I (MPS I), Classic and Variant Galactosemia, Spinal Muscular Atrophy (SMA), Pompe Disease, and X-linked Adrenoleukodystrophy (XALD), with a particular focus on the South Florida region. The goal is to assess regional trends and inform improvements in early diagnosis and screening effectiveness.

Methods: This retrospective study analyzed deidentified newborn screening data from 2017 to 2023, provided by the University of Miami's Genetics Department for South Florida (Miami Dade, Broward, and Monroe Counties) and statewide data from Florida's Genetics and Newborn Screening Advisory Council. Prevalence was calculated by dividing the total number of cases (new and old) by the population at risk, while incidence was calculated annually. True and false positives were categorized based on follow-up confirmatory testing. PPV was computed for each condition. Carrier status among false positives was also examined.

Results: Out of 296,406 South Florida births and 1,537,631 statewide births, analysis revealed that South Florida had consistently higher prevalence rates for most conditions studied. Notably, Variant Galactosemia showed a prevalence of 20 in 200,000 in South Florida vs. 16 in 200,000 statewide. For Biotinidase Deficiency, South Florida's prevalence was double that of the rest of the state. Incidence rates varied annually, with South Florida exhibiting the highest XALD incidence (21 in 200,000) in 2022. PPV varied significantly by condition and year; Biotinidase Deficiency and SMA had PPVs of 100 percent during initial years but declined in later years. MPS I and Pompe showed persistently low PPVs. Among false positives, a substantial portion were carriers, particularly for Variant Galactosemia (88 percent) and Classic Galactosemia (50 percent).

Conclusions and Implications: The findings underscore regional differences in disease prevalence and screening outcomes, suggesting that South Florida may have unique demographic or genetic factors influencing NBS results. High false positive rates and fluctuating PPVs, particularly for rare conditions, point to the need for enhanced diagnostic algorithms and follow-up protocols. These insights can help optimize screening accuracy, reduce parental anxiety, and improve long-term care strategies. Future research should explore broader datasets and assess clinical outcomes to better understand the implications of early diagnosis and intervention.

Fields: Epidemiology, Public Health

Keywords: Newborn Screening, Incidence & Prevalence, Florida, Positive Predictive Value (PPV), Genetic Epidemiology

P9 National Epidemiology of Go-Kart–Related Craniofacial Injuries in the United States, 2015 – 2024: An Analysis of the National Electronic Injury Surveillance System

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Introduction and Objective: Go-karts are popular recreational vehicles capable of high speeds yet operate with minimal safety regulations, posing significant risk for craniofacial injury. This study quantifies the national epidemiology, demographic distribution, and injury patterns of craniofacial trauma associated with go-kart accidents to inform targeted safety interventions.

Methods: A retrospective cross-sectional analysis was conducted using the National Electronic Injury Surveillance System from 2015 to 2024. Emergency department visits were identified using the go-kart product code and body-region codes for craniofacial injuries. Weighted data provided national estimates of injury patterns by age, sex, body region, injury type, and annual trends.

Results: Go-kart crashes resulted in an estimated 30,411 emergency visits over the ten-year period. Males accounted for 54% of injuries. The highest injury rates occurred among children aged 10–14 years (26.9%), followed by ages 5–9

(17.7%) and 15–19 (15.4%). Head was the most commonly injured site (50%), followed by the neck (23%), face (21%), and mouth (6%). Internal injuries predominated (24%), alongside lacerations (17%), contusions and abrasions (16%), strains and sprains (13%), and fractures (8%). Annual injury counts peaked in 2024 (4,396 cases) and were lowest during the 2020 COVID-19 pandemic (2,197 cases). Overall hospitalization rate was 6.3%, totaling approximately 1,912 admissions.

Conclusions and Implications: Go-kart accidents result in substantial craniofacial injuries, particularly among pediatric populations, emphasizing the need for improved safety measures. Mandatory helmet use, structural safety enhancements, and age-specific regulations are recommended to reduce preventable injuries based on these nationally representative findings.

Fields: Epidemiology, Surgery

Keywords: Go-kart injuries, Craniofacial trauma, Pediatric trauma, Emergency department, Injury epidemiology

P10 Disease progression in adult patients with alpha-1 antitrypsin deficiency-associated liver cirrhosis: a retrospective cohort study of the US Veterans Affairs Health Database

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Introduction and Objective: Alpha-1 antitrypsin deficiency (AATD) may manifest as liver and/or lung disease with a variably progressive course. AATD-associated liver disease (AATD-LD) is primarily caused by SERPINA1 protease inhibitor (Pi)*Z variants, of which the homozygous variant Pi*ZZ carries the greatest risk. The natural history and disease progression of AATD-LD and post-cirrhosis outcomes are poorly understood; we examined disease progression in patients with cirrhotic AATD-LD.

Methods: This was a retrospective, EMR-based cohort study in adults with cirrhotic AATD-LD in the Veterans Outcomes and Cost Associated with Liver Disease cohort from the VHA. Patients were identified with suspected AATD (≥1 inpatient or ≥2 outpatient ICD-9/10 AATD codes ≥90 days apart, serum AAT <120 mg/dL, or Pi*ZZ, Pi*SZ or Pi*MZ phenotype [serum AAT <50 mg/dL was a proxy for Pi*ZZ]) and cirrhosis (ICD-10-CM codes). Data were collected from Oct-1999 to Feb-2023. AATD phenotypes were abstracted from laboratory test results using NLP. For patients with suspected AATD, chart reviews were conducted if NLP could not extract AATD phenotypes. Descriptive analyses of time from cirrhosis to hepatic decompensation (HD) and hepatocellular carcinoma (HCC) were conducted using Kaplan–Meier (KM) curves, stratified by AATD phenotype.

Results: Overall, 478 patients (Pi*MZ: n=282; Pi*SZ: n=59; Pi*ZZ: n=137) were included. Mean (SD) age at cirrhosis diagnosis was 61.6 (10.3) years, 97.5% were male, and 49.8% had comorbid MASLD. In total, 119 (24.9%) and 38 (7.9%) patients developed HD and HCC, respectively. For patients who developed HD, the median time to HD was similar across AATD phenotypes (Pi*MZ: 1.9 years; Pi*SZ: 1.8 years; Pi*ZZ: 1.5 years); for those who developed HCC, the median time to HCC was also similar across phenotypes (Pi*MZ: 2.2 years; Pi*SZ: 2.0 years; Pi*ZZ: 1.7 years). Disease progression to HD or HCC was similar among patients with cirrhotic AATD-LD across Pi*Z variants.

Conclusions and Implications: Patients with cirrhosis and Pi*Z alleles should be closely monitored, particularly those with steatosis, who may derive significant clinical benefit from timely diagnosis.

Fields: Gastroenterology, Epidemiology

Keywords: Alpha-1 antitrypsin deficiency (AATD), Cirrhotic AATD-associated liver disease, Disease Progression, Veterans Health Administration (VHA)

P11 Association of Preoperative Functional Status with Short-term Major Adverse Outcomes after Cardiac Surgery

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Introduction and Objective: The high prevalence of cardiovascular disease worldwide results in an increasing number of cardiac surgeries each year. Implementing effective screening techniques can identify high-risk patients, allowing for better pre/postoperative management. This study will investigate the association between preoperative functional status and adverse outcomes after cardiac surgery. We hypothesized that patients with a dependent preoperative functional status would experience more adverse outcomes than patients with independent functional status.

Methods: We conducted a retrospective cohort study of 42,917 cardiac surgery patients over the age of 18 from 2011 to 2022 utilizing the American College of Surgeons National Surgical Quality Improvement Program Database. Patients with unknown functional status or missing data in the primary composite outcome were excluded. Totally and partially dependent groups were combined to increase statistical power. Adverse outcomes including stroke, sepsis, and pneumonia within 30 days of surgery were assessed while controlling for demographics and comorbidities. Unadjusted and adjusted odds ratio (OR) and 95% confidence intervals were obtained by multiple logistic regression.

Results: Of the included patients, 30.6% were female, 46.5% were 65-79 years old. The prevalence of dependent status was 2.6%. Compared to those with independent functional status, dependent participants experienced the primary outcome at greater frequencies (35.68% vs 20.93%). Dependent functional status was associated with a crude OR of 2.09 (95% CI 1.85-2.37, p-value <0.001) and an adjusted OR of 1.21 (95% CI 1.04-1.41, p-value 0.015). Additional factors associated with greater odds of the primary outcome included age >80 years, female sex, BMI <18, black race, emergency case, pre-operative blood transfusion, and sepsis.

Conclusions and Implications: Our findings revealed higher odds of postoperative complications in dependent patients. Some of the most common complications included unplanned reoperation, prolonged ventilator dependency, pneumonia, and unplanned intubation. Considering patient preoperative functional status could play a crucial role in delivering personalized care and decreasing the financial burden associated with surgical complications.

Fields: Internal Medicine, Surgery

Keywords: Functional Status, Dependency, Cardiovascular Disease, NSQIP, Cardiac Surgery

P12 Exploring the Association Between Gastrointestinal Autoimmune Disorders and Dementia: Implications for Early Recognition and Intervention

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Introduction and Objective: Dementia, including Alzheimer's disease (AD), is a progressive neurodegenerative condition that significantly impacts cognition and quality of life. Emerging evidence suggests a potential association between gastrointestinal autoimmune disorders (GI AIDs), particularly inflammatory bowel diseases (IBD), such as Crohn's disease (CD) and ulcerative colitis (UC), and increased risk of developing dementia. The objective of this study was to synthesize current clinical evidence on this association and examine the potential mitigating effects of anti-inflammatory therapies.

Methods: A systematic literature search was conducted using EMBASE, Ovid Medline, and Web of Science databases. Medical Subject Headings (MeSH) for "autoimmune disease, gastrointestinal" and "dementia" were used in combination with Boolean operators. The inclusion criteria were: primary clinical research studies published in English between January 1, 2003, and December 31, 2023; studies involving patients without a prior diagnosis of dementia. The PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) guidelines were followed to identify eligible studies. Twelve studies met the criteria for inclusion. Key data extracted included dementia incidence, dementia subtypes, and the role of anti-inflammatory therapies.

Results: Multiple studies demonstrated a statistically significant association between IBD and increased risk of dementia. A nationwide longitudinal cohort study found that dementia was diagnosed earlier in individuals with IBD, particularly with longer disease duration. Alzheimer's disease was the most commonly observed subtype, with Crohn's disease showing a stronger association than ulcerative colitis. A large Danish cohort also found a modest increase in frontotemporal dementia (FTD) among CD patients. Additionally, patients receiving anti-inflammatory therapies, particularly tumor necrosis factor-alpha (TNF-α) inhibitors, had reduced odds of developing dementia, especially AD. Effect sizes and statistical measures varied across studies but consistently supported the observed trend.

Conclusions and Implications: The findings support a growing body of evidence linking GI autoimmune disorders to an elevated risk of dementia, likely mediated by chronic systemic inflammation. Anti-inflammatory therapies may offer neuroprotective benefits, though further investigation is needed to determine causality and clarify underlying mechanisms. These results highlight the importance of awareness among primary care providers, who often oversee long-term management of patients with chronic inflammatory conditions. Incorporating cognitive screening and early neurologic evaluation in this population may aid in timely diagnosis and intervention.

Fields: Neurology, Family Medicine

Keywords: Dementia, Inflammatory Bowel Disease, Gastrointestinal Autoimmune Disorders, Neuroinflammation, Anti-inflammatory Therapy

P13 CRISPR-Cas9-Mediated Knockout of PLD1 in Human Astrocytes: A Targeted Approach to Explore Neuroinflammatory Pathways

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Introduction and Objective: Alzheimer's disease (AD) affects over 55 million people worldwide and is the leading cause of dementia, with increasing prevalence due to global aging. Beyond neuronal damage, astrocyte-mediated neuroinflammation plays a central role in disease progression. Phospholipase D1 (PLD1), a key lipid signaling enzyme, is upregulated in neurodegenerative conditions and may contribute to astrocyte reactivity. This study aims to generate a CRISPR-Cas9 knockout model of PLD1 in primary rat astrocytes to elucidate its role in neuroinflammatory signaling induced by beta-amyloid exposure.

