UNIVERSITY of MARYLAND
SCHOOL OF MEDICINE

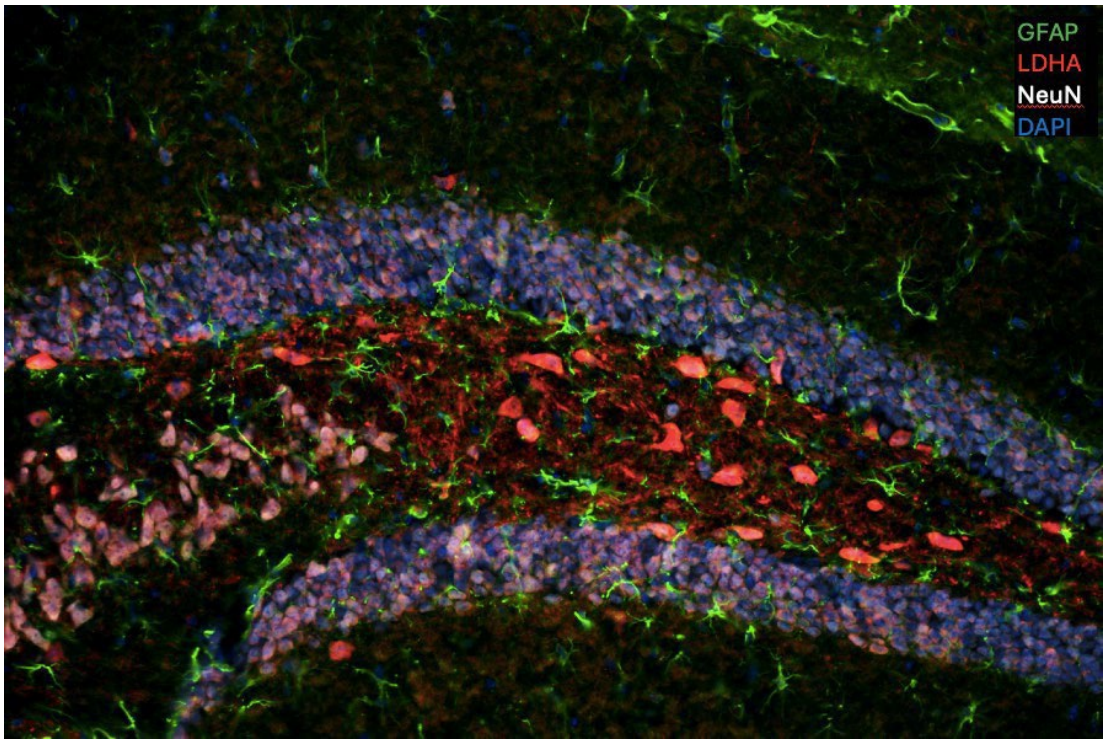
47th Annual Medical Student Research Day

Presented by the

Office of Student Research &
Alpha Omega Alpha Honor Medical Society

Tuesday, November 19 and Wednesday, November 20, 2024

Southern Management Corporation (SMC) Campus Center
621 West Lombard Street
Baltimore, MD 21201



Adedayo Olaniran, O6.03
Image showing the Dentate gyrus and hilus of the hippocampus after temporal lobe contusion in mice

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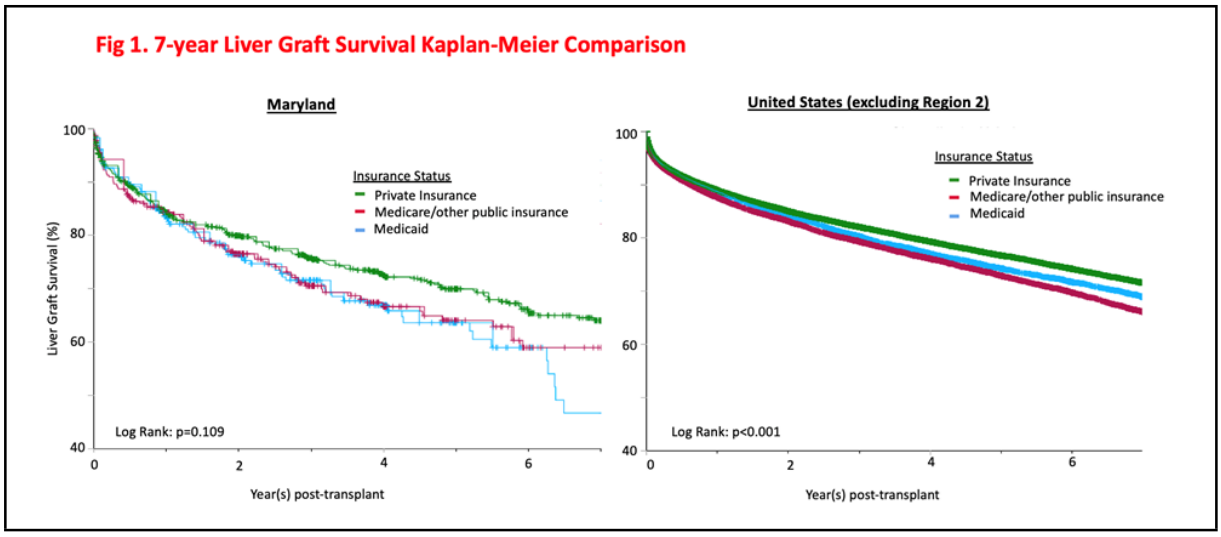

Shani Kamberi, O11.02
Liver graft survival comparison between Maryland's All-Payer system and the rest of the United States

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Office of Student Research
655 West Baltimore Street (M-019)
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Assistant Dean for Student Research and Education
Executive Director of Student Research and Community Outreach

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AOA MSRD Chair

Radhika Gholap, MSIV
AOA MSRD Chair

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Acknowledgements

We would like to express our gratitude to the Dean's Office for providing the financial support for Medical Student Research Day.

We would also like to express our appreciation for all the research faculty mentors and staff who supported and guided the students in their research.

Our special thanks go to the faculty, research associates, residents, fellows, post-doctoral fellows and other UMB community members who generously gave of their time to serve as judges during this event:

Ibrahim Ahmed El-lmam, MBBS, MPH
James Ahodantin, PhD
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Giovannino Silvestri, PhD
Anyah Skipwith, MS
Sarah Sunshine, MD
Aswin Srivatsav T, PhD
Shifa Turan, MD
Makeda Turner, MS
Amy VanderStoep, MD, MPH
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Rezwanul Wahid, MBBS, PhD
Lakeisha Wilson, MS, DBA
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Sequoia Wright, MPH
Andreas Wulff, MS, PhD
Lin Zou, MD, PhD
Haseeb Zubair, PhD

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See Presentation Schedule for list of individual presentations

Attire: Business Casual

Day 1: Tuesday, November 19

12:10 p.m. – 1:20 p.m.	***Registration, Lunch, and Keynote Address (2nd Floor Lounge, Elm Room A)***
12:25 p.m. – 12:45 p.m.	Opening Remarks **Gregory B. Carey, PhD** Associate Professor of Microbiology and Immunology Assistant Dean for Student Research and Education Executive Director of Student Research and Community Outreach Director of PRISM, UM Scholars, and STAR-PREP Training Programs **Kathryn Robinett, MD** Associate Professor of Medicine Interim Associate Dean for Student Research and Education Associate Program Director for the Pulmonary & Critical Care Medicine Fellowship **Davies Gage & Radhika Gholap** MSRD Co-Chairs AOA Student Representatives Alpha Omega Alpha Honor Medical Society Maryland Beta Chapter
12:45 p.m. – 1:15 p.m.	Keynote Address (Elm Room A) **Katrina S. Mark, MD** Associate Professor Department of Obstetrics, Gynecology & Reproductive Sciences University of Maryland School of Medicine **Title:** From Addiction to Women's Health: Shaping your Research Journey

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Day 1: Tuesday, November 19 *(continued)*

1:15 p.m. – 1:20 p.m.	Brief Procedures **Fiama Romero, MS** Program Manager, OSR	**Fatimah Dixon, MPH** Program Coordinator, OSR
1:20 p.m. – 1:30 p.m.	*Break*	
1:30 p.m. – 4:50 p.m.	***Presentations***	
1:30 p.m. – 2:30 p.m.	Oral Presentation Session 1: O1.01 – O1.06 (Elm Room A) Oral Presentation Session 2: O2.01 – O2.06 (Elm Room B) Oral Presentation Session 3: O3.01 – O3.06 (Room 203) Poster Presentation Session 1: P1.01 – P1.16 (Room 349)	
2:30 p.m. – 2:40 p.m.	*Break*	
2:40 p.m. – 3:40 p.m.	Oral Presentation Session 4: O4.01 – O4.06 (Elm Room A) Oral Presentation Session 5: O5.01 – O5.06 (Elm Room B) Oral Presentation Session 6: O6.01 – O6.06 (Room 203) Poster Presentation Session 2: P2.01 – P2.17 (Room 349)	
3:40 p.m. – 3:50 p.m.	*Break*	
3:50 p.m. – 4:50 p.m.	Oral Presentation Session 7: O7.01 – O7.08 (Elm Room A) Oral Presentation Session 8: O8.01 – O8.06 (Elm Room B) Oral Presentation Session 9: O9.01 – O9.06 (Room 203)	

PHOTOGRAPHY AND VIDEOGRAPHY AT THIS EVENT

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Attire: Business Casual

Day 2: Wednesday, November 20

1:00 p.m. – 2:00 p.m.	***Registration (2nd Floor Lounge, Elm Room A)***
1:10 p.m. – 3:20 p.m.	***Presentations***
1:10 p.m. – 2:10 p.m.	Oral Presentation Session 10: O10.01 – O10.06 (Elm Room A) Oral Presentation Session 11: O11.01 – O11.06 (Elm Room B) Oral Presentation Session 12: O12.01 – O12.06 (Room 203) Poster Presentation Session 3: P3.01 – P3.16 (Room 349)
2:10 p.m. – 2:20 p.m.	*Break*
2:20 p.m. – 3:20 p.m.	Oral Presentation Session 13: O13.01 – O13.05 (Elm Room A) Oral Presentation Session 14: O14.01 – O14.06 (Elm Room B) Poster Presentation Session 4: P4.01 – P4.16 (Room 349)
3:25 p.m. – 4:10 p.m.	***Networking Reception (Elm Room A)***
4:10 p.m. – 5:00 p.m.	***Awards Banquet (Elm Room A)***
4:10 p.m. – 4:30 p.m.	Honoring Faculty Mentors: Mentor Recognition Awards **MSRD Chairs/AOA Student Representatives**
4:30 p.m. – 4:50 p.m.	Presentation of Student Awards **MSRD Chairs/AOA Student Representatives**
4:50 p.m. – 5:00 p.m.	Closing Remarks **Gregory B. Carey, Ph.D.**

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Presentation Schedule (Ordered by Session and Presentation ID)

Session	ID	Last Name	First Name	Program	Title	Date/Time	Room	Mentor(s)
Oral 1	O1.01	Chatterjee	Devina	AOA Research Fellowship	Automated Aortic Calcification Scoring in CT Angiography: Comparing AI and Manual Methods	Tues 11/19 1:30 PM	Elm Rm. A	Bharath Venkatesh
Oral 1	O1.02	Regenold	David	PKD Summer Research Program	Widespread Bradycardia in Autosomal Dominant Polycystic Kidney Disease (ADPKD)	Tues 11/19 1:30 PM	Elm Rm. A	Stephen Seliger
Oral 1	O1.03	Sherchan	Juliana	PRISM	Tube feeding duration associated with socioeconomic factors in infants with congenital heart disease: Single center study	Tues 11/19 1:30 PM	Elm Rm. A	Alicia Chaves
Oral 1	O1.04	Ho	Kevin	PRISM	Shear Stress Induced Alterations of Neutrophil Function in Ventricular Assist Devices	Tues 11/19 1:30 PM	Elm Rm. A	Zhongjun Wu
Oral 1	O1.05	Awan Devadiga	Noor Ul Huda Ananya	Independent	The Impact of Early Interventions and Surgical Timing on Neurological Development of Children With CHD (Congenital Heart Diseases)	Tues 11/19 1:30 PM	Elm Rm. A	Deborah Badawi
Oral 1	O1.06	Sherchan Bernard	Juliana Lauren	Independent	Tricuspid valve endocarditis in people who inject drugs: Single-center comparison of percutaneous mechanical aspiration versus a surgical approach	Tues 11/19 1:30 PM	Elm Rm. A	Shivakumar Narayanan
Oral 2	O2.01	Bzhilyanskaya	Vera	Independent	Long-Term Nutritional and Swallowing Outcomes in HPV+ Oropharyngeal Squamous Cell Carcinoma Treated with Transoral Robotic Surgery	Tues 11/19 1:30 PM	Elm Rm. B	Kyle M. Hatten; Jane Y. Tong
Oral 2	O2.02	Lee	Elizabeth	PRISM	Management Sequence and Outcomes of Isolated Nasal Fractures at an Integrated Trauma Hospital	Tues 11/19 1:30 PM	Elm Rm. B	Natalie Justicz
Oral 2	O2.03	Resnick	Eric	Independent	Traumatic Brain Injury in Patients with Mandibular Fractures	Tues 11/19 1:30 PM	Elm Rm. B	Michael Grant
Oral 2	O2.04	Patel	Grishma	Independent	Referral Gaps and Risk Factors for Long-Term Headaches in Patients with Craniofacial Fractures	Tues 11/19 1:30 PM	Elm Rm. B	Bashar Hassan; Michael Grant
Oral 2	O2.05	Sahi	Apanjit	PRISM	Efficacy of Antibiotic Prophylaxis in Preventing Infections Following Frontal Sinus Fracture Management: A Retrospective Analysis	Tues 11/19 1:30 PM	Elm Rm. B	Bashar Hassan; Michael Grant
Oral 2	O2.06	De Guzman	Jeison	PRISM	Conservative versus Surgical Management in Patients with Frontal Sinus Fractures	Tues 11/19 1:30 PM	Elm Rm. B	Bashar Hassan; Michael Grant
Oral 3	O3.01	Wiley	Aidan	Independent	Cannabis-associated peripheral vascular disease: a case report and systematic review with implications for Baltimore	Tues 11/19 1:30 PM	Rm. 203	Sarasi Desikan
Oral 3	O3.02	Cho	Euna	Independent	Press *9 to Hear Options in Other Languages - Investigating Application of Interpretation Best Practices	Tues 11/19 1:30 PM	Rm. 203	Amy Howard; Sandra Quezada
Oral 3	O3.03	Evancho	Peter	PRISM	Transforming Urologic Care: Physician and Patient Insights on AI Integration	Tues 11/19 1:30 PM	Rm. 203	M. Minhaj Siddiqui
Oral 3	O3.04	Hardart	Kent	PRISM	Differential Expression of the PHIST Multi-Gene Family in Severe Malaria: A Case-Control Study	Tues 11/19 1:30 PM	Rm. 203	Mark Travassos
Oral 3	O3.05	Keepers	Zachery	Independent	The Impact of a Precision Medicine Navigator on Inequities Associated with Genomic Tests in Black Patients and Underrepresented Populations with Prostate Cancer	Tues 11/19 1:30 PM	Rm. 203	Melissa Vyfhuis; Phuoc Tran
Oral 3	O3.06	Kinkead	Alayna	Independent	Restylane Vocal Fold Augmentation: Assessing Safety and Duration of Efficacy	Tues 11/19 1:30 PM	Rm. 203	Elizabeth Guardiani
Oral 4	O4.01	Leggett	Emmeline	Independent	Predictors of In-Hospital Mortality in Patients with New Diagnosis of Type II Odontoid Fractures: A Retrospective Level I Trauma Center Experience	Tues 11/19 2:40 PM	Elm Rm. A	Timothy Chryssikos
Oral 4	O4.02	Amaty	Bibhas	PRISM	Prevalence and Risk Factors of Sarcopenia in Odontoid Fractures: A Single Institutional Retrospective Study	Tues 11/19 2:40 PM	Elm Rm. A	Julio Jauregui; Steven Ludwig
Oral 4	O4.03	Cruess	Cailin	Independent	Do superficial drains make a difference after lumbar fusion surgery? A prospective, randomized trial.	Tues 11/19 2:40 PM	Elm Rm. A	Charles Edwards
Oral 4	O4.04	Jain	Sara	Independent	Predictors of 2-year PROMIS PF after Primary ACL Reconstruction	Tues 11/19 2:40 PM	Elm Rm. A	Natalie Leong; R. Frank Henn

Presentation Schedule (Ordered by Session and Presentation ID)

Session	ID	Last Name	First Name	Program	Title	Date/Time	Room	Mentor(s)
Oral 4	O4.05	Som	Maria	Independent	Socioeconomic Disadvantage Predicts Decreased Prosthesis Use After Major Lower Extremity Amputation	Tues 11/19 2:40 PM	Elm Rm. A	Khanjan Nagarsheth
Oral 4	O4.06	McGinnis	Patrick	Ortho Trauma Summer Research Fellowship	Differences in Apple Health Mobility Metrics Between Patients Prescribed Early and Delayed Weight-Bearing Protocols	Tues 11/19 2:40 PM	Elm Rm. A	Nathan O'Hara; Robert O'Toole
Oral 5	O5.01	Orpia	Andrea	Independent	The Impact of Social Determinants of Health on Pediatric Cataracts Treatment	Tues 11/19 2:40 PM	Elm Rm. B	Janet Alexander
Oral 5	O5.02	Chang	Sara	Independent	Evaluating the Tear Protein and Cytokine Profile of Ocular Graft Versus Host Disease	Tues 11/19 2:40 PM	Elm Rm. B	Sarah Sunshine
Oral 5	O5.03	Zahid	Manahel	PRISM	Fluorescein Angiography Blood Flow Changes Associated with Retinopathy of Prematurity	Tues 11/19 2:40 PM	Elm Rm. B	Janet Alexander
Oral 5	O5.04	Oula	Desai	PRISM	GzmB's Mechanism of Action in Systemic and Ocular GVHD: Insights from RT-qPCR Analysis	Tues 11/19 2:40 PM	Elm Rm. B	Sarah Sunshine
Oral 5	O5.06	Cho	Euna	Independent	Neuropsychological Development in Pediatric Ophthalmology Patients: A Scoping Review with Social Determinants of Health Analysis	Tues 11/19 2:40 PM	Elm Rm. B	Janet Alexander
Oral 6	O6.01	Kreinbrink	Matthew	PRISM	Clinical Utility of the NIHTB-CB in Patients with Drug-resistant Epilepsy: Comparison to Gold Standard Neuropsychological Assessment	Tues 11/19 2:40 PM	Rm. 203	Stephanie Chen; Anjeli Inscore
Oral 6	O6.02	Khan	Ziam	PRISM	The Role of Sonic Hedgehog Signaling in Metabolic Changes Associated With Seizure Network Formation in Epilepsy	Tues 11/19 2:40 PM	Rm. 203	Alex Ksendzovsky
Oral 6	O6.03	Olaniran	Adedayo	PRISM	Lactate Dehydrogenase A and B Expressional Changes and Cell Type Localization After Temporal Lobe Contusion in Mice	Tues 11/19 2:40 PM	Rm. 203	Marc Simard; Volodymyr Gerzanich
Oral 6	O6.04	Cheema	Minahil	Independent	Examining Disparities in Traumatic Brain Injury Outcomes: Impact of Rurality & Socioeconomic Factors	Tues 11/19 2:40 PM	Rm. 203	Quincy Tran; Jessica Downing
Oral 6	O6.05	Adams	Danya	NIH Intramural Research Training Award	7q11.23 Gene Dosage Effects on Measures of Cerebellar Volume	Tues 11/19 2:40 PM	Rm. 203	Karen Berman; Tiffany Nash
Oral 6	O6.06	Bragança	Christopher	PRISM	Investigating NCX1 Inhibition as a Therapeutic Strategy for Spinal Cord Injury	Tues 11/19 2:40 PM	Rm. 203	Marc Simard; Volodymyr Gerzanich
Oral 7	O7.01	Gomez	Charlyn	Independent	Characterizing the Social Disparities of Patients Receiving the Hypoglossal Nerve Stimulator	Tues 11/19 3:50 PM	Elm Rm. A	Sunny Haft
Oral 7	O7.08	Gomez	Charlyn	Independent	Differences in Cardiovascular Outcomes Between Hypoglossal Nerve Stimulator-Recipient and Non-Recipient Sleep Apnea Patients	Tues 11/19 3:50 PM	Elm Rm. A	Sunny Haft
Oral 7	O7.03	Tulshyan	Antariksh	PRISM	Utility of Pre-operative P2Y12 Levels for Perioperative Bleeding Risk in Isolated Coronary Artery Bypass Surgery	Tues 11/19 3:50 PM	Elm Rm. A	Aakash Shah
Oral 7	O7.04	Shiva	Anahita	Independent	Coronary Artery Disease as a Predictor of Reduced Independent Ambulation after Major Lower Extremity Amputation	Tues 11/19 3:50 PM	Elm Rm. A	Khanjan Nagarsheth
Oral 7	O7.05	Valluri	Sarayu	Rad Onc	Effect of Ionizing Radiation on RBC Dysfunction and Erythropoiesis in a C57BL/6J	Tues 11/19 3:50 PM	Elm Rm. A	Paul Buehler; Erika Davies
Oral 7	O7.06	Sarkar	Mitali	Independent	Intraoperative Transfusion of a Single Unit of pRBCs: a 10-year single center observational cohort study	Tues 11/19 3:50 PM	Elm Rm. A	Ashanpreet Grewal; Megan Anders
Oral 7	O7.07	Baqai	Hammad	Independent	Limb Ischemia in Pediatric Orthopedic Patients Undergoing Extracorporeal Membrane Oxygenation	Tues 11/19 3:50 PM	Elm Rm. A	Joshua Abzug
Oral 8	O8.01	Amatya	Bibhas	PRISM	Spinal Superinfections after Irrigation and Debridement: A Retrospective Analysis of Incidence and Risk Factors	Tues 11/19 3:50 PM	Elm Rm. B	Julio Jauregui Jauregui; Steven Ludwig

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Session	ID	Last Name	First Name	Program	Title	Date/Time	Room	Mentor(s)
Oral 8	O8.02	Morath	Hope	Independent	Infection and adult ischemic stroke: a polygenic risk score analysis	Tues 11/19 3:50 PM	Elm Rm. B	Steven Kittner
Oral 8	O8.03	Atalla	Anthony	Independent	Postoperative leukocytosis and infectious workups after intraoperative dexamethasone; a retrospective cohort study	Tues 11/19 3:50 PM	Elm Rm. B	Megan Anders
Oral 8	O8.04	Le	Nhu	PRISM	An Update on Validation of Clinical Decision Support Tool to Optimize Time and Effective Therapy in Multi-Drug Resistant Pseudomonas (MDR PSA)	Tues 11/19 3:50 PM	Elm Rm. B	Kimberly Claeys
Oral 8	O8.05	Mayo	Harrison	Independent	The Effects of Type I and III Interferons on the Expression of Bradykinin as a Marker of Disease Severity in the Mouse Model of B. pertussis Infection	Tues 11/19 3:50 PM	Elm Rm. B	Nicholas Carbonetti
Oral 8	O8.06	Driscoll	Kathryn	Independent	Programmatic coverage of prophylactic Azithromycin via the SANTE study for pregnant women in rural Mali	Tues 11/19 3:50 PM	Elm Rm. B	Karen Kotloff
Oral 9	O9.01	Aktay	Sinan	PRISM	Characterizing Public Transit Accessibility and Diabetes Outcomes	Tues 11/19 3:50 PM	Rm. 203	Rozalina McCoy
Oral 9	O9.02	Zehra	Anum	Independent	Point-of-Care A1c Screening in the Emergency Department	Tues 11/19 3:50 PM	Rm. 203	Kashif Munir
Oral 9	O9.03	Kalathiya	Urja	Independent	Comparative Risk of Adverse Pancreatic Events with Second-Line Glucose-Lowering Therapies in Adults with Type 2 Diabetes at Moderate Cardiovascular Disease Risk	Tues 11/19 3:50 PM	Rm. 203	Rozalina McCoy
Oral 9	O9.04	Barrientos	Elisha Anne	PRISM	Improving Disparities in Diabetes: Implementation of Comprehensive Primary Care	Tues 11/19 3:50 PM	Rm. 203	Rozalina McCoy; Elsie Essien
Oral 9	O9.05	Kalathiya	Urja	Independent	Systematic Review of the Effect of Comprehensive Primary Care on Diabetes Management and Outcomes	Tues 11/19 3:50 PM	Rm. 203	Rozalina McCoy
Oral 9	O9.06	Som	Maria	Independent	Kwashiorkor in Baltimore: Case Report of Edematous Malnutrition in the Setting of ASD/ARFID	Tues 11/19 3:50 PM	Rm. 203	Bouhaitha Yousef
Oral 10	O10.01	Razavi	Syrus	Independent	Emergency Department Opioid Prescription Patterns: Effects of the COVID-19 Pandemic	Wed 11/20 1:10 PM	Elm Rm. A	Quincy Tran; Jeffrey Rhea
Oral 10	O10.02	Mondle	Jennifer	Independent	Comparative Usability Study of an FDA-Approved Single-Step Intranasal Device versus Improvised Multi-Step Intranasal Device Naloxone Delivery Systems in an At-Risk Population	Wed 11/20 1:10 PM	Elm Rm. A	Gentry Wilkerson
Oral 10	O10.03	Cheema	Minahil	Independent	Self-administered versus Clinician-performed BinaxNOW COVID Rapid Test: A Comparison of Accuracy	Wed 11/20 1:10 PM	Elm Rm. A	Zishan Siddiqui; Charles Callahan
Oral 10	O10.04	Atalla	Anthony	Independent	Trends in chlorine and chloramine gas exposures reported to U.S. poison control centers from 2015 to 2022	Wed 11/20 1:10 PM	Elm Rm. A	Jason Rose
Oral 10	O10.05	Thomas	Ananda	Independent	Management Strategies and Clinical Outcomes of Obstetric Patients who Decline Allogeneic Blood Transfusion	Wed 11/20 1:10 PM	Elm Rm. A	Steven Frank
Oral 10	O10.06	Dunbar	Dakarai	Independent	Sipping From the "River of Life": A New Methodology of Conducting Health Disparity Research	Wed 11/20 1:10 PM	Elm Rm. A	Laundette Jones
Oral 11	O11.01	Kamberi	Shani	Independent	College-aged adults' insights on xenotransplantation: A preliminary study in Maryland	Wed 11/20 1:10 PM	Elm Rm. B	Raphael Meier
Oral 11	O11.02	Kamberi	Shani	Independent	Effect of the Global Budget System on Liver Transplantation	Wed 11/20 1:10 PM	Elm Rm. B	Raphael Meier
Oral 11	O11.03	Yi	Andrew	Independent	Early CD27+ Memory B Cells and Graft-Versus-Host Disease Risk in Pediatric Allogeneic Hematopoietic Stem Cell Transplant	Wed 11/20 1:10 PM	Elm Rm. B	Kinga Hosszu
Oral 11	O11.04	Abdellah	Sarah	Medical Student Summer Research Scholarship in Neurosurgery	Deep Brain Stimulation in a Patient with Intractable Tourette's Syndrome After Initial DBS Failure - A Case Report	Wed 11/20 1:10 PM	Elm Rm. B	Ausaf Bari
Oral 11	O11.05	Kung	Julia	Independent	Olfactory Neuronal Cell: a Biopsied Neuronal Bioresource from Living Subjects for Brain Research	Wed 11/20 1:10 PM	Elm Rm. B	Kun Yang; Akira Sawa

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Session	ID	Last Name	First Name	Program	Title	Date/Time	Room	Mentor(s)
Oral 11	O11.06	Merchant	Brooke	Independent	Formal Physical Therapy Clearance is not Necessary for Safe Home Discharge after Primary TJA	Wed 11/20 1:10 PM	Elm Rm. B	Sumon Nandi
Oral 12	O12.01	May	Catherine	Independent	Outcomes of Epiphysiodesis About the Distal Radius and Distal Ulna	Wed 11/20 1:10 PM	Rm. 203	Julia Conroy; Joshua Abzug
Oral 12	O12.02	May	Catherine	Independent	Diversity Amongst Current Hand Fellowship Directors	Wed 11/20 1:10 PM	Rm. 203	Julia Conroy; Joshua Abzug
Oral 12	O12.03	Vellala	Sourabh	PRISM	Association of Preoperative Opioid Use on 2-Year Patient-Reported Outcomes in Hip Arthroscopy Patients	Wed 11/20 1:10 PM	Rm. 203	Sean Meredith
Oral 12	O12.04	Kreinbrink	Matthew	Independent	Predictors of Occipito-Cervical Fusion in the setting of Type III Occipital Condyle Fractures	Wed 11/20 1:10 PM	Rm. 203	Timothy Chryssikos
Oral 12	O12.05	Vellala	Sourabh	Independent	Outcomes and Complications of Strauch vs. Intrafocal Technique for Phalangeal Neck Fractures in Pediatric Patients	Wed 11/20 1:10 PM	Rm. 203	Joshua Abzug
Oral 12	O12.06	Jain	Sara	Independent	Gender and Training Diversity in Podium Presenters Across Pediatric Orthopedic Conferences	Wed 11/20 1:10 PM	Rm. 203	Alexandra Dunham
Oral 13	O13.01	Ballenger	Kaitlin	Independent	Presence of Gastrointestinal Symptomatology Does Not Predict Esophagogastroduodenoscopy Findings	Wed 11/20 2:20 PM	Elm Rm. A	Anupama Kewalramani; Jennifer Hong
Oral 13	O13.02	Zuzarte	Catherine	Independent	Infliximab Biosimilars in Pediatric Inflammatory Bowel Disease (IBD): Comparison and Adverse Effects	Wed 11/20 2:20 PM	Elm Rm. A	Atiye Aktay
Oral 13	O13.03	Odolil	Abel	Independent	Proactive Therapeutic Drug Monitoring in Pediatric Inflammatory Bowel Disease patients receiving Infliximab and Biosimilars	Wed 11/20 2:20 PM	Elm Rm. A	Atiye Aktay
Oral 13	O13.04	Zuzarte	Catherine	Independent	Rapid versus Standard Infliximab and Infliximab Biosimilar Infusions in Pediatric Inflammatory Bowel Disease (IBD): Comparison of adverse reaction	Wed 11/20 2:20 PM	Elm Rm. A	Atiye Aktay
Oral 13	O13.05	Fong	Daniel	PRISM	Attentional Performance in Children with Sleep Disordered Breathing	Wed 11/20 2:20 PM	Elm Rm. A	Amal Isaiah
Oral 14	O14.01	Keepers Ryan	Zachery Hurley	Independent	Exploring the synergistic potential of PARP inhibitors and DNA methyltransferase inhibitors in patient-derived pancreatic tumor organoids.	Wed 11/20 2:20 PM	Elm Rm. B	Hem Shukla; Feyruz Rassool
Oral 14	O14.02	Kiguru	Njambi	PRISM; Rad Onc	Comparing Toxicity Outcomes between Whole Gland and Partial Gland High Dose Brachytherapy as Salvage Treatment for Recurrent Prostate Cancer	Wed 11/20 2:20 PM	Elm Rm. B	Jason Molitoris
Oral 14	O14.03	Talwar	Reshmi	PRISM	The Impact of the University of Maryland Greenebaum Comprehensive Cancer Center Eye Clinic on the Outcome of Ocular Graft versus Host Disease	Wed 11/20 2:20 PM	Elm Rm. B	Sarah Sunshine
Oral 14	O14.04	Zhou	Jason	Independent	Splenic rupture secondary to pancreatic malignancy invasion: A rare case	Wed 11/20 2:20 PM	Elm Rm. B	Samantha Olafson; Jaclyn Clark
Oral 14	O14.05	Li	Haoran	PRISM	The Role of the Unfolded Protein Response in the Antileukemic Mechanism of Artemisinins	Wed 11/20 2:20 PM	Elm Rm. B	Curt Civin
Oral 14	O14.06	Cavey	Lane	Independent	From Incidental Finding to Surgical Concern: A Case of Pheochromocytoma Disguised as Renal Mass	Wed 11/20 2:20 PM	Elm Rm. B	Michael Phelan
Poster 1	P1.01	Lin	Michael	PRISM	Blood Flow of Pediatric Patients with Cataract and Amblyopia	Tues 11/19 1:30 PM	Rm. 349	Janet Alexander
Poster 1	P1.02	Kang Martinez-Guasch	Allison Fernando	Independent	Exploring the influence of anti-VEGF injections on cataract evolution and advancement: A retrospective review	Tues 11/19 1:30 PM	Rm. 349	John T. Thompson
Poster 1	P1.03	Wang	Joyce	Independent	Longitudinal Analysis of Blood Flow Prior To and After Intravitreal Bevacizumab for Retinopathy of Prematurity	Tues 11/19 1:30 PM	Rm. 349	Janet Alexander
Poster 1	P1.04	Lee	Erica	PRISM	Silicone in Ocular Injections for Treatment of Retinopathy of Prematurity in Preterm Infants	Tues 11/19 1:30 PM	Rm. 349	Janet Alexander
Poster 1	P1.05	Widjaja	Astrid	Independent	The Role of Child Psychiatry Access Programs in Addressing Pediatric Feeding and Eating Concerns	Tues 11/19 1:30 PM	Rm. 349	Sarah Edwards; Shauna Reinblatt