Methods: Primary astrocytes were isolated from the cerebral hemispheres of neonatal rats and stimulated with synthetic beta-amyloid ($A\beta_{1-42}$) to mimic an Alzheimer-like environment. Differential expression of PLD1 were analyzed using RT-qPCR following astrocyte activation. crRNAs were designed to target fully transcribed regions proximal to the HKD1 catalytic motif and entirely conserved between human and rat genes, determined using sequence alignment tools and showed low off-target risk (<70% identity similarity). Both crRNAs and tracrRNA were synthesized via automated solid-phase synthesis and assembled with SpCas9 to form ribonucleoprotein (RNP) complexes. RNPs were delivered using a liposome-based transfection system. Post-editing analyses included cell viability (MTT assay), reactive oxygen species detection (DCFH-DA), expression profiling of inflammatory cytokines (NF-κB, IL-6, and IL-10), and immunocytochemistry to assess PLD1 localization and beta-amyloid accumulation. These analyses were used to determine the impact of PLD1 disruption on astrocyte reactivity and neuroinflammatory signaling.

Results: In silico analysis led to the design of two crRNAs targeting conserved exonic regions near the HKD1 motif of PLD1. Both crRNAs and tracrRNA were synthesized using an automated platform. Stimulation using ($A\beta_{1-42}$) significantly increased PLD1 mRNA expression compared to untreated controls, as determined by ΔCt analysis ($p < 0.01$). These results confirm the responsiveness of PLD1 to astrocyte activation and validate the model for subsequent genome editing.

Conclusions and Implications: Preliminary findings support that PLD1 is upregulated in reactive astrocytes and may serve as a key mediator in neuroinflammation. The CRISPR-Cas9 knockout model provides a valuable tool to evaluate glial signaling pathways in Alzheimer´s disease and may contribute to the development of future gene-based therapeutic strategies.

Fields: Neurology, Pathology

Keywords: CRISPR-Cas9, Phospholipase D1, Alzheimer´s disease, Astrocyte activation

P14 Development of BBB-Permeable Proteasome Inhibitors for Brain Cancer

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Introduction and Objective: While linear peptide-based proteasome inhibitors (PIs), such as carfilzomib and bortezomib, have demonstrated clinical success in treating multiple myeloma, their application to brain tumors has been ineffective despite their promising efficacy in preclinical models of brain cancers. This is believed to be due to the poor blood-brain barrier (BBB) permeability and high plasma protein binding (PPB) associated with these linear peptide drugs, preventing them from achieving effective local concentrations. This project aims to address these issues by developing a novel class of PIs to treat brain tumors.

Methods: We employed a medicinal chemistry approach to optimize a macrocyclic peptide epoxyketone-based lead PI that previously demonstrated favorable BBB permeability and low PPB, but only mild proteasome inhibitory potency. To this end, we prepared a small library of macrocyclic peptide epoxyketones and evaluated their proteasome inhibitory activity.

Results: Several macrocyclic peptide epoxyketones showed a slight increase in inhibitory activity against purified proteasomes. As anticipated due to the epoxyketone pharmacophore, most of these compounds demonstrated excellent proteasome specificity.

Conclusions and Implications: This study presents a medicinal chemistry approach to developing proteasome inhibitors that may address the challenges of existing linear peptide-based PI drugs in treating brain tumors. In conclusion, this macrocyclic peptide-based platform could aid in creating a novel class of PIs for treating brain tumors.

Fields: Neurology, Pharmacology

Keywords: Proteasome Inhibitors, Blood Brain Barrier, Macrocyclic Peptides, Epoxyketone, Brain Tumors

P15 Prevalence of Abnormal Clinical Breast Exams Among Women Without Access to Mammography in Rural Dominican Republic

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Introduction and Objective: Breast cancer is the most common cancer among women in the Dominican Republic, yet access to mammography and early detection services remains highly limited in rural areas. National guidelines recommend annual mammograms beginning at age 40, but public sector mammography is largely unavailable outside urban centers. In this context, clinical breast exams (CBEs) often serve as the primary or only screening modality. This study aimed to assess the prevalence of abnormal clinical breast exams among women seen during a rural health mission and to evaluate implications for breast cancer screening in low-resource settings.

Methods: We conducted a retrospective cross-sectional analysis of women seen during a three-day medical mission in rural Dominican Republic in June 2024. Adult female patients aged ≥18 with documented clinical breast exam findings were included. Data were extracted from standardized intake forms and included breast exam results, reported breast symptoms (pain, lumps, discharge), and timing of last mammogram. Descriptive statistics were used to determine the prevalence of abnormal findings.

Results: Of the 69 women with documented clinical breast exam results, 21 (30.4%) were found to have abnormal findings. These included palpable breast masses, nodularity, or nipple discharge. Most patients had never undergone a mammogram or had last screening over 2 years ago. Breast complaints were common, with tenderness and lumps frequently reported. The high rate of abnormal findings and lack of access to diagnostic imaging reflect critical gaps in

early breast cancer detection. Further stratification by age and screening history is ongoing and will be presented at the symposium.

Conclusions and Implications: A substantial proportion (30.4%) of women screened in this rural Dominican population had abnormal breast exams, reinforcing the urgent need for improved access to breast cancer screening and follow-up. In the absence of mammography, reliance on clinical exams poses challenges for timely diagnosis. These findings highlight the importance of expanding low-cost screening alternatives, mobile mammography units, and training for frontline providers in low-resource settings. Strengthening referral pathways and public health education are essential to reduce diagnostic delays and improve breast cancer outcomes in underserved regions.

Fields: Obstetrics and Gynecology, Oncology

Keywords: Breast Cancer Screening, Clinical Breast Exam, Global Health, Women's Health, Health Disparities

P16 The Role of Fertility-Enhancing Drugs and/or Infertility Treatment in Cyanotic Congenital Heart Diseases of Newborns

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Introduction and Objective: Cyanotic congenital heart diseases (CCHD) pose significant health risks to newborns. The use of fertility-enhancing drugs (FED) and/or infertility treatment (IT) has been associated with increased risks of cardiac malformations, but evidence is limited and conflicting. We examined whether there is an association between exposure to FED/IT and incidence of CCHD in newborns.

Methods: A population-based case-control study was conducted using the US Vital Statistics Birth Data File from years 2019-2021. Cases and controls were selected from live births with valid information on CCHD status and FED/IT use (yes/no) for their current pregnancy. All cases of reported CCHD at birth were compared with a randomly selected (simple random sampling) set of controls (16 controls per case). To estimate the association between the incidence of CCHD and exposure to FED/IT, both crude and adjusted for potential confounders (unconditional binary multiple logistic regression) odds ratios (OR) and 95% confidence intervals (95% CI) were computed. Control variables included mother's age, race, education, cigarette use, prenatal care, STDs (gonorrhea, syphilis, chlamydia, and hepatitis B/C) and presence of at least one of the following risk factors: previous preterm birth, pre-pregnancy/gestational diabetes and pre-pregnancy/pregnancy hypertension, and eclampsia.

Results: In total, 108,595 records from live newborns were selected including 6,234 cases of CCHD and 102,361 controls. Prior to adjustment there was evidence of an association: OR 2.0 (95% CI: 1.8-2.3) which persisted with a similar magnitude after adjusting for potential confounders: OR 1.9 (95% CI: 1.7-2.2).

Conclusions and Implications: In conclusion, our findings support previous evidence suggesting an increased risk for cardiac congenital malformations, specifically CCHD, with exposure to FED/IT. Further clarification is needed to determine if the increased risk is due to FED/IT or to increased baseline risk among infertile couples.

Fields: Obstetrics and Gynecology, Pediatrics

Keywords: Congenital Heart Defects, Fertility, Newborns

P17 Investigating Pre-Pregnancy and Late-Pregnancy E-Cigarette Use Exposure and Gestational Diabetes Mellitus

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Introduction and Objective: The increasing prevalence of e-cigarette (EC) use among women of reproductive age raises concerns about pregnancy outcomes, including gestational diabetes mellitus (GDM). Limited research exists on this

association. This study aims to identify whether EC use before or during pregnancy is linked to GDM in U.S. women with singleton births.

Methods: We conducted a secondary analysis of Pregnancy Risk Assessment and Monitoring System (PRAMS) data (2016–2021). Self-reported EC use was categorized as: (1) three months before pregnancy, (2) last three months of pregnancy, (3) both periods, or (4) no use. GDM diagnosis (ever/never) was self-reported. Logistic regression models estimated odds ratios (ORs) and 95% confidence intervals (CIs), adjusting for demographic, socioeconomic, and pregnancy-related factors, using Stata 17.

Results: Among 204,757 women with singleton births, <5% reported EC use, with 72% quitting before the third trimester. Overall, 7.7% developed GDM. In unadjusted models, EC use before pregnancy was not associated with GDM (OR 1.0; 95% CI 0.86–1.16), while EC use pre-pregnancy and in the third trimester was linked to lower odds (OR 0.71; 95% CI 0.54–0.93). Adjusted models showed EC use before pregnancy was associated with increased GDM risk (aOR 1.27; 95% CI 1.07–1.51; P = 0.006), with no significant associations for other categories.

Conclusions and Implications: EC use before pregnancy was linked to higher GDM odds, after adjustment for potential confounders. These findings underscore the need for further research on timing, frequency, and health effects to inform targeted public health interventions.

Fields: Obstetrics and Gynecology, Public Health

Keywords: E-cigarette use, Gestational diabetes mellitus (GDM), Pregnancy outcomes, Pregnancy Risk Assessment Monitoring System (PRAMS)

P18 High Prevalence of Abnormal Pelvic Exams Among Women in Rural Dominican Republic: A Cross-Sectional Analysis of a Global Health Outreach Population

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Introduction and Objective: Cervical cancer remains a leading cause of preventable death among women in the Dominican Republic, where routine gynecologic screening is limited. Although national guidelines recommend Pap smears for women aged 35–64, screening remains largely opportunistic, and access to follow-up care is fragmented. This study aimed to determine the prevalence of abnormal pelvic exam findings among women attending a rural medical outreach clinic in the Dominican Republic and to assess implications for women's health access in low-resource settings.

Methods: A retrospective cross-sectional analysis was conducted using clinical records from a three-day women's health mission in rural Dominican Republic in June 2024. Female patients aged ≥18 who underwent documented pelvic exams were included. Data was collected using standardized intake forms and entered into a structured database. Variables analyzed included pelvic exam findings, menstrual and gynecologic history, contraceptive use, and timing of last Pap smear. Descriptive statistics were used to calculate the prevalence of abnormal exams.

Results: A total of 68 women underwent pelvic exams, of whom 24 (35.3%) were found to have abnormal findings. Most patients had not received a Pap smear in over 3 years or had never undergone one. Among those with abnormal exams, common findings included cervical erythema, adnexal tenderness, or visible lesions. These results point to significant unmet needs for preventive gynecologic care in this population. Additional analysis stratifying findings by age and Pap smear history is ongoing and will be presented in the final poster.

Conclusions and Implications: A high prevalence of abnormal pelvic exams (35.3%) was observed in this rural Dominican cohort, highlighting critical gaps in women's preventive healthcare. This reflects broader structural challenges in Latin America, including fragmented screening programs, limited outreach, and poor follow-up infrastructure. These findings underscore the need for global health interventions such as mobile screening units, community education, and robust referral systems to improve early detection and reduce cervical cancer mortality in low-resource settings.

Fields: Obstetrics and Gynecology, Public Health

Keywords: Cervical Cancer Screening, Pelvic Exam, Global Health, Women's Health, Health Disparities

P19 Modeling In Vitro Intrauterine Growth Restriction via DEHP-Phthalates Exposure Using a Transwell Co-Culture of the Blood-Placenta Barrier

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Introduction and Objective: Intrauterine growth restriction (IUGR) is a multifactorial placental disorder associated with aberrant trophoblast invasion, impaired vascular remodeling, and toxicant exposure. Emerging evidence suggests that endocrine-disrupting chemicals (EDCs), particularly di-(2-ethylhexyl) phthalate (DEHP), contribute to placental dysfunction by altering syncytialization, tight junction integrity, and angiogenic signaling. We aimed to model an IUGR-like phenotype in vitro by co-culturing BeWo trophoblast cells and human placental vascular endothelial cells (HPVECs) in a transwell system to investigate DEHP-induced structural and molecular changes in the blood-placenta barrier. This work is relevant to birth outcomes in South Florida, as DEHP Phthalates are notably found in ground water in Homestead, Florida due to proximity of a Superfund site, and furthermore has been found in our drinking water and the Biscayne Bay.

Methods: A dual-chamber transwell insert system was used, with BeWo cells seeded on the apical membrane surface to represent the maternal interface, and HPVECs seeded on the basal to mimic the fetal endothelium. After 72 hours of co-culture to allow monolayer formation, cells were exposed to 32 μM DEHP for 24 hours. Gene expression analysis (qPCR) was performed for Connexin 43, Syncytin-1, Claudin-5, and Placenta Growth Factor. Dextran-FITC assays assessed permeability of the trophoblast-endothelial barrier post-exposure.