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Poster 1	P1.06	West	Caroline	Independent	Intraoperative methadone Administration is Associated with naloxone Use but not Postoperative Mechanical Ventilation: a retrospective single-center analysis	Tues 11/19 1:30 PM	Rm. 349	Megan Anders
Poster 1	P1.07	Manchester	Maggie	Ortho Trauma Summer Research Fellowship	Can Passively Collected Smartphone Data Reliably Measure Step Count?	Tues 11/19 1:30 PM	Rm. 349	Robert O'Toole; Nathan O'Hara
Poster 1	P1.08*	Pancholi*	Anisha*	Independent	Complications Surrounding Treatment of Distal Clavicle Fractures in Pediatric Populations*	*	*	Joshua Abzug
Poster 1	P1.09	Baqai	Hammad	Ortho Trauma Summer Research Fellowship	Can Passively Collected Smartphone Data Reliably Measure Walking Speeds Stratified by Weight-Bearing?	Tues 11/19 1:30 PM	Rm. 349	Nathan O'Hara; Robert O'Toole
Poster 1	P1.10	Dalo	Juan	Independent	Caregiver Assessment of Tackle Football Among School Aged Boys in an Urban Environment	Tues 11/19 1:30 PM	Rm. 349	Susan Feigelman; Eseigboria Ikheloa
Poster 1	P1.11	Callwood-Jackson	Gabrielle	PRISM	Elevated C-reactive protein levels and cardiovascular risk in prurigo nodularis patients with sleep disturbance: a multi-center cohort study	Tues 11/19 1:30 PM	Rm. 349	Shawn Kwatra; Emily Ma
Poster 1	P1.12	Wong	Claudia	Independent	Unseen Flames: Detecting Signs of Abuse in Burn Injuries for Emergency Medicine Physicians	Tues 11/19 1:30 PM	Rm. 349	Quincy Tran
Poster 1	P1.13	Dunbar	Dakarai	Independent	Publication Outcomes of Abstracts Presented at Society for Investigative Dermatology Circa 2020	Tues 11/19 1:30 PM	Rm. 349	Albert Zhou; Hao Feng
Poster 1	P1.14	Eaton	Jason	Independent	Trends in Service Utilization and Delivery by Adolescents at a Sexual and Reproductive Health Clinic	Tues 11/19 1:30 PM	Rm. 349	Matthew Grant
Poster 1	P1.15	Jha	Ria	Independent	Identifying Key Risk Factors for Intubation in Pediatric Patients with Lower Respiratory Tract Infections: A Comprehensive Analysis of Clinical and Demographic Influences in the PICU	Tues 11/19 1:30 PM	Rm. 349	Siddartha Dante; Hannah Goodwin
Poster 1	P1.16	Dulla	Alexander	Independent	Identifying High-Risk Children for Repeated Pediatric ICU Admissions due to Lower Respiratory Tract Infection based on Demographic and Clinical Factors	Tues 11/19 1:30 PM	Rm. 349	Siddartha Dante; Hannah Goodwin
Poster 2	P2.01	Ryan Keepers	Hurley Zachery	Rad Onc	Patient-Derived Pancreatic Tumor Organoids as a Model to Individualize Cancer Treatment: Cancer Stem Cell Populations and Treatment Responses	Tues 11/19 2:40 PM	Rm. 349	Hem Shukla
Poster 2	P2.02	Vaish	Ishan	Independent	EDI Representation in CAMPEP Accredited Medical Physics Residency Program Websites	Tues 11/19 2:40 PM	Rm. 349	Chaitanya Kalavagunta
Poster 2	P2.03	Lim	Isabelle	PRISM	The Unique Tolerogenic Role of CD8+ T Cells and Pro-Inflammatory Cytokines in Lung Cancer	Tues 11/19 2:40 PM	Rm. 349	Anirban Banerjee; Alexander Krupnick
Poster 2	P2.04	Oula	Desai	PRISM	Janus Kinase Role in Ocular Graft Vs. Host disease	Tues 11/19 2:40 PM	Rm. 349	Sarah Sunshine
Poster 2	P2.05	Raghu	Apurva	PRISM	Do Plasma Cells Matter? Assessing the Impact of Residual Plasma Cells in Prediction of AML Remission and Relapse Post-Venetoclax Treatment	Tues 11/19 2:40 PM	Rm. 349	Michael Kallen; Rima Koka
Poster 2	P2.06	Shah	Shreya	PRISM	Digital Assessment of Blast Count and Megakaryocytic Morphometry in Acute Myeloid Leukemia Mid-Induction	Tues 11/19 2:40 PM	Rm. 349	Michael Kallen; Rima Koka
Poster 2	P2.07	Xu	Kevin	PRISM	Analysis of the Increased Incidence of Aggressive Prostate Cancer after Prior Testicular CancerP	Tues 11/19 2:40 PM	Rm. 349	Minhaj Siddiqui
Poster 2	P2.08	Zamora	Anna	PRISM	The Impact of Neighborhood Socioeconomic Deprivation on Gastric Cancer Stage and Treatment in Florida: A Retrospective Cohort Study	Tues 11/19 2:40 PM	Rm. 349	Benjamin Powers
Poster 2	P2.09*	Berle*	Lila*	Independent	Elucidating the Mechanism of Recombinant Bacterial Vaccine Adjuvants*	*	*	Robert Ernst
Poster 2	P2.10	Angelino	Nicholas	Independent	Healthcare Workers Preferences Regarding Risk-Tailored Policies for Contact Precautions for Patients with Methicillin-Resistant Staphylococcus aureus in Hospitals	Tues 11/19 2:40 PM	Rm. 349	Anthony Harris
Poster 2	P2.11	Sabet	Sarah	Independent	Impact of Fetal Exposure to Opioids in MOUD Pregnancies on Fetal Biometry Trajectories	Tues 11/19 2:40 PM	Rm. 349	Courtney Townsel
Poster 2	P2.12	Stevens	Jasmine	Independent	Impact of Race on Short and Long-Term Outcomes in a Population with Opioid Use Disorder	Tues 11/19 2:40 PM	Rm. 349	Sarah Kattakuzhy; Edward Traver

**Not presenting*

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Poster 2	P2.13	DiNola	Matthew	Independent	Association Between Xylazine-Fentanyl Positivity and Symptoms of Withdrawal and Craving in Opioid Using Individuals: Exploratory Data from a Multi-Site Trial	Tues 11/19 2:40 PM	Rm. 349	Annabelle Belcher
Poster 2	P2.14	Bohlen Wang	Jerry Richard	Independent	Challenges and Strategies for Optimizing Liver Transplantation Outcomes In Morbidly Obese Cirrhotic Patients	Tues 11/19 2:40 PM	Rm. 349	Srinivasan Muthukrishnan
Poster 2	P2.15	Vetack	Alexis	Independent	Health Equity Rounds: A Case-Based Conference Model to Enhance Pediatric Resident Education on Implicit Bias and Health Disparities	Tues 11/19 2:40 PM	Rm. 349	Matthew Grant; Eseigboria Ikheloa
Poster 2	P2.16	Ogbonna	Oluchi	Independent	Strengthening Healthcare: A Kirkpatrick-Based Approach to Oxygen Therapy Training in The Gambia	Tues 11/19 2:40 PM	Rm. 349	Ima Chinedozi
Poster 2	P2.17	Evans	Madison	Independent	From Risk to Recovery: Examining Stroke Inequities in Women's Health	Tues 11/19 2:40 PM	Rm. 349	Theresa Williamson
Poster 3	P3.01	Wilhelm	Zachary	Independent	Risk Factors for Unplanned Reoperation After Open Fractures of the Supracondylar Distal Humerus	Wed 11/20 1:10 PM	Rm. 349	Raymond Pensy
Poster 3	P3.02	Murphy	Maeve	Independent	Impact of Semi-elective Intervention of Displaced Humeral Lateral Condyle Fractures in the Pediatric Population	Wed 11/20 1:10 PM	Rm. 349	Joshua Abzug; Julia Conroy
Poster 3	P3.03	Ghorbanpoor	Kian	PRISM	Investigating the Association Between the Onset of Osteochondritis Dissecans of the Capitellum and Menarche	Wed 11/20 1:10 PM	Rm. 349	Joshua Abzug
Poster 3	P3.04	Joshi	Sama	Independent	Illness Intrusiveness and Perceived Control on Quality of Life in Older Adults With Arthritis and Multimorbidity	Wed 11/20 1:10 PM	Rm. 349	Irina Mindlis
Poster 3	P3.05	Ives	Juwan	Independent	Modified Frailty Index as a Predictor of Contralateral Amputation and Mortality after Primary Amputation	Wed 11/20 1:10 PM	Rm. 349	Khanjan Nagarsheth
Poster 3	P3.06	Quackenbush	Jane	Independent	Characteristics Associated with Blood transfusion at Time of Cesarean Delivery	Wed 11/20 1:10 PM	Rm. 349	Allison Lankford
Poster 3	P3.07	Fong	Daniel	Independent	Utilizing the 5-Item Modified Frailty Index to Predict Postoperative Complications After Cochlear Implantation	Wed 11/20 1:10 PM	Rm. 349	Adam Kaufman; Christopher Wen
Poster 3	P3.08	Brandeis	Benjamin	Independent	AI-powered Connectomic Analysis Platform Facilitates Rapid Assessment of Residual Consciousness in the Intensive Care Unit	Wed 11/20 1:10 PM	Rm. 349	Gunjan Parikh
Poster 3	P3.09	Thomas	Jared	Independent	Structural Brain Abnormalities and Neuropsychiatric Symptoms in Post-COVID Condition: Links to Cognitive, Emotional, and Physical Health Outcomes	Wed 11/20 1:10 PM	Rm. 349	Linda Chang
Poster 3	P3.10	Nguyen Ashe	Michelle Hannah	Independent	Single-Center Analysis of Ondansetron Use in Pregnancy and the Risk of Congenital Heart Defects	Wed 11/20 1:10 PM	Rm. 349	Shifa Turan; Katherine Goetzinger
Poster 3	P3.11	Girvan	Olivia	Independent	To Wait or Not to Wait: Factors that Influence Referrals to Baltimore Infants and Toddlers Program	Wed 11/20 1:10 PM	Rm. 349	Rebecca Carter
Poster 3	P3.12	Shamsuddin	Zain	Independent	Neurocardiogenic Injury: A Radiographic and Clinical Biomarker Analysis in Aneurysmal Subarachnoid Hemorrhage Patients	Wed 11/20 1:10 PM	Rm. 349	Gunjan Parikh
Poster 3	P3.14	Schenk	Blayne	NASPGHAN Medical Student Mentored Summer Research Program	The Function of Epithelial 5HT4 Receptors in Gastrointestinal Motility	Wed 11/20 1:10 PM	Rm. 349	Kara Margolis
Poster 3	P3.16	Tarui	Ai Alexa	Independent	A Content Analysis of Hospitals' Community Health Needs Assessments in the Most Violent Cities: 2023 Update	Wed 11/20 1:10 PM	Rm. 349	Kyle Fischer
Poster 4	P4.01	Lee	Se-Eun	MPower UM Scholars at UMCP	Trauma Exposure Among Healthcare Providers Working in HIV Care in South Africa: Impact on Well-Being and Patient Care	Wed 11/20 2:20 PM	Rm. 349	Jessica Bonumwezi; Jessica Magidson
Poster 4	P4.02	Lynch	Erin	Independent	The High Risk of Opioid Overdose in Older Adults: A Retrospective Chart Review	Wed 11/20 2:20 PM	Rm. 349	Bethea Kleykamp

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Poster 4	P4.03	Nguyen	Ashley	Independent	Pediatric Clinic Food Pantry Initiatives and Effect on SDOH Questionnaire Responses	Wed 11/20 2:20 PM	Rm. 349	Rebecca Carter
Poster 4	P4.04	Patel	Sanam	Independent	Assessing Dietary Quality in Older Veterans: A Comparison of Dietary Intake Tools	Wed 11/20 2:20 PM	Rm. 349	Elizabeth Dennis
Poster 4	P4.05	Patel	Drupad	PRISM	Does MAPSE change after fluid resuscitation in ED patients who present with sepsis?	Wed 11/20 2:20 PM	Rm. 349	Alexis Salerno
Poster 4	P4.06	Cong	Olivia	Independent	Hemoglobin A1c Before and After COVID-19 in Adolescents	Wed 11/20 2:20 PM	Rm. 349	Linda Chang
Poster 4	P4.07	Chari	Rohit	Independent	Utilization of continuous high fidelity vital sign wave-form morphometrics to predict life saving interventions following traumatic injury	Wed 11/20 2:20 PM	Rm. 349	William Teeter; Peter Hu
Poster 4	P4.08	Ashe	Hannah	Independent	Guideline-Concordant Care for Older HIV Patients with DLBCL, NSCLC, and Liver Cancers	Wed 11/20 2:20 PM	Rm. 349	Jennie Law; David Riedel
Poster 4	P4.09	Aderie	Lealem	Independent	Evaluating quality of life improvements in Radiation Cystitis and Head and Neck Cancer patients following Hyperbaric Oxygen Therapy	Wed 11/20 2:20 PM	Rm. 349	Kinjal Sethuraman
Poster 4	P4.10	Seifert	Cassandra	Independent	Exploring the role of estrogen-receptor expressing neurons of Barrington's nucleus on lower urinary tract function	Wed 11/20 2:20 PM	Rm. 349	Anne Verstegen
Poster 4	P4.11	Zhou	Kelly	Independent	Sugammadex Practice Patterns Before and After Implementation of a Quality Improvement Measure	Wed 11/20 2:20 PM	Rm. 349	Megan Anders; Christopher Parrino
Poster 4	P4.12	Gorham	Natalie	Independent	Unexpected challenges after kidney transplant: The patient experience	Wed 11/20 2:20 PM	Rm. 349	Silke Niederhaus
Poster 4	P4.13	Parsa	Shirin	Independent	Uterine Fibroid Embolization Awareness: Lessons from a Private, Non-Profit Healthcare Institution	Wed 11/20 2:20 PM	Rm. 349	Amina Farooq
Poster 4	P4.14	Martinez DeMartino	Daisy Anthony	Independent	Can Peripheral Nerve Block Success Predict Phantom Limb Pain Relief from Post-Amputation Nerve Reconstruction?	Wed 11/20 2:20 PM	Rm. 349	Khanjan Nagarsheth; Georg Furtmueller
Poster 4	P4.15	Swamykumar	Prateek	Ortho Trauma Summer Research Fellowship	Post-Operative Weight-Bearing Status on Double Support Time measured by Apple Health Metrics	Wed 11/20 2:20 PM	Rm. 349	Robert O' Toole; Nathan O' Hara
Poster 4	P4.16	Hardy	Josiah	Independent	Surgeon Performed peripheral Nerve Blocks for the Identification of Thoracic Outlet Syndrome	Wed 11/20 2:20 PM	Rm. 349	Khanjan Nagarsheth

O1.01 Automated Aortic Calcification Scoring in CT Angiography: Comparing AI and Manual Methods

Presenter: Devina Chatterjee[1] BS
Mentor(s): Armin Arbab-Zadeh[3] MD PhD MPH, Joao A.C. Lima[3] MD, Bharath Ambale Venkatesh[4] PhD
Other Co-Author(s): Sangmita Singh[2] BS*, Emma Enriquez[2] BS
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[4] Department of Radiology, Johns Hopkins University, Baltimore, MD, USA

Background: Aortic calcification, frequently detected incidentally during coronary artery calcium (CAC) scans, remains underutilized in cardiovascular risk assessments due to the labor-intensive nature and variability of manual quantification.

Objectives: This study aims to evaluate the effectiveness of a deep learning model for the automated detection and quantification of aortic calcification in noncontrast coronary CT angiography (CTA) images and assess its prognostic utility for predicting major adverse cardiovascular events (MACE).

Methods: A deep learning algorithm was applied to CAC scans from 379 participants in the CORE320 study and 291 in the CORE64 study. Aortic calcification in the aortic root, ascending, and descending aorta was quantified using both manual and automated methods. Concordance correlation coefficients (CCC) measured agreement between methods. Cox regression, Kaplan-Meier analysis, and ROC analysis were performed to evaluate predictive value for MACE.

Results/Conclusions: Participants in the CORE320 (N=379) and CORE64 (N=291) studies had median ages of 62.4 and 60 years, respectively. Males comprised 66.1% and 73.5% of each cohort, with 27.0% and 19.9% having a history of myocardial infarction. Automated calcium scoring demonstrated strong concordance with manual methods (CCC: 0.926–0.992). Both scoring methods were predictive of MACE over a 5-year period, yielding hazard ratios of 1.61 [1.05–2.49]* for manual and 1.59 [1.03–2.45]* for automated total aortic scoring ($p<0.05$). Automated scores in the descending aorta particularly enhanced MACE prediction. Automated aortic calcification scoring is a reliable and efficient alternative to manual methods, with implications for improving cardiovascular risk stratification and clinical workflows.

This research was supported in part by AOA Medical Student Research Grant and RSNA Medical School Research Grant

O1.02 Widespread Bradycardia in Autosomal Dominant Polycystic Kidney Disease (ADPKD)

Presenter: David Regenold[1]
Mentor: Stephen Seliger, MD, MS[1]
[1] Department of Medicine, University of Maryland School of Medicine, Baltimore, MD

Background: Systematic investigation of resting heart rate in ADPKD has been limited despite clinical observations of bradycardia. In this study, we estimated the prevalence of bradycardia in ADPKD, compared to the general U.S. population, and analyzed its relation to PKD severity, heart structure, and clinical factors.

Methods: Adults with ADPKD and eGFR>15 ml/min/1.73m^2 were enrolled in a single-center cohort study. Those treated with beta-blockers or without sinus rhythm were excluded. Resting heart rate of ADPKD patients (by 12-lead EKG) was compared to a representative sample of the U.S. population (NHANES). Multiple linear regression was used to estimate the association of heart rate with ADPKD status and severity, clinical/demographic factors, and left heart function/size (measured by 2D echocardiography).

Results: Among 250 ADPKD patients, 50% had bradycardia (<60/minute) and mean (SE) heart rate (61 (0.7)) was markedly lower compared to the U.S. general population (72 (0.4), p=0.001 after adjustment for age and gender). Male sex ((β)ˆ=-0.20, p=0.002), lower K+ ((β)ˆ=-0.15, p=0.02), lower diastolic blood pressure ((β)ˆ=0.20, p=0.02), absence of cardiovascular disease ((β)ˆ=0.18, p=0.005), and greater self-reported physical activity (p=0.02) were associated with lower heart rate. Neither eGFR nor height-adjusted total kidney volume were associated with heart rate. Greater LAD, LAA, LVSV, LVEDV, and LVM were associated with lower heart rate among 162 ADPKD patients with echocardiograms.

Conclusions: In a contemporary cohort of ADPKD patients not treated with beta-blockade, one-half had resting bradycardia, with a markedly lower heart rate than the general population. Bradycardia was associated with heart structure but not PKD severity.

This research was funded by the National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK) and the National Institutes of Health (U54DK126114 and P30DK090868). This research was supported by the PKD Summer Research Program.

O1.03 Tube Feeding Duration Associated with Socioeconomic Factors in Infants with Congenital Heart Disease: Single Center Study

Presenter: Juliana S. Sherchan, BS[1]
Mentors: Christine Oliver, MSN[2]; Alexandra Krill, MA[2]; Alicia Chaves, MD[1,2]
[1]University of Maryland, School of Medicine, Baltimore, MD, USA
[2]University of Maryland Medical Center, Department of Pediatric Cardiology, Baltimore, MD, USA

Background: Infants with congenital heart disease are often discharged home with tube feeding to prevent malnutrition after undergoing cardiac surgery. However, tube feeding is associated with negative neurodevelopmental outcomes (e.g., lower cognitive, communication, and motor skills). Further, tube feeding impacts family functioning, often increasing stress, anxiety, and depression.

Methods: This retrospective cohort study was conducted among infants who underwent congenital heart disease surgery within 60 days of birth and were discharged from the hospital with tube feeding from 2016 to 2023 (N=102). Data from the center, submitted to the Society for Thoracic Surgery Congenital Heart Disease Database, and hospital medical records were used. Logistic regression estimated the associations between tube feeding duration of greater or less than 1 year and neighborhood socioeconomic status (SES), self-reported race and ethnicity, and insurance type. Neighborhood SES was calculated from z-scores of various SES variables based on the previously published method by Diez Roux and using the Childhood Opportunity Index.

Results: Overall, 102 infants were included and had a median total tube feeding duration of 490.5 days, with 62 (60.8%) infants requiring tube feeding for greater than 1 year. Compared to other racial and ethnic groups, Hispanic/Latino patients had the highest median duration of tube feeding in days (1065). Longer length of stay (OR: 1.023, 95% CI: 1.012–1.034), discharge before 2021 (OR: 3.89, 95% CI: 1.67-9.09), G-tube at discharge or any time (OR: 103.3, 95% CI: 21.023–507.9), Hispanic/Latino ethnicity (OR: 7.773, 95% CI: 1.693–35.681), and lower neighborhood SES score (OR: 3.288, 95% CI: 1.425–7.587) were associated with increased odds of needing a feeding tube for greater than 1 year.

Conclusions: Tube feeding duration varied across socioeconomic factors, suggesting the need to assess the best approaches to tube weaning to improve equity for future patients and support family functioning.

O1.04 Shear Stress-Induced Alterations of Neutrophil Function in Ventricular Assist Devices

Presenter: Kevin Ho[1]
Mentor(s): Zhongjun Wu, PhD[1]
[1]Department of Surgery, University of Maryland School of Medicine, Baltimore, MD

Mechanically assisted circulation, such as extracorporeal membrane oxygenation (ECMO) and ventricular assist devices (VADs), are commonly used to provide support to patients with heart and respiratory failure or during cardiac surgery. However, it is known that the high mechanical shear stress (HMSS) generated by mechanical circulation can damage neutrophils in blood, leaving patients prone to infections.

We aimed to characterize the extent of neutrophil alteration and dysfunction caused by two VADs—the HeartMate 3 and the CH-VAD—and evaluate the performances of each. Human blood was exposed to 150 mmHg of HMSS, and samples were collected at hourly time points up to 4 hours. Flow cytometry assays were used to analyze expression levels of various surface receptors reflecting functional status. Neutrophil phagocytosis and NETosis were examined through functional assays, and morphology was examined through blood smears.

Overall, there was a positive dose-response relationship between duration of shear stress and level of neutrophil dysfunction. Longer exposures led to decreased expression of surface receptors CD16, CD32, ICAM-1, and CD45. There were lower levels of NET formation and phagocytosis beginning at 2 hours of shearing and higher rates of border irregularity, vacuolation, and nuclear distortion in morphology. There was no significant difference in performance between the HeartMate 3 and the CH-VAD.

HMSS reduces neutrophil integrity in vitro and thus remains a crucial obstacle in current VAD models. Understanding the mechanisms and extent of neutrophil dysfunction is crucial to optimizing design and creating less traumatic, more biocompatible devices.

This research was supported in part by the Program for Research Initiated by Students and Mentors (PRISM), University of Maryland School of Medicine Office of Student Research.

O1.05 The Impact of Early Interventions and Surgical Timing on Neurological Development of Children With CHD (Congenital Heart Diseases)

Presenters: Noor Ul Huda Awan[1]
Mentor: Deborah Badawi, MD, FAAP[1]
Other Co-Author: Ananya Devadia[1]
[1] Department of Pediatrics, University of Maryland School of Medicine, Baltimore, MD

Delayed neurocognitive development has been seen in various children and adults with congenital heart diseases (CHD). Through this research study, we are hoping to see if there are differences in developmental delays between single ventricle defects and multiple ventricle defects in neonates as well as if earlier surgical intervention in neonates with CHD will result in better neurocognitive development than those who receive surgery later in life. We are using a retrospective study design, whereby we are analyzing medical records of patients seen at the University of Maryland Medical Center. Developmental quotients from the Capute scale have been used to analyze visuomotor functioning and receptive and expressive language. SPSS will be used for statistical analysis. In our preliminary data collection of 42 patients, analyses showed a significant Fisher's Exact Test (0.02) for motor delay between single and not single ventricle defects. Thus far, no statistically significant difference has been found in the neurocognitive development of children who received surgical intervention during the first 30 days of life vs. after 30 days of life. We aim to expand data collection in order to validate these initial results. Further research will be conducted to possibly look into differences in neurocognitive development between children with cyanotic heart defects vs. non-cyanotic heart defects as well as between children with specific CHD with public vs. private insurance. Through our research, we intend to further aid in development of best post-operative interventions for children with CHD.

O1.06 Tricuspid valve endocarditis in people who inject drugs: Single-center comparison of percutaneous mechanical aspiration versus a surgical approach

Presenter: Juliana Sherchan*[1], Lauren Bernard*[1]
Mentor: Dr. Shivakumar Narayanan[1]
Other Co-Author(s): Nazary Nebeluk[1]; Emily Brown-Umosella[1]; David Zapata[1]; Murtaza Dawood[2]
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Abstract

Background: The incidence of infective endocarditis in people who inject drugs (PWID) is rising, and a significant proportion of these patients need surgical repair/replacement of the tricuspid valve. Some PWID may have too high operative risk or may not be agreeable to undergo valve surgery. A vacuum assisted percutaneous mechanical aspiration procedure (AngioVac system) may be a useful alternative to surgical management in such patients.

Methods: We conducted a retrospective chart review of PWID hospitalized from January 2016 to September 2023 for tricuspid valve endocarditis with indication for valve surgery. Patient demographics, substance use, co-morbidity, pathogens, and outcomes were reviewed.

Results: Twenty-six patients were identified. 7 patients underwent the Angiovac procedure. Mean age was 31 years, 69% were female, and 19% were black. Procedural success, determined by >50% reduction in vegetation size without procedural complications, was higher in the surgical group compared to the Angiovac group (94% and 71%, respectively). Clinical success, determined by composite of none of the following: procedural complication, persistent or recurrent bacteremia post-surgery, need for surgical intervention after initial procedure, death during hospitalization and completion of antibiotic duration, was also higher the surgical group compared to the Angiovac group (84% and 57%, respectively). A greater proportion of surgical patients had resurgery within one year (16% versus AngioVac 14%). Post-operative mechanical ventilation was observed in one-third of cases with a higher proportion among the surgical cases. Two deaths were observed in each group. Pacemaker implantation for heart block was needed in 43% of AngioVac cases and 16% of surgical cases. Median length of hospital stay was 16 days.

Conclusion: Compared to the surgical group, the AngioVac group had a lower percentage of procedural and clinical success metrics. They more frequently needed permanent pacemaker implantation, though they had a lower frequency of mechanical ventilation and resurgery. Outcomes for the AngioVac debulking procedure need to be closely followed in larger cohorts and case-control studies to determine if it may be a reasonable alternative to surgical management.

O2.01 Long-Term Nutritional and Swallowing Outcomes in HPV+ Oropharyngeal Squamous Cell Carcinoma Treated with Transoral Robotic Surgery

Presenter: Vera Bzhilyanskaya[1]
Mentor(s): Kyle M. Hatten, MD[1]; Jane Y. Tong, MD[1]
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Objectives: Nutritional outcomes following transoral robotic surgery (TORS) for human papillomavirus (HPV) associated oropharyngeal squamous cell carcinoma (OPSCC) are poorly understood. This study evaluates how TORS, with or without adjuvant treatment, impacts weight loss and nutritional outcomes.

Methods: All patients treated with TORS for HPV+ OPSCC from January 2016 to December 2023 were included. Weight loss, feeding tube dependence, patient demographics, and treatment course were collected from patients' electronic medical records.

Results: In total, 164 patients with HPV+ OSPCC treated with TORS were included. 87.8% were male, with median age 60.3 years. Most patients were diagnosed with pT1 (52.4%) or pT2 (39.6%) and pN1 disease (77.4%). 32.3% underwent TORS alone, while 42.7% received adjuvant radiation and 25.0% adjuvant chemoradiation. The median follow-up time was 2.27 (range 0.07 – 7.56) years. 86.0% of patients underwent nasogastric tube placement during TORS. Longer duration of postoperative nasogastric tube dependence was significantly associated with higher rates of feeding tube replacement ($P < 0.001$; 95% CI, 1.055-1.185) later during treatment. Weight loss from three months to three years postoperatively was significantly greater in patients who received adjuvant radiation and chemoradiation ($P < 0.001$), despite no significant difference in swallowing outcomes between treatment groups at any time point.

Conclusions: Adjuvant treatment following TORS is associated with significantly greater long-term weight loss but does not significantly alter swallowing outcomes. Longer duration of nasogastric tube dependence in the postoperative period is associated with higher rates of enteral feeding dependence later during treatment.

O2.02 Management Sequence and Outcomes of Isolated Nasal Fractures at an Integrated Trauma Hospital

Presenter: Elizabeth Lee, BS[1]
Mentor: Natalie Justicz, MD[2]
Other Co-Authors: Tuleen Sawaf, MD[2], Christopher Z Wen, MD[2]

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Objectives: Nasal fractures have a critical impact on respiratory function and cosmetic appearance. This is the first study examining management sequence and outcomes of isolated nasal fractures at an integrated trauma hospital.

Methods: A retrospective chart review was performed of adult patients who sustained an isolated nasal bone fracture from 2019-2022. Pre-/post management symptoms and exam findings, mechanism of injury, fracture characteristics, type of intervention, and Facial Trauma service team were collected.

Results: 310 patients with isolated nasal bone fractures were included. 260 (83.9%) patients received conservative management, while 49 (15.8%) patients underwent closed reduction, and 1 (0.3%) received open reduction. Six (1.9%) patients received delayed closed reduction (avg 37.6 days). There was a greater decrease in nasal deformity after immediate closed reduction surgery compared to conservative treatment (44.8% vs 9.6%, $p<0.001$). Furthermore, there was a significant decrease in the percentage of patients with subjective nasal obstruction after closed reduction nasal surgery (48.3% to 13.8%, $p=0.01$) but not conservative treatment (11% to 12.2%, $p=1$).

Conclusions: Current management strategies are comprised most often of conservative management and closed reduction nasal surgery, which have a low rate of delayed and revision surgery. Immediate closed reduction nasal surgery is a more efficacious management strategy for addressing nasal deformity and dysfunction compared to conservative management.

This research was supported in part by the Program for Research Initiated by Students and Mentors (PRISM), University of Maryland School of Medicine Office of Student Research.

O2.03 Traumatic Brain Injury in Patients with Mandibular Fractures

Presenter: Eric Resnick, BS[1]
Mentor: Michael Grant, MD, PhD[2],
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Purpose: Traumatic brain injury (TBI) associated with facial fractures is a major public health concern worldwide. The rate of TBI in patients with mandibular fractures ranges from 21.3-39.6%. However, the risk factors for TBI in patients with mandibular fractures remain unknown. Our study is the first to evaluate these risk factors.

Methods: We retrospectively reviewed patients who presented with traumatic mandibular fractures in 2018 and 2019. Excluded were patients with no documentation of Glasgow Coma Scale (GCS). Our primary outcomes were: (1) prevalence of concomitant TBI on presentation defined as having a positive head computed tomography (CT) scan (hemorrhage, parenchymal contusion, diffuse axonal injury), or a negative scan with GCS<15 or any neurologic symptom/sign; (2) prevalence of post-traumatic neurologic symptoms assessed at >4 weeks after injury. The mandibular injury severity score (MISS) was calculated for all patients. Bivariate analysis and multivariate logistic regression were performed.

Results: Of 390 patients with mandibular fractures, 165 (42.3%) had concomitant TBI on presentation. Of those, 101 (61%) had mild TBI, 20 (12%) had moderate TBI, and 44 (27%) had severe TBI. Almost half of the mandibular fractures were due to assault (182 [47%]). Older age at injury was the only risk factor associated with significantly greater odds of TBI on presentation (adjusted odds ratio [aOR] 95% confidence interval [CI] 1.02 [1.002-1.033]). Of 195 patients who were assessed at >4 weeks after injury, 99 (51%) had neurologic symptoms, most commonly facial numbness (74 [38%]). Mandibular body fracture and a high MISS were associated with significantly greater odds of having neurologic sequelae at >4 weeks after injury (aOR [95% CI] 3.12 [1.31-7.50], 1.12 [1.04-1.20]).

Conclusions: Older patients and those with mandibular body fractures and a high MISS may benefit from TBI screening and close longitudinal follow up to identify and manage neurologic sequelae.