Results: Following DEHP exposure, BeWo cells exhibited significant downregulation of Connexin 43 (fold change: –2.4, $p<0.01$) and Syncytin-1 (–3.1, $p<0.001$), indicating impaired gap junction communication and fusion capacity. Conversely, Claudin-5 was upregulated (+2.7, $p<0.01$), suggesting a compensatory tightening of the paracellular barrier. Placenta Growth Factor expression increased significantly in the basal HPVEC layer (+2.1, $p<0.05$), potentially reflecting a fetal response to impaired maternal-fetal exchange. Functional assay showed a decrease in monolayer permeability (20–25% reduction in FITC-dextran diffusion, $p<0.05$) compared to vehicle controls.

Conclusions and Implications: This in vitro model successfully recapitulates molecular and functional hallmarks of IUGR, including trophoblast fusion defects, disrupted cell-cell communication, endothelial compensation, and reduced permeability of the maternal-fetal interface. These findings support the role of DEHP in placental barrier dysfunction and underscore the utility of trophoblast-endothelial co-culture models for investigating environmentally induced fetal growth impairment. Future studies would like to consider botanical extracts to restore stabilization of the blood-placenta barrier when faced with insult induced by environmental toxicants.

Fields: Obstetrics and Gynecology, Toxicology

Keywords: DEHP Pthalates, IUGR, Placenta-Mediated Complications, Reproductive Toxicology, Microplastics

P20 Nitrated Hsp90 molecular control of tumor cell metabolism

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Introduction and Objective: Heat shock protein 90 (Hsp90) is a ubiquitous, highly conserved molecular chaperone responsible for stabilizing and regulating a broad range of signaling proteins. We showed that nitration changes Hsp90 dimer conformation and induces a proliferative activity in schwannomas (SCM) and glioblastoma (GB), the deadliest brain tumor. In SCM, Hsp90 nitrated at tyrosine 56 (Hsp90NY56) activates the P2X7 receptor (P2X7R) signaling complex to increase glycolysis, while Hsp90 nitrated at tyrosine 33 (Hsp90NY33) associates with the outer mitochondrial

membrane and decreases mitochondrial activity. However, the molecular mechanisms regulated by nitrated Hsp90 to promote these metabolic functions, and whether the interactions with P2X7R and mitochondria occur in GB is yet to be established. We hypothesize that nitration at either Y33 or Y56 promotes tumor cell proliferation by altering Hsp90 interactome, leading to changes in the composition of the P2X7R signaling complex when Hsp90 is nitrated at Y56, and formation of a regulatory mitochondrial complex when nitrated at Y33.

Methods: To investigate this hypothesis, we use relevant GB cell culture models and tumor specimens, and apply a combination of complementary biochemical, proteomic, and biophysical approaches. Protein complexes involving Hsp90NY56 and P2X7R in GB tumors were analyzed through immunoprecipitation and native protein complex separation using blue native polyacrylamide gel electrophoresis (BN-PAGE). To investigate the mitochondrial role of Hsp90NY33, we performed confocal microscopy, and complementary subcellular fractionation to isolate mitochondria from GB U87-MG cells, followed by western blot to confirm the colocalization of Hsp90NY33 to the mitochondria.

Results: Our complementary preliminary results in GB tumors and cell culture models revealed that Hsp90NY56 is indeed a member of the P2X7R signaling complex, through an indirect interaction involving other complex component yet to be identified. We also determined that Hsp90NY33 colocalizes with the mitochondria in U87-MG cells, which may modulate mitochondrial activity in GB. Mass spectrometry-based proteomic profiling is underway to identify associated proteins in the complexes and post-translational modifications.

Conclusions and Implications: These two nitrated forms of Hsp90, Hsp90NY33 and Hsp90NY56, contribute to tumor cell proliferation through a complex metabolic interplay, and we show here that they form complexes with P2X7R and the mitochondria in GB. We are uncovering the molecular bases of nitrated Hsp90 control of cell signaling and metabolism in nervous system tumors, a mechanistic insight critical for the development of novel therapeutic strategies to treat these unrelentless tumors.

Fields: Oncology, Neurology

Keywords: Glioblastoma, Protein Tyrosine Nitration, Hsp90, Redox Signaling, Nervous System Tumors

P21 The role of Nitrated Hsp90 in glioblastoma

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Introduction and Objectives: Glioblastoma (GB) is the most aggressive brain tumor originating from astrocytes, with no effective therapies and a gold standard for treatment that has not changed in the last 20 years. Therefore, a critical need exists to identify novel mechanisms that control GB cell growth and could be selectively targeted. GB develops in an oxidative environment where the potent oxidant peroxynitrite is produced, leading to protein tyrosine nitration (NY). We showed that Hsp90 nitration at Y33 and Y56 (NY-Hsp90), a phenomenon that occurs in diseased tissues but not in healthy cells, drives the proliferation of schwannoma cells. However, whether tyrosine nitration, and particularly NY-Hsp90, is sufficient to drive GB cell proliferation remain unknown, a gap this project aims to fill.

Methods: Human astrocytes (HA) that do not contain NY-Hsp90 and GB cell lines and patient-derived primary cultures were used to assess the role of tyrosine nitration and NY-Hsp90 in GB cell growth. We first performed cell viability assays on GB cell lines and our patient-derived primary cultures following treatment with urate and L-NAME, which decrease tyrosine nitration and reduce NY-Hsp90 levels. We then expressed and purified recombinant human Hsp90, and its site-specific nitrated forms using genetic code expansion and performed cell growth assays after intracellular delivery of these proteins in our cell culture models. We also performed mass spectrometry (MS) analysis to determine the tyrosine residues in Hsp90 that are endogenously nitrated in tumors in vivo.

Results: We determined that preventing tyrosine nitration decreased cell proliferation in GB patient-derived primary cultures and cell culture models, suggesting that one or more nitrated proteins play a role in GB cells. We found Hsp90 endogenously nitrated at Y33 and Y56 in GB in vivo. Reintroducing NY-Hsp90 in cell lines and primary cultures by intracellular delivery after preventing tyrosine nitration to decrease endogenous nitrotyrosine levels increased cell

proliferation, confirming NY-Hsp90 proliferative role. Its delivery into human astrocytes with undetectable levels of nitration was sufficient to trigger cell proliferation.

Conclusions and Implications: Together, these findings support a role for NY-Hsp90 in GB tumor growth. Understanding NY-Hsp90 proliferative mechanism could lead to desperately needed novel therapeutic approaches to treat GB. This may have implications for other diseases characterized by oxidative stress and protein tyrosine nitration.

Fields: Oncology, Neurology

Keywords: Glioblastoma, Protein Tyrosine Nitration, Oxidative Stress, Hsp90, Cancer Pathology

P22 Design and Validation of Quantitative Live-Cell Sensors for Specific Phosphoinositide Species

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Introduction and Objective: Phosphoinositol metabolism revolves around the phosphorylation of the inositol ring at various positions. This modification of the inositol ring creates chemically and functionally distinct phosphoinositide species (PIXPs), including different isomers of equal phosphorylation state. Distinct enables the formation of several distinct isomers. These different PIXPs are crucial for the regulation of various cellular processes like proliferation, differentiation or mobility. Dysregulation of phosphoinositol converting enzymes, such as PTEN and PI3K, have been linked to cancer. Further, a retrospective analysis of gene expression data of breast cancer patients in the TCGA database shows pronounced deregulation of several inositol kinases in its branched metabolic network. Specifically, gene expression changes associated with PIXPs, such as PI4P and PI(3,4)P2, far surpass that of PI(4,5)P2 or PIP3 (incl. PTEN). However, beyond the heavily studied PI(4,5)P2 and PIP3, the remaining PI derivatives have proven difficult to evaluate, in large partly due to an inability to quantify their levels selectively in live cells and by the lack of methods that are readily accessible to most cancer research labs.

Methods: The sensor is designed around the use of Split Green Fluorescent Protein (sGFP) coupled to PIXP species specific PH domains. High local concentrations of the selected PIXP species drive sGFP complementation and signal creation. The current studies utilize PH domains that are expected to be selective for PI(4,5)P2, PI4P and PI(3,4)P2 to create and validate the respective sensors in a cellular setting. Parameters to be evaluated are specificity, proportionality of signal to PIXP species levels, and the response kinetics.

Results: Using the sGFP sensor, we were able to evaluate the synthesis of the PI(4,5)P2 precursor, PI4P. Direct evaluation of PI4P synthesis by a sGFP reporter can assess sensitivity to kinase inhibitors with varying specificity for alternative PI4-kinases and assess their contribution across different cell lines.

Conclusions and Implications: This work is part of an effort to provide a set of urgently needed sensors for the dissection of PIXP metabolism as a therapeutic target. Using these sensors, we will primarily target PI(4,5)P2 and the PI4P metabolic branchpoint to assess the genes involved in PI4P synthesis and utilization in representative cell lines.

Fields: Oncology

Keywords: Phosphoinositide Species, Live-Cell Sensors, therapeutic target

P23 Leveraging Galectin-9 to Potentiate Elotuzumab-Based Therapy in Multiple Myeloma

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Introduction and Objective: Multiple myeloma (MM) is a hematologic malignancy marked by the clonal proliferation of malignant plasma cells, progressing from monoclonal gammopathy of undetermined significance to a smoldering disease and eventually to active MM. Despite therapeutic advancements, MM remains incurable, necessitating novel strategies to enhance current immunotherapies. The cell surface glycome of MM cells plays a crucial role in modulating

signaling pathways that govern tumor survival and immune evasion, presenting an attractive therapeutic target. Our recent findings demonstrate that galectin-9 (Gal-9), a β-galactoside-binding lectin, exhibits strong affinity for human B cell glycans and induces significant upregulation of SLAMF7-a clinically relevant immunotherapeutic marker expressed on malignant plasma cells. Given that Elotuzumab, a monoclonal antibody targeting SLAMF7, is approved for refractory MM, we hypothesized that Gal-9 could sensitize MM cells to Elotuzumab by enhancing SLAMF7 expression.

Methods: Using a flow cytometry-based assay, we evaluated Gal-9 binding and SLAMF7 expression patterns in various B-lymphoblast models and primary MM bone marrow samples in response to exogenous Gal-9. We also examined the enhancement of antibody-dependent cell cytotoxicity (ADCC) activity in Gal-9-primed MM cells, compared with non-primed cells, by co-culturing natural killer (NK) cells in the presence of anti-SLAMF7 Ab. All methods were conducted at least 3 times and analyzed for statistical significance using Student's t-test (*$p \leq 0.05$, **$p \leq 0.01$, *** $p \leq 0.001$).

Results: We found that Gal-9 significantly enhanced SLAMF7 expression (3-fold) on MM cell surfaces, compared with controls. Furthermore, co-culturing of natural killer (NK) cells with Gal-9-primed MM cells in the presence of anti-SLAMF7 Ab has enhanced antibody-dependent cell cytotoxicity activity (2.5-fold), compared with non-primed cells.

Conclusions and Implications: The findings imply that the Gal-9-binding activity of MM cells can be exploited to elevate SLAMF7 levels on their surfaces and hence boost the anti-myeloma therapeutic efficacy of Elotuzumab.

Fields: Oncology

Keywords: Galectin-9, Multiple Myeloma, SLAMF7, Elotuzumab

P24 Understanding Workflow of Inpatient Chemotherapy and Developing Strategies to Improve Provider Coordination and Treatment Delivery

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Introduction and Objective: Inpatient chemotherapy is vital for many hospitalizations yet involves numerous hand-offs. Without a standardized ordering-to-administration pathway, treatment is often delayed, and teams grow frustrated; a clear, unified workflow is needed. Our objective is to assess the current process, its impact on clinicians and patients, and design a safer, more efficient model.

Methods: All off-floor chemotherapy episodes (Apr 2023 – Apr 2024) in the Greenberg Pavilion, Weill Cornell Medicine, were identified. Related "Keepsafe" safety reports were coded. Oncology, primary teams, oncology pharmacy, and outfield chemotherapy nurses were interviewed to build a process map, and representative patient charts were reviewed.

Results: Between April 2023 and April 2024, a total of 398 episodes of chemotherapy were administered to 270 unique patients at Weill Cornell Medicine. Among the treatment-related Keepsafes submitted during this period, 14 were determined to be directly related to the chemotherapy administration process. Of these, 21% (3 reports) were attributed to poor communication between providers, resulting in delays in patient care. Another 43% (6 reports) highlighted discrepancies in documentation, while 21% (3 reports) involved issues related to vascular access. The remaining 14% (2 reports) pointed to challenges associated with hospital protocols.