O2.04 Referral Gaps and Risk Factors for Long-Term Headaches in Patients with Craniofacial Fractures

Presenter: Grishma Patel, BS[3]
Mentor(s): Bashar A. Hassan, MD, MPH,[1,2] Michael P. Grant, MD, PhD[1]
Other Co-Author(s): Bashar A. Hassan, MD, MPH,[1,2] Grishma Patel, BS,[3] Eric Resnick, BS,[3] Seray Er, BS,[3] Jeison De Guzman, BS,[3] Apanjit Sahi, BS,[3] Nawal Shams, BS,[3] Michael P. Grant, MD, PhD,[1] Sashank K. Reddy, MD, PhD[2]

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Background: Posttraumatic headache (PTH) affects up to 80% of patients with mild-to-moderate traumatic brain injury (TBI), contributing to significant morbidity and healthcare burden. While early diagnosis and treatment can help prevent persistent headaches, neurology referral rates remain low. This study aims to (1) identify risk factors for PTH persisting >1 year and (2) assess the frequency of neurology referrals in patients with craniofacial trauma.

Methods: We retrospectively reviewed adult trauma patients who presented with frontal sinus, orbital, and mandibular fractures between (2018-2019). Our primary outcome was the frequency of persistent and new-onset PTH assessed >1 year of injury. Multivariable logistic regression was performed to identify risk factors for long-term PTH.

Results: Among 622 patients with craniofacial fractures, 27% (n=166) presented with PTH, and 50% (310) exhibited signs or symptoms related to TBI. Despite this, 80% (n=248) of these patients were not referred to neurology/neurosurgery. Among 81 patients who were not referred and had follow-up >1 year, 12% (n=10) reported persistent or new-onset PTH. Among 229 patients with follow-up >1 year, 3.5% (n=8) developed new-onset migraines, and 14.4% (n=33) experienced persistent or new-onset PTH. Significant risk factors for persistent or new-onset PTH >1 year included a history of pre-trauma headaches (aOR [95% CI] 5 [2-15], P=0.004) and abnormal head CT findings on presentation (aOR [95% CI] 4 [1-14], P=0.03).

Conclusion: Patients with craniofacial fractures, particularly those with pre-trauma headaches and abnormal head CT findings on presentation, should be vigilantly monitored for PTH, and referred early to neurology to prevent long-term morbidity.

O2.05 Efficacy of Antibiotic Prophylaxis in Preventing Infections Following Frontal Sinus Fracture Management: A Retrospective Analysis

Presenter: Apanjit Sahi, BS[1]
Mentors: Bashar Hassan, MD[2,3]; Michael Grant, MD, PhD[2]
Other Authors: Jeison De Guzman, MEd[1]; Grishma Patel, BS[1]; Pharibe Pope, BA[1]; Eric Resnick, BS[1]; Rena Hassan, BS[4]; Gregory Lamaris, MD[2]; Judy Pan, MD[2]

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Frontal sinus fractures (FSF) can lead to detrimental intracranial infections, yet there is variability in literature regarding the efficacy of antibiotic prophylaxis. This study aims to provide guidance on the role of prophylactic antibiotics in mitigating infection following FSF. A retrospective cohort study was conducted from January 2018 to December 2022 comparing incidence of infection between patients managed with versus without antibiotics. Patients with FSF diagnosed by CT scan and at least 18 years old were included. Our primary outcome was the incidence of infection following FSF. Of 201 patients, 27 (13.4%) had frontal sinus outflow tract injury, and 26 (12.9%) had dural tear or cerebrospinal fluid leak. Patients with dural tear were significantly more likely to receive antibiotics compared with those without (25 [96%] vs. 135 [77%], P=0.033), and none of these patients developed an infection. A total of 6 (3%) patients developed infection, including 4 meningitis and 2 sinusitis cases. Infections occurred in 5 of 160 patients (3.1%) who received antibiotics, compared to 1 infection (2.4%) in the 41 patients without antibiotic prophylaxis, with no statistically significant difference (P=1.0). The most common prophylactic antibiotic among patients who developed infection was 2g of IV cefazolin for 1-4 days. Majority of fractures (147, 73%) were managed conservatively, including all patients who developed infections. Although further randomized-controlled trials are needed to better define the role of antibiotic prophylaxis in preventing infections, antibiotics may not be necessary for all FSF patients.

This research was supported in part by the Program for Research Initiated by Students and Mentors (PRISM), University of Maryland School of Medicine Office of Student Research.

O2.06 Conservative versus Surgical Management in Patients with Frontal Sinus Fractures

Presenter: Jeison De Guzman[1]
Mentors: Bashar Hassan, MD[2,3]; Michael Grant, MD, PhD[2]
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Frontal sinus fractures (FSF) can lead to significant complications that are dependent on FSF injury severity and management. We aimed to identify patient and fracture characteristics that favor conservative vs surgical management and to compare complications between both management strategies. A retrospective cohort study was conducted from 2018-2022. Our primary outcome was frequency of indications for conservative vs surgical management for FSF. Our secondary outcome was incidence of complications following FSF management. Descriptive statistics, Chi-squared and Fisher's exact tests were performed. Of 201 FSF patients, the majority were conservatively managed (149 [74.1%]). Patients managed with open reduction and internal fixation (ORIF) were more likely to have a >2 mm displaced anterior table fracture (45 [28%], 30 [75%], P<0.001), >2 mm displaced posterior table fracture (21 [13%], 15 [38%], P=0.008), frontal sinus outflow tract (FSOT) injury (11 [7.4%], 16 [30.8%], P<0.001), cerebrospinal fluid (CSF) leak (8 [5.4%], 18 [34.6%], P<0.001), or pneumocephalus adjacent to the fracture (63 [42.3%], 32 [61.5%], P=0.023). Patients managed with ORIF were more likely to develop scarring (21 [40.4%], 31 [20.8%], P=0.007) and scalp numbness (11 [21.2%], 14 [9.4%], P=0.032) than patients managed with observation. Our findings indicate that the majority of FSF were managed conservatively, with more complex cases involving displaced fractures, FSOT injuries, CSF leaks, or pneumocephalus being more likely to require ORIF.

This research was supported in part by the Program for Research Initiated by Students and Mentors (PRISM), University of Maryland School of Medicine Office of Student Research

O3.01 Cannabis-Associated Peripheral Vascular Disease: A Case Report and Systematic Review With Implications for Baltimore

Presenter: Aidan Wiley, BA[1]
Mentor(s): Sarasi Desikan, MD[1]
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As of 2024, cannabis is now the most commonly inhaled drug and the most popular daily-use drug in the United States. Despite it rapidly evolving popularity and legality, it remains one of the most poorly studied drugs in the literature. Herein, we present the case of a 48-year-old male with an extensive vasculopathy history, including multiple episodes of acute limb ischemia, deep vein thrombosis and pulmonary emboli, and severe peripheral arterial disease (PAD) without significant risk factors. He underwent an extensive hypercoagulable work-up which was negative, and a vascular biopsy at the time of hospitalization showed mild inflammatory changes inconsistent with autoimmune vasculitis. During his hospital admission in February 2024, the patient endorsed smoking 3-4 joints daily. Upon cessation of cannabis, the patient reported an immediate improvement in his PAD symptoms and has declined further follow-up with vascular surgery as his symptoms have resolved. These findings are consistent with our larger systematic review, which found that cannabis use is an independent risk factor for the development of peripheral vascular disease and is likely severely underreported. Cannabis use was associated with popliteal, infrapopliteal and upper extremity digital disease that largely resolved with smoking cessation and calcium channel blockers. Surprisingly, despite cannabis bioelimination largely staving off symptoms of withdrawal, cannabis cessation was successful in less than 50% of cases. The study highlights a growing need to better understand the vascular consequences of heavy cannabis use and to better inform cannabis-based smoking cessation protocols for health systems to implement.

O3.02 Press *9 to Hear Options in Other Languages - Investigating Application of Interpretation Best Practices

Presenter: Euna Cho[1]
Mentor(s): Amy Kruger Howard, PharmD[2]; Sandra Quezada, MD[1]
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Background: The National Standards of Practice for Interpreters in Health Care (NSPIHC), developed in 2005, outlines best practices for using medical interpreters to improve patient care and well-being. However, these standards are not universally included in pre-clinical training. Our study aimed to evaluate health professional students' and new practitioners' awareness of these standards and their confidence in collaborating with interpreters.

Methods: An interprofessional group of nine students and four faculty from the school of medicine, pharmacy, and nursing designed qualitative surveys which were distributed via email list-servs to 1) students experienced in clinical practice across 6 professional disciplines of medicine, physician assistance, pharmacy, nursing, dentistry, and social work (25 questions) and to 2) healthcare practitioners who graduated within the past five years (26 questions). Participants received a small incentive payment. Descriptive statistics and quantitative data analysis were performed via Excel for Microsoft Office.

Results: 82 students from 6 professions and 120 new practitioners from 7 professions (medicine, physician assistants, pharmacists, nurses, nurse practitioners, physical therapy, medical assistant) completed the survey. Only 8.5% of students and 2.5% of new practitioners correctly identified when NSPIHC allows family or friends as interpreters—in emergencies and at the patient's request. Additional participants identified either emergencies (0% students, 12.5% new practitioners) or patient preference (3.7% students, 5.8% new practitioners) as acceptable. A small percentage (9.8% students, 0.8% new practitioners) thought family or friends could always interpret, while 13.4% of students and 25% of new practitioners indicated it was never acceptable. Both groups had limited prior training and exposure. Students reported similar confidence across in-person, telephone, and video forms while new practitioners felt most confident with video interpreter services. 73.2% of students and 40% of new practitioners spoke a non-English language, but only 18.3% and 8.3%, respectively, felt fluent in a medical setting. About one-third were asked to interpret for patients, with 40% of students and 20.8% of practitioners having done so. However, only 25% of students and 12.5% of practitioners had formal medical interpreter training.

Conclusions/Implications: Our survey reveals that despite multilingualism, most participants lacked knowledge of best practices for working with interpreters and were often asked to interpret without training. This highlights the need to educate clinical teams on the risks of using untrained interpreters. Future efforts will focus on creating an educational toolkit to teach health professional students these practices before clinical rotations.

This research was supported in part by the Health Equity Seed Grant, The Center for Interprofessional Education at the University of Maryland Baltimore

O3.03 Transforming Urologic Care: Physician and Patient Insights on AI Integration

Presenter: Peter Evancho, JD, ScM[1]
Mentor: M. Minhaj Siddiqui, MD[2]
Co-Authors: Amir Khan, MPH[2], Howard Wolinsky[3]
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The integration of artificial intelligence (AI) in urologic practice offers promising advancements in diagnostics, prognostics, and therapeutic decision-making, with applications in cystoscopic diagnosis of bladder cancer, prostate MRI evaluations, and electronic medical records. As both patients and physicians adapt to AI in medicine, this study examines their understanding of AI, highlighting similarities and differences in their perspectives.

An IRB-approved survey was created to assess awareness and perspectives on AI within the urologic community. Targeted interviews with key stakeholders provided additional insights, enhancing the depth of the study. Surveys were distributed via email to both patients and urologists.

In a survey of 380 participants (199 physicians, 181 patients), both groups showed limited familiarity with AI in general (59.3% vs. 65.8%, p=0.2) and in healthcare (71.4% vs. 76.8%, p=0.2). Most expressed optimism about AI's clinical utility (61.3% of physicians vs. 74.6% of patients), though trust in its accuracy was mixed (49.7% of physicians vs. 34.2% of patients, p=0.001). Ethical and privacy concerns were notable, especially among physicians (38.7% vs. 22.1% for ethical issues, p=0.001; 50.8% vs. 42.0% for privacy risks). Both groups favored shared accountability (71.3% vs. 63.3%, p=0.2) and human oversight (78.4% vs. 66.9%), underscoring the need for cautious AI integration in urology.

This study reveals alignment between physicians and patients on AI's potential in urology, alongside shared concerns about its reliability, ethics, and oversight. Future initiatives must prioritize education, ethical standards, and collaborative governance to ensure safe and effective AI integration in clinical practice.

Funding Acknowledgement
This research was supported in part by the Program for Research Initiated by Students and Mentors (PRISM), University of Maryland School of Medicine Office of Student Research.

O3.04 Differential Expression of the PHIST Multi-Gene Family in Severe Malaria: A Case-Control Study

Presenter: Kent Hardart[1]
Mentor: Mark Travassos, MD [1]
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Plasmodium falciparum causes hundreds of thousands of deaths annually, mostly in young children, the group most vulnerable to severe manifestations of disease, including cerebral malaria (CM), severe malarial anemia (SMA) and concurrent CM + SMA. In a case-control study, we examined the virulence of the *P. falciparum* PHIST multi-gene family, comparing gene expression between Malian children with severe malaria and matched controls with mild, uncomplicated disease. The PHIST gene family is comprised of PHISTa, PHISTb, and PHISTc subfamilies, each of which appears to have distinct functions. We hypothesized that the PHISTb subfamily would be upregulated in CM and CM + SMA cases given the role of PHISTb proteins in sequestration of parasitized erythrocytes – a hallmark of CM. PHIST transcripts were identified from RNA sequencing data using a nucleotide BLAST pipeline. We found significant upregulation of PHISTb transcripts in CM cases compared with matched controls without a history of CM ($p = 0.025$) and downregulation of PHISTa transcripts in SMA cases compared with matched controls without a history of CM ($p = 0.042$). Our analysis suggests that differential PHISTb expression may contribute to CM pathogenesis consistent with our hypothesis, and also identifies a potential link between SMA and PHISTa expression.

This research was supported in part by the Program for Research Initiated by Students and Mentors (PRISM), University of Maryland School of Medicine Office of Student Research.

O3.05 The Impact of a Precision Medicine Navigator on Inequities Associated with Genomic Tests in Black Patients and Underrepresented Populations with Prostate Cancer

Presenter: Zachery Keepers[1]
Mentors: Melissa Vyfhuis, M.D. Ph.D.[1]; Phuoc Tran, M.D. Ph.D.; Alexander Allen, M.D.[1]
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BACKGROUND: With the growing implementation of precision medicine in oncology, concerns have emerged regarding the potential for disparities in tumor genotyping among Black patients and other underrepresented groups. Such disparities may widen existing health inequalities. This study assessed if a precision medicine navigator (PMN)—a clinical specialist dedicated to coordinating tumor genomic testing—could improve access to testing, particularly among Black patients and disadvantaged populations.

METHODS: We conducted a retrospective review of prostate cancer consultations with radiation oncologists at the University of Maryland Medical System from November 2, 2021, to January 2, 2023. Testing rates were compared for the 7 months before and after introducing the PMN. Binary logistic regression was used to assess the odds of patients receiving genomic testing.

RESULTS: Among 693 patients (311 pre-PMN, 382 post-PMN), the groups had similar racial and clinical profiles. Genomic testing rates rose significantly from 18% pre-PMN to 70% post-PMN ($p=0.0002$), with increases across demographics, particularly for lower-income patients, those on Medicare/Medicaid, and those treated at community hospitals. Black patients' testing rates improved from 19% pre-PMN to 58% post-PMN, meaning they were six times more likely to receive testing post-PMN ($p<0.001$). However, disparities persisted: Non-Black patients had a higher testing rate (75.4%) than Black patients (58.5%) post-PMN ($p=0.0006$).

CONCLUSIONS: The introduction of a PMN increased genomic testing overall. However, testing rates remain lower for Black patients compared to others. Further research is needed to understand the factors driving these disparities and to inform future interventions that can more effectively mitigate health inequities.

O3.06 Restylane Vocal Fold Augmentation: Assessing Safety and Duration of Efficacy

Presenter: Alayna Kinkead[1]
Mentor(s): Elizabeth Guardiani, MD[1]
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Background: Restylane, despite no FDA approval for laryngeal use, has gained popularity in vocal fold (VF) injection augmentation due to its ease of use, perceived duration of benefit and cost efficiency relative to other FDA approved materials.

Objectives: To review the safety and duration of efficacy of Restylane in vocal fold augmentation.

Methods: A retrospective chart review of patients who underwent injection laryngoplasty with Restylane was conducted.

Results: 163 patients underwent 196 Restylane injections, diagnosed with VF paralysis (N=107, 65.6%), VF paresis (N=28, 17.2%) and VF atrophy (N=26, 16%). Several patients received multiple injections: 20 (12.3%) received two, 5 (3.1%) received three, and one patient (0.6%) received four injections. The average amount of Restylane injected in each VF was 0.53mL. Out of 114 patients who followed up, 89 (78.1%) noted improvement, 23 noted (20.2%) no change, and 2 (1.8%) reported worsening symptoms at first follow up. Those with return of VF function were excluded from follow-up assessments. 45 patients (30.4%) reported ongoing improvement at the time of last follow up ranging 8 to 1211 days, 55 patients (37.2%) reported a finite benefit, with duration of symptom improvement ranging 2 to 710 days (average of 170 days). Three patients (1.5%) experienced complications including laryngospasm, laryngeal edema, and dysphagia/fever.

Conclusions: Restylane is a safe and effective treatment for glottic insufficiency. Average benefit duration lasts 170 days, and many patients may experience ongoing benefits beyond.

O4.01 Predictors of In-Hospital Mortality in Patients with New Diagnosis of Type II Odontoid Fractures: A Retrospective Level I Trauma Center Experience

Presenter: Emmeline Leggett, BA[2]
Mentor(s): Dr. Timothy Chryssikos, MD, PhD[1]
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Introduction
Type II Anderson-D'Alonzo odontoid fractures are common and may present in isolation or in the setting of multi-trauma. This study sought to identify independent predictors of in-hospital mortality and post-operative length of stay in patients with new diagnosis of Type II odontoid fracture.

Methods
From an initial cohort of 457 patients admitted to a Level 1 Trauma Center between January 2016 and March 2024, 237 were confirmed by a neurosurgeon to have newly diagnosed Type II odontoid fractures on imaging. After checking for collinearity, significant variables from univariate analysis were included in a logistic multivariable model for in-hospital mortality status. A linear multivariate model was used to identify independent predictors of post-operative length of stay following univariate analysis.

Results
Mean age was 75.5 (SD 6.4) years, and 54% of patients were male. Multiple trauma was present in 22.33%. Mean Injury Severity Score (ISS) was 12.77 (SD 7.1), and mean GCS was 13.95 (SD 2.75). Twenty-four patients (10.1%) had traumatic brain injury (TBI) and 14 patients (5.9%) had spinal cord injury (SCI). Overall mortality was 9.7%. We observed a bimodal distribution of mortality by age. Multivariable logistic analysis demonstrated that older age ($p=0.01$), ISS ($p-0.034$), pulse rate ($p=0.01$), and presence of SCI ($p=0.004$) were independent and significant predictors of in-hospital mortality. In the seventy-eight patients who underwent posterior fusion, multivariate linear analysis identified GCS ($p<0.001$), admission Revised Trauma Score (RTS) ($p=0.011$) and presence of SCI ($p<0.001$) as independent predictors of increasing post-operative length of stay (LOS).

Conclusion
There was a bi-modal age distribution of in-hospital mortality among patients admitted with new diagnosis of Type II odontoid fracture. Higher ISS and presence of SCI but not TBI independently predicted in-hospital mortality. Higher admission heart rate also independently predicted in-hospital mortality. Except for age, demographic variables including 5-item Frailty Index, Area Deprivation Index, and smoking status did not predict in-hospital mortality. Lower GCS, higher admission RTS, and presence of SCI were independent predictors of post-operative LOS.

O4.02 Prevalence and Risk Factors of Sarcopenia in Odontoid Fractures: A Single Institutional Retrospective Study

Presenter: Bibhas Amatya[1]
Mentor(s): Julio Jauregui, MD[1]; Steven Ludwig, MD[1]
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Sarcopenia is a medical condition defined by a generalized loss of muscle mass and function. Studies have shown that in patients who undergo thoracolumbar surgeries, sarcopenia is associated with a higher rate of complications. However, its role in cervical spine trauma, particularly odontoid fractures, is not well understood. Therefore, this study's objective is to report and examine the effect of sarcopenia on perioperative management and long-term outcomes in patients with odontoid fractures. A retrospective cohort study was conducted involving 60 patients who underwent surgical management for odontoid fractures between 2015 and 2023. The presence of Sarcopenia was radiographically evaluated through a previously validated method of measuring the Sternocleidomastoid Muscle Index (SCMI) from cervical CT scans. Demographic, clinical, and surgical data were extracted from electronic medical records. Patients were classified as sarcopenic or non-sarcopenic based on SCMI cutoffs (2.8 cm^2/m^2 for males, 1.5 cm^2/m^2 for females). Outcomes of interest included postoperative complications, hospital length of stay, and discharge disposition. 48.3% of the patients were classified as sarcopenic. Sarcopenic patients were significantly more likely to be male (80% vs. 20%, $p < 0.0001$) and required more frequent discharge to rehabilitation facilities (35.5% vs. 64.5%, $p = 0.0395$). Sarcopenic patients demonstrated a trend toward longer hospital stays and increased postoperative complications. Taken together, our findings suggest that sarcopenia may be a critical factor in affecting both perioperative management and long-term outcomes in patients with odontoid fractures requiring surgical intervention. Further research is warranted to optimize management and improve outcomes in this vulnerable population.

This research was supported in part by the Program for Research Initiated by Students and Mentors (PRISM), University of Maryland School of Medicine Office of Student Research.

O4.03 Do superficial drains make a difference after lumbar fusion surgery? A prospective, randomized trial.

Presenter: Cailin Cruess[1]
Mentor(s): Charles Edwards II, MD[1]
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Objective: The goal of this study was to evaluate the impact that subcutaneous drains have on patient satisfaction and postoperative recovery after a lumbar fusion surgery.

Summary of Background Data: The use of drains following lumbar fusion surgery is controversial. Current literature shows that there are both benefits and drawbacks to using deep drains, however, there are no reports on the utility of superficial drains.

Methods: 110 patients undergoing a one to three level fusion by a single surgeon were randomly selected to receive either a subcutaneous drain (55 patients) or no drain (55 patients). Drain output was collected one, three, and five days after the procedure. Drains were removed five days after the surgery so long as the output was less than 50 ccs in a 24- hour period. Patient demographics, drain outputs and questionnaire data from 10, 30 and 60 days after the procedure were compared.

Results: Patients receiving a superficial drain were significantly less likely to have incisional drainage ($p<0.01$) and tended to be less anxious about their wound healing ($p=0.06$). There was no difference between drain and no drain groups in terms of postoperative complications, wound care satisfaction, level of independence or need for outside medical assistance. Body mass index (BMI) and wound thickness did not impact the volume of drain output or other results.

Conclusions: Subcutaneous drains significantly decreases incisional leakage and tends to decrease patient anxiety regarding wound healing. The presence of a postoperative drain does not diminish patient satisfaction with wound healing.

This research was supported in part by the Program for Research Initiated by Students and Mentors (PRISM), University of Maryland School of Medicine Office of Student Research.

O4.04 Predictors of 2-year PROMIS PF after Primary ACL Reconstruction

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With the rise in elective procedures such as anterior cruciate ligament (ACL) reconstructions in recent years, patient-reported outcomes (PROs) have become an essential measure of operative success. This study aimed to predict Patient-Reported Outcomes Measurement Information System (PROMIS) physical function (PF) outcomes at a 2-year follow-up after primary ACL reconstruction to enhance perioperative patient counseling. A prospectively managed orthopedic registry was queried for baseline and 2-year data from patients who underwent primary ACL reconstruction between January 2015 and June 2018 at a single academic institution. Multivariable regression analysis identified predictors of 2-year PROMIS PF outcomes. The study found that younger age, higher income, and better baseline PROMIS PF scores were associated with better physical function at 2 years post-surgery. Additionally, these factors, along with lower initial PROMIS PF scores, were predictors of greater improvement over time. The PROMIS fatigue measure, which includes mental fatigue, may affect a patient's perception of physical function postoperatively. These findings align with previous research indicating that older age and lower socioeconomic status correlate with worse function following ACL reconstruction. This study's insights could be instrumental in refining patient counseling by providing a more nuanced understanding of expected outcomes 2 years after surgery.

O4.05 Socioeconomic Disadvantage Predicts Decreased Prosthesis Use After Major Lower Extremity Amputation

Presenter: Maria Som, MS[1]
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Area Deprivation Index (ADI) ranks Census block groups by socioeconomic disadvantage. This project aims to assess if ADI is a predictor of outcomes following major LEA and if ADI is associated with pre-operative factors (race and indication for amputation). Data from patients who underwent major LEA from 2015 to 2022 was collected retrospectively. Patients were stratified into terciles based on their ADI: highly disadvantaged (ADI³8), medium (3<ADI<8), and low (ADI£3). Outcome analyses were performed using chi squared analyses followed by logistic regression for significant factors. 633 patients underwent major LEA, with a mean ADI of 6.93 (± 2.66). The most common indications for amputation were infection (27.5%) and gangrene (21.2%). ADI was significantly different across racial groups (p<0.001): among black individuals, high ADI was most common (198, 64.3%) while in Caucasian individuals, middle ADI was the most common (135, 46.7%). ADI was significantly different across indications for amputation (p=0.010): in “low” ADI, the most common indications were infection (31, 34.1%) and trauma (24, 26.4%) while in “medium” and “high” ADI the most common indications were infection (medium = 62, 27.6%; high= 81, 25.8%) and gangrene (medium= 51, 22.7%; high= 70, 22.3). Logistic regressions revealed that middle ADI is associated with increased re-amputation at 1 year (p=0.002) and high ADI is associated with decreased prosthesis use (p=0.038) when controlling for race, indication, and amputation level. Race and indication for amputation were not independently associated with prosthesis use after amputation. Higher ADI is associated with black race and increased rates of gangrene compared to lower ADI. Nevertheless, ADI predicted prosthesis use after major LEA independent of racial demographic, indication for and level of amputation.

O4.06 Differences in Apple Health Mobility Metrics Between Patients Prescribed Early and Delayed Weight-Bearing Protocols

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Optimizing post-operative weight-bearing at the appropriate stage of healing can enhance fracture recovery. Non-compliance to weight-bearing protocol can compromise fracture healing, but options for monitoring weight-bearing compliance are limited. With widespread smartphone adoption in the United States, built-in sensors may provide an opportunity to track weight-bearing more objectively through step count and other gait metrics. This study aimed to evaluate differences in mobility between patients prescribed early versus delayed weight-bearing following surgical fixation of lower extremity fractures. We hypothesized that daily step counts would be higher in early weight-bearing patients than in delayed weight-bearing patients. This retrospective cohort study included 74 adult patients who underwent surgical treatment for a lower extremity fracture and owned an Apple iPhone for at least 1 year before injury. Patients were classified as early weight-bearing (within 3 weeks post-fixation) or delayed weight-bearing (≥6 weeks post-fixation). The study's mobility outcomes were passively collected through the Apple Health Kit app and included step count, walking speed, step length, and walking asymmetry. The early weight-bearing group (n=27) displayed significantly higher daily step counts than the delayed weight-bearing group (n=47) within 12 weeks of injury, with a mean difference of 1050 steps (95% CI, 373 to 1727; p=0.002). Walking speeds at 26 weeks were also significantly higher in the early weight-bearing group (1.23 m/s vs. 1.10 m/s; p=0.004). Our results indicate smartphone mobility sensors effectively distinguish step counts between early and delayed weight-bearing, offering clinicians a valuable tool for individualized compliance monitoring.

This research was supported by an AOTrauma North America fellows grant, Orthopaedic Trauma Association resident research grant, and the National Institute of Arthritis and Musculoskeletal and Skin Diseases (K24AR076445)

O5.01 The Impact of Social Determinants of Health on Pediatric Cataracts Treatment

Presenter: Andrea Orpia[1]
Mentor(s): Janet Alexander, M.D.[1]
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Congenital and developmental cataracts are leading causes of visual impairment among children globally. Though disparities significantly impact health outcomes, the role of social determinants of health (SDOH) in pediatric cataract diagnosis and treatment has not been well-characterized in the United States. This study aimed to identify barriers to care and describe their impact on age at surgery and post-operative treatment outcomes. A retrospective chart review was conducted on 62 patients aged 0-18 years who underwent cataract surgery at the University of Maryland Medical Center between 2009 and 2024. Both individual-level characteristics and neighborhood-level risk factors were assessed. The median (IQR) age at surgery was 3 years (0.83 – 7.75) and the median (IQR) number of post-operative ophthalmology visits within 1 year of cataract extraction was 8 (5 - 11). Among patients who identified as Black, Hispanic/Latino, or White, there were no significant differences between age at surgery (p=0.24), median household income (MHI) (p=0.07), area deprivation index (p=0.07), distance to nearest clinic (p=0.32), nor number of appointments in post-operative year 1 (p=0.99). Additionally, there was a weak, positive correlation between MHI and age at surgery ($r = 0.25$, $p = 0.049$) and no correlation between MHI and number of follow-up visits during post-operative year 1 ($r = 0.06$, $p = 0.77$). Though this study was limited by small sample size, a comprehensive range of SDOH variables were extracted and can inform future research approaches within ophthalmology. Ultimately, gaining a better understanding of disparities in pediatric cataracts can aid in the development and implementation of equitable interventions that can improve vision outcomes.

O5.02 Evaluating the Tear Protein and Cytokine Profile of Ocular Graft Versus Host Disease

Presenter: Sara Chang[1]
Mentor: Sarah Sunshine, MD[2]
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Hematological cancers are often treated with allogenic hematopoietic stem cell transplants (HSCT)[1]. While this is the standard of care, there are often severe complications. Up to 70% of those who undergo HSCT will develop graft vs host disease (GVHD), when the patient's new immune system mistakes host tissue for foreign[2]. In addition to systemic GVHD, up to 60% of patients will develop ocular graft versus host disease (oGVHD)[3]. The symptoms of oGVHD are debilitating, including severe dry eye, impaired vision, and in the most severe cases, corneal perforation. The mechanism of oGVHD is poorly understood. There are many biomarkers indicated as related to oGVHD, but a better understanding of the cytokines and proteins that play a role in oGVHD will allow us to better grasp the disease and progression of oGVHD[4]. Previous studies have had limited success due to the incompatibility of tears and the volume of tears required for the methods used. In this experiment we use OLink, a tool that tests up to 48 cytokines using a very small volume of sample[5]. With this data we can begin to create a cytokine profile for those with oGVHD. We identified an increase in proinflammatory cytokines when comparing normal controls vs oGVHD HSCT patients (OLR1, IL6, HGF, IL18, CCL3, and MMP1.) There were also increases in cytokines when comparing HSCT controls vs oGVHD HSCT patients (OLR1, IL6, HGF, IL18, CCL3, CXCL8, and MMP1.) These data will help us to reveal the underlying pathways involved in oGHVD and potential biomarker profile for identifying patients at risk or early in oGVHD development.

O5.03 Fluorescein Angiography Blood Flow Changes Associated with Retinopathy of Prematurity

Presenter: Manahel Zahid[1]
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Retinopathy of Prematurity (ROP) is a condition that arises from abnormal vascular proliferation within the retina and is a leading cause of preventable childhood blindness worldwide. Intravenous fluorescein angiography (IVFA) is an imaging modality that may be used to assess vascular circulation in the retina and provides high sensitivity for diagnosing severity and treatment response in ROP. Although IVFA utilization in ROP has been studied, arterial and venous fill on a vessel-by-vessel basis has not been investigated. This study aims to assess the association between blood flow metrics measured by IVFA and clinical severity of ROP and how treatment may influence ROP parameters.

A retrospective analysis was conducted on neonates in the neonatal intensive care unit (NICU) with ROP who underwent IVFA imaging using RetCam at the University of Maryland Medical Center from 2022 until present. IVFA imaging collected from previous cases was analyzed to extract arterial-venous transit time (AVTT). Data collected included ROP stage, plus disease, tortuosity, vascular severity score (VSS), and ROP severity based on the ROP activity scale (ROP-actS).

The mean GA and BW were 24.4 ± 1.4 weeks and 592.3 ± 153.2 grams, respectively. The mean postmenstrual age at IVFA imaging was 46.1 ± 9 weeks. Four patients did not receive treatment prior to IVFA imaging. Two patients received laser treatment; seven patients received intravitreal injections of anti-VEGF; and one patient received both treatments prior to IVFA imaging. Our study found an upward trend of increased AVTT with increasing VSS.

Our results suggest retinopathy of prematurity is associated with variable arteriovenous filling time demonstrated in our results. These results provide a framework of future investigation to provide a more quantitative measure of ROP severity. Further studies must be conducted to further our understanding of the nuances that lie in the hemodynamic changes within vasculature blood supply resulting from retinopathy of prematurity.

This research was supported in part by the Program for Research Initiated by Students and Mentors (PRISM), University of Maryland School of Medicine Office of Student Research.

O5.04 GZMB's Mechanism of Action in Systemic and Ocular GVHD: Insights from RT-qPCR Analysis

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Mentor Name: Sarah Sunshine, MD[1]
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Ocular graft-versus-host disease (oGVHD) occurs when T cells, neutrophils, and macrophages from the donor infiltrate the host's eye tissues following hematopoietic allogeneic stem cell transplantation. This disease can be debilitating for patients and can lead to severe inflammatory dry eye disease. T cells have been implicated in the pathogenesis of oGVHD. Additionally, a variety of specific cytokines have been shown to be elevated in the tissue in patients with oGVHD. Granzyme B (GzmB), a pro-apoptotic serine protease, is found in the granules released by natural killer cells and T cells. It has intracellular and extracellular functions and is taken up into its target cells by perforin. To elucidate the intracellular vs extracellular mechanism of GzmB in oGVHD, we evaluated the changes in mice deficient in perforin (perf KO) and mice deficient in perforin and GzmB (DKO) in a haploidentical mouse model of oGVHD. After 50 days, the expression of granzyme B, TNF-α, and IFN-γ were measured in the lacrimal gland, eyelid and spleen. We found that the perf KO knock out mice expressed the largest amount of GzmB in each tissue and within this group GzmB expression is complimentary to increased IFN-γ expression in ocular tissues. oGVHD was notably more severe in the Perf KO and WT + spl groups which suggests an extracellular role of GzmB mediated by cytokine signaling in the development of disease.