A Root Cause Analysis (RCA) was conducted with representatives from key departments involved in inpatient chemotherapy ordering and administration. This process resulted in the development of an Ishikawa (Fishbone) diagram that captured the multifactorial nature of the delays and errors. In addition, a focused case study on a patient scheduled to receive chemotherapy following apheresis for CAR-T therapy revealed a series of process failures, from treatment planning through administration, further underscoring the need for workflow improvements.

Conclusions and Implications: Administering inpatient chemotherapy demands tight coordination among clinicians with competing duties. Safety reports exposed frequent delays, procedure postponements, and drug waste. Late orders and unit transfers magnify risk. RCA pinpointed actionable fixes: unambiguous dose entries by oncology, same-day

height/weight by nursing, and advance notice from pharmacy about mixing and delivery. An interdisciplinary team is now formalizing and will pilot a unified workflow in the coming academic year.

Fields: Oncology, Public Health

Keywords: Inpatient Chemotherapy, Workflow Optimization, Patient Safety, Root Cause Analysis (RCA), Interdisciplinary Communication

P25 Evaluation of the Survival Benefit of Adjuvant Chemotherapy in Stage II Early-Onset Colorectal Cancer: A SEER-Based Analysis

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Introduction and Objective: The incidence of early-onset colorectal cancer (EOCRC) continues to rise, yet treatment guidelines remain largely extrapolated from older populations. In stage II disease, the role of adjuvant chemotherapy (ACT) remains controversial, particularly in the absence of high-risk features such as T4 tumors or lymphovascular invasion. Evidence regarding ACT benefit in EOCRC is limited, raising concerns about overtreatment. This study aimed to evaluate the survival benefit of ACT in patients with stage II EOCRC without high-risk features and to identify clinical and pathological factors associated with survival benefit.

Methods: This retrospective cohort study included patients under age 50 with stage II colorectal adenocarcinoma from the SEER database. The main exposure was ACT after surgical resection. Outcomes included 5-year cancer-specific survival (CSS) and overall survival (OS). Patients who did or did not receive ACT were matched for baseline confounders using propensity-score matching.

Results: A total of 4,318 patients with no identifiable high-risk features were included, of whom 1,307 (30.3%) received ACT. The cohort was predominantly non-Hispanic (78%), with a median age of 44 years, and balanced by sex. Most tumors were moderately differentiated, located in the colon, and treated without preoperative radiation or systemic therapy. After 2:1 propensity matching, 1,144 ACT recipients were compared to 2,288 controls. In the matched cohort, ACT was not associated with a significant improvement in 5-year CSS ($p = 0.799$) or OS ($p = 0.143$). However, in a predefined subgroup who underwent resection within two days of diagnosis, ACT was associated with improved OS (94.7% vs. 90.0%, $p = 0.005$).

Conclusions and Implications: ACT was not associated with increased survival in stage II EOCRC patients lacking high-risk features. These findings underscore that early onset alone does not justify ACT and highlight the need for EOCRC-specific treatment guidelines.

Fields: Oncology, Surgery

Keywords: Early-Onset Colorectal Cancer (EOCRC), Adjuvant Chemotherapy (ACT), Stage II Colorectal Cancer, Cancer-Specific Survival (CSS), Overtreatment

P26 Outcomes following Multiligamentous Knee Surgery: A Retrospective Case Series

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Introduction and Objective: Multiligamentous knee injuries (MLKIs) are complex injuries occurring in the setting of low- or high-energy trauma. There is a paucity of literature describing mid- to long-term outcomes following these injuries.

The objective of this study was to examine patient-reported outcomes (PROs), complications, need for revision surgery and/or conversion to total knee arthroplasty (TKA) in a cohort of patients following surgically treated multiligamentous knee injuries (MLKIs). Study Design: Case Series; Level of Evidence, IV.

Methods: Patients who were surgically treated for MLKIs between 2008-2021 were included in this study. The following patient-reported outcome measures (PROMs) were collected: visual analog scale (VAS) for pain, the International Knee Documentation Committee (IKDC) subjective score, and the Lysholm knee scoring scale. Additional procedures including revision ligamentous reconstruction or conversion to total knee arthroplasty (TKA), and other postoperative complications were obtained.

Results: Eighty-eight (88 knees; 30 females, 58 males) were included in this study. PROM analyses were performed on 66 patients that did not necessitate revision surgery or TKA and had a mean follow-up of 9.1 years (range: 3.4 – 15.3). 41% of patients sustained a frank knee dislocation on initial presentation. Twenty-two patients underwent either a revision ligamentous procedure (n = 17) or conversion to TKA (n = 5). Multivariate linear regression demonstrated inferior IKDC scores as patients aged (-.61 [95% CI, -1.04, -.18], p = .005), and for IKDC (-1.10 [95%CI, -1.82, -.37], p = .003) and Lysholm scores (-1.18 [95% CI, -1.92, -.13], p = .002) in patients with increasing obesity. Higher VAS pain scores were noted in patients who suffered a frank dislocation (1.80 (95% CI, .61, 2.99, p = .003). Sex, mechanism of injury, KD grade, frank knee dislocation, cartilage/meniscus status, as well as vascular and neurologic injury did not significantly impact PROs.

Conclusions and Implications: Surgically treated MLKIs in this study cohort led to satisfactory patient outcomes with modest rates of revision surgery and conversion to TKA. Certain patient demographics such as increased body mass index and increasing age demonstrated inferior patient reported outcomes.

Fields: Orthopedic Surgery, Surgery

Keywords: Knee Ligaments, Multiligamentous Knee Injury (MLKI), Knee Dislocation, Schenck Classification

P27 Risk Factors for Revision Following Primary Total Shoulder Arthroplasty in a Single Health System (HCA)

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Introduction and Objective: Shoulder arthroplasty has emerged as a reliable treatment for end-stage glenohumeral arthritis, with excellent outcomes in the elective setting. As the volume of total shoulder arthroplasty (TSA) increases nationwide, revision procedures are expected to rise in parallel. These surgeries are technically challenging and associated with higher complication rates, longer recovery, and increased costs, especially when patient factors predispose them to failure. Despite this growing demand, limited large-scale data exist to identify which patient factors predict early failure and adverse outcomes. This study aimed to evaluate predictors of revision and postoperative complications following TSA to guide preoperative optimization and surgical planning.

Methods: A retrospective cohort study was performed using a national enterprise-wide database to identify adults (≥18 years) who underwent primary or revision TSA between 2016 and 2022. Variables included patient demographics (age, sex, race, BMI), and Elixhauser Comorbidity Index (ECI). The primary outcomes were revision within 2 years and incidence of postoperative complications (including infections, cardiac events, prosthetic complications, and thromboembolism, based on ICD-10 coding). Secondary outcomes included time to revision and length of stay. Multivariable logistic regression was used to assess predictors of revision and complications, while linear regression evaluated associations with timing of revision.

Results: Among 44,952 TSA cases, 579 patients (1.3%) underwent revision within two years. Male sex (OR 1.77; 95% CI 1.50–2.10; p<0.001) and higher ECI (OR 1.09 per unit; p=0.001) were significantly associated with increased revision risk. Age and BMI were not associated with revision risk. Postoperative complications occurred in 1,413 patients (3.1%) and were more likely in younger patients (OR 0.98 per year; p<0.001), males (OR 1.52; p<0.001), and those with higher

comorbidity burden (OR 1.12; p<0.001). Race and BMI were not significant predictors. Among patients undergoing revision, the mean time to revision was 205 days (range: 1–714), with no significant predictors identified on multivariable analysis. Mean length of stay was similar across groups but trended higher in those with complications.

Conclusions and Implications: This large, health system–wide analysis identifies male sex, younger age, and higher comorbidity burden as independent predictors of revision surgery and postoperative complications following total shoulder arthroplasty. These findings underscore the importance of preoperative risk stratification particularly for patients with significant comorbidities—to inform optimization strategies and reduce the risk of adverse outcomes. As the volume of total shoulder arthroplasty continues to grow, these results support the development of targeted care pathways aimed at minimizing revision rates and improving outcomes across diverse patient populations.

Fields: Orthopedic Surgery, Surgery

Keywords: Total shoulder arthroplasty, Revision shoulder arthroplasty, Postoperative complications, Risk factors, Health system database

P28 Striving for Representation: Aligning Future Medical Students with the Communities They Serve through the Panther Cub Pediatrics Pathway Program

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Introduction and Objective: Diversity in the United States continues to rise, yet a significant gap remains between the growing Hispanic or Latino population and their representation in the physician workforce. This disparity highlights the systemic challenges that disproportionately hinder certain groups from entering healthcare. Students underrepresented in medicine (URiM) are more likely to provide culturally competent care, recognizing how patients' backgrounds and beliefs influence their attitudes toward healthcare— improving care for marginalized populations. Lived experiences such as immigration background, financial hardship, and first-generation college status can strengthen this connection. The Panther Cub Pediatrics Pathway Program aims to empower Hispanic or Latino pre-health students through clinical immersion, professional mentorship, and volunteer experiences in a free clinic. This study aims to evaluate volunteers demographics, prior exposure to medicine, and how their lived experiences relate to their motivation to serve underserved communities.

Methods: An anonymous Qualtrics survey was administered to current and former pre-health volunteers (n = 29), followed by descriptive analysis. Demographic questions assessed financial issues, first-generation college status, country of birth (participant and parents), and receipt of AAMC Fee Assistance Program (FAP). Additionally, we assessed prior exposure to mentorship, medical students, and clinical environments before the program to determine gaps. Students also documented their interest in underserved populations and their perceived growth in empathy toward patients.

Results: A total of twenty-nine survey responses were obtained with a 100% response rate. All participants reported that their parents were born outside the U.S., and over 80% identified as first-generation college students. More than 80% reported financial hardship. The majority had minimal prior exposure (<20 hours) to medicine. Importantly, all expressed interest and showed 87% increased empathy levels for marginalized populations following the program.

Conclusions and Implications: These findings suggest that a significant portion of Pediatrics Pathway Program participants possess lived experiences mirroring those of patients in a free clinic. These experiences appear to enhance their ability to empathize with vulnerable populations. Supporting URiM students through pathway programs may shape a more representative and socially conscious healthcare workforce.

Fields: Pediatrics

Keywords: Education for Health Professionals, Pathway programs, Underrepresented in medicine (URiM), First-generation students, Clinical exposure

P29 Kangaroo mother care initiation and its impact on the duration of KMC in preterm infants

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Introduction and Objective: Preterm birth accounts for 35% of neonatal mortality annually. Kangaroo Mother Care (KMC), involving continuous skin-to-skin contact, breastmilk feeding, and early discharge with structured follow-up, reduces mortality in low birth weight and preterm infants. However, evidence remains limited on how timing of KMC initiation affects sustained practice until infants spontaneously discontinue around 37 weeks post-conceptional age (PCA). This study investigated whether initiating KMC within 7 days post-delivery is associated with longer maintenance until at least 37 weeks PCA.

Methods: Secondary analysis of retrospective cohort data (2020-2022) from the Programa Integral Madre Canguro in Bogota, Colombia. The sample included 1,103 preterm infants (30-34 weeks PCA), excluding those with severe neonatal conditions or requiring intensive care ≥7 days. Primary exposure was KMC initiation timing (≤7 days vs >7 days postnatal). The outcome was KMC continuation until at least 37 weeks PCA. Logistic regression provided unadjusted and multivariable-adjusted odds ratios, controlling for maternal, infant, and sociodemographic factors.

Results: Of 1,103 infants, 59.84% (n=660) initiated KMC within 7 days, while 82.23% (n=907) maintained KMC until at least 37 weeks PCA. Contrary to hypothesis, earlier initiation was associated with significantly lower odds of sustaining KMC: unadjusted OR=0.575 (95% CI: 0.424-0.780) and adjusted OR=0.490 (95% CI: 0.344-0.700). Other factors significantly associated with maintaining KMC in the adjusted model included: maternal age <18 years (OR=2.671; 95% CI: 1.114-6.407), small for gestational age infants (OR=38.965; 95% CI: 5.408-280.775), large for gestational age infants (OR=0.176; 95% CI: 0.053-0.578), incomplete maternal secondary education (OR=0.580; 95% CI: 0.368-0.916), outpatient clinic initiation (OR=0.432; 95% CI: 0.252-0.741), and female infant sex (OR=1.733; 95% CI: 1.263-2.380).