Funding Acknowledgement:
This research was supported in part by the Program for Research Initiated by Students and Mentors (PRISM), University of Maryland School of Medicine Office of Student Research.

O5.06 Neuropsychological Development in Pediatric Ophthalmology Patients: A Scoping Review with Social Determinants of Health Analysis

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INTRODUCTION: 6.7% of pediatric patients in the United States are diagnosed with structural eye diseases. Despite their prevalence, these children often encounter social biases and negative attitudes, as seen in strabismus patients being invited to birthday parties less frequently. This scoping review aims to investigate the existing literature on how ocular diseases impact pediatric patients' neuropsychological development with an analysis of social determinants of health (SDOH).

METHODS: From the database inception date through June 13, 2024, CENTRAL, Embase, Europe PMC, Medline, PsycInfo, and Scopus were searched. The screening was conducted in Covidence. The search focused on four domains: ocular diseases, neuropsychiatry, pediatric population, and SDOH. Non-primary literature, case reports, case series, conference papers, letters to the editor, non-English articles, ocular diseases with concurrent systemic conditions, and those without a specific link to neuropsychiatric conditions were excluded.

RESULTS: 10978 studies were imported for screening with 3032 duplicates removed. After screening by title and abstract, 7566 studies were deemed irrelevant. 378 full-text studies were assessed for eligibility via full-text review, which resulted in 162 articles. The final extraction revealed SDOH factors from financial security, access to education, access to healthcare, and support networks. Ocular diseases also impacted pediatric patients' neuropsychological development in the following areas: 1) cognitive development, 2) mental well-being, 3) social engagement, 4) self-perception, 5) quality of life, and 6) prejudices.

CONCLUSION: This scoping review provides a detailed analysis of SDOH and neuropsychiatric barriers faced by pediatric ophthalmology patients, calling for action in developing policies and interventions to improve patient care, with particular attention to child development.

O6.01 Clinical Validity of NIH Cognitive Toolbox Tasks in Drug-Resistant Epilepsy Compared to Gold Standard Neuropsychological Testing

Presenter: Matthew Kreinbrink, BS[1]
Mentors: Stephanie H. Chen, MD, MS[1]; Anjeli B. Inscore, Psy.D., ABPP-CN[1]
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Rationale: Drug-resistant epilepsy (DRE) is a debilitating neurological disorder, where resective surgery often provides significant benefits, including seizure freedom and improved quality of life. However, cognitive decline frequently follows epilepsy surgery, making the assessment of postsurgical cognitive outcomes crucial during presurgical evaluations. The NIH Toolbox Cognition Battery (NIHTB-CB) was designed as a quick and standardized method for evaluating cognitive function, yet it remains underutilized in clinical settings. Previously, we validated the NIHTB-CB as a sensitive adjunct neuropsychological test to identify cognitive differences between patients with drug-resistant temporal lobe epilepsy and matched controls. This study aims to evaluate the clinical validity of NIHTB-CB tasks compared to standard neuropsychological measures.
Methods: Patients with DRE undergoing presurgical evaluation at our Level IV NAEC Epilepsy Center were recruited, all having failed multiple antiseizure medications. Participants underwent NIHTB-CB testing alongside standard neuropsychological assessments. Scores were normalized and averaged across five cognitive domains. We assessed correlations between NIHTB-CB and standard scores using Pearson correlation coefficients.
Results: We recruited 24 subjects (mean age 38, range 23-62), including 20 with temporal lobe epilepsy. Strong correlations were found between NIHTB-CB and standard scores in episodic memory ($r = 0.64$ [$p = 0.0013$]), attention and executive functioning ($r=0.59$ [$p = 0.0097$]), and language ($r=0.91$ [$p < 0.0001$]). No significant correlations were observed in working memory ($r=0.36$ [$p = 0.0954$]) or processing speed ($r=0.20$ [$p = 0.4154$]).
Conclusions: Our findings demonstrate strong correlations between NIHTB-CB and gold standard neuropsychological tests in several cognitive domains, suggesting that NIHTB-CB tasks may serve as effective standalone screening tools for patients with DRE. Given their ease of administration, these tasks may help fill gaps in cognitive monitoring within the epilepsy population.

This research was supported in part by the Program for Research Initiated by Students and Mentors (PRISM), University of Maryland School of Medicine Office of Student Research.

O6.02 The Role of Sonic Hedgehog Signaling in Metabolic Changes Associated With Seizure Network Formation in Epilepsy

Presenter: Ziam Khan[1]
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Despite treatment with anti-seizure medications (ASMs), a significant proportion of epilepsy patients—over one-third—develop drug-resistant epilepsy (DRE). Emerging research suggests that the failure of ASM treatment may be due to untreated regions within a broader seizure network, challenging the traditional view of epilepsy as a strictly focal disorder. However, creating network-targeted treatments for epilepsy has been hampered by the absence of an effective in-vitro model for seizure network development. Our lab's previous studies indicate that neuronal hyperactivity linked to seizures can drive widespread increases in aerobic glycolysis, which may contribute to the formation of these seizure networks. This metabolic shift is mediated by AMP-activated protein kinase (AMPK), which upregulates lactate dehydrogenase A (LDHA), a crucial enzyme in aerobic glycolysis. Intriguingly, the non-canonical Sonic Hedgehog Signaling (SHH) pathway also activates AMPK and increases LDHA expression in neurons. SHH signaling is notably upregulated in the temporal lobe tissue of epilepsy patients compared to non-epileptic controls, suggesting a possible link between SHH signaling and metabolic reprogramming in epilepsy.

Using rat cortical cultures on multielectrode arrays, we treated cells with low magnesium artificial cerebrospinal fluid to induce hyperactivity and examined connectivity changes over several days. Compared to controls, low Mg2+ treated cells demonstrated daily increases in functional connectivity both at baseline immediately prior to treatment and following low Mg2+ treatment. Pre-treatment connectivity, measured as Pearson's correlation, did not differ significantly between the experimental and control cells (Control Mean: 0.35 Low Mg2+ Mean: 0.40 p=0.3001).Connectivity in low Mg2+ cells peaked at Day 3 (Control Mean: 0.42 Low Mg2+ Mean: 0.50 p=0.0035) and remained significantly higher than control cells at the end of the treatment (Control Mean: 0.37 Low Mg2+ Mean: 0.47 p=0.0115). Furthermore, SHH inhibition reduced this effect on connectivity and reduced lactate dehydrogenase A expression relative to vehicle treated cells. These results highlight the utility of low Mg2+ as both an acute and chronic model of seizure network development. Using this model, we show that Sonic Hedgehog Signaling pathway inhibition may be protective against seizure network formation. Mechanistically, this effect may occur due to reductions in metabolic reprogramming associated with epilepsy.

O6.03 Lactate Dehydrogenase A (LDHA) Is Chronically Upregulated After Temporal Lobe Contusion in Mice

Presenter: Adedayo Olaniran[1]
Mentor(s): J. Marc Simard, MD PhD[1]; Volodymyr Gerzanich, MD, PhD[1]
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Post-traumatic epilepsy (PTE) is a common comorbidity chronically seen in traumatic brain injury (TBI). TBI triggers cascade of metabolic disturbances seen in epilepsy, including hyperglycolysis that exacerbates neuronal damage. Lactate Dehydrogenase (LDH), a key enzyme supporting glycolysis, has been implicated systemically in TBI clinical studies through blood analysis and is a potential therapeutic target. LDH consists of two subunits: A and B. LDHA, upregulated in human and rodent epileptic tissues, converts pyruvate to lactate to regenerate NAD+ for glycolysis. LDHB, which is not upregulated in rodent epilepsy, converts lactate back to pyruvate. This study utilizes immunohistochemistry to assess chronic LDHA and LDHB expression six weeks after temporal lobe contusion (tlCont) in C57/Bl6 mouse brain and epileptogenesis. We assessed expression bilaterally in the hippocampus, including the subiculum, CA1, CA3 hippocampal subregions, and the temporal cortex. Compared to naïve control animals, significant upregulation in LDHA protein expression was observed bilaterally in the hippocampus and in the contralateral temporal cortex six weeks after tlCont. LDHB expression was significantly increased in the contralateral CA3 and CA1 hippocampus in tlCont compared to naïve, but LDHB expression in ipsilateral regions were not significantly different between naïve and tlCont animals. LDHA expression was found predominantly within neurons, whereas LDHB was found in both neurons and astrocytes. Overall, the more robust upregulation in LDHA protein relative to LDHB six weeks after tlCont suggests chronic metabolic reprogramming in neurons towards glycolysis. Future experiments will determine whether these metabolic alterations are associated with increased nonconvulsive seizure incidence induced by tlCont.

This research was supported in part by the Program for Research Initiated by Students and Mentors (PRISM), University of Maryland School of Medicine Office of Student Research.

O6.04 Examining Disparities in Traumatic Brain Injury Outcomes: Impact of Rurality & Socioeconomic Factors

Presenter: Minahil Cheema[1]
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The Shock Trauma Center at the University of Maryland Medical Center (UMMC) treats a diverse patient population, though rural patients are underrepresented. Traumatic brain injury (TBI) is a major global cause of morbidity and mortality, with rural patients often experiencing worse outcomes due to barriers like delayed access and limited healthcare resources. This study explores the effect of social determinants of health (SDoH), such as occupation, median zip code income, and rural status, on TBI types and outcomes. We hypothesized that rural patients would exhibit different injury patterns and outcomes compared to non-rural patients.

We conducted a retrospective observational study on adult TBI patients at UMMC from 2016 to 2023. Rural status was defined by state statute, and outcomes such as length of stay (LOS), ICU days, and discharge disposition were compared using chi-square and t-tests. The study included 3083 patients, with 267 rural and 2545 non-rural patients. Subdural hematoma (SDH) was less common among rural patients (116/195, 59%) compared to non-rural patients (1719/2545, 68%, $p=0.021$). Additionally, analysis by income brackets showed that patients from higher-income zip codes (1200-1500% FPL) had significantly fewer ICU and ventilator days and higher Glasgow Coma Scale (GCS) scores compared to those from lower-income brackets ($p<0.05$). This finding aligns with research suggesting that higher-income areas, often non-rural, correlate with better outcomes, potentially due to greater access to healthcare resources.

While no notable differences in LOS or ICU days were observed when comparing rural versus non-rural status alone, the data indicate that income disparities, often prevalent in rural areas, influence TBI outcomes. Further research with a larger rural cohort is needed to better understand the impact of SDoH on TBI outcomes and inform targeted interventions for rural populations.

O6.05 7q11.23 Gene Dosage Effects on Measures of Cerebellar Volume

Presenter: Danya A. Adams[1]
Mentors: Tiffany A. Nash, MS[1]; Karen F. Berman, MD[1]
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While the cerebellum is classically associated with motor coordination, there is recent appreciation that the “little brain” may also be involved in emotion, cognition, and sociability. Williams syndrome (WS) and the 7q11.23 duplication syndrome (Dup7) are rare neurodevelopmental disorders resulting from a hemi-deletion and duplication, respectively, of ~25 genes on chromosomal locus 7q11.23. These copy number variations (CNV) result in alterations in fine motor skills, cognition, and socioemotional processing, which may be due, in part, to alterations in cerebellar structure. To test for structural cerebellar differences related to 7q11.23 gene dosage, we measured cerebellar volume in individuals with WS and Dup7. T1-weighted MRI images were longitudinally collected on a 3T scanner from 68 participants aged 5-26 at 203 visits, including 24 individuals with WS (80 timepoints: mean age=14.1±4; 17 females), 12 Dup7 (37 timepoints: mean age=14.7±3; 5 females), and 32 typically developing (TD) participants (86 timepoints: mean age=13.0±4; 18 females). Volumetric segmentations of the whole brain and cerebellum, encompassing gray and white matter volume, were generated using Freesurfer7 software. We used R’s lme4 to test for differences between each CNV group and TDs in total cerebellar volume, relative cerebellar volume (normalized by total brain volume), relative cerebellar gray matter volume (GMV), and relative cerebellar white matter volume (WMV). All models included fixed effects for age and sex, and reported findings are significant at Bonferroni-corrected $p<0.006$. While both CNV groups exhibited reduced absolute cerebellar volume compared to TDs (WS, $p=0.0055$; Dup7, $p=0.0018$), a gene dosage effect emerged when considering cerebellar volume relative to brain size: individuals with WS had larger cerebellar volumes relative to brain size ($p=0.0007$), whereas those with Dup7 had smaller relative volumes ($p=0.000002$). Similar patterns were observed when cerebellar GMV was examined separately, with WS>TD ($p=0.0002$) and TD>Dup7 ($p=0.000002$), but no significant group effects were found for cerebellar white matter volumes ($p>0.05$). Our study revealed an effect of 7q11.23 gene dosage on the relative total volume and relative gray matter volume of the cerebellum in individuals with WS and Dup7. Future investigations focusing on specific regions of the cerebellum may help elucidate these structural differences as they relate to the neurobehavioral phenotypes of the CNVs.

This research was in part supported by the National Institutes of Health Intramural Research Program

O6.06 Investigating NCX1 as a Therapeutic Strategy for Spinal Cord Injury

Presenter: Christopher Bragança[1]
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Spinal cord injury (SCI) most often occurs from trauma and is a devastating source of physical, psychological, and financial burden for patients and families, partly because there are currently no effective treatments that reduce white matter damage and improve patient outcomes. Following traumatic SCI, axons in the white matter may either undergo *primary axotomy* and immediately sever from the damage of the traumatic event, or *secondary axotomy* and slowly degenerate. Damage from primary axotomy is instant and irreversible, but secondary axotomy's delayed course offers time for therapeutic intervention. While the mechanism of this axon degeneration is poorly understood, axon calcium dysregulation has been identified as a crucial step in secondary axotomy. Studies in cultured neurons have shown the sodium-calcium exchanger isoform 1 (NCX1) ion transporter to be a potential source of pathological calcium influx during axon degeneration. In this project used a murine model to determine if NCX1 inhibition with *amiodarone*, an FDA-approved antiarrhythmic shown to block NCX1, or *SEA0400*, a highly specific NCX1 inhibitor, would result in increased white matter preservation and improved behavioral function when compared to vehicle-treated mice. Serial Luxol fast blue stainings of paraffin-embedded spinal cords were used to quantify white matter preservation; several behavioral tests were used collectively to quantify functional improvements. Our data suggest that NCX1 inhibition following SCI resulted in enhanced white matter preservation and improved function when compared to vehicle-treated mice.

This research was supported by the Program for Research Initiated by Students and Mentors (PRISM), UMSOM Office of Student Research, and the Neurosurgical Society of the Virginias (NSV) Medical Student Summer Fellowship.

O7.01 Characterizing the Social Disparities of Patients Receiving the Hypoglossal Nerve Stimulator

Presenter: Charlyn Gomez, BS[1]
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Objectives: Despite known health disparities of obstructive sleep apnea, the social determinants of health impacting hypoglossal nerve stimulator (HNS) recipients remain poorly understood. We aimed to understand potential inequities by assessing the demographics of implanted patients on a national scale.

Methods: We conducted a retrospective review of Epic COSMOS national database. Patients implanted with HNS between 2015 and 2021 were included. We evaluated patient demographics, socioeconomic percentile (SE%), social vulnerability index (SVI), percentage of uninsured persons, rural-urban area code, and marital status. Two-way ANOVA tests were performed.

Results: Of 248 million patients, 4,872 received HNS implantation. Most were white non-Hispanic males (n= 2972, 61.0%) and females (n=1318, 27.1%). More Hispanic males and females had an SVI of 60%-80% compared to non-Hispanic males and females (77.7% v.s. 0.51%; p =0.0001). Similarly, more Black males and females had higher SE% (60%-80%), correlating with poorer SES, than white males and females (92.9% vs. 13.2%; p=0.0001). White patients were more likely to live in a zip code where less than 5% of residents were uninsured, whereas Black patients were more likely to live in a zip code where 5-10% of residents are uninsured (85.1% vs. 92.4%; p= 0.0018). Most lived in metropolitan areas (n=4194, 86.4%) and were married (n=3211, 67.9%; p= 0.0443).

Conclusions: HNS recipients are primarily white non-Hispanic males with less social vulnerability than non-white patients. The racial distribution of HNS implantation is highly skewed compared to the general US population. Our data suggests the presence of health disparities affecting HNS patient.

O7.08 Characterizing the Social Disparities of Patients Receiving the Hypoglossal Nerve Stimulator

Presenter: Charlyn Gomez, BS[1]
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Objectives: The long-term cardiovascular outcomes of obstructive sleep apnea (OSA) patients who have received a hypoglossal nerve stimulator (HNS) are understudied. We aimed to describe these outcomes and compare them to those of non-surgical OSA patients.

Methods: This is a retrospective review of COSMOS, an Epic medical software database. OSA patients were identified between 2017 to 2020 with ICD 10 code G47.33 and ENT encounter linkage. The study group was further selected by applying HNS CPT codes 64568 and 0466T. The control group was chosen by excluding HNS CPT codes 64568 and 0466T and including patients with a BMI of 35 or lower. Outcomes of interest were coronary artery disease (CAD), unstable angina, myocardial infarction, cerebral infarction, hyperlipidemia, coronary angioplasty status, and all-cause mortality within four years following implantation. Incidence rates and odds ratios were calculated.

Results: The study and control group were composed of 2,900 and 299,369 patients, respectively, and were predominantly male (68.8% vs. 60.5%). When compared to non-surgical patients prior to intervention, HNS patients had a higher prevalence of hypertension (53.56% vs. 30.48%), type 2 diabetes (17.31% vs. 12.42%), CAD (13.97% vs. 9.61%), and atrial fibrillation (9.21% vs. 5.7%). Post-operatively, HNS patients had lower odds of CAD (OR 0.3674, p=0.0001), myocardial infarction (OR 0.2557, p=0.0001), hyperlipidemia (OR 0.437, p=0.0001), unstable angina (OR 0.5524, p=0.0101), and coronary angioplasty (OR 0.4128, p=0.0002).

Conclusions: Despite having a higher prevalence of cardiovascular comorbidities prior to surgery, HNS patients had lower odds of poor post-operative outcomes when compared to non-surgical OSA patients.

O7.03 Utility of Pre-Operative P2Y12 Levels for Perioperative Bleeding Risk in Isolated Coronary Artery Bypass Surgery

Presenter: Antariksh Tulshyan[1]
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P2Y12 is a receptor on blood cells called platelets that helps them stick together to form clots and minimize bleeding. Blocking this receptor with certain medications helps prevent clotting-related problems like heart attacks. Current guidelines on how and when to stop anticoagulation drugs before surgery are ambiguous and “one-size-fits-all” making it difficult to establish guidelines on how to handle emergent surgical cases. Current literature sets 200 PRU as the threshold for p2y12. We conducted a retrospective comparative analysis of patients who underwent isolated CABG from 2017-2023 at a single-center. 189 Patients were included who were on clopidogrel or ticagrelor pre-operatively and had a pre-operative P2Y12 receptor inhibition level drawn. Patients were stratified by a level < 200 or ≥200. The primary outcome was perioperative blood transfusion requirements. Both groups were similar in age and comorbidities, though the P2Y12 < 200 group had more female patients and a higher proportion of emergent cases (3 vs 0, p=0.01). Our findings suggest that pre-operative assessment of P2Y12 levels may have limited clinical utility at a cutoff of 200 in predicting bleeding outcomes in patients undergoing isolated CABG surgery. Patients with levels < 200 received higher rates of platelet transfusion, particularly in the setting of ticagrelor. However, there were no differences in red blood cell or plasma transfusion, nor were there differences in chest tube output, delayed sternal closure or re-exploration for bleeding. Further prospective studies are warranted to validate these findings and optimize risk stratification and management strategies in this patient population.

This research was supported in part by the Program for Research Initiated by Students and Mentors (PRISM), University of Maryland School of Medicine Office of Student Research.

O7.04 Coronary Artery Disease as a Predictor of Reduced Independent Ambulation after Major Lower Extremity Amputation

Presenter: Anahita Shiva, BS[1]
Mentor: Khanjan Nagarsheth, MD[1]
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Coronary artery disease (CAD) may affect patient recovery from major surgical interventions. Studies have not investigated the association between CAD and post-operative ambulation after major lower extremity amputation (MLEA), which can help guide clinical interventions in high-risk patients undergoing MLEA. We performed a retrospective chart review of 689 patients from 2014-2022 who underwent MLEA. We identified patients with a history of CAD and recorded demographics, length of stay, post-operative ambulation, and mortality. We performed Chi-Square tests, T-tests, and multivariate logistic regression and used $p< 0.05$ as our significance level. 28% (n=190) of patients who underwent MLEA had CAD. Patients with CAD had lower rates of post-operative independent ambulation (p=0.004). CAD has no significant association with length of stay (p=0.888) with a mean stay of 19 days for patients with and without CAD. Multivariable logistic regression suggests that CAD negatively affects postoperative ambulation (OR: 0.552, 95% CI 0.373 to 0.818; p=0.003), while history of hypertension (p=0.552), hyperlipidemia (p=0.188), peripheral vascular disease (p=0.318), and diabetes mellitus (p=0.850) do not. CAD is associated with increased frequency of 1-year mortality (OR: 1.747, 95% CI 1.002 to 3.045; p=0.049). Importantly, lack of independent postoperative ambulation is a predictor of 1-year mortality (OR: 39.1, 95% CI 14.23 to 107.7; $p< 0.001$). CAD is a predictor of ambulation status and 1-year mortality after MLEA. Our findings highlight the need to promote early independent ambulation in patients with CAD who undergo major amputations, as lack of independent postoperative ambulation is associated with higher mortality in these patients.

O7.05 Effect of Ionizing Radiation on RBC Dysfunction and Erythropoiesis in a C57BL/6J

Presenter: Sarayu Valluri[1]
Mentor(s): Erika Davies, PhD, MS[1]; Paul Buehler, PharmD, PhD[2]
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Total body irradiation (TBI) leads to acute radiation syndrome, which involves rapid development of anemia following exposure. However, our current understanding of the mechanisms driving anemia post-TBI is unclear as previous studies have not investigated whether extravascular or intravascular hemolysis is the major driving force of red blood cell (RBC) hemolysis. This project aims to identify whether intravascular hemolysis, extravascular hemolysis, or a combination of both leads to the development of anemia following TBI exposure along with the compensatory erythropoietic response. To study these hematological effects of TBI, we used 90 murine subjects, 10 of which were utilized as baseline controls and 80 of which were administered TBI and euthanized at various time points following TBI exposure for blood and tissue collection. Following euthanization, necropsy was conducted to visualize irradiative damage to organs and potential hemorrhaging. CBC, electron microscopy, RBC deformability, and immunohistochemistry were then investigated to determine the role of extravascular versus intravascular hemolysis in the development of anemia. Moreover, markers of erythropoiesis were analyzed to study the body's compensatory response via ELISA. The data reveal that following TBI, there is a hemorrhagic event in the GI tract and extravascular hemolysis in the spleen and liver, leading to the development of severe anemia. Consequently, the mice attempted to upregulate RBC production through the erythropoietin (EPO) pathway. However, levels of proteins in the EPO pathway failed to properly alter, resulting in the rapid death of the mice before data for all time points could be collected. Ultimately, these findings will help inform the development of treatments and prevention methods for anemia following clinical treatment with TBI. Additionally, these findings yield immense importance in preventing death of individuals exposed to high-dose TBI from radioactive warfare.

This research was supported in part by the Radiation Oncology Medical Student Summer Fellowship Program, University of Maryland School of Medicine Department of Radiation Oncology.

O7.06 Intraoperative Transfusion of a Single Unit of pRBCs: a 10-year Single Center Observational Cohort Study

Presenter: Mitali Sarkar[1]
Mentors: Ashanpreet Grewal, MD[1]; Megan Anders MD, MS[1]
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Background: Over 11 million units of packed red blood cells (pRBCs) are transfused each year in the United States. Although many of these transfusions serve as life-saving measures, they are not without associated complications such as transfusion associated cardiac overload (TACO), transfusion related acute lung injury (TRALI), infections, allergic and anaphylactic reactions, air embolisms, and delayed immune mediated reactions.

Methods: This study serves to examine the factors requiring a single unit of intraoperative pRBC transfusion over a 10-year period at a tertiary care center, including patient demographics, type of surgery, baseline hemoglobin concentration, estimated blood loss, as well as complications of surgery including increased ICU length of stay, and mortality. Patients will be matched to a control group with similar background who did not receive the pRBCs, and overall outcomes will be compared.

Results: A study was conducted with a total of 140,861 patients at a single center academic center, of which 6,901 patients received transfusion of a single unit of pRBCs intraoperatively while the remaining 133,960 patients did not. Majority of the patients receiving intraoperative pRBC transfusions underwent procedures in either vascular surgery (28.7%) or cardiothoracic surgery (13%). Their case was more likely to be emergent, and required significantly greater vasopressor, colloid, and FFP administration intraoperatively. These patients were more likely to return to the OR within a week of surgery, receive pRBCs post-operatively, and had higher mortality rate within 1 week of surgery.

Conclusion: A small but significant amount of patients receive pRBCs intraoperatively. These patients are overall sicker and fare worse post-operatively.

O7.07 Limb Ischemia in Pediatric Orthopedic Patients Undergoing Extracorporeal Membrane Oxygenation

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Extracorporeal Membrane Oxygenation (ECMO) is a lifesaving intervention for severe cardiac and/or respiratory failure, commonly used in both adult and pediatric populations. However, ECMO use, particularly Veno-arterial (VA-ECMO), is associated with a notable risk of limb ischemia, which presents significant challenges in management, especially within pediatric cohorts. This case series examines three pediatric patients undergoing ECMO, with a focus on the incidence, risk factors, and clinical outcomes related to limb ischemia. Case 1 involves a 5-month-old male requiring VA-ECMO for respiratory failure, ultimately managed without major ischemic events but complicated by systemic hypertension and hematomas. Case 2 describes a 23-month-old female who developed dry gangrene secondary to severe disseminated intravascular coagulation (DIC) and hypoperfusion, necessitating multiple limb amputations. Case 3 presents a 2-week-old female with severe shock, low platelet counts, and venous thrombosis, requiring meticulous wound care and thrombus management without additional ischemic events. Across these cases, risk factors for ischemia included small body size relative to cannula size, use of high-dose vasopressors, and coagulopathy. Preventive strategies like distal perfusion catheters (DPCs) showed variable efficacy, underscoring the need for individualized care plans. Our findings support the importance of a multidisciplinary approach to managing ECMO-induced limb ischemia in pediatric patients and highlight the necessity for further research into tailored interventions to optimize outcomes in this vulnerable population.

O8.01 Spinal Superinfections after Irrigation and Debridement: A Retrospective Analysis of Incidence and Risk Factors

Presenter: Bibhas Amatya[1]
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Spine infections are a feared complication of spine surgery, often requiring multiple irrigation and debridements (I&Ds). When multiple reoperations occur, there is a particularly high burden on the healthcare system and a risk of harm to the patient. Superinfection occurs when a secondary infection occurs over an existing one, often caused by a new organism. The objective of this retrospective study is to investigate the prevalence of spine superinfections post I&Ds and identify associated risk factors such as age, comorbidities, and preoperative clinical markers. The study will also describe the microbial composition and antibiotic resistance patterns of organisms responsible for superinfections. Data will be collected from electronic medical records of patients who underwent multiple cervical, thoracic, or lumbar spine I&D procedures. Demographic information, clinical data, and microbiological profiles of the “superinfecting” organisms will be collected. Repeat I&D cases will be categorized based on culture results as the same organism or a new organism. Patients with superinfections had significantly lower preoperative erythrocyte sedimentation rate (ESR) and C-reactive protein (CRP) levels compared to the control group ($p=0.018$ and $p=0.029$, respectively). In addition, patients with superinfections were relatively more immunocompromised. Lastly, it is anticipated that substance abuse can be a strong risk factor for superinfections. Findings will enhance clinicians' awareness of spine superinfections, aiding in early identification and management to mitigate their occurrence.

This research was supported in part by the Program for Research Initiated by Students and Mentors (PRISM), University of Maryland School of Medicine Office of Student Research.

O8.02 Infection and Adult Ischemic Stroke: A Polygenic Risk Score Analysis

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Objective. To evaluate whether genetic overlap exists between infection and adult ischemic stroke (IS).

Background. Infection has long been recognized as a risk factor for stroke, but the underlying mechanism remains unknown and little work has been done to investigate the genetic underpinnings of this relationship.

Design/Methods. We analyzed associations between adult IS and individual polygenic risk scores (PRSs) for childhood ear infections, tonsillectomy, and mumps using 6,728 cases from the Early Onset Stroke Consortium and 9,272 cases from the Stroke Genetics Network, for a combined sample size of 16,000 cases and 33,774 controls. These 3 infection types were selected because they had the highest degree of heritability of the 23 examined in a previously published GWAS. We then investigated whether these PRSs were more strongly associated with cases who had a recent infection. Using a subset of stroke cases in whom history of infection was available, we compared PRSs between 33 cases with a history of infection in the 2 weeks preceding IS and 357 cases without a preceding infection.

Results. PRS for childhood ear infections was significantly associated with IS (OR=1.02, P=0.02). PRS for childhood ear infections was more strongly associated with cases with recent infection than cases without recent infection (OR=1.43, P=0.05). In both analyses, tonsillectomy and mumps PRSs trended similarly to childhood ear infection, but were not statistically significant.

Conclusion. The novel finding of our study is the existence of genetic overlap between childhood ear infections and adult IS and that this genetic overlap is stronger in cases with a recent infection. This suggests that genetic predisposition to childhood infection predisposes to adult stroke, and also that it may do so through by increasing risk for adult infection. Our study was limited in its sample size to evaluate for IS subtypes. Continued investigation of the potential mechanisms of the infection-stroke relationship is warranted.

Study Supported By: U18NS115388, R01NS100178, and R01NS105150.

O8.03 Postoperative leukocytosis and infectious workups after intraoperative dexamethasone; a retrospective cohort study

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Background: Intraoperative dexamethasone is commonly used for postoperative nausea and vomiting (PONV) prophylaxis and may result in leukocytosis. Whether intraoperative dexamethasone for PONV results in additional leukocytosis workups has not been investigated. Research Question: Do patients who receive intraoperative dexamethasone have higher rates of leukocytosis and postoperative infectious workups?

Methods: This retrospective cohort study was conducted at a large urban tertiary academic medical center from 11/1/2015-5/1/2021 and approved by the IRB with a waiver of informed consent. The anesthesiology perioperative data warehouse was queried for adult patients who received anesthesia for a day-of-surgery admission procedure. Included patients had at least one white blood cell (WBC) count measured within 48 hours of surgery completion. We excluded obstetric patients, those with preoperative leukocytosis (WBC > 11 K/mcL), patients who received a steroid besides dexamethasone or underwent any “incision and drainage” procedure. Data captured included demographics, ASA Physical Status (ASA-PS), procedure, WBC counts, DEX administration/dose, and occurrence of urinalysis and blood culture. The primary outcome was the highest WBC count within 48 hours of surgery. The secondary outcomes were rates of urinalysis and blood culture. Descriptive statistics and analysis were conducted using RStudio.

Results: 19,153 adults met eligibility criteria. 8,990 adults (46.9%) received dexamethasone (DEX) and 10,163 (53.1%) did not receive dexamethasone (NODEX). DEX patients had slightly greater mean highest postoperative WBC counts compared to NODEX [12.2 and 11.8 K/mcL, ($p<0.001$)]. In NODEX patients, mean increase in WBC count was 3.9 K/mcL. Among DEX patients, those who received an 8/10 mg dose had a higher mean increase in WBC count compared to 4 mg [5.1 and 4.3 K/mcL ($p<0.001$)]. DEX patients underwent urinalysis at lower rates than NODEX patients [5.1% vs 8.1% ($p<0.001$)]. Blood cultures were collected on DEX patients at lower rates than NODEX patients [1.7% vs 3.9% ($p<0.001$)]. DEX patients had a shorter mean length of stay compared to NODEX [4.2 days and 5.8 days ($p<0.001$)]. ASA-PS 1 and 2 patients were more likely to receive DEX than PS 3 and 4 [63.7% vs 36.3% ($p<0.0001$)]. Conclusions: Dexamethasone is associated with a dose dependent postoperative leukocytosis with higher mean WBC counts in 8/10 mg dose patients compared to 4 mg dose patients. While DEX patients had higher mean WBC counts, they underwent infectious workup at lower rates than NODEX patients. We do not address the type of procedure underwent, which may contribute to the discrepancy. DEX patients had a lower ASA-PS, possibly representing selection bias to administer dexamethasone to patients with fewer comorbidities. Our results suggest the benefits of intraoperative dexamethasone for PONV prophylaxis outweigh the risks of leukocytosis confusing a clinical picture for postoperative infection.