Conclusions and Implications: Earlier KMC initiation (≤7 days post-delivery) significantly reduced likelihood of maintaining KMC until 37 weeks PCA. Multiple maternal, infant, and contextual factors influence sustained adherence. These findings highlight the complex determinants of KMC duration and inform targeted strategies to promote adherence. Further research is needed to understand underlying mechanisms.

Fields: Pediatrics, Obstetrics and Gynecology

Keywords: preterm infants, low birth weight, kangaroo mother care (KMC), gestational age

P30 Association Between Parental Military Active Duty States and Childhood Behavioral Problems

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Introduction and Objective: Children of military families are at increased risks of psychiatric conditions, mental health visits, and hospitalizations, particularly in those experiencing frequent relocations or parental deployments. Limited research exists specifically regarding risks of being bullied in military-connected children. The objective of this study was to assess if having at least one parent with current or prior military active duty service is associated with increased behavioral problems or history of being bullied in children.

Methods: We performed secondary analysis of data from US children aged 0-17 who participated in the National Survey of Children's Health (NSCH) from 2017-2021. The independent variable was parental military status categorized as at least one parent with 1) current, 2) prior, or 3) never served in the U.S. Armed Forces, Reserves, or National Guard. The primary outcomes assessed were: 1) history of behavioral or conduct problems and 2) history of being bullied. Outcomes were assessed independently. Confounding variables included demographic factors, family poverty ratio, deployment status, child's general reported health, history of physical abuse and of living with mentally ill relative. Logistic regression was used to estimate crude and adjusted associations.

Results: The study analyzed a total sample of 140,542 children; 3.5% had parents currently on active military duty, and 9.9% had parents with prior military service. Overall, 7.6% reported history of behavioral problems, and among children assessed for bullying (n=81,382), 44% reported having been bullied. Children with currently active-duty parents did not have a significant association with behavioral problems (OR=0.94, 95% CI=0.78-1.14, p=0.526) but had higher odds of reporting being bullied (OR 1.32, 95% CI 1.10-1.56, p=0.003). Children of parents with prior military service demonstrated significantly higher odds of behavioral problems (adjusted OR=1.36, 95% CI=1.19-1.57) and bullying (adjusted OR=1.19, 95% CI=1.08-1.31).

Conclusions and Implications: Our findings suggested that parental military service is associated with increased risks of behavioral problems and bullying in US children. Further research is warranted. Behavioral health screening and early intervention programs could help to address emerging psychological and emotional challenges in this vulnerable population.

Fields: Pediatrics, Psychiatry

Keywords: Military-connected youth, Behavioral health, Conduct disorders, Military children, Bullying

P31 Long-Term Outcomes of Laparoscopic Adjustable Gastric Banding vs. Sleeve Gastrectomy in Adolescents

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Introduction and Objective: Laparoscopic adjustable gastric band (LAGB) and sleeve gastrectomy (LSG) are safe and well-established bariatric surgeries for treating childhood obesity. However, comparative long-term follow-up data is limited in pediatric patients. This retrospective study aims to report long-term outcomes following LAGB and LSG in adolescents.

Methods: Patients with severe obesity aged 14-19 years old who only underwent LAGB or LSG procedures at a hospital in an urban setting between 2006-2020 were identified. Analyses included demographics, weight outcomes, and percentage weight loss across 1-, 2-, 3-, and 5-years post-surgery. T-tests were used to compare means; $p<0.05$ were considered significant with a 95% CI.

Results: A total of 110 patients underwent LAGB and 55 patients underwent LSG, predominantly female (LAGB: 67% and LSG: 64%), with a mean age of 16.1 years and 17.8 years, mean weight of 299.4 lbs and 292.8 lbs, mean height of 168.3 cm and 168.4 cm, and mean BMI of 47.7 kg/m2 and 46.8 kg/m2 at time of surgery, respectively. Both operations resulted in meaningful weight loss, achieving maximum %TWL (LAGB 23.0%, LSG 29%) and %BMI (LAGB 25.5%, LSG 27.7%) at 2 years. Although %TWL of LSG (26.8%) was significantly greater than LAGB (20.7%) at 1-year follow-up ($p=0.04$), there was no statistically significant difference in %weight loss between the LSG and LAGB groups at the 2-year ($p=0.11$), 3-year ($p=0.45$), and 5-year ($p=0.46$) follow-up points. When comparing surgery weight to follow-up weights within each group, significant weight changes were observed at the 1-, 2-, 3-, and 5-year time points ($p<0.0001$ for each group). For LAGB, %TWL was 20.7%, 23.0%, 22.6%, and 22.3% at the 1-, 2-, 3-, and 5-year time points respectively. For LSG, %TWL was 26.8%, 29.0%, 25.3%, and-25.3% at the 1-, 2-, 3-, and 5-year time points respectively. In addition, there was no statistical significance in postoperative vitamin levels e between LSG and LAGB.

Conclusions and Implications: LAGB and LSG are effective treatment options for adolescent obesity, resulting in significant sustained weight loss at 5 years. While there was a statistically significant difference at the 1-year follow-up weights between LSG and LAGB, this gap narrowed at the subsequent time points, as there was no statistical difference between the follow-up weights at the 2-, 3- and 5- year time points. LAGB is a fully reversible option that obtained comparable %weight and %BMI loss to LSG for adolescents. Both LSG and LAGB can be viewed as effective long-term treatments for adolescent obesity, with the surgical decision being based on overall BMI, side effect profile, and the potential need for a revision surgery in the future.

Fields: Pediatrics, Surgery

Keywords: bariatric, surgery, adolescents, obesity, long-term outcome

P32 Interactive effects of Morphine and the HIV integrase inhibitor, Cabotegravir, in Male and Female Mice

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Introduction and Objective: People living with HIV (PLWH) are more susceptible to developing opioid use disorder (OUD) given that a significant percentage of this population are prescribed opioids for long-term management of chronic pain. Morphine is one of the most used analgesic opioid. Recently, the FDA approved cabotegravir (CAB) as a novel therapeutic approach for the prevention of HIV. Similar to the opioid morphine, CAB, undergoes glucuronidation through the enzymes uridine diphosphate glucuronosyltransferase (UGT) in the liver. We hypothesize that their combination could lead to drug-drug interactions, and this notion was explored in both male and female mice. Here we studied the potential interactions among CAB and morphine, by evaluating their pharmacokinetic, pharmacodynamics, and toxicological effects.

Methods: Equal amounts of adult male and female C57BL/6J mice (N= 40) were assigned into treatment groups that received 1) saline, 2) morphine at 20 mg/kg, 3) cabotegravir (CAB) at 45 mg/kg, and 4) morphine + CAB, via intraperitoneal administration. We assessed morphine-induced antinociception using a hot plate, analyzed biodistribution and metabolism in the brains and livers, and examined their excretion in the kidneys using mass spectrometry, gene expression of UGTs enzymes, immune and epigenetic genes using RT-PCR. We measured inflammatory cytokines by ELISA, and morphological changes using H&E and Nissl staining. Data were analyzed using analysis of variance (ANOVA), followed by post hoc Tukey's test for multiple comparisons with GraphPad Software, Inc. A p-value of <0.05 was deemed significant.

Results: Our results showed a significant interaction effect between the two drugs, resulting in alterations in pharmacodynamics, including: improved antinociception, enhanced production of cytokines and chemokines, variations in gene expressions as well as differences in pharmacokinetics, including: altered biodistribution, drug metabolism, and excretion. Additionally, we observed morphological changes in brain and liver tissues, which could indicate early signs of toxicity mediated by inflammatory cytokines, synaptic proteins, and epigenetic modifications.

Conclusions and Implications: Co-exposure with cabotegravir changed the biodistribution in the brain, affected liver metabolism, and altered kidney excretion, leading to changes in gene expression and inflammatory effects that could disrupt morphine analgesia responses, increase the risk of overdose and toxicity, and affect CAB efficacy.

Fields: Pharmacology

Keywords: Drug-Drug interaction, Cabotegravir, Morphine, HIV, Antiretroviral

P33 The Hidden Curriculum of Stigma: Mental Health Attitudes from MS1 to MS3

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Introduction and Objective: Medical education is widely recognized as a high-stress environment, often contributing to significant psychological distress among students. Depression, anxiety, and burnout are highly prevalent, yet many students avoid seeking mental health care due to stigma, confidentiality concerns, and fear of professional repercussions. These attitudes may evolve as students transition from preclinical to clinical training, influenced by institutional culture, academic pressures, and exposure to patient care. Understanding how medical students' perceptions of mental health change throughout their education is essential for addressing barriers to care and improving overall well-being. This study investigates how attitudes toward mental health — including stigma, help-seeking behaviors, and beliefs about psychological distress—change from the time students enter medical school to

when students are in their third year of medical school at Florida International University Herbert Wertheim College of Medicine.

Methods: A longitudinal survey using validated tools—the Stigma Questionnaire, PHQ-9, and an Anxiety Scale—was administered to 58 matched respondents from MS1 to MS3 at Florida International University Herbert Wertheim College of Medicine. A Wilcoxon signed-rank test assessed paired changes in stigma scores, with Cohen's d estimating effect size. Repeated Measures ANOVA was used to examine PHQ-9 and anxiety score trajectories, adjusting for age, sex, and ethnicity, and exploring interaction effects.

Results: Despite significant increases in depression and anxiety symptoms (both $p < .0001$; Cohen's $d = 2.38$), students' attitudes toward seeking help remained largely unchanged. Stigma scores showed a slight, non-significant decrease ($p = 0.0527$; Cohen's $d = 0.26$), indicating a minimal positive shift not sufficient to impact behavior. No substantial moderating effects were found across demographic groups, although exploratory analyses suggest ethnicity may influence anxiety trends.

Conclusions and Implications: These findings reveal a critical disconnect. Mental health symptoms are rising significantly, yet willingness to seek help remains stagnant. This gap underscores the need for longitudinal, phase-specific wellness programming that not only addresses mental health symptoms but also targets persistent stigma within the medical education environment.

Fields: Psychiatry, Education for Health Professionals

Keywords: Stigma, Medical Student Mental Health, Help-Seeking Behavior

P34 Redefining Therapeutic Onset in Postpartum Depression: A Systematic Comparative Meta-Analytic Review of Neuroactive Steroids and Traditional Serotonergic Antidepressants as Pharmacologic Strategies for the Treatment of Postpartum Depression

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Introduction and Objective: Postpartum depression (PPD) is a severe mood disorder affecting approximately 15% of new mothers, often impairing maternal-infant bonding and long-term psychological well-being. Pharmacological intervention is frequently required in moderate to severe cases, yet the optimal treatment strategy remains debated. With the emergence of novel neuroactive steroid therapies—Zuranolone and Brexanolone—a paradigm shift has been proposed, contrasting with traditional Selective Serotonin Reuptake Inhibitors (SSRIs) and Serotonin-Norepinephrine Reuptake Inhibitors (SNRIs). This study aimed to systematically compare the efficacy, onset of action, safety profile, and tolerability of these four pharmacologic classes in the treatment of PPD.

Methods: A comparative systematic literature review and meta-analysis were conducted using peer-reviewed randomized controlled trials (RCTs), meta-analyses, and observational cohort studies published between 2000 and 2024. Databases searched included PubMed, NIH, Cochrane Library, and Embase. Eligible studies enrolled postpartum women diagnosed with PPD and receiving Zuranolone, Brexanolone, SSRIs, or SNRIs. Primary outcomes were depression score changes (HAM-D, EPDS), onset of symptom relief, and adverse events. Data were extracted independently and pooled using a random-effects model. Statistical measures included effect sizes (Cohen's d), 95% confidence intervals (CI), and p-values for significance testing.

Results: Zuranolone demonstrated a mean reduction of 17.8 points on the HAM-D scale within 3–5 days (Cohen's $d = 1.3$; 95% CI: 1.0–1.6; $p < 0.001$), while Brexanolone reduced HAM-D by 15.2 points within 72 hours ($d = 1.1$; 95% CI: 0.8–1.4; $p < 0.001$). SSRIs and SNRIs showed more gradual effects, with mean reductions of 9.1 and 8.7 points, respectively, over 4–6 weeks. SSRIs had the highest tolerability, while Brexanolone's IV administration posed logistical challenges. Zuranolone presented a promising oral alternative with comparable safety to SSRIs.

Conclusions and Implications: Neuroactive steroids, particularly Zuranolone, provide faster and more pronounced symptom relief than traditional antidepressants in PPD. These findings support Zuranolone as a first-line pharmacologic candidate for rapid intervention. Further long-term studies are warranted to assess sustained efficacy and relapse

prevention. Clinicians should consider treatment onset time, administration method, and patient-specific factors when selecting pharmacotherapy for postpartum depression.