O8.04 An Update on Validation of Clinical Decision Support Tool to Optimize Time and Effective Therapy in Multi-Drug Resistant Pseudomonas (MDR PSA)

Presenter: Nhu Le[1]
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Pseudomonas aeruginosa causes severe infections and Multidrug resistant *P. aeruginosa* (MDR PSA) is an exigent threat due to the diverse infection range and resistance to antibiotics. Zou et al. (2023) built a simplified clinical decision support tool to predict MDR PSA and help guide empiric antibiotic therapy. This project's goal was to reassess the accuracy and calibration of the tool in an updated patient population and use a new nationally standardized definition of difficult-to-treat (DTR) PSA as defined by the Infectious Diseases Society of America. Our hypothesis was that we will need to adjust baseline prevalence and coefficients for risk factors based on the new standardized definition of DTR PSA.

Our project was a retrospective cohort study where adult ICU patients with PSA-positive blood or respiratory culture from January 2021 to March 2024 were identified and screened for MDR PSA-associated variables. 197 patients were included in the final dataset with MDR PSA was detected in 27 patients (13.7%) and DTR PSA was detected in 11 patients (5.6%). Four risk factors with the highest unadjusted odd ratio (OR) and ease of extraction from EMR selected by Zou et al. (2023) were compared. The four risk factors were (1) ≤ 6 months + MDR PSA culture, (2) receiving dialysis, (3) infected upon admission, (4) receiving 4 antibiotics before culture collection date. Within this updated patient cohort, MDR PSA and DTR PSA patients were more likely than non-MDR PSA and non-DTR PSA patients to have all the selected four risk factors.

Two proposed risk-scoring tools developed by Zou et al. (2023), B and D, were reassessed with this updated cohort. For Proposed Score B, there are two consistent OR patterns (received ≥ 4 previous antibiotics and receiving dialysis) in MDR PSA patients and three consistent OR patterns (received ≥ 4 previous antibiotics, not infected upon admission, and receiving dialysis) in DTR patients. For Proposed Score D, there is only one consistent OR pattern (not infected upon admission) in both MDR and DTR PSA patients. Calibration curves were created for the Proposed Score B and D tools to compare with neither of them produced a good fitting calibration plot for either MDR PSA or DTR PSA cohorts.

We plan to improve the calibration of the tool by adjusting the risk prediction model through expanding MDR PSA to MDR Gram Negative, adding transfer from outside hospitals and previous ICU admission with the last six months risk factors.

This research was supported in part by the Program for Research Initiated by Students and Mentors (PRISM), University of Maryland School of Medicine Office of Student Research.

O8.05 The Effects of Type I and III Interferons on the Expression of Bradykinin as a Marker of Disease Severity in the Mouse Model of *B. pertussis* Infection

Presenter: Harrison Mayo[1]
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Bradykinin (BK) is a potent stimulator of cough. Through a complex pathway, *Bordetella pertussis* toxins manipulate the host system to produce bradykinin (BK), thereby producing the characteristic “whooping cough.” Thus, BK can be considered as a marker of disease severity in mouse models of *B. pertussis* infection. Two major interferons (IFNs) involved in the host response during a *B. pertussis* infection are type I IFNs (IFN-α and IFN-β) and type III IFNs (IFN-λ). Prior work indicates that much of the inflammatory response in adult mouse models of pertussis is driven by IFN-λ, while type I IFNs may play a similar but lesser and more indirect role. It was thus hypothesized that infected mice lacking IFN-λ signaling (IFNLR1KO) would have the lowest BK levels in the lung homogenate and bronchoalveolar lavage fluid (BALF) measured by ELISA compared to infected wild type (WT) and type I IFN signaling deficient mice (IFNAR1KO). In this study, we quantified BK expression via a BK-enzyme-linked-immunosorbent-assay (BK-ELISA) from both homogenized lung tissue and BALF from infected and control mice. The data collected in this experiment demonstrated that infection does not induce a significant BK expression in WT, IFNAR1KO, or IFNLR1KO mice. However, the data collected did show that infected IFNLR1KO mice tend to have lower bacterial burdens and overall BK expression measured by ELISA in the lung homogenates and BALF compared to the IFNAR1KO. This data could be used to further improve the use of the mouse model in the biomedical community for the study of pertussis.

O8.06 Programmatic coverage of prophylactic Azithromycin via the SANTE study for pregnant women in rural Mali

Presenter: Kathryn Driscoll[1]
Mentor(s): Karen Kotloff, MD[1]
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This is an ancillary study to the recently concluded Sauver avec l'Azithromycine en Traitant les Femmes Enceintes et les Enfants (SANTE) study conducted in rural Mali via a joint effort between University of Maryland, Baltimore's Center for Vaccine Development and Global Health and the Ministry of Health and Social Affairs of Mali. The SANTE study is a 2×2 factorial randomized controlled trial, focused on investigating the potential of antenatal, intrapartum, and infant azithromycin administration to mitigate stillbirths and infant deaths.

The purpose of this ancillary study was to determine the coverage of the SANTE study. Programmatic administration of azithromycin at routine primary health care visits, as in the SANTE study, leveraged existing healthcare infrastructure, making it appropriate for use in communities with moderate or better access to routine primary care. This project was designed to address the following aims:

1st: What proportion of pregnant women in the study area sought antenatal care?
2nd: What proportion of the pregnant population was enrolled in SANTE?
3rd: What proportion of women who sought antenatal care were enrolled in SANTE?
4th: Does the distance of a village from a health center impact study enrollment?

Census data from 2020 and 2021 was utilized to extrapolate population estimates for 2022 and 2023. The estimated population of pregnant women by health catchment area was determined by calculating the estimated number of live births per 1,000 women of childbearing age, using birth rate data and accounting for miscarriage and stillbirth rates in each district. These data in combination with demographic data collected during the study period was used to address the prior aims. This exploration resulted in the following conclusions:

1st: Almost 70% of pregnant women in rural Mali are accessing prenatal care via the public health system.
2nd: The SANTE study reached nearly half of expected pregnant women in the study area.
3rd: The majority of pregnant women seeking prenatal care consented to participating in SANTE.
4th: Distance from a health center does not demonstrate a significant impact on study enrollment or health system utilization.

O9.01 Characterizing Public Transit Accessibility and Diabetes Outcomes

Presenter: Sinan Aktay[1]
Mentor(s): Rozalina McCoy, MD MS[2]

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The ability to access health care facilities is essential for the successful treatment of diabetes. Prior research has determined negative associations between measures of accessibility (e.g. linear distance from patient home to site of care, decreased access to public transit) and a variety of diabetes outcomes. However, accessibility is predicated both on the availability of public transit and on the complexity and duration of transportation via public transit for individuals. The impact of the latter on diabetes-related outcomes has never been examined. To this end, we leverage existing University of Maryland Medical System (UMMS) electronic health record (EHR) data to examine the association between public transportation distance and travel time to University of Maryland's Center for Diabetes and Endocrinology (CDE) in Baltimore, MD and the following outcomes 1) no show rates, 2) continuity of care, 3) emergency department visits, 4) hospitalizations, and 5) diabetes-related care outcomes in adults with type 1 and type 2 diabetes cared for in the CDE. To facilitate this work, we first developed a novel framework for querying and linking a public transit routing system to the EHR using free, publicly available, and entirely offline data and software. This was for compatibility with the UMMS EHR secure research environment and will ultimately enable the implementation of this infrastructure into clinical practice for further testing and future use. This scalable, low-cost, and computationally efficient approach for public transit routing at the individual person/address level can be leveraged by clinicians and other care team members at the point-of-care to identify and mitigate transportation barriers to care, by health systems and payors to identify individuals who would benefit from transportation support to reduce barriers to care access, by researchers to study the effects of transportation barriers (a key social determinant of health) on care utilization and outcomes at a high resolution, and by health system leaders to identify healthcare access deserts. The cohort and methods have only recently been finalized; hence diabetes outcomes results are still pending.

This research was supported in part by the Program for Research Initiated by Students and Mentors (PRISM), University of Maryland School of Medicine Office of Student Research.

O9.02 Point-of-Care A1c Screening in the Emergency Department

Presenter: Anum Zehra, BA[1]
Mentor: Kashif M. Munir, MD[1]
Other co-authors: Rana Malek, MD[1]; Elizabeth Fitch, RN[1]
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Objective:
Many US adults with diabetes and most with prediabetes are undiagnosed. In inner-city populations, many individuals lack a primary care provider (PCP) and seek healthcare in the emergency department (ED). Targeted real-world screening approaches may help identify individuals at risk. We sought to assess the prevalence of undiagnosed prediabetes and diabetes by testing Hemoglobin A1c (HbA1c) of adults presenting to the University of Maryland ED.
Methods:
All individuals presenting to the ED who were ≥ 18 years old and had an incidental serum blood glucose of ≥100 mg/dL were approached for point-of-care HbA1c testing. Those with a known history of prediabetes or diabetes, and for whom HbA1c data was missing were excluded.
Results:
Out of 147 individuals without a known history of diabetes or prediabetes, 45 declined testing and data was unavailable for 7 people for "other" reasons. 48 of 95 tested individuals (50.5%) had HbA1c between 5.7% and 6.4%, and 10 (10.5%) had an HbA1c ≥ 6.5%. Higher A1c subgroups had significantly more individuals with BMI > 25.0 kg/m2 (p value=0.004) and BMI >29.9 kg/m2 (p value=0.048). 100% and 60% of the 10 individuals with HbA1c ≥ 6.5% had a BMI > 25.0 kg/m2 and BMI > 29.9 kg/m2, respectively. Although not statistically significant, linkage with a PCP was lowest in HbA1c > 6.5% subgroup (p value=0.064)
Conclusion:
Screening for prediabetes and diabetes in an ED may help reduce the number of undiagnosed individuals. Using a targeted real-world screening approach (glucose ≥ 100 mg/dl) provides decreased resource utilization compared with universal screening. Defining additional variables (e.g. BMI) associated with diagnosis may further refine the screening approach to maximize case detection while limiting resources.

O9.03 Comparative Risk of Adverse Pancreatic Events with Second-Line Glucose- Lowering Therapies in Adults with Type 2 Diabetes at Moderate Cardiovascular Disease Risk

Presenter: Urja Kalathiya[1]
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Background: Pancreatitis and pancreatic cancer are important causes of morbidity and mortality, particularly in people with type 2 diabetes (T2D). Evidence of potential adverse pancreatic events with incretin T2D therapies (glucagon-like peptide-1 receptor agonists [GLP-1RA] and dipeptidyl peptidase-4 inhibitor [DPP-4i]) has been mixed and no studies have examined this risk across the four commonly used classes of T2D medications. This study aims to fill this knowledge gap by comparing the risks of pancreatic events associated with GLP-1RA, SGLT2i, DPP4i, and sulfonylurea therapy among adults with T2D and moderate CVD risk.

Methods: We used claims data from OptumLabs Data Warehouse, linked to Medicare fee-for-service 100% sample, to emulate an idealized target trial examining the comparative risks of incident acute pancreatitis and pancreatic cancer among adults with T2D and moderate cardiovascular risk. Propensity score inverse probability of treatment weighting was used to emulate treatment assignment to GLP-1RA, DPP4i, sodium-glucose cotransporter 2 inhibitor (SGLT2i), or sulfonylurea.

Results: SGLT2i were associated with lower risk of acute pancreatitis compared to DPP4i (HR 0.82; 95% CI 0.68-0.98), while sulfonylureas were associated with higher risk compared to GLP-1RA (HR 1.28; 95% CI 1.03-1.56) and SGLT2i (HR 1.32; 95% CI 1.12-1.57). There was no association between GLP-1RA and acute pancreatitis risk relative to DPP4i or SGLT2i. The risk of pancreatic cancer was lower with GLP-1RA compared to DPP4i (HR 0.56; 95% CI 0.40-0.77) and was higher with both SGLT2i and sulfonylurea when compared to GLP-1RA (HR 1.67; 95% CI 1.12-2.49 and HR 1.60; 95% CI 1.17-2.19, respectively).

Conclusion: Incretin therapy was not associated with increased risk of adverse pancreatic outcomes. The observed lower risk of acute pancreatitis in patients treated with SGLT2i, and of pancreatic cancer in patients treated with GLP-1RA, will need to be further explored.

Funding acknowledgement: This research was supported through a Patient-Centered Outcomes Research Institute (PCORI) Award (DB-2020C2-20306). Dr. McCoy is an investigator at the University of Maryland-Institute for Health Computing, which is supported by funding from Montgomery County, Maryland and The University of Maryland Strategic Partnership: MPowering the State, a formal collaboration between the University of Maryland, College Park and the University of Maryland, Baltimore.

O9.04 Improving Disparities in Diabetes: Implementation of Comprehensive Primary Care

Presenter: Elisha Anne Barrientos
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Diabetes, one of the leading causes of morbidity, disability, and death in the US, has a higher incidence among racial and ethnic minorities and those living in rural areas. As a result, these groups experience increased disease burden and a higher rate of diabetes complications, though they can often be prevented with optimal management of glycemia, cardiovascular and kidney disease risk factors, and patients' other health-related needs. Comprehensive primary care (CPC), described by the extent to which primary care meets the majority of a patient's total physical and behavioral health needs, is a core part of primary care delivery. Though its delivery is declining as the result of increasing fragmentation and specialization of medical care, CPC delivery has been proven (in settings other than diabetes) to improve health outcomes and patient satisfaction while reducing costs and narrowing health disparities. Currently little is known about how primary care clinicians perceive CPC, how CPC implementation impacts patients from racial and ethnic minoritized communities and those living in rural areas, and about CPC's impact on diabetes outcomes specifically. In this qualitative study, informed by the CFIR framework, we interviewed 20 primary care practice leaders across Maryland and Virginia to (1) understand their perspectives and experiences with delivering CPC and diabetes care; (2) analyze the strategies and barriers to delivering CPC to improve diabetes-related outcomes and to reduce disparities; and to (3) identify facilitators and barriers to the implementation and sustainability of CPC delivery over time. Practices were purposefully sampled from the University of Maryland Medical System and Virginia's ACORN practice-based research network to include both urban and rural locations, be academic and community-based, and vary in size and composition. Practicing clinicians involved in decision-making are being recruited through snowball sampling. Interview transcripts and post-interview surveys will be analyzed for themes using a computational process. Currently, 6 of the planned 20 interviews have been completed and recruitment is ongoing.

This research was supported in part by the Program for Research Initiated by Students and Mentors (PRISM), University of Maryland School of Medicine Office of Student Research.

O9.05 Systematic Review of the Effect of Comprehensive Primary Care on Diabetes Management and Outcomes

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Background: The increasing prevalence and complexity of diabetes management, further complicated by high rates of multimorbidity and impacts of social determinants of health (SDOH), underscore the crucial role of primary care in diabetes management. Primary care delivers the vast majority of care to people with diabetes and equipping primary care teams to optimally care for their patients with diabetes is therefore an urgent priority. The implementation of comprehensive primary care (CPC) may aid in improving both diabetes-specific and overall patient outcomes, and in narrowing health disparities experienced by rural, low income, and racial and ethnic minoritized communities. CPC is an approach to healthcare that enables primary care clinicians to meet the full range of a patient's health-related needs by offering whole person care, wide range of services, and referral to specialty care when needed. However, the impact of CPC on diabetes-related outcomes among adults with diabetes has not been established. This study aims to examine whether comprehensive primary care improves the management of and health outcomes in patients with diabetes.

Methods: The systematic review follows the Preferred Reporting Items for Systematic Review and Meta-analysis Protocol (PRISMA-P) 2020 checklist. The search was performed in MEDLINE ALL, EMBASE, and SCOPUS with no limits on dates or languages and includes the following terms and their synonyms: comprehensive or integrated, primary care, and diabetes. Articles will be double screened through Covidence according to the inclusion/exclusion criteria, and the data will be extracted independently by two review authors. We expect there will be too few studies that answer the research question; therefore, we expect to summarize the results qualitatively.

Discussion: This systematic review will inform guidelines for health organizations and government agencies to promote the utilization of comprehensive primary care for patients with diabetes in disadvantaged populations.

Systematic Review Registration: This protocol is registered with PROSPERO (registration ID: CRD42024573635).

Funding Acknowledgements: This research was supported in part by the American Diabetes Association.

O9.06 Kwashiorkor in Baltimore: Case Report of Edematous Malnutrition in the Setting of ASD/ARFID

Presenter: Maria Som, MS[1]
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Kwashiorkor, also known as edematous malnutrition, is a form of malnutrition seen with significant bilateral extremity swelling. This condition has been identified as a public health crisis by the World Health Organization (WHO). It is most commonly associated with diets consisting of maize and rice in resource limited countries throughout Africa with rare cases reported in the United States. Kwashiorkor can be life threatening if left untreated and often complicated by hypovolemic shock, serious infection, electrolyte abnormalities, metabolic disturbances, and hypothermia. We present a case of a 6-year-old female with Autism Spectrum Disorder (ASD) and severe restrictive food intake in Baltimore who presented with severe edema, abdominal distension, pallor, and jaundice. Per mother and prior medical documentation, the patient mostly consumed potato chips. She did not tolerate any vitamins, oral nutritional supplements, or previously attempted nasogastric feeding. Prior to this hospitalization, the family was strongly recommended to participate in outpatient nutritional rehabilitation before possible gastrostomy tube placement. However, were unable to do so due to transportation barriers in a family that was predominantly Spanish speaking. This case is unique because it is one of a few cases of Kwashiorkor in the United States. Through this case, providers can learn about the possible development of edematous malnutrition in children with Autism Spectrum Disorder and avoidant/restrictive food intake disorder (ARFID). Furthermore, this case emphasizes that early outpatient nutritional rehabilitation with special attention to barriers to care should be emphasized to avoid this complication.

O10.01 Emergency Department Opioid Prescription Patterns: Effects of the COVID-19 Pandemic

Presenter: Syrus Razavi[1]
Mentor: Quincy Tran, MD, PhD[1,2]
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Study Objective: The goal of this study is to investigate the effect of the COVID-19 pandemic on opioid prescriptions written for by emergency physicians. We hypothesize that ED providers increased their prescription activity in the early stages of the pandemic since most patients would not be able to be seen by a more consistent provider such as their primary care provider. In addition, we hypothesize that as vaccines became available to the public, ED providers will see that as a signal to return to pre-pandemic behaviors, since the vaccine will provide a degree of protection allowing for more consistent health management and care. This information would provide both emergency physicians and primary care clinicians knowledge to better prepare for future public health crises.

Methods: We will conduct a retrospective pre-post observational study of patients who presented to the EDs and one urgent care within The University of Maryland Medical System (UMMS) between January 01, 2019 and January 01, 2023. Adult patients who were discharged were eligible while those who were admitted to the hospitals will not be included, as we are only interested in opioid prescriptions from Emergency physicians. We defined the pre-pandemic (pre-event) period as January 01, 2019 until March 16, 2020. The most intense time period of the pandemic event (post-event) started on March 17, 2020 and lasted until June 23rd, 2021 although we will be comparing the pre-pandemic period to the entire post-pandemic period which runs until January 1. 2023. We plan to compare demographics presenting to the ED during the pre-pandemic and post-pandemic period. We plan to compare morphine equivalent doses(MEDs) per visit per week on a week by week basis between each pre-covid week in 2019 and its corresponding post-covid week in 2020, 2021, 2022, and 2023. We have gathered the data and will be analyzing it through a secure remote environment provided by the University of Maryland Baltimore IT service, after which it will be exportable once PHI is removed from any and all data and tables.

Results: We expect to see that ED providers increased their prescription activity in the early stages of the pandemic and that prescription activity would return to pre-pandemic levels as vaccines became available in the state of Maryland. Overall, we expect that prescription activity will track along directly with case rates and lockdown initiatives.

Conclusions: We expect to conclude that ED providers increased their prescription activity in the early stages of the pandemic since most patients would not be able to be seen by a more consistent provider such as their primary care provider. In addition, we hypothesize that as lockdown initiatives were rolled back, ED providers will see that as a signal to return to pre-pandemic behaviors, since the vaccine will provide a degree of protection allowing for more consistent health management and care.

O10.02 Comparative Usability Study of an FDA-Approved Single-Step Intranasal Device versus Improvised Multi-Step Intranasal Device Naloxone Delivery Systems in an At-Risk Population

Presenter: Jennifer Mondle, BS[2]
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Naloxone, an opioid receptor antagonist, is a cornerstone of harm reduction strategies. For decades Take Home Naloxone (THN) programs distributed overdose kits containing naloxone for either intramuscular or intranasal administration. The intranasal version used an improvised multi-step device consisting of a vial of naloxone, syringe, and a mucosal atomizer device. First available in 2015, an FDA-approved single step device is now used by many THN programs. There is limited data that individuals who are likely to use these devices can fully execute all the critical actions to successfully administer the medication. The primary aim of this study was to assess the ability of previously untrained, at-risk individuals, including previous or current opioid users or those likely to encounter overdose situations, to correctly administer naloxone to a mannequin using an FDA-approved single-step intranasal device as compared to the improvised multi-step intranasal device. Following an initial simulation, the subjects completed an educational session and then repeated the simulation. The primary outcome of interest was the proportion of subjects who completed all critical actions for successful naloxone administration. Secondary measures included time required for successful administration. 40 subjects were enrolled and randomized evenly to either device. Results were evaluated using Fisher's exact and paired T tests. A higher proportion of subjects in the single-step group successfully administered naloxone compared to the multi-step device before training (85% vs 20%, $p < 0.0001$). After training, time to successful administration was shorter for the single-step device, (8.20 sec vs 48.22 sec, $p < 0.0001$). After completion of the training, all subjects felt the training was useful. We found that the single-step device was more usable, and naloxone could be delivered more rapidly than with the improvised device. These results underscore the importance of human factor design in determining the best device for distribution in THN programs.

O10.03 Self-administered versus Clinician-performed BinaxNOW COVID Rapid Test: A Comparison of Accuracy

Presenter: Minahil Cheema[1]
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We conducted a single-center study at a free community testing site in Baltimore City to assess the accuracy of self-performed rapid antigen tests (RATs) for COVID-19. Self-administered BinaxNOW RATs were compared with clinician-performed RATs and against a reference lab molecular testing as the gold standard. Of the 953 participants, 14.9% were positive for SARS- CoV-2 as determined by RT-PCR. The sensitivity and specificity were similar for both self- and clinician-performed RATs (sensitivity: 83.9% vs 88.2%, P = 0.40; specificity: 99.8% vs 99.6%, P = 0.6). Subgroup comparisons based on age and race yielded similar results. Notably, 5.2% (95% CI: 1.5% to 9.5%) of positive results were potentially missed due to participant misinterpretation of the self-test card. However, the false-positive rate for RATs was reassuringly comparable in accuracy to clinician-administered tests. These findings hold significant implications for physicians prescribing treatment based on patient-reported, self-administered positive test results. Our study provides robust evidence supporting the reliability and utility of patient-performed RATs, underscoring their comparable accuracy to clinician-performed RATs, and endorsing their continued use in managing COVID-19. Further studies using other rapid antigen test brands are warranted.

O10.04 Trends in chlorine and chloramine gas exposures reported to U.S. poison control centers from 2015 to 2022

Presenter: Anthony Atalla[1]
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Background: In the United States, chlorine gas inhalation is mostly seen when household cleaners including bleach and acid are mixed. The increased emphasis on disinfecting practices during the Covid-19 may have contributed to an increase in chlorine and chloramine exposures, which has not been studied.

Methods: In a retrospective review, data on reported chlorine and chloramine gas exposures was collected from the National Poison Data System, a poison control center database, from 01/01/2015 to 12/31/2022. Data captured in the NPDS includes demographics and details related to the exposure including location, dose, product, toxin formulation, clinical symptoms, treatment, and outcome. Descriptive statistics and demographic analysis were conducted using R Studio.

Results: During the study period, 85,104 total exposures to chlorine and chloramine gas were reported, consisting of 79,281 isolated exposures and 5,823 co-exposures. Total exposures increased by 61% from 8,385 in 2015 to 13,503 in 2022, with the largest increase of 38.3% occurring from 2019 to 2020. Total exposures remained increased through 2022 with no return to pre-pandemic levels. Most exposures occurred in “own residence” (n = 72,213, 84.9%), with a larger proportion of exposures occurring at home peri-pandemic versus pre-pandemic (88.4% versus 81.7%). One percent (n = 1,030) of exposures were admitted to a non-critical care unit, 0.73% (n = 619) were admitted to a critical care unit, and 0.03% (n = 26) resulted in death.

Discussion: The onset of the Covid-19 pandemic and increased emphasis on cleaning were likely driving factors in the marked increase of exposure calls noted in 2020. Cleaning practices that developed during the pandemic likely persisted despite returning to more normal daily routines, which may explain the persisted elevation in exposures into 2022. Most reported cases were unintentional and resulted in relatively minor symptoms and use of non-invasive therapies.

Conclusions: Future efforts should focus on public education on the safe use of cleaning products to prevent exposure to toxic chlorine and chloramine gases.

O10.05 Management Strategies and Clinical Outcomes of Obstetric Patients who Decline Allogeneic Blood Transfusion

Presenter: Ananda J. Thomas, BA[1]
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Background: Providing obstetrical care for patients who decline allogeneic blood transfusions for personal or religious reasons can be challenging, and the Center for Bloodless Medicine at our institution provides specialized care for these patients. In our study, we compared the outcomes of obstetric patients who decline versus those who accept transfusions.

Methods: We conducted a retrospective analysis of obstetric patients between 2012 and 2023 who identified as Jehovah's Witnesses (bloodless group) and declined blood products. We performed cohort matching in a 1:2 ratio with control patients who were willing to receive blood (standard care group) based on race, ethnicity, age, gestational age, body mass index, and delivery mode (vaginal versus cesarean section).

Results: There were 131 deliveries in the bloodless group and 262 deliveries in the standard care group. There were no maternal mortalities in either group and no significant difference in the rates of maternal morbidity (1.5% of bloodless deliveries versus 0.8% of standard care deliveries; $P = 0.608$). Prenatal intravenous iron was given more often in the bloodless group compared to the standard care group (13.7% vs 4.6%, $P = 0.002$). 17% of deliveries met the threshold for postpartum hemorrhage with a blood loss of at least 1,000 mL. Cell salvage was present for 67.3% of bloodless deliveries but was not utilized for any standard care deliveries ($P < 0.001$).

Conclusion: Obstetric patients who decline allogeneic transfusions can be effectively managed with bloodless medicine techniques without increased morbidity or mortality compared to the standard care.

Funding: New York Community Trust (S.M.F.)

O10.06 Sipping From the "River of Life": A New Methodology of Conducting Health Disparity Research

Presenter: Dakarai Dunbar[1]
Mentor(s): Laundette Jones, PhD[1]
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Creating safe spaces for trust building between community and academic partners is a necessary component of the Community- based participatory research (CBPR) model. In this report, we explore the "River of Life" framework's effectiveness in building trust within community-academic partnerships collaborating on the investigation of health disparities. Ten monthly partnership development meetings were carried out with community, academic and government stakeholders. These meetings were analyzed for prevalent themes shared by participants at the end of meetings and during reflection discussions. Three themes were identified as shared perceptions surrounding the benefits of partnership development meetings. (1) Historical context gave valuable insight into what drives current passions/work (2) Intellectual and emotional safety encouraged comfortability with sharing ideas and eliciting feedback (3) Establishing trust supported stakeholders in feeling connected to and invested in the missions and goals of each other.

O11.01 College-Aged Adults' Insights on Xenotransplantation: A Preliminary Study in Maryland

Presenter: Shani Kamberi[1]
Mentor: Raphael Meier, MD, PhD[1]
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Background
As xenotransplantation advances, evaluating public perceptions across diverse demographics is essential to understand its potential acceptance and the societal implications of integrating animal organs into human medical treatment. More importantly, understanding if xenotransplantation affects allotransplantation registration and discussions are necessary prior to its acceptance in public policy.

Methods
A survey was conducted to assess knowledge, support, and discussions surrounding xenotransplantation among a broader respondent pool. Statistical analyses, including chi-squared tests, were used to determine the significance of relationships between organ donor registration status and attitudes toward xenotransplantation among college-aged adults.

Results
The survey collected responses from 67 college-aged adults in Maryland. Approximately 33.3% of respondents were familiar with xenotransplantation, with 70.8% showing support, highlighting a positive inclination towards this medical innovation (p-value = 0.384). However, only 14.6% of all respondents reported increased discussions about organ donation post-awareness of xenotransplantation (p-value = 0.208), indicating a gap in active engagement. Furthermore, 81.2% of participants believe more educational efforts are necessary to foster a deeper understanding of xenotransplantation (p-value = 0.570).

Conclusion
Our data suggests support for xenotransplantation among college-aged adults, albeit coupled with a significant need for enhanced educational initiatives. The low level of increased discussions post-awareness suggests potential barriers in communication or prevailing misconceptions that could be addressed through comprehensive educational programs. It is important to note the low number of respondents that may be affecting the analyses. However, this preliminary insight into the opinion among college-aged adults underscores the importance of proactive educational strategies to prepare society for the ethical, medical, and social dimensions of xenotransplantation.

O11.02 Effect of the Global Budget System on Liver Transplantation

Presenter: Shani Kamberi[1]
Mentor: Raphael P. H. Meier[1]
Co-Authors: Daniel G. Maluf[1]; Saad Malik[1]; Josue Alvarez-Casas[1]; Kirti Shetty[1]; Chandra Bhati[1]; Silke Niederhaus[1]
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Background: In the 1970s, Maryland transitioned from traditional Medicare to an "all-payer system" with a waiver, establishing uniform hospital charges among all insurance payers to ensure equitable payment and enhance healthcare accessibility. This study sought to evaluate liver graft outcomes within the context of the Medicare waiver system.

Methods: A retrospective cohort study between 2007 and 2020 was conducted for liver transplant recipients in both a public institution in Maryland and the greater United States, excluding Region 2. Data on insurance was obtained from UNOS. Seven-year univariate Kaplan-Meier curves and a multivariable Cox proportional hazard model were used.

Results: We compared 79,974 recipients in the United States to 1,260 recipients in Maryland. Recipients were classified into insurance types: Medicaid, Medicare, and other public insurance, and private insurance.

In Maryland, private insurers were more likely to be white ($p<0.001$), while Medicare recipients were more likely to be black ($p<0.001$) and older, aligning with expectations due to the age for Medicare eligibility ($p<0.001$). No significant differences were observed in gender or CIT. Liver graft survival did not vary among statuses (Fig. 1). Our multivariate analysis determined that insurance status was not independently associated with graft survival.

In the US, Medicaid recipients were more likely to identify as Black or Hispanic and had a longer CIT ($p<0.001$). Medicare recipients were more likely older, aligning with expectations, while private insurers were more likely to be male and white ($p<0.001$). Graft survival was worst for Medicare recipients (Fig. 1). Furthermore, private insurance conferred a protective effect on survival (HR 0.9, 0.8-0.9, $p<0.001$).

Conclusion: The all-payer system did not result in a significant pattern difference in outcomes among insurance payers when compared to the rest of the United States. We encourage increased research into this system to further inform future policy in the United States.

O11.03 Early CD27+ Memory B Cells and Graft-Versus-Host Disease Risk in Pediatric Allogeneic Hematopoietic Stem Cell Transplant

Presenter: Andrew Yi[1]
Mentor(s): Kinga Hosszu, PhD[2]
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Introduction: Acute graft-versus-host disease (aGVHD) is a major complication following hematopoietic stem cell transplantation (HSCT) for high-risk hematological malignancies. While aGVHD has traditionally been linked to donor T-cell responses against host tissues, B cells are increasingly recognized as potential contributors to aGVHD pathophysiology. Studies suggest that early B cell reconstitution may correlate with lower aGVHD incidence, yet this association remains underexplored. Our pilot study aimed to examine the association between early B cell reconstitution and aGVHD in pediatric HSCT recipients, with a focus on identifying B cell subsets that may offer protective effects against aGVHD.

Methods: Peripheral blood mononuclear cells (PBMCs) were collected from a cohort (n=60) undergoing their first allogeneic HSCT and analyzed at 21, 30, 45, 60, 75, and 270 days post-transplant using flow cytometric immunophenotyping. CD19+ memory B cells were identified by CD24 expression, and B cell activation was assessed through CD27 expression.

Results: Initial findings revealed significant differences in overall B cell profiles between patients with and without aGVHD, although major B cell subsets (e.g. plasma, atypical, mature, and transitional B cells) showed no specific variations. Further analysis highlighted a reduced frequency of CD27+ memory B cells in patients who later developed aGVHD. At 45 days post-transplant, patients who did not develop aGVHD exhibited higher frequencies of IgM+ CD27+ memory B cells.