Fields: Psychiatry, Obstetrics and Gynecology

Keywords: Postpartum, Depression, Antidepressants, Neuroactive Steroids, Maternal Health

P35 A Journey into the Demographics, Socioeconomic Factors and Behavioral Risk Factors Associated with Use of Psychedelics

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Introduction and Objective: Psychedelics, a class of substances with mind-altering properties, has surged due to their medicinal and therapeutic benefits, yet understanding factors associated with psychedelic use in the U.S. remains limited. This study aims to identify these factors.

Methods: A cross-sectional study was conducted using data from the 2021 National Survey on Drug Use and Health (NSDUH). Participant inclusion criteria were 1) identified by the U.S. census, 2) age over 18 years, 3) residents of a U.S. household, non-institutionalized group quarters, or civilian on a U.S. military base. Exclusion criteria included 1) experiencing homelessness and do not use shelters, 2) current active-duty military personnel and 3) residents of institutionalized group quarters. We assessed factors including age, gender, race, income, education, health status, risky behaviors, sexual orientation, marital status, military status, employment in the last week, insurance status, overall health, distress in the past year, and historical substance abuse. The primary outcome was any time use of psychedelics. Analyses methods included descriptive statistics, bivariate analyses, and logistic regression.

Results: Our sample included 43,019 participants (37.6% under 30 years old, 63.2% whites, 55% female, 37.8% college graduates, and 45.9% full-time workers). Psychedelic use was reported at 18.7%. Males (OR 1.39, 95%, CI 1.31-1.48), younger adults aged 30-34 (OR 2.04, 95%, CI 1.76-2.37), non-Hispanic Native Americans (OR 1.33, 95%, CI 1.04-1.70), bisexual individuals (OR 1.81, 95%, CI 1.65-1.98), alcohol use disorder (OR 14.44, 95%, CI 11.39-18.32), tobacco use (OR 8.19, 95%, CI 7.08-9.48), self-reported risky behavior (OR 2.89, 95%, CI 2.35-3.55) were significantly associated with psychedelic use.

Conclusions and Implications: Psychedelic use in the United States is common and varies across demographic and socioeconomic factors. Understanding these associations can equip healthcare providers to administer comprehensive patient-centered care and prepare for the ethical integration of psychedelics into mainstream medicine. Our findings may guide future research to investigate the reasons behind the increased use of psychedelics in specific populations, such as Native Americans, where usage may hold cultural and religious significance. Such insights can inform culturally competent practices, reduce health disparities, combat stigma, and enhance patient safety.

Fields: Psychiatry, Pharmacology

Keywords: Psychedelics, Risk Factors, Demographics, Socioeconomic, Behavioral

P36 Association Between Positive and Negative Alcohol Outcome Expectancies on Alcohol Intake Among Adult Latino Immigrants

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Introduction and Objective: Latinos in the U.S. drink less than their non-Latino white counterparts but face higher alcohol- related consequences. Existing evidence also indicates escalations in alcohol use among Latino immigrants as their time in the U.S. increases. Positive alcohol outcome expectancies (AOEs, beliefs about beneficial effects of drinking such as tension reduction or social enhancement) are associated with increased alcohol use, while the association

between negative AOEs (e.g., feeling sick, unable to control one's actions) and drinking remains inconsistent. Research has examined AOEs and drinking outcomes among the general U.S. population, but limited research exists among Latino immigrants. This study aims to determine if there is an association between AOEs and alcohol intake among adult Latino immigrants.

Methods: This cross-sectional study utilizes data from an NIH-funded study examining pre- to post-immigration alcohol use trajectories among recent Latino/a immigrants. Data for this study was collected between 2019-2020 from 493 adult Latino immigrants (45.7% female; mean age=37.21, SD=4.93) who immigrated to the U.S. approximately 12 years prior to assessment. Multivariable linear regression was conducted to examine associations between positive/negative AOEs and alcohol quantity, frequency, and severity score while controlling for confounders.

Results: After controlling for covariates, positive AOEs were positively associated with drinking frequency (β=2.11; 95% CI 0.99, 3.24; p<0.001), drinking quantity (β=0.45; 95% CI 0.31, 0.60; p<0.001), and alcohol use severity score (β=1.03; 95% CI 0.72, 1.34; p<0.001). Additionally, negative AOEs were positively associated with drinking quantity (β=0.27; 95% CI 0.11, 0.43; p<0.001) and alcohol use severity scores (β=0.62; 95% CI 0.28, 0.96; p<0.001). No significant associations were found between negative AOEs and drinking frequency (β=0.97; 95% CI -0.24, 2.19; p=0.117).

Conclusions and Implications: Study findings provide insight into the role of AOE on the drinking behaviors of Latino immigrants. This knowledge can inform the creation of interventions that target AOE to curb the rising rates of alcohol use among Latino immigrants as time in the U.S. increases.

Fields: Public Health, Education for Health Professionals

Keywords: alcohol, Latino immigrants, alcohol outcome expectancies

P37 The Relationship Between Race and Gestational Diabetes

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Introduction and Objective: Diabetes developed during pregnancy, known as Gestational diabetes (GDM), influences the health outcomes of both mother and baby. This study assesses the frequency of GDM in women of color compared to their White, non-Hispanic (NH) counterparts.

Methods: A retrospective cohort study was conducted using data from the National Vital Statistics System of the National Center for Health Statistics. The racial groups investigated included NH White, NH Black, NH AIAN/NHOPI (American Indian or Alaskan Native/Native Hawaiian or Other Pacific Islander), NH Asian, NH Mixed, and Hispanic. The outcome was the diagnosis of GDM. Bivariate and multivariable analyses were conducted.

Results: The study included 3,367,601 women; most were NH White (50.5%), followed by Hispanic (26.5%), NH Black (13.5%) and NH Asian (6.1%). When compared with NH Whites, the adjusted odds of GDM were significantly increased in NH Asian (aOR 2.79; 95% CI 2.75- 2.83), NH AIAN/NHOPI (aOR 1.61; 95% CI 1.55- 1.67), NH Mixed (aOR 1.08; 95% CI 1.05- 1.11), and Hispanic women (aOR 1.16; 95% CI 1.15- 1.17). On the contrary, the adjusted odds of GDM in NH Black women were lower than in the reference group (aOR 0.76; 95% CI 0.75- 0.77).

Conclusions and Implications: Our study found that GDM is associated with the race/ethnicity of mothers. NH Asian, NH AIAN/NHOPI and NH mixed, but not NH Black mothers, had higher rates of GDM when compared with their NH White counterparts. These findings can be used to better target programs focused on GDM prevention and treatment.

Fields: Public Health, Family Medicine

Keywords: racial disparities, gestational diabetes, pregnancy

P38 Influence of Socioeconomic and Cultural Factors on Having a Regular Healthcare Provider Among Recent Young Latino Immigrants

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Introduction and Objective: Latinos comprise 18.7% of the U.S. population and are essential to economic growth. However, recent Latino immigrants face barriers to healthcare, and research on factors influencing their access to a regular provider is limited. This study examines the association between five socioeconomic and cultural factors and having a regular healthcare provider in young adult recent Latino immigrants.

Methods: We conducted a cross-sectional study using data from the 2021 Drinking and Driving Among Recent Latino Immigrants Study. Participants were Latinos aged 18-34 who had immigrated within the past year. Respondent-driven sampling was used for recruitment. Bilingual interviewers collected data on five exposures (job insecurity, family conflict, social support, spirituality, neighborhood safety), the outcome, and covariates. Binomial logistic regression assessed associations while controlling for confounders.

Results: Among 522 participants (mean age: 30.3; 49.4% female), most were employed (76.6%), had authorized status (71.6%), lacked health insurance (65.9%), and did not have a regular provider (76.8%). In adjusted models, social support (aOR 1.8, 95% CI 1.1-3.0), spirituality (aOR 1.5, 95% CI 1.1-1.9), and neighborhood safety (aOR 0.8, 95% CI 0.7-0.9) remained significant, while job insecurity and family conflict were not.

Conclusions and Implications: Findings highlight the importance of social support, spirituality, and neighborhood safety in healthcare access. Future interventions should enhance insurance coverage, documentation processes, neighborhood safety, and community support to improve healthcare equity for recent Latino immigrants.

Fields: Public Health, Family Medicine

Keywords: Latino immigrants, Healthcare access, Social Determinants of health, Primary care utilization

P39 Urine Luck: A Quality Improvement Initiative Aimed at Preventing Urine Contamination

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Introduction and Objective: Urine specimen contamination is a persistent issue in healthcare and can lead to diagnostic errors, unnecessary antibiotic use, and increased healthcare costs. This quality improvement (QI) project aimed to reduce contamination rates in clean-catch urine samples collected from patients utilizing Jackson Hospital services. We hypothesized that utilizing visual aids in conjunction with existing verbal instructions will improve patient adherence to clean-catch protocols, reduce urine contamination rates, and ultimately improve clinical efficiency and outcomes at Jackson Hospital.

Methods: The intervention involved the design and implementation of provider education and bilingual (English; Spanish) instructional posters placed in all clinic and hospital restrooms. Pre- and post-intervention contamination rates were collected and subsequently analyzed. A contamination event was defined as a mixed flora count >10,000 CFU/mL in a clean-catch sample, per hospital policy. Additionally, anonymous feedback was solicited from nursing staff to assess perceived effectiveness and workflow impact.

Results: Pre-intervention urine sample contamination was 23.77% (SD = 3.749), compared to 17.92% (SD = 1.472) post-intervention. This intervention did achieve a statistically significant ($p = 0.0063$) reduction in urine contamination and represents a clinically meaningful improvement. Furthermore, nursing staff surveys revealed overwhelming support for the poster's clarity and utility, and most reported improved patient understanding and smoother collection processes.

Conclusions and Implications: A simple, bilingual visual aid improved urine sample collection quality and reduced contamination rates in a rural hospital. The intervention was well received by staff and demonstrates promise as a cost-effective strategy to improve diagnostic accuracy. This improvement not only supports accurate diagnosis but also contributes to antimicrobial stewardship by minimizing inappropriate antibiotic use triggered by contaminated samples.

Future studies with a larger sample and an extended monitoring period are warranted to assess sustainability and broader applicability.

Fields: Public Health, Infectious Diseases

Keywords: Urinalysis, Contamination, Quality improvement, Contamination rates, Collection

P40 Enhancing WASH Practices and Health Outcomes in San Juan de Yanayaku, Peru: A Community-Based Intervention

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Introduction and Objective: Three students from Florida International University Herbert Wertheim College of Medicine initiated a Water, Sanitation, and Hygiene (WASH) intervention in San Juan de Yanayaku, a remote Peruvian Amazon village.

Methods: A temporary health clinic was set up in the community to assess community health and provide essential medical services. Additionally, primary school students received handwashing education to promote long-term behavioral change. This project aimed to provide essential healthcare services and address critical WASH issues.

Results: Among 40 individuals assessed, 80% reported exposure to untreated river water. River water users had significantly higher rates of diarrheal disease (50% vs. 12.5%) and stomach aches (37.5% vs. 25%). Elevated blood glucose levels were noted among some individuals, raising concerns about undiagnosed metabolic conditions.

Conclusions and Implications: Findings highlight the urgent need for sustainable WASH interventions. This initiative informs ongoing efforts to install a permanent water sanitation system in the community, emphasizing the role of community-led health screenings in addressing systemic public health challenges."

Fields: Public Health, International Health

Keywords: Rural health, Latino health, International health, WASH, Public health

P41 Breaking Barriers: A Review Identifying and Addressing Key Limitations to Early Prenatal Care Access in Little Haiti Neighborhood in Miami 33127

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Introduction and Objective: Access to prenatal care is a vital part of pregnancy and ensures safety of both the mother and fetus. After searching the Miami Matters database, it is evident that the population of the area of Little Haiti, Miami has significantly less prenatal care than the rest of Miami Dade County zip codes, with only 73.1% of mothers receiving early prenatal care in Little Haiti. This project intends to investigate maternal and fetal health in Little Haiti, based on access to prenatal care, to highlight the needs of this community and provide opportunities for improvement for patients through an NeighborhoodHELP framework. The NeighborhoodHELP program at Florida International University Herbert Wertheim College of Medicine empowers patients by offering free healthcare services, promoting health literacy, and fostering social responsibility, with the ultimate goal of enabling patients to become their own advocates.

Methods: A literature search in PubMed was conducted using the MeSH terms (""prenatal care"" OR ""obstetrics care"") AND (""maternal health"" OR ""maternal mortality"") AND (""african american"" OR hispanic). The MeSH terms search results yielded 192 articles. Articles were screened by reading titles and abstracts, with irrelevant articles being excluded for reasons including wrong population, cohort with a specific disease, published in a language besides English, etc. Title and abstract screening resulted in a total of 11 articles related to social determinants of health and access to prenatal care.

Results: Black women are at an elevated risk of maternal death, with 10% of black women receiving late or no prenatal care compared to 4% for white women. Among white women, nearly 54% of the women initiated prenatal care in the first trimester (n = 91), 41.1% in the second trimester (n = 69), and 4.8% in the third trimester (n = 8), whereas, among non-white women, about 46% initiated care in the first trimester (n =124), 41.9% in the second semester (n = 113) and 12.2% in the third trimester (n = 33). In addition, Blacks and Hispanics were less likely than Whites to obtain prenatal care in the first trimester, with whites at 89.63% in contrast to 74.81% and 78.56% for blacks and Hispanics, respectively.

Conclusions and Implications: This review emphasizes the impact of prenatal care on maternal health outcomes. Improving access is a crucial step to lowering maternal mortality both locally and nationally. Applying NeighborhoodHELP interventions, such as mobile health units and community outreach, in women's health clinics enables continuity of care, thereby reducing complications of chronic diseases. Eliminating barriers like insurance gaps and transportation can increase early prenatal care utilization. While NeighborhoodHELP is an essential tool for local community impact, these practices can create a ripple effect that prioritizes maternal health and reduces barriers that perpetuate the disparities experienced nationwide.

Fields: Public Health, Obstetrics and Gynecology

Keywords: prenatal care, maternal health, fetal health, health disparities, preventative health

P42 Sante Nou Se Avni Nou: Health Literacy and Beliefs About Cancer Causation and Prevention in a Haitian Immigrant Population

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Introduction and Objective: Cancer prevention efforts are influenced by individuals' beliefs about disease causation and their ability to access, understand, and use health information. This descriptive study presents interim findings on health literacy, cancer causal beliefs, and cancer prevention attitudes among Haitian immigrants. The data come from a subsample of 75 participants in the Florida Cancer Health Disparity Registry.

Methods: We conducted a cross-sectional survey among 75 Haitian adults residing in South Florida. Health literacy was assessed using the HLS19-Q12 and the BRIEF Health Literacy Screening Tool. Additional items evaluated beliefs about the causes and preventability of cancer. Descriptive statistics summarized sociodemographic data, literacy levels, and thematic patterns in belief systems. No inferential testing was performed at this stage.

Results: The mean age of participants was 43.45 years (+/-13.47). Over half (52.7%) had never been married. Educational attainment varied, with 44.0% having intermediate education, 32.0% low, and 24.0% high. Two-third reported earning less than $10,000 annually, and 56.8% were unemployed. Family history of cancer was reported by 19.7% of respondents. On the HLS19-Q12, 44.1% of participants had inadequate health literacy, and 33.9% had problematic health literacy, totaling 78% with suboptimal skills. On the BRIEF, 82.0% had trouble learning from written health materials, 80.3% struggled to understand spoken explanations, and 77.1% required help reading hospital materials. Only 53.2% felt confident completing forms, while 46.8% lacked confidence. Overall, 60.7% demonstrated "not sufficient" health literacy.

Regarding cancer causation, participants listed 188 beliefs, the most frequent being diet and nutrition (35.1%), referencing processed foods, sugar, red meat, and chemical additives. Other belief categories included environmental exposures (14.4%), genetic/biological factors (12.8%), behavioral factors (11.7%), infections (10.6%), physical causes (8.0%), and cosmetic products (4.3%). When analyzed by controllability, 47% listed three controllable causes, and 36% listed two, suggesting widespread belief in individual agency over cancer risk. In terms of prevention beliefs, 76.6% disagreed with the statement ""Everything causes cancer,"" and 65.6% disagreed with ""Not much you can do to prevent cancer,"" reflecting positive attitudes toward preventability. However, 40.6% agreed that cancer means death, and 54.8% found cancer prevention recommendations confusing.

Conclusions and Implications: Our results highlight limited health literacy alongside strong beliefs in cancer preventability and personal control over risk among Haitian immigrants. Findings support the need for culturally tailored

education addressing literacy gaps and cancer-related misconceptions. Further analyses will examine associations between literacy, beliefs, and sociodemographic factors to guide targeted intervention development.

Fields: Public Health, Oncology

Keywords: Health Literacy, Disparities, Cancer Prevention, Haitian Immigrants

P43 The Association Between Teenage Pregnancy and the Development of Asthma in Children Between 0-5 Years Old

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Introduction and Objective: Childhood asthma is a major public health issue and categorized as the most common chronic disease among children, significantly affecting those between 0-5 years old. While mortality rates are low, asthma poses a great burden on quality of life and healthcare costs. Previous research suggests that maternal factors, including age at delivery, may influence a child's risk of developing asthma, as younger mothers often face unique socioeconomic, biological, and environmental challenges that could impact early childhood health. Despite low mortality rates, asthma greatly affects children between 0-5 years old. This study aims to investigate the association between the age of a mother at delivery (teenage vs. non-teenage mothers) and the development of asthma in children under 5 years old, providing insight into potential risk factors for asthma.

Methods: This is a historical cohort using secondary data analysis from the 2021 National Survey of Children's Health (NSCH). Children 0-5 years old were included in this study, while children born to mothers older than 45 years old, children with congenital defects, and children born to mothers with a history of asthma were excluded. The primary outcome was the development of asthma in the children studied. A multiple logistic regression model including all potential confounders was fitted to estimate the adjusted association (odds ratio 95% CI) between the exposure and the outcome.

Results: The total number of children 0-5 years old included in this study were 48,379, of whom 1,110 (2.29%) were born to teenage (<= 19 years old) mothers and 47, 269 (97.71%) to adult (22-44 years old) mothers. Among all the children, 2,123 (4.38%) were found to have asthma. Of the 47,269 children born to adult mothers, 2,023 had asthma (4.28%) as compared to 100 out of 1,110 children born to teenage mothers (9.01%) ($p<0.001$). Before adjustment, the odds of having asthma were 121.4% higher in children of teenage mothers as compared to those of adult mothers: OR 2.214, 95% CI 1.794 - 2.732. After adjusting for potential confounders, the difference in odds was statistically significant: 1.387, 95% CI 1.088 – 1.768.

Conclusions and Implications: Children between 0-5 years old born to teenage mothers are more likely to develop asthma. Although this study controlled for confounders, the specific factors mediating the relationship between maternal age at delivery and childhood asthma prevalence remain unclear. Future research should explore potential mediators, such as socioeconomic disadvantages and other medical determinants, to better understand this association. These findings highlight the need for more extensive healthcare coverage as well as policy interventions aimed at supporting teenage mothers, addressing social disparities, and mitigating early childhood health risks.

Fields: Public Health, Pediatrics

Keywords: Asthma, Teenage pregnancy, Maternal Age, Health Disparities, Healthcare Access

P44 The influence of adverse mental health outcomes on unhealthy eating habits among Latino/a immigrants in South Florida.

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Introduction and Objective: Latino/a immigrants in the U.S. face elevated risks of depressive symptoms and immigration-related stress, which may contribute to unhealthy dietary behaviors such as frequent consumption of fast food, sweets, and soda. Cultural values like fatalism—belief in the inevitability of health outcomes—may influence these associations but remain underexplored. This study examined whether fatalism modifies the relationship between immigration stress and depressive symptoms on the frequency of unhealthy eating practices among Latino/a immigrants in Miami-Dade County, Florida.

Methods: This analytical cross-sectional study included 493 adult Latino/a immigrants (Mage = 26.89, SD = 4.97; 54% male; 42% Cuban). The primary outcome was the frequency of unhealthy eating (defined as consuming fast food, sweets, or soda at least once per week). Main predictors were depressive symptoms and immigration stress, with fatalism tested as a potential effect modifier. Data were analyzed using unadjusted and adjusted logistic regression models to estimate odds ratios (ORs) and 95% confidence intervals (CIs), adjusting for key demographic covariates.

Results: Over half (52%) of participants reported consuming unhealthy food at least once weekly. Fatalism was tested as an effect modifier in the associations between both depressive symptoms and immigration stress with unhealthy eating behaviors; however, it did not markedly change these relationships. After adjustment for demographic covariates, higher depressive symptoms were associated with increased odds of frequent sweet consumption (aOR: 1.16, 95% CI: 1.09–1.24). Both depressive symptoms (aOR: 1.15, 95% CI: 1.05–1.27) and immigration stress (aOR: 1.12, 95% CI: 1.00–1.24) were independently associated with greater frequency of overall unhealthy food consumption.

Conclusions and Implications: Findings underscore the influence of depressive symptoms and immigration stress on unhealthy dietary patterns among Latino/a immigrants. While fatalism did not significantly modify these associations, its possible function in other health behaviors warrants further study. Interventions designed to enhance dietary habits in immigrant communities should consider addressing psychosocial stressors as key drivers of nutritional risk.

Fields: Public Health, Psychiatry

Keywords: Latino/a immigrants, Depressive symptoms, Immigration stress, Unhealthy eating behaviors, Fatalism

P45 Hyperoxia Impairs Shear-Sensitive Gene Expression in Congenital Heart Disease-Associated PAH

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Introduction and Objective: Congenital heart disease (CHD) affects approximately 1 in 100 live births worldwide and despite surgical interventions, a subset of patients develop pulmonary arterial hypertension (PAH). PAH is a progressive pulmonary vascular disease marked by endothelial dysfunction and smooth muscle hyperplasia. Under physiological conditions, pulmonary arterial endothelial cells (PAECs) exposed to laminar shear stress adopt a quiescent, protective phenotype that maintains vascular homeostasis through shear-responsive gene expression. In CHD with left-to-right shunts, PAECs are abnormally exposed to hyperoxia. The mechanisms linking hyperoxia, oxidative stress, and shear-sensing remain poorly understood. This study aims to determine how hyperoxia and altered shear stress-sensing synergize to impair endothelial function by disrupting protective redox-sensitive regulation of shear-responsive genes.

Methods: We analyzed a publicly available microarray dataset of CHD-associated PAH patients on NCBI's GEO database to identify alterations in shear-responsive gene expression. To model hyperoxia, we used an in vitro model in which human PAECs were subjected to sustained physiological laminar shear stress and exposed to hyperoxia (21% O_2) or normoxia (5% O_2) for 3 days. Gene expression changes were assessed using custom RNAseq analysis after RNA sequencing, and protein expression via Western blotting. Transcription factor enrichment analysis was performed using JASPAR and TRANSFAC databases. Endogenous hydrogen peroxide was directly measured from conditioned media. To investigate upstream regulation, JNK activation (phosphorylation at Thr183) was measured under hyperoxia. Pharmacological JNK inhibition with SP and antioxidant treatment with N-acetyl cysteine (NAC) were used to determine their impact on KLF2 expression and JNK activation, respectively.

Results: In both CHD-PAH patient data and our in vitro hyperoxia model, KLF2 and NOS3 expression were significantly reduced. Protein analysis confirmed decreased KLF2 expression in PAECs under hyperoxia. Transcription factor analysis enriched for SP1. Hyperoxia induced significant activation of known SP1 regulator JNK through phosphorylation at threonine 183, and inhibition of JNK rescued KLF2 expression. Antioxidant treatment also reduced JNK phosphorylation and restored KLF2 levels. Hyperoxia with shear stress increased endogenous hydrogen peroxide, linking oxidative stress to impaired shear-sensitive transcriptional regulation.

Conclusions and Implications: Hyperoxia disrupts redox homeostasis and shear-responsive transcription in pulmonary endothelial cells by activating the JNK-SP1 axis, leading to repression of KLF2. These findings provide a mechanistic link between oxidative stress and endothelial dysfunction in CHD-associated PAH and identify potential therapeutic targets for early intervention.

Fields: Pulmonology, Cardiology

Keywords: Hyperoxia, Pulmonary Arterial Hypertension, Congenital Heart Disease, Transcriptional regulation

P46 A CRISPR-Based Strategy to Reverse HIV-Tat and Smoking-Induced Mucociliary Dysfunction via SIRT1 Restoration

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Introduction and Objective: Lung comorbidities such as chronic obstructive pulmonary disease (COPD) and bacterial pneumonia are prevalent among people living with HIV (PLWH), despite effective antiretroviral therapy. This burden is compounded by the high rate of tobacco smoking (34–47%) in PLWH. Both HIV-1 infection and cigarette smoke (CS) disrupt mucociliary clearance (MCC), leading to cilia shortening and mucus hypersecretion—hallmarks of chronic bronchitis. This study investigated how HIV-1 Tat protein impairs airway epithelial cell homeostasis through miRNA-mediated suppression of Sirtuin 1 (SIRT1) and whether targeted disruption of miR-34a-5p binding to the SIRT1 3' untranslated region (UTR) can restore epithelial function.