Conclusions: Our pilot data indicate that the early presence of CD27+ memory B cells may inversely correlate with aGVHD risk. Likely of graft origin, these B cells may be activated before full B cell reconstitution and may play a role in modulating aGVHD. Although larger studies are needed, our findings open new avenues for developing prognostic markers and targeted therapies.

This research was supported in part by the University of Maryland School of Medicine Office of Student Research.

O11.04 Deep Brain Stimulation in a Patient with Intractable Tourette's Syndrome After Initial DBS Failure – A Case Report

Presenter: Sarah A. Abdellah, B.S.[1]
Mentor: Ausaf A. Bari MA, M.D., Ph.D., FAANS[2]
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Background: Tourette Syndrome (TS) is a neuropsychiatric disorder characterized by involuntary motor and vocal tics, often coexisting with other psychiatric conditions that complicate treatment and impair quality of life. Standard treatments typically involve behavioral therapies and medications, but for severe, treatment-resistant cases, deep brain stimulation (DBS) has emerged as a promising therapeutic option. However, the optimal DBS target for TS remains debated. TS is hypothesized to involve abnormalities in the cortico-striato-thalamo-cortical (CSTC) loops, leading to impaired inhibitory control in the basal ganglia. Thus, targeting areas such as the ventral capsule/ventral striatum/anterior limb of the internal capsule (VC/VS/ALIC), globus pallidus internus (GPi), and centromedian parafascicular nucleus (CM-Pf) may reduce tic severity by modulating these neural pathways.

Methods: This case report describes a 53-year-old male with severe, medically refractory TS, diagnosed at age 11, who was referred for DBS after unsuccessful treatment with medications, Botox, and electroconvulsive therapy. The patient had also previously undergone bilateral thalamic DBS at an outside hospital, which was removed due to infection. After extensive evaluation, he was deemed a candidate for DBS targeting VC/VS/ALIC, GPi, and CM-Pf. An inpatient trial with multiple DBS targets was conducted, and tic severity was assessed using the Yale Global Tic Severity Scale (YGTSS) with DBS turned on and off.

Results: Preoperatively, YGTSS scores were 23/25 for motor tics, 23/25 for phonic tics, and 50/50 for impairment, reflecting a diminished quality of life. The patient struggled with shoulder shrugs, head jerks, self-abusive behavior, coughing, throat clearing, facial grimacing, and explicit language. Post-op day 1 showed a reduction in tics, likely due to a lesion effect. One month post-operatively, YGTSS scores improved significantly, with motor tics at 8/25, phonic tics at 6/25, and impairment at 20/50. The patient reported improved self-esteem, reduced social isolation, and a preference for DBS turned on due to symptom relief.

Conclusion: DBS targeting VC/VS/ALIC, GPi, and CM-Pf significantly reduced tic severity in this severe TS case by modulating CSTC and thalamocortical circuits. These results suggest that symptom-specific DBS targeting can optimize outcomes for refractory TS. Further research is needed to establish standardized DBS target selection in TS.

Funding: This research was supported in part by the Medical Student Summer Research Scholarship in Neurosurgery, University of California, Los Angeles

O11.05 Olfactory Neuronal Cell: a Biopsied Neuronal Bioresource from Living Subjects for Brain Research

Presenter: Julia Kung
Mentor(s): Kun Yang, PhD[1]; Akira Sawa, MD PhD[1]
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Olfactory Neuronal Cells (ONCs), derived from nasal biopsies, are a promising bioresource for studying brain disorders due to their accessibility, homogeneity, and potential for repeated sampling from living subjects. This study aimed to evaluate the neuronal signatures and homogeneity of ONCs using single-cell and bulk RNA sequencing, and to establish a standardized protocol for multi-institutional use.

Participants were recruited from the Johns Hopkins Schizophrenia Center (n=61) and Griffith University (n=9), undergoing nasal biopsies followed by ONC enrichment using protocols from each institution. Transcriptomic profiling assessed ONCs' neuronal signatures and intrasample homogeneity, with comparisons to postmortem brain tissues and iPSC-derived neurons. Homogeneity was analyzed through Kendall's rank correlation, while neuronal signatures were evaluated using Seurat-based cell type prediction.

Results indicate high homogeneity within ONC samples, with neuronal signatures closely resembling excitatory neurons in brain regions such as the subgenual anterior cingulate cortex and dorsolateral prefrontal cortex. These findings support ONCs as a reliable resource for brain research. The development of a consensus protocol and an online resource for ONC usage is expected to facilitate collaborative research, enabling more extensive studies on neuropsychiatric and neurodevelopmental disorders.

O11.06 Formal Physical Therapy Clearance is not Necessary for Safe Home Discharge after Primary TJA

Presenter: Brooke Merchant[1]
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Abstract: Traditionally, physical therapy (PT) evaluation and clearance are required before discharging patients after total joint arthroplasty (TJA). However, PT staffing limitations can delay same-day discharges for patients undergoing surgery late in the day. We developed a novel protocol that enables same-day discharge for TJA patients without formal postoperative PT clearance. In the novel protocol, PT provides gait and stair training immediately before surgery, with patients discharged after ambulating with recovery room nurses trained by PT. This study aims to determine whether our protocol allows for safe home discharge and maintains patient satisfaction and reported outcomes. We queried a departmental billing database for primary TJAs performed by a single surgeon at three hospitals from 2020 to 2023 (n = 325). Patients were divided into two cohorts: conventional discharge (n = 242) and novel protocol (n = 83). The primary endpoint was 30-day postoperative falls. Secondary endpoints included 90-day emergency room (ER) visits and readmissions. Patient-Reported Outcomes Measurement Information System (PROMIS) and Surgical Satisfaction Questionnaire (SSQ-8) scores were collected six weeks postoperatively. Multivariable logistic regression assessed the associate between discharge protocol and outcomes, controlling for factors such as age, gender, BMI, surgical site, and hospital. There were no significant differences in 30-day falls (2.4% novel vs. 2.5% conventional), 90-day ER visits (8.4% novel vs. 6.6% conventional) or readmissions (3.6% novel vs 2.1% conventional). Additionally, PROMIS and SSQ-8 scores showed no differences (P > 0.09). Our protocol enables safe same-day discharged for TJA patients, reducing length-of-stay and minimizing unnecessary hospital occupancy.

O12.01 Outcomes of Epiphysiodesis About the Distal Radius and Distal Ulna

Presenter: Catherine May, BS[1]
Mentor(s): Julia Conroy, BS[1]; Joshua M. Abzug, MD[1]
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Fractures that damage the distal radial and/or the distal ulnar growth plates may require epiphysiodesis to prevent skeletal deformity and/or length discrepancy amongst the forearm bones. The purpose of this study is to present the outcomes of epiphysiodesis procedures about the distal radius and/or distal ulna. A retrospective review was performed to identify all pediatric patients (<18 years) who underwent a distal radial and/or distal ulnar epiphysiodesis over a twelve-year period. Data collection included patient demographics, mechanism of injury, and etiology of the physeal arrest. Outcomes of interest included time to complete physeal closure, return to activities, and complications. Thirty-four patients with an average age of 13 years (Range: 10-16 years) were identified. Initial physeal arrest was caused by a fracture in 30 (88.2%) patients. Seventeen (50.0%) epiphysiodesis procedures were performed only in the distal ulna, 2 (5.9%) only in the distal radius, and 15 (44.1%) were performed concomitantly in the distal radius and distal ulna. The median time to physeal closure was 8.4 weeks (IQR: 7.1,10.9 weeks). Four patients (12.0%) experienced transient complications after distal ulnar epiphysiodesis. No complications were identified following distal radius epiphysiodeses. All physes closed completely following the epiphysiodesis procedures. There was no significant difference in outcomes based on sex, traumatic etiology, and treatment timeline. Epiphysiodesis of the distal radius and/or distal ulna is a well-tolerated and beneficial procedure. The physis completely closes around 8 weeks (2 months) following the procedure.

O12.02 Diversity Amongst Current Hand Fellowship Directors

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Diversity, equity, and inclusion amongst faculty members within a healthcare system is known to be an important aspect of providing quality and competent care. The purpose of this study is to examine the racial/ethnic and gender diversity amongst hand surgery fellowship directors (FD). All hand surgery fellowships in the US were reviewed via the American Society for Surgery of the Hand Fellowship Directory. Each fellowship website was examined to collect race/ethnicity, sex, training background, and fellowship location of directors. Racial/ethnic groups underrepresented in medicine (URM) were defined as Black/African American, Hispanic/Latin/South American, and Native American. Simple statistics were performed. 94 distinct hand fellowship directors in the US were identified. 87.2% of current FD are men and 12.8% are women. 75.5% of FD are White/Caucasian, 18.2% of FD are Asian, 1.0% of FD are Black/African American, 1.0% of FD are Hispanic/Latin/South American, and 4.3% of FD's race/ethnicity are unknown. URM FD make up only 2.1% of hand fellowship directors.This study examines the diversity amongst current hand FD across the US and found that hand FD who are considered URM make up only 2.1% of hand FD while women make up only 12.8% of the current directors. The data provided in this study can help direct efforts to increase diversity amongst hand FD, and as leaders in the field, subsequently amongst the hand surgeon workforce.

O12.03 Association of Preoperative Opioid Use on 2-Year Hip Arthroscopy Outcomes

Presenter: Sourabh Vellala
Mentor: Sean Meredith, M.D[1]
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Preoperative opioid use is linked to poorer outcomes after orthopedic surgery, yet its specific effects following hip arthroscopy remain unclear. Understanding this relationship is crucial for optimizing patient outcomes and identifying those at risk of poor recovery. This retrospective study aims to assess the relationship between preoperative opioid use and two-year outcomes after hip arthroscopy. We hypothesized that preoperative opioid use would correlate with worse patient-reported outcomes (PROs) two years post-surgery. We identified patients who underwent hip arthroscopy between October 2015 and June 2022 at a single institution. Preoperative opioid use was determined based on filling a prescription within three months before surgery. PROs were assessed at baseline and two years postoperatively, including six domains from the Patient-Reported Outcome Measurement Information System (PROMIS), numerical pain scale (NPS), Tegner Activity Scale (TAS), Marx Activity Rating Scale (MARS), and Surgical Satisfaction Questionnaire-8 (SSQ-8). Bivariate and multivariable analyses evaluated associations and predictors of two-year PROs. Of 84 patients who completed baseline measures, preoperative opioid use was 13.1%. Preoperative opioid users had worse baseline scores in PROMIS Fatigue, Social Satisfaction, TAS, and MARS. These differences persisted at two years for PROMIS Fatigue (54.3 vs. 45.9), TAS (2.9 vs. 4.9), and MARS (21.1 vs. 41.4). When controlling for confounders, preoperative opioid use independently predicted worse MODEMS Met Expectations and less improvement in NPS Operative Site at two years. Preoperative opioid use is associated with increased fatigue and worse physical function two years after surgery and predicts worse satisfaction and less improvement in pain outcomes.

This research was supported in part by the Program for Research Initiated by Students and Mentors (PRISM), University of Maryland School of Medicine Office of Student Research.

O12.04 Predictors of Occipito-Cervical Fusion in the setting of Type III Occipital Condyle Fractures

Presenter: Matthew Kreinbrink[1]
Mentors: Timothy Chryssikos, MD, PHD[1]
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Occipital condyle fractures (OCFs) often occur in the setting of multi-trauma, with reported prevalence rates ranging from 4% to 16%. Approximately 23% of OCFs are type III, a subtype with potential instability due to disruption of the alar ligament insertion site. Current management strategies include hard collar immobilization, Halo immobilization, and occipital-cervical fusion. This study assessed predictors of treatment selection and outcomes of patients managed conservatively.

A retrospective analysis of type III OCF was performed over an 8-year period (2016-2024) at a single Level 1 Trauma Center. Imaging studies were screened to verify diagnosis of type III OCF. Demographic, clinical, surgical, and radiographic data were collected. Univariate and multivariate analyses were performed to assess for significant associations with treatment selection.

One-hundred-twenty-five patients with confirmed type III OCF were identified. One-hundred-seven patients (85.6%) were managed with collar only, including ten patients with evidence of direct alar ligament injury. High energy injury mechanism ($p<0.001$), bilateral Type III OCF ($p<0.001$), direct alar ligament injury ($p<0.001$), and additional fracture or dissociation between C0-C1-C2 ($p = 0.03$) were associated with occipital-cervical fusion surgery or halo immobilization. Admission GCS was a significant predictor for conservative versus more invasive treatment (OR 1.28 [95% CI 1.13–1.46]). Six patients underwent occipital-cervical fusion. Indication for surgery was AOD in three patients, AOD and AAD in one patient, and AOD and AAD with spinal cord injury in two patients. Two patients underwent Halo immobilization, and the primary indication in each was AOD. Among patients managed with collar only, there were no cases of worsening C0- C1 subluxation/subsidence on CT at 6-week follow-up (65.6%), and none with follow-up had occipital-cervical fusion surgery at 6 or 12 months.

There was a significant association between admission GCS and management strategy for Type III OCF. No patient treated with collar only had delayed occipital-cervical fusion. Patients who were treated with occipital-cervical fusion or Halo immobilization had additional injuries between C0-C1-C2. Direct injury to the alar ligament itself in the setting of Type III OCF did not preclude successful treatment with collar only.

O12.05 Outcomes and Complications of Strauch vs. Intrafocal Technique for Phalangeal Neck Fractures in Pediatric Patients

Presenter: Sourabh Vellala
Mentor: Joshua Abzug, M.D[1]
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Phalangeal neck fractures are rare but significant injuries in pediatric populations, often resulting from crush accidents. These fractures can disrupt normal finger development and function, making effective treatment crucial for optimal recovery. This study evaluates clinical outcomes following two common surgical techniques: the intrafocal technique and the Strauch technique. The intrafocal technique employs a K-wire inserted dorsally to lever the fracture into position, while the Strauch technique uses a single K-wire for closed reduction and fixation, maintaining the finger in a flexed position. Despite the prevalence of these techniques, a comparative analysis of their outcomes and complications is lacking. We retrospectively reviewed cases of pediatric patients (0-17 years) treated at the University of Maryland Orthopaedics. Data included demographics, injury and treatment timelines, operative techniques, and clinical outcomes assessed via radiographs and functionality scores. Among the 44 patients analyzed, 17 (38.6%) underwent the Strauch technique. The median age was 8.2 years for the intrafocal group and 10.5 years for the Strauch group (p=0.36). Patients in the Strauch group had a longer median duration of postoperative immobilization (33 vs. 29 days; p=0.079) and a longer length of fixation (33 vs. 29 days; p=0.045). Additionally, the median number of days until return to activity was significantly longer in the Strauch group (59 vs. 40 days; p=0.048). While both techniques were effective, the Strauch technique was associated with longer recovery times and lengths of fixation, highlighting the need for further research to determine the optimal surgical approach for these challenging injuries.

O12.06 Gender and Training Diversity in Podium Presenters Across Pediatric Orthopedic Conferences

Presenter: Sara Jain[1]
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National conferences are uniquely positioned to enhance diversity from both a pipeline and promotion perspective due to their public visibility, capacity to foster networks for sustained engagement, and role in contributing to career advancement. The purpose of this study is to examine the gender and training level diversity across presenters at various pediatric orthopedic surgery conferences. We manually queried the 2023 conference pediatrics presentation schedule for three major orthopedic conferences: American Academy of Pediatrics Section on Orthopedics (AAP SOOr), Pediatric Orthopedic Society of North America (POSNA), and American Academy of Orthopedic Surgery (AAOS). Simple statistics were performed including percent transformations and chi squared to compare distributions of gender and training level across conferences. AAOS and POSNA showed significantly lower levels of diversity in gender and training level than AAP SOOr. AAP SOOr uniquely allows access to presentation opportunities for lower level trainees, which likely contributes to the higher levels of diversity amongst presenter's training levels. AAP SOOr presenter gender distribution demonstrated gender parity overall and may serve a unique role in increasing diversity within orthopedics. These findings indicate that increasing presentation opportunities for early-stage trainees may foster greater diversity over time, supporting career advancement for those traditionally underrepresented in the field.

O13.01 Presence of Gastrointestinal Symptomatology Does Not Predict Esophagogastroduodenoscopy Findings

Presenter: Kaitlin Ballenger[1]
Mentor: Jennifer Hong, MD, MPH[2]; Anupama Kewalramani, MD[3]; Anayansi Lasso-Pirot, MD[4]
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Eosinophil infiltration into the esophagus is noted in conditions like gastroesophageal disease (GERD) and eosinophilic esophagitis (EoE). Despite their increasing prevalence, limited trials investigate their pathogenesis and associated extra-esophageal symptoms. At least 50% of patients with recurrent respiratory symptoms remain undiagnosed and symptomatic without routine esophagoscopy. This study investigated symptomology associated with differing eosinophilic counts on endoscopic pathology. We conducted a retrospective chart review of patients undergoing endoscopy and bronchoscopy between 2013 – 2023 who had concurrent pediatric gastroenterologist and pulmonologist visits within six months. Symptoms were categorized into gastrointestinal or pulmonary clusters. Patients were classified based on eosinophilic count on endoscopic biopsy results: normal biopsy group (0, n = 74), GERD (< 15, n = 21), EoE (> 15, n = 31). Participants with other gastrointestinal diagnoses were excluded. Chi-square tests analyzed categorical variables, and independent t-tests assessed continuous variables. We hypothesized that GI and pulmonary symptoms would be greater in those with EoE and GERD. Results showed that gastrointestinal symptoms were significantly greater in the normal biopsy group compared to the GERD group ($p = 0.05$), with abdominal pain more frequently reported in patients with normal biopsy ($p= 0.05$). Reported abdominal symptoms were trending higher in the normal biopsy group than in the GERD or EoE groups ($p=0.07$). No significant differences were found in pulmonary symptoms across groups. These findings emphasize that symptomatology alone cannot predict disease severity, underscoring the necessity of EGD assessment for diagnosing GERD and EoE to avoid untreated cases.

O13.02 Infliximab Biosimilars in Pediatric Inflammatory Bowel Disease (IBD): Comparison and Adverse Effects

Presenter: Catherine Zuzarte[1]
Mentor: Dr. Atiye Aktay, MD[2]
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Patients with Inflammatory Bowel Disease (IBD) often require treatment with infliximab (TNF alpha inhibitor) infusion. However, the cost of the biologic treatment has increased and biosimilars (biologicals that are highly similar but not identical to the reference drugs) are being favored as affordable alternatives. This study aims to compare the acute adverse effects (AEs) of infliximab infusions with infliximab biosimilar infusions in the pediatric population with IBD. A retrospective chart review was conducted on the potential acute AEs experienced by patients receiving either infliximab infusions or one of three infliximab biosimilar infusions. Data was collected from 70 patients who were either initiated and maintained on a biosimilars or initiated with infliximab then switched to a biosimilar. Patients were between the ages of 6-22 and had diagnoses of Crohn's Disease or Ulcerative Colitis. All acute adverse infusion reactions experienced between 1/1/2019 and 3/28/2024 were noted.

2 acute infusion reactions were reported in patients receiving infliximab biosimilar infusions and 4 acute infusions were reported in patients receiving infliximab infusions. AEs experienced secondary to infliximab biosimilar infusions consisted of tachycardia and flushing. AEs experienced secondary to infliximab infusions included tachycardia, dizziness, bradycardia, and hypotension. No AEs were recorded for patients who switched from infliximab to a biosimilar. Infusions of infliximab biosimilars were not associated with an increase of acute infusion reactions compared with infliximab infusions indicating that biosimilar infusions are well-tolerated and safe to use for treatment of IBD in pediatric patients. No adverse events were noted when interchanging between Infliximab and Infliximab Biosimilar.

O13.03 Proactive Therapeutic Drug Monitoring in Pediatric Inflammatory Bowel Disease patients receiving Inflixiab and Biosimilars

Presenter: Abel Odolil[1]
Mentor: Atiye Aktay, MD[1]
[1]Department of Pediatric Gastroenterology, University of Maryland Medical Center, Baltimore, MD

Biosimilars, analogous drugs available after the original's patent expires, play a crucial role in treating various diseases. This includes Infliximab and its biosimilars (Infliximab-dyyb, Infliximab-abda, and Infliximab-axxq) in inflammatory bowel disease (IBD) treatment. Equally important is therapeutic drug monitoring (TDM), where drug and antibody levels can dictate precise treatment adjustment. This study, motivated by the limited data on biosimilar TDM in pediatric IBD patients, aimed to track patients' drug and antibody levels as treatment modifications were made.

This retrospective chart review consisted of 49 IBD pediatric patients (ages 2-22) from the University of Maryland Medical Center receiving Infliximab or biosimilars. Group A included 42 patients with initially abnormal drug levels (<8 ug/mL) and normal antibody levels (<25). Group B consisted of 6 patients with both abnormal drug and antibody levels. All patient data was collected as dosage increased, frequency decreased, and/or adjuvant methotrexate was added.

Group A had 28 patients (67%) reach remission-desirable levels (RDL), marked by high drug levels and normal antibodies, while 3 out of the 6 in Group B (50%) reached RDL. Mean drug levels across the study increased from initial TDM to final TDM (4.17 to 14.11 ug/mL), but so did mean antibody levels (11.33 to 33.39).

Treatment modification was more impactful in correcting drug levels compared to antibody levels, suggesting that TDM is somewhat effective in optimizing IBD treatment. The complexity of this relationship highlights the importance of using TDM to personalize patient care.

O13.04 Rapid versus Standard Infliximab and Infliximab Biosimilar Infusions in Pediatric Inflammatory Bowel Disease (IBD): Comparison of adverse reaction

Presenter: Catherine Zuzarte[1]
Mentor: Dr. Atiye Aktay, MD[2]
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Infliximab is an anti-tumor necrosis factor which is used to treat IBD. Infliximab Biosimilars are increasingly used due to their cost effectiveness and equal efficacy. Patients start with standard infusion rate and transition to rapid infusions if standard infusions are tolerated. The aim of this study is to compare the acute adverse effects of rapid infliximab and biosimilar infusions with standard infliximab and biosimilar infusions in the pediatric population with IBD. A retrospective chart review was conducted on the adverse events (AEs) of rapid infusions and standard infusions between 1/1/2019 and 3/28/2024. Examples of infusion reactions include anaphylaxis, hypertension, hypotension, headaches, tachycardia, and bradycardia. 29 females and 41 males between the ages of 6-22 had IBD diagnoses. Infusions were of infliximab or infliximab biosimilars. Data was collected from 70 patients.

Overall, 6 acute infusion reactions were reported, 5 rapid and 1 standard. Out of the 5 rapid infusion reactions, 2 were biosimilar infusions and 3 were infliximab infusions. One patient accounted for one rapid infliximab adverse effect and one standard infliximab adverse effect. Overall, 17% of AEs were due to rapid biosimilar infusions, 33% to standard biosimilar infusions, 50% to standard infliximab infusions, and 0% were due to rapid biosimilar infusions. Neither rapid infliximab nor rapid biosimilar infusions were associated with an increase of acute infusion reactions when compared with standard infliximab and standard biosimilar infusions indicating that rapid infusions of both infliximab and biosimilar infusions are well-tolerated and safe to use for treatment of IBD in pediatric patients.

O13.05 Attentional performance in children with sleep disordered breathing

Presenter: Daniel Fong, BS[1],
Mentors Sophia Uddin, MD, PhD[1]; Heather Bortfeld, PhD[2]; Amal Isaiah, MD, PhD, MBA[1,2,3,4]
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Introduction: Sleep disordered breathing (SDB), characterized by habitual snoring and sleep disruption, affects 10% of children, and negatively impacts their behavior, specifically attention. Clinically significant SDB is typically managed by adenotonsillectomy, a procedure performed in 500,000 children/year. As SDB treatment is principally driven by parental reports, the extent of bias in reporting a child's attentional performance is unknown. Therefore, our primary aim was to assess the correlation between qualitative parental reports and quantitative measures of attention in children with SDB. We hypothesized that parent reports of behavior correlate with quantitative assessments of attention in children with SDB.

Methods: Children aged 5-11 years with SDB were administered the Flanker Inhibitory Control and Attention (Flanker) assessment while parents completed the Behavior Rating Inventory of Executive Function (BRIEF). The Flanker test measures response inhibition and provides an objective quantitative measure of attentional performance. The BRIEF provides a qualitative measure of a child's executive function, including attention. We assessed the correlations between Flanker Age-Corrected Standard Scores and the BRIEF-2 Initiate and Inhibit subscale t-scores.

Results: We included 64 children (mean age 7.9 years, 53.1% male) with SDB. The sample was predominantly Black (59.0%), non-Hispanic (88.5%), and publicly insured (74.6%). Weak negative correlations were observed between Flanker scores and BRIEF-2 Initiate (ρ=-0.14, P=0.27) and Inhibit (ρ=-0.20, P=0.126) subscales.

Conclusions: These results suggest that parent reports of behavior in children with SDB poorly correlate with their psychometrically-assessed attentional performance. Clinicians should be aware of the potential parental bias when considering surgical management in children with SDB.

O14.01 Exploring the Synergistic Potential of PARP Inhibitors and DNA Methyltransferase Inhibitors in Patient-Derived Pancreatic Tumor Organoids

Presenters: Zachery Keepers[1,2]; Hurley Ryan[1,2]
Mentors: Hem Shukla, Ph.D.[1]; Feyruz Rassool, Ph.D.[1]; Jason Molitoris, M.D. Ph.D.[1]
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BACKGROUND: Pancreatic ductal adenocarcinoma (PDAC) has a 5-year survival rate below 11%. Standard chemotherapy offers limited benefit, with median survival between 8 and 12 months. Only a small group (3-4.2%) with BRCA or PALB2 mutations benefit from PARP inhibitors (PARPi), which impair DNA repair in these cells, leading to cell death. The POLO trial showed that Olaparib – a maintenance PARPi – doubled progression-free survival in PDAC patients with germline BRCA mutations. DNA methyltransferase inhibitors (DNMTi) have been shown to induce a “BRCAness” phenotype and may extend PARPi efficacy to BRCA/PALB2-proficient PDAC.

METHODS: Three patient-derived pancreatic tumor organoids were treated with DNMTi decitabine (DAC), PARPi talazoparib (TAL), or both. For the combination treatment, DAC was administered daily, and TAL every third day for six days. Cell viability was assessed via MTS assay. Methylation and hydroxymethylation profiles post sublethal treatment with DAC, TAL, and their combination were analyzed using Biomodal’s Duet Multiomics Assay.

RESULTS/CONCLUSIONS: Treatment with DAC alone significantly inhibited growth in all three organoids, while TAL alone had limited effects. The combination of DAC and TAL proved more effective than either agent alone, allowing for lower doses of DAC. Preliminary Methylomics analysis indicated that organoids from different patients exhibited varying methylation fractions both before and after treatment. All DAC alone and DAC+TAL treated groups showed decreased methylation fractions across several relevant genes. Future research will focus on analyzing methylation fractions at the most hyper- and hypo-methylated genes relevant to pancreatic cancer.

O14.02 Comparing Toxicity Outcomes between Whole Gland and Partial Gland High Dose Brachytherapy as Salvage Treatment for Recurrent Prostate Cancer

Presenter: Kiguru, Njambi[1]
Mentor(s): Jason Molitoris, MD, PhD[1]
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Research on treatment for recurrent prostate cancer has highlighted high-dose-rate (HDR) brachytherapy as a promising option, showing advantages in dose planning, faster delivery, and improved coverage compared to low-dose-rate (LDR) brachytherapy. However, HDR brachytherapy for the whole prostate has been associated with severe Grade 3 genitourinary toxicities. Studies indicate partial gland HDR brachytherapy may offer effective biochemical control with fewer Grade 3 toxicity reports. This study aims to compare the incidence of Grade 3 toxicities in recurrent prostate cancer patients receiving partial versus whole gland HDR brachytherapy. From 2020 to 2024, 31 patients (13 partial gland, 18 whole gland) treated with ultrasound-guided HDR brachytherapy were enrolled in this retrospective analysis. Patients were treated with ultrasound-guided HDR brachytherapy divided into two treatments, separated by 2 weeks, with a prescription dose of 13.5 Gy to the gross disease and 10 Gy to the clinical target. Toxicity was assessed using the Common Terminology Criteria for Adverse Events (CTCAE). Demographic data were analyzed using IBM SPSS software, showing no significant differences in initial treatments or risk factors between groups. At one year, Grade 3 toxicity incidence was 6% for both groups, with whole gland HDR showing an 11% prevalence compared to 0% for partial gland. Two patients experienced Grade 3 toxicities after whole gland treatment, including radiation cystitis and sepsis, while none in the partial gland group reported such events. Results suggest a lower incidence of acute Grade 3 toxicity with partial gland HDR therapy, though further investigation is needed for validation.

This research was funded by the Program for Research Initiated by Students and Mentors (PRISM), University of Maryland School of Medicine Office of Student Research, and the Radiation Oncology Summer Fellowship Program.

O14.03 Decreased Incidence of Ocular Graft versus Host Disease with Early Treatment of Meibomian Gland Disease

Presenter: Reshmi Talwar[1]
Mentor(s): Sarah Sunshine, M.D.[1]
Other Co-Author(s): Desai Oula[1]; Alex Wolfson[1]; Katie Lowe[1]; Cassidy Beck[1]; Cristina Pontaza[1]**;** Bennie Jeng, M.D.; Aaron Rapoport, M.D.; Nancy Hardy, M.D.; Larry Magder, PhD; Sarah Sunshine, M.D.[1]
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Ocular Graft versus Host Disease (oGVHD) affects approximately 50% of patients who undergo a Hematopoietic Stem Cell Transplant (HSCT). Meibomian Gland Disease (MGD) incidence is reportedly higher in post-HSCT patients; however, there are few studies exploring the impact of MGD treatment on oGVHD. We sought to examine whether the treatment of MGD and ocular inflammatory symptoms in post-HSCT patients changed the likelihood of developing ocular GVHD within 2 years of HSCT. A single-center retrospective cohort study at the University of Maryland School of Medicine included 183 post-HSCT patients. The oGVHD incidence before and after the opening of the UMGCCC Eye Clinic was analyzed. Prior to the UMGCCC Eye Clinic opening, 21/107 (19.6%) patients developed oGVHD compared to 9/76 (11.8%) post-UMGCCC patients, with a 45% reduction in oGVHD odds post-UMGCCC (OR=0.55, 95% CI: 0.24–1.28, p=0.16). The logistic regression model controlling for sex, conditioning regimen, GVHD prophylaxis, and systemic GVHD showed a 39% reduced oGVHD likelihood in the post-UMGCCC group (OR=0.61, 95% CI: 0.25–1.49, p=0.28). The sub-analysis showed that erythromycin, warm compresses, and eyelid scrubs were prescribed at a higher rate post-UMGCCC, with the latter two correlating with a decreased oGVHD incidence ($p<0.05$). These results suggest that there is a tendency for a decreased likelihood of oGVHD in post-HSCT patients after the UMGCCC Clinic opening. The sub-analysis indicates an increased initial aggressive treatment of MGD and signs of ocular inflammation post-UMGCCC, correlating with a decreased oGVHD incidence. Further evaluation of patients at the UMGCCC Eye Clinic could provide more definitive data and improve post-HSCT patient outcomes.

This research was supported in part by the Program for Research Initiated by Students and Mentors (PRISM), the Cigarette Restitution Fund, and the UMB ICTR/CTSA KL2 Mentored Career Award.

O14.04 Splenic Rupture Secondary to Pancreatic Malignancy Metastasis: A Rare Case

Presenter: Jason Zhou[1]
Mentors: Samantha Olafson, MD[2] (corresponding author); Jaclyn Clark, MD[2]
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Malignancy is a rare etiology of splenic rupture, with most documented cases resulting from hematologic cancers. There have been very few reports of splenic rupture resulting from metastasis of adenocarcinoma and even fewer reports resulting from pancreatic adenocarcinoma. The spleen has been shown to be an uncommon site of metastasis. In this case report, we outline the clinical course of a 60-year-old male with splenic laceration and hemoperitoneum following a ground level fall who was transferred to the Shock Trauma Center (STC) from a local emergency department. Outside of the ruptured spleen, no other traumatic injuries were found on examination or imaging. Exploratory laparotomy was performed with splenectomy and distal pancreatectomy. Biopsy results revealed pancreatic adenocarcinoma with splenic invasion staged pT3N0. This report provides another rare example of splenic rupture in the background of metastatic pancreatic adenocarcinoma and further solidifies the importance of maintaining a broad differential in cases of seemingly innocuous trauma.

O14.05 The Role of the Unfolded Protein Response in the Antileukemic Mechanism of Artemisinins

Presenter: Haoran Li[1]
Mentor: Curt I. Civin, MD, ScD[1]
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Artesunate (ART), a derivative of artemisinin, is a primary treatment for *Plasmodium falciparum* malaria, noted for its efficacy and minimal side effects. Intriguingly, ARTs have shown promising activity against human leukemias , prompting interest in their potential for cancer treatment. ARTs induce apoptosis by generating reactive oxygen species (ROS) following endoperoxide activation by iron-bound proteins. However, the exact mechanism behind ARTs' antileukemic effect remains unknown.

Gene expression profiling suggests ART838, a potent dimeric ART, may trigger apoptosis through the unfolded protein response (UPR). Normally, UPR pathways, including IRE1, PERK, and ATF6, detect high levels of unfolded proteins, initiating cellular responses. While single knockouts (KOs) of these pathways in acute myeloid leukemia (AML) cells did not reduce ART sensitivity, knockout of heme-regulated eIF2α kinase (HRI) did, suggesting HRI's unexpected role in ART response, possibly by compensating for the absence of PERK. Both PERK and HRI pathways share downstream targets such as EIF2α and ATF4.

We performed double KO of HRI and PERK in AML cells, confirmed by sequencing and immunoblotting, and analyzed ART838 sensitivity through assays of cell metabolism, proliferation, and apoptosis. HRI and PERK double KOs were not less sensitive to ART838 than HRI KOs alone. Further double KO experiments targeting IRE1 and ATF6 with HRI are underway, as well as investigations into other EIF2α-regulating kinases, to deepen understanding of ART's antileukemic mechanism.

This research was supported in part by the Program for Research Initiated by Students and Mentors (PRISM), University of Maryland School of Medicine Office of Student Research, and the American Society of Hematology.

O14.06 From Incidental Finding to Surgical Concern: A Case of Pheochromocytoma Disguised as Renal Mass

Presenter: Lane Cavey[1]
Mentor: Michael Phelan, MD[1]
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Renal masses are among the most common incidental findings on imaging studies due to their far-reaching prevalence in the general population, with estimates suggesting that more than half of individuals over 50 years old have a renal mass. Despite the benign nature of most masses, consultation with a urologist is standard for patients with incidentally discovered masses. Pheochromocytomas are rare neuroendocrine tumors of the adrenal gland that secrete excessive levels of catecholamines systemically, leading to classic symptoms including hypertension, headaches, and hyperhidrosis. Because of their robust endocrine activity, definitive surgical management requires weeks of pre-treatment to avoid intraoperative hypertensive crises, making pre-surgical diagnosis essential to minimizing patient morbidity and mortality. We present a case report of a patient with a large incidental renal mass that was suspected to be metabolically active during surgical removal and was ultimately determined to be a pheochromocytoma on postoperative histopathology. This case highlights the importance of thorough history-taking, as well as the need for an established intraoperative protocol when a tumor is suspected to be metabolically active.

P1.01 Blood Flow of Pediatric Patients with Cataract and Amblyopia

Presenter: Michael X. Lin, BA
Mentor: Janet L. Alexander, MD
Other Co-Author(s): Jeong-Yoon Wu; Shaiza Mansoor; Ria Kappoor; Chirstina Kilby; Erica Lee
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Purpose

The purpose of this study was to quantify the retinal blood flow of pediatric patients with cataracts or amblyopia compared to blood flow of pediatric patients without conditions affecting the retina.

Methods

Patients 18 years old or below with post-operative cataracts or amblyopia were included in this prospective observational study. Patients 18 years old or below without conditions affecting the retina were included as controls. Patients' eyes were imaged using laser-speckle contrast imaging to measure peak blood flow velocity index, dip blood flow velocity index, and the mean blood flow velocity of the optic nerve. Mean blood flow velocities were compared relative to control groups or the contralateral eye of the patient using unpaired student's t-tests. Age-matched comparisons were further performed.

Results

23 control eyes, 8 cataract eyes, and 8 amblyopia eyes were included. Before age-matching, mean blood flow velocity in cataract patients was decreased compared to controls (11.1 v. 12.4, p=0.325). After age-matching, mean blood flow velocity in cataract patients was decreased compared to age-matched controls (11.1 v. 12.0, p=0.621). Mean blood flow in unilateral cataract patients had slower blood flow in the cataract eye compared to contralateral non-cataract eye (8.0 v. 10.9, p=0.353). Mean blood flow velocity of amblyopia patients was increased compared to age-matched controls (12.8 v. 11.8, p=0.450). Data collection is still ongoing.

Conclusions

A non-significant trend of decreased blood flow velocity among pediatric cataract patients was observed compared to age-matched controls. Additionally, a non-significant trend of increased blood flow velocity among pediatric amblyopia patients patients was observed compared to age-matched controls.

P1.02 Exploring the Influence of Anti-VEGF Injections on Cataract Evolution and Advancement: A Retrospective Review

Presenter: Allison Kang[1]
Mentor: John T. Thompson, M.D.
Other Co-Authors: Fernando Martinez-Guasch[1]
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Increased rates of cataract formation have been noted after injections of intravitreal triamcinolone and dexamethasone implants. Topical and oral steroids have also been associated with increased cataract formation, particularly posterior subcapsular cataracts. The purpose of this study was to determine the effect of anti-VEGF injections on the evolution of cataracts in treatment eyes compared to fellow eyes receiving no intravitreal injections. We conducted a retrospective case series of 177 patients receiving intravitreal anti-VEGF injections in one eye for neovascular age-related macular degeneration. Cataract severity was graded using the lens opacity classification system. Lens scores for nuclear sclerosis, posterior subcapsular cataract and cortical cataracts between treated eye (study eye) and untreated eye (fellow eye) were abstracted at 6- month intervals for patients receiving anti-VEGF injections. Analysis was completed using a multiple linear regression model and two-tailed t-test for statistical analysis. Mean baseline nuclear sclerosis scores were 0.421 in study eyes and 0.407 in fellow eyes, which were significantly different ($p<0.001$). Mean posterior subcapsular cataract scores were 0.037 in study eyes and fellow eyes. Mean cortical cataract scores were 0.292 in study eyes and 0.347 in fellow eyes, which was not statistically significant. Our findings suggest there may be a significant impact of intravitreal anti-VEGF injections on development of nuclear sclerosis in cataract naïve patients.

P1.03 Longitudinal Analysis of Blood Flow Prior To and After Intravitreal Bevacizumab for Retinopathy of Prematurity

Presenter: Joyce Wang[1]
Mentor: Janet Alexander, MD[2]
Other co-authors: Shaiza Mansoor[1], Jeong-Yoon Wu[2], Christina Kilby[2]
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The rising incidence of retinopathy of prematurity (ROP), a condition of retinal neovascularization that affects pre-term infants, has prompted the development of novel retinal imaging modalities used for disease screening and diagnosis. Laser speckle contrast imaging (LSCI) is a non-invasive technology that measures retinal blood flow velocities and generates a corresponding real-time "heat map" of retinal vasculature. Using LSCI, we investigated the relationship between treatment with intravitreal bevacizumab and peak blood flow velocity (PBFV). In this prospective study, 27 eyes from 30 neonates with ROP and post-menstrual age ranging from 33-67 weeks were imaged with LSCI over the course of several weeks. Corresponding vascular severity scores were collected using the Retcam 3 (Natus Medical, Inc.) and ROP staging was conducted with binocular indirect ophthalmoscopy. Using a student's t-test, we demonstrate a decrease in PBFV following treatment with intravitreal bevacizumab (p = 0.02). We also observe statistically significant differences in vascular severity scores (p = 0.002) and ROP stage (p = 0.000047) pre- and post-bevacizumab treatment. These results are consistent with previous findings that intravitreal bevacizumab injections lower retinal blood flow velocities in eyes with ROP. Our study demonstrates the utility of LSCI as a quantitative method that can be used alongside established metrics like vascular severity score or stage to diagnose and characterize ROP. Future studies can expand the sample size, collect more longitudinal data, and investigate adverse effects of bevacizumab treatment like avascular retina.

This research was funded by the NEI (K23EY032525) and the MIPS (Maryland Industrial Partnerships) award.

P1.04 Silicone in Ocular Injections for Treatment of Retinopathy of Prematurity in Preterm Infants

Presenter: Erica Lee[1]
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Retinopathy of prematurity (ROP) is a leading cause of childhood blindness. ROP is associated with abnormal retinal blood vessels. Fortunately, this condition can be treated using intraocular injection of anti-vascular endothelial growth factor (anti-VEGF). However, there is concern that silicone in the syringes may be injected into the vitreous with anti-VEGF medication, resulting in visual floaters and inflammation. This study quantified and compared silicone concentration of intraocular injections subjected to varying amounts of time and agitation, sample proximity to the plunger, and overfilling the syringe to propose evidence-based guidelines of this therapy for infants. Samples were prepared with ophthalmic balanced salt solution (BSS), BD 1mL Luer-Lok syringes (Becton, Dickinson and Company, Franklin Lakes, NJ), and 19-gauge 1.5-inch Covidien Magellan needles (Mansfield, MA) and left in the syringe from 0 min to 290 hours or flicked 0 times to 100 times. Fluorescent labelling and flow cytometry allowed us to quantify silicone concentration using a modified methods as described by Melo et al and Probst et al. BSS was used as a negative control and medical grade silicone oil 350 cS as a positive control. Linear regression was performed, showing that agitation has a significant positive linear relationship with silicone concentration ($p = 0.00007$). Time and position of the sample in the syringe seem to have a negative linear correlation but were not significant ($p = 0.1$, $p = 0.1$). However, overfilling the syringe significantly decreased silicone oil concentration ($p = 0.01$). Silicone concentration increases as a function of agitation while overfilling the syringe decreases silicone oil concentration. Physicians should limit agitation prior to administering intravitreal injections. Pharmacists should overfill syringes prior to injection to reduce silicone concentration.

This research was supported in part by the Program for Research Initiated by Students and Mentors (PRISM), University of Maryland School of Medicine Office of Student Research.

P1.05 The Role of Child Psychiatry Access Programs in Addressing Pediatric Feeding and Eating Concerns

Presenter: Astrid Widjaja, BS[1]
Mentor(s): Sarah Edwards, MD[1]; Shauna Reinblatt, MD[1]; Amie F. Bettencourt, PhD[2]
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Background: Child Psychiatry Access Programs (CPAPs) like Maryland Behavioral Health Integration in Pediatric Primary Care (BHIPP) provide training, physician-to-physician telephone consultation, and resource/referral networking to address the treatment gap for feeding and eating concerns. This study aims to understand how CPAPs help address these treatment gaps through PCP training and consultation and describes the demographic and clinical characteristics (e.g., age, gender, comorbidities) of patients with feeding and eating concerns for whom primary care providers (PCPs) sought BHIPP services.
Methods: Descriptive statistics were used to examine patient demographics, presenting problems, diagnostic impressions, current treatments, and treatment recommendations from 419 unique patient-specific consultations between January 2013 and December 2023.
Results: Patients were mostly female (67.8%), privately insured (64.7%), and averaged 13.45 years old (SD = 3.84). Anxiety (36.5%), depression (26.5%), sleep (7.9%), and attention/concentration (7.2%) were the most common presenting problems, and 70% of patients had multiple presenting problems. Over half (59.4%) of the sample received a feeding/eating disorder diagnosis from their PCP or BHIPP. Most (55.8%) were not receiving any mental health treatment at the time of BHIPP contact. The most common recommendations made by BHIPP included referrals for mental health services (82.1%) and psychotropic medication adjustments (26.5%).
Discussion: This study highlights the important role CPAPs play in increasing access to mental health treatment for feeding/eating concerns. Our findings will inform training provided by CPAPs to PCPs on identification and treatment of patients with feeding/eating concerns.

This research was supported in part by funding from the Maryland Department of Health Behavioral Health Administration (BHA) and operates as a collaboration between the University of Maryland School of Medicine, the Johns Hopkins University School of Medicine, Salisbury University, and the University of Maryland Eastern Shore. BHIPP and this study were also supported by award U4CMC49932 from the Health Resources and Services Administration (HRSA), U.S. Department of Health and Human Services (HHS). The views expressed in this study are those of the authors and do not necessarily represent the official views of, nor an endorsement by, the BHA, HRSA, HHS, or the US government.

P1.06 Intraoperative Methadone Administration is Associated with Naloxone Use but Not Postoperative Mechanical Ventilation: A Retrospective Single-Center Analysis

Presenter: Caroline West, BS[1]
Mentor: Megan Anders, MD, MS[1]
Co-Author(s): Miranda Gibbons, BS; Peter Rock, MD, MBA[1]
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Intraoperative administration of intravenous methadone may decrease postoperative opioid requirements after a major surgery[1-3]. Previous studies have concluded that when given a dose of methadone during the intraoperative period of a major surgery, patients have lower pain scores and less opioid requirements in the post-operative setting[1-3]. Given the potent nature of this medication's respiratory depressant effect, there is a need for caution in patient selection and dosing[1]. Predictive factors of respiratory depression in patients on methadone have been studied[4], but the association between methadone and post-operative respiratory requirements have not. This investigation is being completed to provide data on the potential respiratory impacts of methadone. The primary aim of this study is to investigate the association of methadone compared to conventional analgesics with post-operative ventilation and naloxone use in the post-operative setting.

We conducted a retrospective study of 70,508 surgical cases with patients aged 18-89 at a single urban tertiary/quaternary academic medical center. Cardiac and trauma surgery patients and those requiring preoperative mechanical ventilation were excluded. An adjusted logistic regression was performed utilizing functions in R to evaluate the association between both intraoperative methadone use as a binary factor and methadone use as a cumulative dose on postoperative ventilation requirements. We used an additional adjusted logistic regression to evaluate the association between intraoperative methadone use, both as a binary predictor and cumulative dose, and naloxone administration. We then used functions in R to estimate the odds ratios with a 95% confidence interval of both adjusted associations.

Patients were 52.3% female with an average age of 53.7 (IRQ 41.5, 65.8). Surgical cases averaged 145.2 minutes overall (IQR 55, 182) and 232 minutes (IQR 125, 305) in cases with methadone administration. One or more intraoperative doses of methadone were administered in 2,389 (3.4%) cases, with an average dose of 14.0mg (IRQ 10, 20). Of those receiving methadone, 327 (13.6%) and 47 (2.0%) of patients required post-operative ventilation and naloxone, respectively. After adjusting for age, duration of surgery, and BMI, there was no significant association between methadone administration as a binomial factor and post-operative ventilation (OR 0.913; 95%CI [0.798, 1.044], or cumulative dose of methadone and post-operative ventilation (OR 0.998; 95% CI [0.990, 1.006]. When accounting for the same adjustments, methadone administration as a binomial variable (OR 2.016; 95% CI [1.492, 2.724] and as a cumulative dose (OR 1.031 95%CI [1.015, 1.048] both have a significant association with naloxone requirement.

We found that intraoperative methadone administration is associated with naloxone use but not postoperative ventilation. Our results regarding postoperative ventilation provide support for inclusion of methadone in analgesic plans, though the finding of increased naloxone requirement shows a need for careful patient and dose selection as well as vigilant monitoring. Limitations of this study include the retrospective nature and likely residual confounding given the complex nature of postoperative ventilation, as well as lack of robust information about patients' opioid tolerance prior to administration of methadone. Future study may focus on the safety and efficacy of intraoperative methadone in specific surgical and patient populations.

P1.07 Can Passively Collected Smartphone Data Reliably Measure Step Count?

Presenter: Maggie Manchester
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Weight-bearing protocols are prescribed with the intention on optimizing fracture recovery. Thus, it is important to measure patient compliance to these protocols, but continuous monitoring of weight-bearing is difficult to employ in clinical practice. The utility of continuous smartphone activity monitors may offer a practical alternative to measuring weight-bearing.

The overall aim of this study was to determine if smartphone mobility metrics can detect differences in step count in patients who were prescribed early weight-bearing versus delayed weight-bearing status after lower extremity fractures.

This was a retrospective cohort study performed at a single academic trauma center. Patients aged 18 and older with a lower extremity fracture (pelvic, hip, femoral shaft, distal femur, tibial plateau, pilon, ankle, or hindfoot) who had surgical fixation within 7 days of injury and own an Apple iPhone for at least 1 year before injury were included in this study. Patients with bilateral lower extremity injuries were excluded from the study.

74 patients met the inclusion criteria and were included in analysis, with 27 in the early weight-bearing and 47 in the delayed weight-bearing group. Within 12 weeks, step counts were significantly higher in the early weight-bearing group (mean, 1723; 95% CI, 1179 to 2267) versus the delayed weight-bearing group (mean 673; 95% CI, 330 to 1016; mean difference, 1050; 95% CI, 373 to 1727; p=0.002). These results indicate that the Apple Health step count metric is sensitive to weight-bearing protocols, which could provide potential utility in understanding compliance to prescribed weight-bearing protocols and fracture recovery.

This research was supported by an AOTrauma North America fellows grant, an Orthopaedic Trauma Association resident research grant, and the National Institute of Arthritis and Musculoskeletal and Skin Diseases (K24AR076445)

P1.08 Complications Surrounding Treatment of Distal Clavicle Fractures in the Pediatric Population

Presenter: Anisha Pancholi, BS[1]
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PURPOSE Midshaft clavicle fractures are commonly seen in the pediatric population; however, distal clavicle fractures are much less common. Distal clavicle fractures historically have been shown to have higher complication rates than midshaft fractures including an increased rate of nonunions. However there is currently little quantifiable evidence for complication rates of distal clavicle fractures. This study aims to quantify the complication rate associated with distal clavicle fractures in the pediatric population

METHODS A retrospective review was conducted to identify all pediatric and adolescent patients with clavicle fractures treated at our institution between 2011 and 2018. Patient demographics, mechanisms of injury, fracture pattern, immobilization type, immobilization length, treatment (operative or conservative), length of follow-up, and complications were recorded. Simple statistics were performed.

RESULTS Out of 205 pediatric and adolescent patients treated for a clavicle fracture, 14 patients (1.95%) with an average age of 11.77 years (Range: 2.37-15.87; SD: 3.76) were identified as having distal clavicle fractures. Of the 14 patients, 92.85% (n=13) were male. The cohort was immobilized for an average of 5.15 weeks (Range: 3-9.42 weeks; SD: 1.77) with 61.54% immobilized in a sling (n=8) and 38.46% treated with a shoulder immobilizer (n=5). Three of the patients (21.43%) were treated operatively with an open reduction and internal fixation procedure while the remainder were treated in a conservative, non-operative manner (n=11, 78.57%). The average length of follow-up for the operatively treated patients was 13.86 weeks (Range: 12.43-14.86 weeks; SD: 1.27) with the non-operative follow-up having an average of 6.05 weeks (Range: 1.29-9.71 weeks; SD: 2.40). Of the operative cohort, there was only one complication noted that necessitated screw removal. There were no complications noted in the conservatively treated cohort. No nonunions occurred in the entire cohort.

CONCLUSION Historically, distal clavicle fractures are thought to have higher complication rates in comparison to those of midshaft clavicle fracture. The results of this study indicate pediatric fractures of the distal clavicle can be successfully treated with a low expected complication profile and that the nonunion rate surrounding distal clavicle fractures may be overestimated if appropriate intervention is applied.

P1.09 Can Passively Collected Smartphone Data Reliably Measure Walking Speeds Stratified by Weight-Bearing?

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This study aimed to assess the association between early versus delayed weight-bearing on postoperative walking speed, using smartphone-captured data, in patients with operatively treated lower-extremity fractures. This retrospective cohort study was conducted at a single academic trauma center and included adults aged 18 years and older who sustained lower extremity fractures (including pelvic, hip, femoral shaft, distal femur, tibial plateau, pilon, ankle, or hindfoot fractures) and underwent surgery within 7 days of injury. Patients were required to own an iPhone with the Apple Health app for at least one year pre-injury. Patients with bilateral lower extremity injuries were excluded. Weight-bearing protocols were categorized as early (permitted within 3 weeks post-fixation) or delayed (restricted for at least 6 weeks post-fixation). Walking speed, measured by the Apple iPhone Health app, was the primary outcome and was compared between groups at 12 and 26 weeks post-injury.

A total of 126 patients were eligible, with 74 meeting the inclusion criteria (mean age = 46 years, SD = 19; 43% female). Of these, 27 were in the early weight-bearing group, and 47 were in the delayed group. Within 12 weeks post-injury, no significant difference in walking speed was observed between the groups (mean difference = 0.04 m/s; 95% CI, -0.05 to 0.13; p = 0.36). However, by 26 weeks, patients in the early weight-bearing group had significantly faster walking speeds than those in the delayed weight-bearing group (mean difference = 0.13 m/s; 95% CI, 0.04 to 0.22; p = 0.004).

These findings suggest that early weight-bearing may enhance walking speed recovery over time in patients with lower extremity fractures. Smartphone-captured walking speed may serve as a valuable functional recovery metric, with potential utility as a digital biomarker for monitoring postoperative rehabilitation progress. Further research is needed to validate smartphone-based metrics for clinical use in assessing functional recovery in this patient population.

P1.10 Caregiver Assessment of Tackle Football Among School Aged Boys in an Urban Environment

Presenter Name: Juan Dalo[1]
Mentor Name: Susan Feigelman[1], MD
Other Co-Author(s): Zachary Pardes[1], MD, Eseigboria Ikheloa[1], MD
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Background and Objectives: Increasing media attention has highlighted injuries associated with tackle football (TFB) with special attention to head injuries and long-term consequences in professional players. Sequelae from concussions may be more severe in children who play TFB. In the literature, parents and coaches describe benefits associated with playing team sports. Therefore, caregivers may have ambivalent feelings regarding allowing their children to play. Recent studies, using regional and national samples, have elucidated some of these parental perceptions. However, few studies have focused on urban populations. The objective of this study is to better understand how caregivers make decisions, while focusing on children living in Baltimore, a population which largely identifies as African American and/or Black with a majority utilizing Medicaid Health Insurance.

Methods: A semi-structured interview, based on a Center for Disease Control (CDC) survey (Waltzman, 2024) was given to a convenience sample of caregivers in University of Maryland Pediatrics at Midtown. Caregivers were asked to complete the written questionnaire and then were queried for additional thoughts on health beliefs regarding youth TFB. Demographics were tabulated. Survey items were sorted according to the Health Belief Model (HBM) dimensions: susceptibility, severity, benefits, barriers, self-efficacy, and cue-to-action.

Results: 30 questionnaires have been completed. The following data compares our results to the CDC study. Most respondents were female (80% vs. 52%). 90% were non-Hispanic black (vs. 12%). In the current study, 83% were < 44 years (vs. 33.5%). Child's insurance was mostly Medicaid (83%). 93% were strongly or somewhat fans of American football (vs. 57%). When asked "When is a good age for kids to start playing tackle football", 87% responded before high school (vs. 43%). However, 93% were very or somewhat concerned about the safety of kids playing tackle football (vs. 86%). Additional data will be presented showing similarities and differences in the HBM perceptions in these two groups.

Conclusions: Prior national studies have described parents' perceptions about youth TFB. We found almost all caregivers were concerned about safety yet still felt that children can start playing prior to high school. In this local study, caregivers' perceptions had similarities and differences regarding the pros and cons of playing TFB when compared to a national study. Data collection is ongoing. The authors declare no conflict of interest.

P1.11 Elevated C-reactive Protein Levels and Cardiovascular Risk in Prurigo Nodularis Patients with Sleep Disturbance: A Multi-Center Cohort Study

Presenter: Gabrielle Callwood-Jackson, BS[1]
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Prurigo nodularis (PN) is a chronic inflammatory skin disorder characterized by intense pruritus, often leading to sleep disturbances and an elevated risk of systemic comorbidities, including cardiovascular disease. Elevated C-reactive protein (CRP) levels may serve as a marker of systemic inflammation in these patients. This study aimed to evaluate the prevalence of sleep disturbances in PN patients and their association with elevated CRP levels and cardiovascular risk. We conducted a retrospective cohort study using a global health records database to compare PN patients with matched controls. Using propensity score matching, we analyzed sleep disorders, CRP levels, cardiovascular comorbidities, and mortality among PN patients from 2005 to 2020. Relative risks and hazard ratios were calculated for each outcome. PN patients had a higher risk of sleep disorders (RR 1.47, 95% CI 1.42-1.52) and elevated CRP levels compared to controls. Among PN patients, those with sleep disturbances exhibited significantly higher CRP levels (16.2mg/L vs. 10.6mg/L) and an increased risk of cardiovascular conditions, including type 2 diabetes, myocardial infarction, and venous thromboembolism. Mortality risk was also higher in PN patients with sleep disturbances (HR 1.47, 95% CI 1.34-1.62). Sleep disturbances in PN patients are associated with elevated systemic inflammation and increased cardiovascular risk. Clinicians should prioritize screening and management of sleep disorders in PN to mitigate these adverse outcomes.

P1.12 Unseen Flames: Detecting Signs of Abuse in Burn Injuries for Emergency Medicine Physicians

Presenter: Claudia Wong, BS[1]
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Both abuse and burn injuries are more prevalent among patients with low socioeconomic status. Among abuse presentations, burn injuries require special and early recognition for effective treatment and social intervention. Although the overall incidence of burn injury in the United States has decreased due to burn prevention efforts, up to 92% of burn injuries present to the Emergency Department (ED) as part of initial burn care with approximately 10% of pediatric burn injuries inflicted by abuse. Recognizing burn patterns in cases of abuse will help emergency clinicians to identify high risk individuals in the ED. The objective of this study is to characterize patterns of abuse in burn injuries. Burn encounters sustained with abuse were isolated from the American Burn Association (ABA) Burn Care Quality Platform between January 2008 and December 2018. Descriptive statistics between cohorts with abuse versus non-abuse mechanisms of injury were leveraged to summarize patient demographics, clinical characteristics, and patterns of burn injury. A total of 292,669 individuals sustained a burn injury during the study period with 5876 (2%) having a burn from abuse. The highest prevalence of abuse was among adults (31-64 years, 28%), followed by infants (0-4 years, 25%), and young adults (19-30 years, 18%). The majority of the abuse cohorts was composed of individuals who identified as males (61%), Black or African-American (44%), and who did not sustain an inhalation injury (91%). The predominant etiology of abuse burns were: 1) scald (54.7%), flame (25.6%), and contact (8.4%) injuries. Median hospital length of stay among abuse patients (6 days, interquartile range: 2-14 days) was significantly longer than non-abuse patients (3 days, interquartile range: 1-10 days) ($P<0.001$). A high proportion (96%) of abuse patients survived their burn injury and were discharged home (63%). This study captures patterns of abuse burn injury in a national cohort, demonstrating which populations are most vulnerable. Abuse patients had significantly longer hospital lengths of stay, with the majority surviving their burns and being discharged home. Awareness of these patterns during initial presentation may help emergency clinicians recognize and care for high risk burn patients.

P1.13 Publication Outcomes of Abstracts Presented at Society for Investigative Dermatology Circa 2020

Presenter: Dakarai Dunbar[1]
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The Society for Investigative Dermatology (SID) was created to promote the advancement of skin biology research. The organization hosts a conference annually that allows for the dissemination of basic science knowledge to advance dermatology research to new heights. Our study investigates the publication status of research abstracts presented at SID to determine if publication rates were similar to those of other widely attended conferences in dermatology. We performed a literature search for each abstract presented at the conference in 2020 and found that only 27.6% of abstracts make it to publication. Due to various reasons outlined in this article, publication rates of SID projects are lower than many other dermatology conferences attended. Therefore, conference participants should be aware of how study designs and research topics can influence publication outcomes.

P1.14 Trends in Service Utilization and Delivery by Adolescents at a Sexual and Reproductive Health Clinic

Presenter: Jason Eaton[1]
Mentor: Matthew Grant, MD[1]
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In the United States, adolescents make up a disproportionate number of new yearly cases of sexually transmitted infections (STIs) and human immunodeficiency virus (HIV), with sexual and gender minority (SGM) and racial/ethnic minority adolescents particularly affected by STIs/HIV. Adolescents are a key population for addressing STI and HIV epidemics in the US but face unique & significant barriers to accessing sexual/reproductive healthcare, and SGM adolescents may face additional barriers in accessing LGBTQ+ competent healthcare. Programs strategically aimed at SGM youth often aim to provide care in ways which reduce barriers to care. Few studies have examined the differential healthcare delivery in these programs.

This retrospective review study sought to elucidate trends in sexual/reproductive health service utilization and assessment, with particular attention to how SGM status, gender identity, and racial/ethnic minority status impacted encounters. 225 encounters performed by community health workers (CHW) in an adolescent community health program were reviewed, each conducted over a 6-month period between November 2023-April 2024 at four college campuses in the Baltimore area as part of STI/HIV testing and reproductive health education initiatives. Encounters were reviewed for client demographics, HIV/STI testing & referrals (including HIV pre-exposure prophylaxis (PrEP), and reproductive goals & contraception. Descriptive analyses were performed to identify trends.

Risk factors associated with STI/HIV acquisition differed among groups. LGBT-identified cisgender women were most likely to report having sex without protection (90.9%, compared to 78.7% among all participants). Non-LGBT cisgender men were the group most likely to report having sex while using drugs or alcohol (37.8%, compared to 28.9% among all participants). CHW were less likely to assess contraception and reproductive goals in cisgender men (both LGBT and non-LGBT) compared to other gender/sexuality groups. Additionally, while 68.7% of participants expressed interest in PrEP, only 3.2% of interested patients were referred to a PrEP provider. Together, these findings identify opportunities to bridge disparities and deficiencies in sexual/reproductive healthcare delivery for adolescents.

P1.15 Identifying Key Risk Factors for Intubation in Pediatric Patients with Lower Respiratory Tract Infections: A Comprehensive Analysis of Clinical and Demographic Influences in the PICU

Presenter: Ria Jha, BS/MSE[1]
Mentor(s): Siddartha Dante, MD/MHS[1]; Hannah Goodwin, MD[1]
Other Co-Author(s): Alex Dulla, BS/MHA[1]
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The recent surge in Pediatric Intensive Care Unit (PICU) admissions due to infectious lower respiratory tract infections (LRTIs), particularly during the 2022-2023 winter season, highlights an urgent need for more effective triage and resource allocation. This unprecedented increase in respiratory illnesses led to a critical shortage of PICU beds, making it challenging for hospitals to provide adequate care for all patients. Consequently, early identification of high-risk patients has become essential to prioritize resources, ensure timely intervention for those most at risk, and prevent further strain on limited healthcare capacity. Utilizing data from the Virtual Pediatric System (VPS) database, we reviewed records of patients aged 0-5 years who were admitted to a tertiary pediatric ICU and required intubation within the first 24 hours due to a lower respiratory tract infection (LRTI) over a 5-year period (2018-2023). A total of 1,628 patients met inclusion criteria. Collected data includes patient demographics, disease modifiers, and respiratory support levels at 0, 6, 12, and 24 hours post-admission. Despite concerns that infants may be at higher risk for intubation, we hypothesized that there are no statistically significant differences across demographic factors in predicting respiratory intervention needs.

P1.16 Identifying High-Risk Children for Repeated Pediatric ICU Admissions due to Lower Respiratory Tract Infection based on Demographic and Clinical Factors

Presenter: Alexander Dulla, BS/MHA
Mentor(s): Siddartha Dante, MD/MHS[1]; Hannah Goodwin, MD[1]
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Pediatric Intensive Care Unit (PICU) admissions for lower respiratory tract infections (LRTI) have surged in recent years, especially during winter months. A retrospective review of over 200,000 hospitalizations for bronchiolitis (2010-2019) revealed a two-fold increase in PICU admissions and a seven-fold increase in non-invasive ventilation (NIV) use. A 2022 follow-up study of 600,000 children found a further rise in PICU admissions, length of PICU stay, and NIV support rates. This trend highlights the importance of being able to appropriately give anticipatory guidance to families of high-risk PICU readmission patients at the time of discharge so they are aware of their child's vulnerability and the importance of seeking medical attention during illness. It also highlights the necessity for pediatricians to remain alert in assessing these high-risk patients, ensuring prompt intervention when needed. In this retrospective chart review, we examined clinical and demographic factors associated with an increased likelihood of readmissions to the PICU in children initially admitted for LRTI. Utilizing data from the Virtual Pediatric System (VPS) database, we examined 1,628 children aged 0-5 years admitted to a tertiary PICU and intubated within 24 hours for a primary LRTI over a 5-year span (2018-2023). Data included patient demographics, disease modifiers, and respiratory support levels at 0, 6, 12, and 24 hours post-admission. By evaluating these variables, our study aims to identify patterns that can aid in predicting which patients are at higher risk for readmission. Our preliminary analysis shows no significant differences in age, gender, race, or gestational age between readmitted and non-readmitted groups.

P2.01 Patient-Derived Pancreatic Tumor Organoids as a Model to Individualize Cancer Treatment: Cancer Stem Cell Populations and Treatment Responses

Presenter: Hurley Ryan[1,2]; Zachery Keepers[1,2]
Mentor: Hem Shukla, PhD[1,2]
Other Co-Authors: Sanjit Roy[1,2]; Binny Bhandary[1,2]; France Carrier [1,2]; Naru Lamichhane[1]; Jason Molitoris[1]; William Regine[1]
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Pancreatic cancer is one of the deadliest cancers in the United States. It is the 4th most deadly cancer with a 5-year survival rate of only 13%. This is mainly due to late diagnoses and resistance to treatments. Currently, the specific therapy that a patient receives is based on the average response of an entire patient population and not the individual patient. There is a need to create treatment plans that are individualized to each patient. Patients derived tumor organoids (PTOs) are simplified versions of organs in three dimensions that can mimic functional and structural components of an organ. They can provide an easy and reproducible way to characterize and study different tumors. Three different organoids were studied, named 7800, 8510, and 11777. Each organoid was treated with different chemotherapy drugs or radiation. 11777 displayed the highest resistance to radiation and every chemotherapy treatment. 7800 showed a higher resistance to 5-FU and paclitaxel than 8510. The PTOs were also used to study cancer stem cells (CSCs) which have been shown to contribute to treatment resistance. CSC markers SOX2 and OCT4 were studied and showed that expression of the two markers increased after radiation treatment. Patient derived tumor organoids could be used as a model to further study cancers and provide precision medicine to patients.