Methods: Differentiated normal human bronchial epithelial (NHBE) cells cultured at an air–liquid interface (ALI) were exposed to HIV Tat protein and/or cigarette smoke extract (CSE). Using miRANDA and miRTarBase, we identified miR-34a-5p as a post-transcriptional regulator of SIRT1. A CRISPR/Cas9 strategy was employed to disrupt the miR-34a-5p binding site on the SIRT1 3'UTR. NHBE ALI cultures were magnetofected with a site-specific sgRNA and Cas9 plasmid. Protein expressions of SIRT1, ADAM17, MUC5AC, and cilia-associated markers were assessed by Western blot and immunofluorescence.

Results: HIV Tat and CS exposure increased miR-34a-5p expression and reduced SIRT1 levels, with concurrent upregulation of ADAM17 and MUC5AC and loss of cilia markers ($p < 0.01$). CRISPR disruption of the miR-34a-5p binding site restored SIRT1 expression, decreased ADAM17 and MUC5AC levels ($p < 0.05$), and preserved cilia structure—indicating improved MCC.

Conclusions and Implications: HIV Tat–induced miR-34a-5p suppresses SIRT1, promoting ADAM17-driven Notch signaling and epithelial remodeling. CRISPR-mediated editing of the SIRT1 3'UTR reverses these effects and restores airway epithelial integrity under HIV/CS stress. This approach offers a promising gene-specific therapeutic strategy for MCC restoration in PLWH, particularly those at risk for COPD.

Fields: Pulmonology, Infectious Diseases

Keywords: HIV-1, cigarette smoke, mucociliary clearance, SIRT1, ADAM17

P47 Particulate matter enhances cellular glycolysis through METTL3-mediated m6A RNA methylation

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Introduction and Objective: Fine particulate matter (PM) consists of airborne particles known to pose significant health risks, notably contributing to the development and worsening of lung diseases. PM exposure disrupts cellular metabolism, leading to chronic inflammation and accelerated lung aging. Although PM's impact on cellular pathways is well-documented, the regulatory mechanisms it uses to influence glycolysis, a critical metabolic pathway, remain poorly understood. Recent evidence suggests that N6-methyladenosine (m6A) methylation, a prevalent internal mRNA modification, may play a pivotal role in this process. This study focuses on trans-epigenomic pathways involving m6A-mediated RNA methylation, specifically investigating the role of METTL3, a major component of the m6A methyltransferase complex, in regulating gene expression and cellular glycolysis in response to PM exposure. By defining these pathways, we aim to reveal the metabolic shifts induced by PM exposure and improve understanding of the pathogenesis of PM-induced lung diseases.

Methods: Human bronchial epithelial cells (A549) were treated with a PM suspension (100 μg/mL) for 4 and 24 hours. RNA was extracted for Dot-blot analysis and m6A ELISA to quantify m6A methylation levels. HIF-1α mRNA m6A methylation was confirmed by m6A mRNA immunoprecipitation-PCR (MeRIP-PCR). HIF-1α mRNA stability was assayed in cells treated wtih actinomycin D (5uM) to inhibit transcription, followed by quantitative PCR analysis to determine the decay rate of HIF-1α mRNA. Protein expression of cellular proteins was assessed via Western blotting. Cellular glycolysis was measured using the Glycolysis Stress Assay on the Seahorse XF Analyzer.

Results: PM exposure increased global m6A methylation levels by upregulating METTL3. This exposure also enhanced cellular glycolysis and elevated HIF-1α expression, a key regulator of glycolysis, with both effects being attenuated by the METTL3 inhibitor STM2457 (STM) or METTL3-targeting siRNA. We further confirmed that PM-induced m6A methylation and stabilization of HIF-1α mRNA were reduced by STM or METTL3 siRNA. Additionally, PM-enhanced HIF-1α mRNA stability was mediated by the m6A RNA-binding protein IGF2BP2, as silencing IGF2BP2 with siRNA decreased PM-induced cellular glycolysis and HIF-1α expression.

Conclusions and Implications: Fine particulate matter promotes cellular metabolic reprogramming towards enhanced glycolysis in lung epithelial cells through METTL3-dependent m6A methylation of HIF-1α. These findings offer new insights into the molecular mechanisms underlying PM-induced lung diseases and identify METTL3 as a potential therapeutic target to counteract metabolic dysregulation and inflammation associated with PM exposure.

Fields: Pulmonology, Public Health

Keywords: Particulate Matter, post-transcription, metabolism reprogramming

P48 CT-Derived Body Composition and Machine Learning Models for Predicting Platinum Resistance in Ovarian Cancer

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Introduction and Objective: Ovarian cancer (OC) patients who develop resistance to platinum-based chemotherapies face significantly poorer outcomes. Existing methods for predicting platinum resistance remain inadequate and have not traditionally considered body composition as a factor. This study aims to determine the potential of computed tomography (CT)-derived body composition as a biomarker for predicting platinum resistance.

Methods: This retrospective study included 494 OC patients (mean age 63 ± 11, 25.6% platinum-resistant) who underwent platinum-based chemotherapy between 2011 and 2023. Deep learning algorithms were used to quantify body composition features from pre-treatment CT scans. Five machine learning (ML) models were trained to predict platinum resistance before treatment and evaluated using the area under the receiver operating characteristic curve (AUROC) with 5-fold cross-validation. Findings were further validated using a publicly available external cohort (n=65).

Results: CT body composition analysis identified 18 independent CT features associated with platinum resistance. Abdominal subcutaneous adipose tissue (SAT) density, L3-L5 SAT density, and L3 intermuscular adipose tissue (IMAT) volume were consistently associated with platinum resistance across both internal and external datasets ($p<0.05$). All ML models trained on CT and clinical features outperformed those trained using only clinical features to predict platinum resistance, achieving a maximum AUROC of 0.84 (95% CI: 0.80-0.88).

Conclusions and Implications: CT-derived body composition features are associated with platinum resistance. Integrating body CT-derived features into pre-treatment clinical assessments can facilitate the identification of OC patients at risk for failing first-course platinum therapy.

Fields: Radiology, Oncology

Keywords: machine learning, gynecology oncology, body composition, ovarian cancer, platinum resistance

P49 Association of Sunlight Exposure and Rheumatoid Arthritis Among Adults in the United States

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Introduction and Objective: Rheumatoid arthritis (RA) is a chronic autoimmune disease with multifactorial risk factors, including genetic, environmental, and lifestyle factors. Sun exposure, through its role in vitamin D synthesis, has been proposed as a potential modifiable risk factor for RA. However, the relationship between sun exposure and RA remains unclear. This study aimed to assess the potential association between sun exposure and the risk of RA.

Methods: This cross-sectional study utilized data from the NHANES 2017–March 2020 pre-pandemic cycle. Data from 15,560 U.S. adults aged 18 and older were analyzed, with participants categorized into high, moderate, and low sun avoidance groups based on their self-reported sun exposure. Demographic, socioeconomic, and health-related variables were examined across these categories. The prevalence of RA was calculated, and adjusted odds ratios (ORs) for RA associated with sun exposure were estimated, controlling for confounders such as age, race, income, smoking, and health status.

Results: The study found no statistically significant association between sun exposure and the occurrence of RA. The unadjusted odds ratios for moderate and low sun avoidance compared to high sun avoidance were 0.93 (95% CI: 0.59–1.47; p=0.757) and 0.62 (95% CI: 0.27–1.40; p=0.236), respectively, with similar results after adjustments. However, certain demographic factors, such as being older (40-59 years), Black (non-Hispanic), and below the poverty line, were associated with increased odds of RA. Sunscreen use was inversely related to RA odds (adjusted OR: 0.53, p=0.028).

Conclusions and Implications: Our study found no evidence of a significant association between sun exposure and the incidence of RA among U.S. adults. Further research, particularly longitudinal studies with larger sample sizes and diverse populations, is needed to explore potential environmental triggers and the role of vitamin D in RA development. Identifying modifiable risk factors, including sun exposure, may help inform preventive strategies for high-risk populations.

Fields: Rheumatology, Public Health

Keywords: Rheumatoid Arthritis, Sunlight, Vitamin D, Autoimmune, NHANES Data

P50 Correlation between Reduction of Renal Sinus Fat and Improvement of Blood Pressure after Bariatric Surgery

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Introduction and Objective: Renal sinus fat (RSF) may mediate obesity-related vascular disease. It is hypothesized to impair renal function through compression of renal structures, the release of locally acting molecules, or lipotoxicity, potential mechanisms by which obesity could promote hypertension and kidney diseases. The aim of this study is to evaluate changes in RSF and blood pressure after bariatric surgery, and its clinical significance.

Methods: We retrospectively reviewed all patients that underwent bariatric surgery over 7 years in our institution. In patients with obesity, we measured the RSF via abdominal CT at procedure and at 18 months average follow-up. Data collected included baseline demographics, perioperative labs and renal basic profile.

Results: A total of 30 patients met the criteria for inclusion. The average age was 50.19 + 13.49 years. The initial BMI was 39.11 + 6.51 kg/m2 and the post-operative BMI was 31.66 + 5.52 kg/m2 ($p<0.001$). Preoperative RSF volume was 2.67 + 1.74 cm3 and post-Operative RSF volume was 1.29 + 1.02 cm3 ($p<0.001$). The Systolic Blood Pressure pre-operatively was 137 + 14.39 mmHg and post-operatively it decreased to 117.4 + 16 mmHg ($p<0.001$), a statistically significant positive correlation between the RSF reduction and the Systolic Blood Pressure decrease ($p<0.037$) was found. We also found a negative correlation between RSF volume and GFR ($p<0.036$).

Conclusions and Implications: Bariatric surgery has demonstrated to be an effective treatment for severe obesity that results in remission of comorbidities including arterial hypertension. Our results suggest that at 18 months average follow-up we achieve a statistically significant reduction in Systolic Blood Pressure possibly via reduction in RSF. Further prospective studies may be needed to confirm these findings.

Fields: Surgery, Cardiology

Keywords: Bariatric surgery, Renal Sinus Fat (RSF), Hypertension, Obesity

P51 Beyond the Scalpel: Non-Clinical Factors Drive the Majority of One-Star Yelp Reviews for Plastic Surgeons in Four Major U.S. Cities

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Introduction and Objective: Online reviews are increasingly important in the patients' selection of a plastic surgeon. This study aimed to better understand the factors contributing to negative reviews in plastic surgery by analyzing and categorizing complaints found in 1-star ratings.

Methods: A cross-sectional analysis was performed using Yelp.com to identify extremely negative reviews for the top 15% most-reviewed plastic surgeons in New York, Miami, Los Angeles, and Chicago. Profiles were screened to include only board-certified plastic surgeons with at least one 1-star review. Two independent reviewers categorized complaints into clinical or non-clinical and recorded mentions of surgery. Frequencies of top complaint categories were compared using chi-squared tests.

Results: A total of 86 profiles (59.7%) met inclusion criteria, accounting for 955 1-star reviews composed of 2,423 complaints. 921 were clinical (38%) and 1,502 were non-clinical (62%). The most common clinical complaints involved dissatisfaction with outcomes (17.8%), complications (10.2%), and lack of follow-up care (7.6%). Most non-clinical complaints fell in the categories of rude staff/bad customer service (14%), physician bedside manner (12.4%), billing processes (10.5%), and communication issues with the office (9.3%).

Patients reporting surgery represented 50.47% of reviews, while 49.5% of reviewers did not mention having surgery, either because their experiences discouraged them from proceeding or they had non-surgical cosmetic procedures. Surgical patients most often cited dissatisfaction with outcomes (24.8%), complications (14.7%), and bedside manner (13.8%). For non-surgical patients, the highest percentage of complaints derived from rude staff/bad customer service (22.3%), billing processes (16.7%), and scheduling issues (14.3%).

Conclusions and Implications: Most negative reviews for plastic surgeons derive from non-clinical factors. These findings suggest that aesthetic excellence alone is insufficient for patient satisfaction and that administrative issues can drive patient attrition even before seeing the surgeon. Investing in staff training and optimizing scheduling and billing processes is recommended to diminish the number and impact of negative reviews on plastic surgery practices.

Fields: Surgery, Education for Health Professionals

Keywords: Online reviews, Physician ratings, Patient satisfaction, Plastic surgery