This research was supported in part by the Radiation Oncology Summer Fellowship Program, University of Maryland School of Medicine, Department of Radiation Oncology.

P2.02 EDI Representation in CAMPEP Accredited Medical Physics Residency Program Websites

Presenter: Ishan Vaish[1]
Mentor: Chaitanya Kalavagunta[1]
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Equity, Diversity, Equity, and Inclusion (EDI) information is a component of several medical physics residency program (MPRP) websites. Our past research has focused on quantifying to what extent EDI information is present on MPRP websites, and this study aims to understand the importance of EDI criteria to current medical physics residents and program directors. Identifying the EDI criteria most important to current medical physics residents will help MPRP programs prioritize the information on their websites, effectively showcasing their commitment to EDI for prospective applicants. An anonymous survey will be distributed to residents and program directors of CAMPEP (Commission on Accreditation of Medical Physics Education Programs) accredited programs. Participants will evaluate EDI criteria on a 1-5 scale, rank categories, and propose additional criteria not included in our initial assessment

P2.03 The Unique Tolerogenic Role of CD8+ T Cells and Pro-Inflammatory Cytokines in Lung Cancer

Presenter: Isabelle Lim
Mentor(s): Anirban Banerjee, PhD[1]; Alexander S. Krupnick, MD[1,2]
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Cancer immunotherapy, the use of the body's own adaptive immune response to combat tumor growth, is emerging as a promising therapy option for patients. CD8+ cytotoxic T cells, immune response cells that kill intracellular pathogens and suppress tumor growth, have been explored as a possible key to such therapy. However, emerging data suggests that CD8+ T cells may not exhibit anti-tumor activity for all malignancies, specifically lung cancer. In this project, we aim to investigate the mechanisms responsible for the unique tolerogenic role of CD8+ T cells in lung cancer. We hypothesize that an increased production of the proinflammatory cytokines induce immunosuppressive activity that allows for subsequent tumor growth in lung cancer. Utilizing an ectopic xenograft model of lung cancer, we found that in the presence of CD8+ T cells, lung cancer demonstrated accelerated tumor growth while non-lung cancers showed reduced tumor growth. In addition, cytokine analysis, human patient tissue samples, and *in vivo* models showed increased IFN-γ levels in lung cancer as compared to non-lung cancers (i.e., melanoma, pancreatic, and colon cancer). Finally, using GFP-actin mice to differentiate between host and tumor cells, the majority of IFN-γ appeared to be produced by tumor cells in lung cancer and by host cells in non-lung cancers under certain circumstances. Overall, our data suggested that CD8+ T cells may play a unique immunoregulatory role in lung cancer, which could translate into the development of more effective and tolerable immunomodulating treatments for lung cancer patients.

This research was supported by the Krupnick Lab and Program for Research Initiated by Students and Mentors (PRISM), University of Maryland School of Medicine Office of Student Research

P2.04 Janus Kinase Role in Ocular Graft Vs. Host disease

Presenter: Desai Oula[1],
Mentor(s): Sarah Sunshine, M.D.[1]
Other Co-Author(s): Reshmi Talwar[1]; Sarah Chang[1]; Cassidy Beck[1]; Christina Pontaza[1]; Sarah Sunshine, M.D.[1]
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Ocular graft-versus-host disease (oGVHD) is a severe dry eye disease that 50% of patients that receive a hematopoietic stem cell transplant will develop. Studies have shown that inhibition of the Jak 1 and 2 receptor is a promising approach in treating oGVHD and presents as a possible target in understanding the disease process. Many pro-inflammatory cytokines are upregulated in patients diagnosed with chronic GVHD compared to HCST patients without the disease. Many of these cytokines signal between two of the four members of the JAK pathway, JAK1 and JAK2. This study aims to examine the inhibition of JAK 1 and 2 as potential therapeutic targets in Ocular Graft versus host disease. Olink assays were used in two separate runs to analyze 96 cytokines in the tear samples of patients with ocular Graft versus Host Disease. In the first run, tear samples from 14 patients were analyzed, over the course of 7 visits on JAK inhibitors and 13 visits off JAK inhibitors. The second run included 13 patients, with 10 visits on JAK inhibitors and 15 visits off JAK inhibitors. Cytokine concentrations were compared between visits with and without JAK inhibitor treatment. CXCL10, CXCL11, and IL22 had significantly lower concentrations when patients were on JAK inhibitors compared to when they were not ($p < 0.05$). The down regulation of these molecules suggests that patients treated with JAK 1 and 2 inhibitions may receive therapeutic benefits through a decrease in immune cell trafficking and inflammatory cytokines that potentiate the disease process.

This research was supported in part by the Program for Research Initiated by Students and Mentors (PRISM), University of Maryland School of Medicine Office of Student Research.

P2.05 Do Plasma Cells Matter? Assessing the Impact of Residual Plasma Cells in Prediction of AML Remission and Relapse Post-Venetoclax Treatment

Presenter: Apurva Raghu, B.S.[1]
Mentor(s): Vu Duong, M.D.[2]; Rima Koka, M.D., Ph.D.[3]; Michael E. Kallen, M.D.[3]
Other Co-Author(s): Shreya Shah, B.S.[1]
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Acute myeloid leukemia (AML) is a common form of leukemia, and many older and sicker patients are now treated front line with induction chemotherapy, using venetoclax (a BCL2 inhibitor) and a hypomethylating agent (usually azacitidine or decitabine). Our group performed a retrospective study to assess whether various pathologic findings in day 28 post-induction bone marrow biopsies in these patients can predict risk of relapse. Our study focused on needle core biopsies from day 28 bone marrow samples, and analyzed pathologic findings including plasma cell counts (measured by CD138 immunohistochemistry), blast counts (measured by CD34 immunohistochemistry), and overall cellularity (estimated by low power assessment of H&E stains). Patients were grouped based on their clinical outcomes of achieved remission, achieved remission with subsequent relapse, and never achieved remission (continuation of disease). Day 28 bone marrow biopsies were subjected to brightfield whole slide imaging using the Aperio imaging system and will be analyzed to assess the above-mentioned parameters. Statistical analysis will be performed to determine associations between these parameters and across clinical outcome groups. We hypothesize that higher plasma cell counts, lower cellularity, and lower blast counts will all be associated with a lower incidence of relapse after induction, as these would be indicative of a stronger immune response and better tumor eradication. As of this writing, 49 patients meet study criteria for inclusion, of which 51% never achieved remission, 23% achieved remission but relapsed, and 27% achieved remission with no relapse.

This research was supported in part by the Program for Research Initiated by Students and Mentors (PRISM), University of Maryland School of Medicine Office of Student Research.

P2.06 Digital Assessment of Blast Count and Megakaryocytic Morphometry in Acute Myeloid Leukemia Mid-Induction

Presenter: Shreya Shah [1]
Mentor(s): Michael E. Kallen MD[2], Rima Koka MD PhD[2], Vu H. Duong MD[3]
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Acute myeloid leukemia (AML) is a blood cancer with a high risk of relapse, making accurate prognostication crucial for treatment decisions. Bone marrow (BM) biopsies are typically evaluated at day 14 (D14) after the start of 7+3 induction chemotherapy to assess initial responses. At our institution, a biopsy with ≥10% residual blasts indicate a lower likelihood of complete remission and prompts a change in treatment strategy. Relapse is characterized by significant symptom progression and BM blasts exceeding 5%.
This study aims to evaluate the prognostic value of specific morphologic findings in D14 BM biopsies as predictors of AML relapse, utilizing digital pathology (Aperio ImageScope). Our objectives include:

1. **Blast Analysis**: Assessing blast clustering (≥3 blasts) and percentage using CD34 immunohistochemistry.
2. **Megakaryocyte Counts**: Normal counts range from 3-4 per high-power field, measured using CD61 immunohistochemistry, with variability post-chemotherapy.
3. **Scoring System Development**: Correlating blast percentage and megakaryocyte counts with clinical data to establish prognostic morphologic features and in turn inform treatment decisions.
4. **Spatial Analysis**: Using specialized software for morphometric analysis of bone marrow biopsies.

From 900 screened AML patients, 43 were selected based on specific criteria. About 50% of these experienced relapses after '7+3' induction chemotherapy. Preliminary data shows that 65% had 2-9% blasts on day 14, and 45% had ≤5% cellularity. Future steps will correlate mutational profiles with outcomes and explore combination therapies. By identifying elevated megakaryocyte counts and blast clustering, we aim to improve predictive risk stratification and enhance AML patient management post-induction therapy.
This research was supported in part by the Program for Research Initiated by Students and Mentors (PRISM), University of Maryland School of Medicine Office of Student Research.

P2.07 Analysis of the Increased Incidence of Aggressive Prostate Cancer after Prior Testicular Cancer

Presenter: Kevin Xu[1]
Mentor(s): Minhaj Siddiqui, MD[1]
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Men with a history of testicular cancer are known to have an increased risk of developing prostate cancer. The objective of this study is to determine if testicular cancer survivors are predisposed to a higher incidence of aggressive prostate cancer later in life and greater risks of mortality.

Surveillance, Epidemiology, and End Results (SEER) database was searched for patients diagnosed with prostate cancer and a previous diagnosis (≥5 years antecedent) of either testicular cancer or another cancer with a high survival rate (5-year survival > 70%). Cox regression models were used to determine the risk of mortality.

Of the 392,238 prostate cancer patients, 423 had a history of testicular cancer, 31,428 had a history of another cancer, and 377,975 had no prior history of cancer. The mean ages of prostate cancer diagnosis were 62.5+/-8.2 years, 68.0+/-8.5 years, and 68.0+/-9.5 respectively ($p<0.001$). Testicular cancer was associated with earlier mortality on survival analysis in multivariate analysis controlling for age of prostate cancer diagnosis, race, clinical T stage, PSA level at diagnosis, and Gleason score.

A history of testicular cancer may be associated with an increased risk of developing prostate cancer and increased mortality. Confirmatory studies are warranted.

This research was supported in part by the Program for Research Initiated by Students and Mentors (PRISM), University of Maryland School of Medicine Office of Student Research.

P2.08 Impact of Socioeconomic Disparities on Gastric Cancer Outcomes

Presenter Name: Anna Zamora[1]
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Background: Studies have demonstrated that gastric cancer patients are undertreated in the United States, which leads to worse overall survival (OS). Although socioeconomic status is thought to be associated with worse OS, studies have typically used large geographic areas (zip codes or counties) for assessment. Using a statewide cancer registry, socioeconomic deprivation (SED) at the neighborhood level was used to assess OS in gastric cancer patients.
Methods: Using the incidence-based Florida Cancer Database, 8,170 gastric adenocarcinoma patients diagnosed from 2008-2015 were identified. The Area Deprivation Index, a validated dataset that ranks neighborhoods (census block groups) from 1-100 (higher scores = higher deprivation) at the national level was used to assess OS by quartile. Descriptive statistics were performed with chi-squared and Kruskal-Wallis tests and survival analysis was conducted with Kaplan-Meier and log-rank tests.
Results: An association between SED and gender, race, ethnicity, insurance, status, and treatment, including chemotherapy, surgery and multimodal treatment (surgery + chemotherapy) was identified ($p<0.05$). The proportion of patients receiving surgery decreased with increasing deprivation: 41.8% in the lowest quartile compared to 38.6% in the highest. Similarly, receipt of chemotherapy was 52.8% in the lowest deprivation quartile compared to 41.7% in the highest. Survival disparities were also identified; median overall survival was 13.8 months for the lowest deprivation group, 11.3 months for both the moderate and high deprivation groups, and 9.7 months for the highest deprivation group ($p<0.001$).
Discussion: This study highlights the impact of socioeconomic disparities on multiple gastric cancer outcomes. Patients in higher socioeconomic deprivation neighbourhoods receive less surgery, chemotherapy, and multimodal treatment and have worse overall survival. Further studies to identify the mechanisms of these disparities are needed to create thorough targeted interventions and policies to improve equity in gastric cancer care and outcomes.
Funding Acknowledgement: This research was supported in part by the Program for Research Initiated by Students and Mentors (PRISM), University of Maryland School of Medicine Office of Student Research.

P2.09 Elucidating the Mechanism of Recombinant Bacterial Vaccine Adjuvants

Presenter: Lila Berle[1]
Mentor: Dr. Robert Ernst, PhD[2]
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This project aims to discover the mechanism of two vaccine adjuvants created using Bacterial Enzymatic Combinatorial Chemistry, a novel method of engineering lipid A. These adjuvants have previously demonstrated the ability to stimulate Th1 and Th2 mediated immunological memory while also stimulating less pro-inflammatory cytokine release than standard LPS extracted from *E. coli.*

Lipid A plays an integral role in TLR-4 mediated signaling, and its structure can be modified to elicit varying cytokine release profiles. This poster will provide information on the mechanism of 438S and 470S, while utilizing lipidIVa as a negative control and BORT LPS as a positive control. Data from 10 knockout macrophage lines and WT macrophages is compared to quantify the difference in TNF-α production upon stimulation with these adjuvants.

All cell lines were procured from ATCC and cultured in DMEM with FBS at 37 °C. Cells were then plated overnight to facilitate adherence to flat bottom 96-well plates before stimulation with the novel adjuvants. 24 hours after stimulation, the supernatants from each cell line were collected and a TNF-α DuoSet was run. The data was processed in Excel and GraphPad.

The significant variation in TNF-α production depending on both the adjuvant and the knockout cell lines establishes clear motivation for further investigation. During the coming weeks, a Meso Scale Discovery will be run. This will allow for a broad examination of cytokine release beyond TNF-α alone. Ultimately, this information will inform future *in vivo* applications of these novel adjuvants.

P2.10 Healthcare Workers Preferences Regarding Risk-Tailored Policies for Contact Precautions for Patients with Methicillin-Resistant Staphylococcus aureus in Hospitals

Presenter: Nicholas Angelino[1]
Mentor: Anthony Harris, MD[1]
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The risk of MRSA transmission from patients or their environment to healthcare personnel (HCP) differs by HCP occupation and care activity. An alternative to an "all or none" approach to contact precautions for patients with MRSA is a "risk-tailored" approach – using gloves and gowns only for high-risk activities, locations, or roles. A discrete choice experiment is a proven method to assess HCP perspectives on varied implementation strategies.
We distributed a discrete choice experiment survey to HCP at medical centers in three cities. Respondents were presented with eight choice sets, each consisting of two hypothetical policy options for glove and gown use to prevent MRSA transmission. In each comparison, respondents selected their preferred policy option. Using mixed logit modeling we calculated the utility derived from each policy component, the probability of uptake for the most favored policies, and heterogeneity in preferences based on occupation.
384 HCP completed the survey: 138 from New York, 128 from Pittsburgh, and 118 from Baltimore. Respondents' occupations were physicians or advanced practice providers (APP) (93, 24%), nurses (87, 23%), environmental services (56, 15%), respiratory therapists (55, 14%), occupational or physical therapists (44, 11%), and "other" (46, 11%). 237 (54%) respondents reported wearing gloves and gowns 'all the time' when required by their hospital's current policy.
Respondents derived the most utility from policies that required glove and gown use by HCPs of any occupation (utility 0.17; 95% CI 0.12 to 0.23), in high-risk settings, such as the ICU (utility 0.12; 95% CI 0.07-0.18), and when touching the patient (utility 0.11; 95% CI 0.06-0.17). Among respondents, 63% (95% CI 60-66%) would support a risk-tailored approach over an approach where contact precautions are used by all HCP in all settings for all activities. Support for this policy varied by occupation ($p<0.02$), with the strongest probability of support from physicians and APP (77%, 95% CI 72-82%) and the least support from environmental services (45%, 95% CI 37-53%).
This discrete choice survey found that most HCP preferred a risk-tailored approach to contact precautions when caring for patients with MRSA.

P2.11 Impact of Fetal Exposure to Opioids in MOUD Pregnancies on Fetal Biometry Trajectories

Presenter: Sarah Sabet[1]
Mentor(s): Dr. Courtney Townsel, MD, MS[1]
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Research on medications for opioid use disorder (MOUD) during pregnancy is essential to improving maternal and fetal outcomes by enhancing our understanding of their biological effects on the fetus, which can guide optimal treatment strategies. In this retrospective cohort study, fetal biometry measurements from pregnancies with MOUD exposure (methadone or buprenorphine) were compared to matched controls to assess potential impacts on fetal growth. Patients were matched with controls based on race, BMI, and maternal age. We hypothesize that MOUD exposure may affect placental function by increasing the likelihood that neonates with higher umbilical cord medication levels will exhibit fetal biometric parameters below the 10th percentile. Fetal ultrasounds conducted in the second (18-20 weeks) and third trimesters (after 28 weeks) were analyzed alongside maternal health outcomes, such as gestational diabetes and hypertension, as well as postnatal outcomes. Statistical analysis will assess whether statistically significant biometric differences exist between the two groups. If significant, these findings could guide closer monitoring of fetal growth in MOUD pregnancies and inform care management plans. Current research on MOUD in pregnancy is limited by a lack of matched control groups, postnatal data, and umbilical cord drug concentration data at delivery making this study a novel contribution to understanding the fetal effects of MOUD.

P2.12 Impact of Race on Short and Long-Term Outcomes in a Population with Opioid Use Disorder

Presenter: Jasmine Stevens[1]
Mentor(s): Sarah Kattakuzhy, MD, MPH[1]; Edward Traver, MD[2]
Other Co-Author(s): Elana Rosenthal, MD[2]; Habib Omari, MD[2]
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Objective: In response to the worsening opioid epidemic, the FDA approved methadone and buprenorphine to treat opioid use disorder (MOUD) and address the increased mortality and morbidity in people who inject drugs. Research has shown that MOUD receipt is significantly lower in those who are non-white and with less income. Additionally, most of the current literature analyzes MOUD receipt in the outpatient setting, with few looking at outcomes in a hospitalized patient population.
Methods: A retrospective cohort study was conducted analyzing data from 4 academic medical centers across the United States. The primary variables assessed was MOUD receipt and initiation. The main outcomes of interest were premature discharge, MOUD on discharge, linkage to outpatient MOUD, and readmission within 1 year.
Results: A total of 65 (20%) patients were initiated on MOUD once admitted that were not already on baseline MOUD with 54 being white and 11 being non-white patients. Non-white patients had less odds of MOUD initiation and the association was statistically significant. (OR = 0.42 95%CI (0.26 – 0.67); p=< 0.01. Among 261 whites, 31% had premature discharge. Non-white patients had less odds of premature discharge, but the association was not statistically significant. (OR = 0.76 95% CI (0.51 – 1.13); p=0.177. Non-white patients had less odds of being hospitalized within 1 year, but the association was not statistically significant. (OR = 0.91 95%CI (0.64 – 1.29); p=0.593.
Conclusion: The data demonstrates that there were low rates of MOUD receipt and initiation, with non-white patients less likely to be initiated on MOUD.

P2.13 Association Between Xylazine-Fentanyl Positivity and Symptoms of Withdrawal and Craving in Opioid Using Individuals: Exploratory Data from a Multi-Site Trial

Presenter: Matthew DiNola[1]
Mentor(s): Dr. Annabelle Belcher[1], PhD
Other Co-Author(s): Bradley Murphy[1], Alejandro Villar Leeman[1], Heather Fitzsimons[1], Aaron Greenblatt,[1] Aditi Ringwala[1], Tracy Liu[1], Hannah Zimmermann[2], Anna Konova[3], Babak Tofighi[2], Sean Murphy[4], John Rotrosen[2], Paul Glimcher[2]

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Xylazine, an α-2 agonist approved for veterinary use, has been increasingly detected in opioid-associated overdose fatalities in the United States. This substance affects the central nervous and respiratory systems, raising the risk of fatal overdose. Currently, there are no FDA-approved treatments for xylazine intoxication or withdrawal, and it does not respond to naloxone during an overdose. Using data from a multi-site trial called Smartphones for Opioid Addiction Recovery (ClinicalTrials.gov Identifier NCT05033028), our study investigated the impact of xylazine on opioid withdrawal symptoms among patients undergoing treatment for opioid use disorder (OUD). We hypothesized that individuals treated for OUD with methadone or buprenorphine who tested positive for xylazine would experience more severe opioid withdrawal symptoms, as measured by the Subjective Opioid Withdrawal Scale (SOWS), and higher levels of craving, assessed by the Heroin Craving Questionnaire (HCQ-SF-14). Participants from five sites along the eastern coast of the U.S. provided biological samples for toxicology testing, which included xylazine and other substances. Data were analyzed using independent samples t-tests. Our findings indicated that xylazine positivity correlated with fentanyl positivity, reflecting its role as an adulterant in the fentanyl supply. Results from the SOWS ($n = 16$ xylazine positive; $n = 36$ negative) were not significant, $t(50) = 0.78$, $p = .434$, nor were there significant differences in HCQ-SF-14 scores, $t(50) = 0.43$, $p = .674$. Given these results, we believe a larger sample size is necessary to more accurately assess xylazine's role in OUD withdrawal.

P2.14 Challenges and Strategies for Optimizing Liver Transplantation Outcomes In Morbidly Obese Cirrhotic Patients

Presenters: Jerry Bohlen; Richard Wang
Mentor(s): Srinivasan Muthukrishnan

The rising prevalence of morbid obesity (BMI >= 40) has introduced significant challenges in liver transplantation, particularly as metabolic dysfunction-associated steatohepatitis (MASH) becomes a leading cause of end-stage liver disease and subsequent need for transplantation.

Morbidly obese transplant candidates face higher metabolic, cardiovascular and renal perioperative complications, increased waitlist mortality, and worse post-transplant outcomes, although the data on this is nuanced and conflicted. This review explores these challenges and examines current strategies for managing morbid obesity in this population. Pre-operative weight loss through lifestyle changes, pharmacotherapy, or bariatric surgery either prior to or in conjunction with transplantation, has shown potential to improve eligibility and outcomes. Furthermore, emerging evidence suggests that BMI matching between donor and recipient also seems to influence graft function and survival. Finally, emerging surgical techniques, such as robotic-assisted liver transplantation, while still novel and anecdotal, may offer significant promise for reducing complications in this high-risk population.

P2.15 Health Equity Rounds: A Case-Based Conference Model to Enhance Pediatric Resident Education on Implicit Bias and Health Disparities

Presenter: Alexis Vetack[1]
Mentor(s): Matthew J. Grant, MD[1]; Eseigboria J. Ikheloa, MD[1]
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Implicit bias in healthcare can significantly affect patient care and clinical decisions. Despite growing racial tension in the U.S. creating need for health equity training, few residency programs offer continuous, engaging health equity curriculums. Traditional methods often rely on passive learning formats, lacking active resident engagement.

We implemented a longitudinal case conference series, “Health Equity Rounds” (HER), into existing morning conferences. Pediatric interns selected cases from their clinical experiences, leading 30-minute discussion with peers, attending physicians, advanced practice providers, and medical students. Pediatric faculty mentored interns with a focus on health-equity. From July 2023 to June 2024, thirteen HER sessions were conducted, averaging 15-20 participants. Pre- and post-curriculum surveys were distributed to the intern class to assess if HER participation increased comfort with having health equity conversations outside the classroom and in a clinic setting. Quantitative data were analyzed descriptively, and free-text responses were evaluated qualitatively. Survey responses demonstrated that HER sessions advanced participants’ confidence in leading health equity discussions with peers, engaging patients in conversations about how health disparities affect their care and identifying relevant resources.

HER provides a structured, interactive format for residents and students to establish and continue dialogue surrounding complex issues of structural racism and implicit bias in healthcare. The model’s success in building intern confidence in health equity discussions suggests that other residency programs could adopt similar curricula to address persistent health disparities across various medical fields.

P2.16 Strengthening Healthcare: A Kirkpatrick-Based Approach to Oxygen Therapy Training in The Gambia

Presenter: Oluchi Ogbonna[1]
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Oxygen therapy is not only common but necessary practice in the application of anesthesia and in the field of medicine as a whole. Therefore, it is imperative that education about and knowledge on appropriate oxygen therapy is accessible in healthcare settings. However, numerous research studies conclude that clinicians and nurses may have knowledge gaps and different perspectives or attitudes on oxygen and how it should be used. The main aim was to assess baseline competency of medical professionals at Edward Francis Small Teaching Hospital in the Gambia regarding hypoxia recognition and oxygen use. Also, assessing improvement in hypoxia recognition and oxygen use after receiving training in that subject matter. A needs assessment was conducted during several visits to the Gambia to ascertain the needs of the hospital and staff. The project was divided into five sections: a pre-test questionnaire, online training via Tovuti, In-person training, post-education assessment, and a post-training satisfaction survey. Tovouti contained a detailed curriculum targeting key competencies necessary for energy safety and effective oxygen therapy administration. Then the training was augmented by a face-to-face session. Upon completion of this in-person training, participants undertook a post-test and satisfaction survey to evaluate the effectiveness of the seminar and the knowledge acquired. There were significant increases between the pretest and posttest 25th, 50th, and 75th interquartile ranges. The median score in the pretest is 69, while the median score in the posttest is 81, a 12-point difference. The difference in pretest and post-test median scores indicates that healthcare workers' knowledge and understanding of oxygen therapy significantly improved, demonstrating the success of the education intervention.

This research was supported in part by the Society of Critical Care Medicine, Johns Hopkins University.

P2.17 From Risk to Recovery: Examining Stroke Inequities in Women's Health

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Stroke remains a leading cause of morbidity and mortality globally, with profound public health implications that are exacerbated by disparities in stroke diagnosis, treatment, and outcomes between men and women. This analysis examines these disparities through the lens of the World Health Organization (WHO) Social Determinants of Health (SDH) Framework, emphasizing the urgent need for targeted interventions in women's stroke care. The objectives of this review are to assess the literature on these determinants, identify existing gaps, and advocate for specific actions from researchers and policymakers aimed at improving stroke outcomes for women by addressing the complex, intersecting factors at play. A narrative review was conducted using the WHO SDH framework to investigate gender inequities in stroke diagnosis, treatment, and recovery. A comprehensive search was performed in PubMed and other sources from 2008 to 2024, utilizing relevant keywords. Inclusion criteria focused on studies addressing stroke-related risk factors and management disparities specific to women. Data analysis employed thematic synthesis guided by the SDH framework to identify gender-specific social determinants affecting stroke outcomes. The findings culminated in a conceptual model adapted from the WHO SDH Framework, highlighting the structural and intermediary determinants influencing stroke risk in women. This model elucidates socioeconomic, political, cultural, social, environmental, behavioral, biological, psychosocial, and health system factors that contribute to elevated stroke risk. Understanding these determinants is essential for developing policy and practice recommendations, urging concerted efforts from policymakers, healthcare providers, and communities to address these disparities and advocate for a more equitable healthcare system.

P3.01 Risk Factors for Unplanned Reoperation After Open Fractures of the Supracondylar Distal Humerus

Presenter: Zachary Wilhelm BS[1]
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Open supracondylar distal humerus fractures challenge the most experienced orthopedic surgeon. Soft tissue injury, wound contamination, comminution, and articular involvement are potential factors which may complicate treatment. This study examines the relationship of these factors and unplanned re-operation.

This retrospective study investigated a cohort of 153 patients with an open supracondylar distal humerus fracture treated with internal fixation. The mean age was 45 years (SD 18 years) and 77% were male. Patient demographics, Orthopaedic Trauma Association-Open Fracture Classification OTA-OFC, Gustilo Anderson (GA) type, presence of nerve and/or vascular injury, fracture characteristics, and operative technique details were collected. The primary outcome was unplanned reoperation for infection, nonunion, hardware failure, stiffness, irritation, pain, or other. Standard statistical comparisons were used to evaluate the association between predictor variables and the risk for complication requiring reoperation.

Reoperation occurred in 34 of 153 patients (22.2%). The most common reasons for unplanned reoperation were infection in 14 patients (41.2%) and stiffness in 8 patients (23.5%). Following multivariate analysis, no individual risk factor achieved statistical significance. Intra-articular involvement (OR = 3.793, 95% CI [0.97, 14.87], $P = 0.0557$) was the only variable to approach potential significance as an independent predictor for unplanned reoperation.

Open supracondylar distal humerus fractures are severe injuries that present a high risk for complication requiring reoperation. In the present study, no single risk factor achieved statistical significance following multivariate analysis. Injury pattern heterogeneity and relatively low incidence limits identification of factors contributing to adverse outcomes. However, indicators of greater overall injury severity, such as intraarticular involvement, should raise caution as potential signs of increased complication risk.

P3.02 Impact of Semi-elective Intervention of Displaced Humeral Lateral Condyle Fractures in the Pediatric Population

Presenter: Maeve Murphy, BS[1]
Mentor(s): Joshua M. Abzug, MD[1], Julia L. Conroy, BS[1]
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One of the most common fractures among the pediatric population are lateral condyle fractures (LCF) of the distal humerus, accounting for 17% of all pediatric elbow fractures. While nondisplaced and minimally displaced fractures can be treated conservatively with immobilization alone, displaced LCFs (>2mm) often require operative intervention via closed reduction and percutaneous pinning (CRPP) or open reduction and internal fixation (ORIF). There is controversy within the literature between emergent versus semi-elective intervention for these types of fractures. The purpose of this study is to compare the subsequent outcomes and associated complications between LCFs that underwent delayed versus semi-elective treatment of displaced lateral condyle fractures of the humerus among the pediatric population. A retrospective chart review of pediatric patients (<18 years) who sustained a displaced lateral condyle fracture was conducted and a statistical analysis of patient demographics, time to surgery, outcomes, and reported complications. Results indicate there was a higher complication rate associated with semi-elective treatment of these fractures than those treated emergently (19.5% vs. 0.0%; $p<0.001$), possibly indicating better outcomes with earlier intervention. The complications observed in the semi-elective group included delayed union (n=1), malunion (n=4), stiffness (n=3), and physeal arrest (n=1). Additional larger cohorts are needed to evaluate complications associated with these fractures and their relation to timing of operative intervention.

P3.03 Investigating the Association Between the Onset of Osteochondritis Dissecans of the Elbow and Menarche

Presenter: Kian Ghorbanpoor[1]
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Osteochondritis dissecans (OCD) of the capitellum is an orthopedic injury that commonly presents in adolescence and is often associated with sport participation, particularly among gymnasts and throwing athletes. Given the peak incidence at adolescence, we hypothesize that menarche may be associated with this condition's onset. Therefore, the purpose of this study is to identify if there is an association between the age of onset of OCD and menarche within the female population. A retrospective chart review was conducted to identify female patients who underwent treatment for OCD of the capitellum over an 8-year period. The query resulted in a final cohort of 15 female patients. Data collected included patient demographics, age at initial evaluation, age at menarche onset, mechanism of injury, treatment characteristics, outcomes, and reported complications. Simple statistical analysis was performed. 17 elbows of 15 distinct patients were identified with an average age at initial evaluation of 15.3 years. Of the 8 patients with complete menarche data, the average age of menarche onset was 13.4 years. There was no linear association found between age at initial evaluation and age of menarche onset (Spearman R=-0.343, p=0.41). Our results indicate that there is no association between the age of onset of OCD and menarche among the female population. Further investigation with a larger sample size is warranted to better characterize the potential association. Instead, peak incidence of OCD during adolescence may be due to increased and more competitive sport participation rather than the onset of menarche.

This research was supported in part by the Program for Research Initiated by Students and Mentors (PRISM), University of Maryland School of Medicine Office of Student Research.

P3.04 Illness Intrusiveness and Perceived Control on Quality of Life in Older Adults with Arthritis and Multimorbidity

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Arthritis is independently associated with diminished quality of life (QOL) among older adults; and QOL is even worse among those with arthritis and multimorbidity (MM). Illness intrusiveness—i.e., the perception that diseases and their treatments interfere with valued roles and activities—leads to poor QOL among those with chronic illnesses. Further, the perceived control individuals have over their illnesses has been proposed as a mechanism underlying the relationship between illness intrusiveness and QOL. While illness intrusiveness and perceived control are amenable to change, they are understudied among older adults with arthritis and MM. We investigated the role of perceived control as a potential mediator or moderator in the relationship between illness intrusiveness and QOL among older adults with arthritis and MM. We conducted a secondary analysis on a cross-sectional sample of older adults with MM (N=228) using PROCESS macro for SPSS. Participants were on average 72.0 years (SD=5.5), largely women (66.1%), with 4 chronic illnesses (SD=1.46), and high levels of pain intensity (M =7.92, SD=2.29) and illness intrusiveness (M=38.86, SD=16.55). Perceived control was a significant mediator in the relationship between illness intrusiveness and QOL, even after adjustment for pain intensity [β = -0.16, 95% CI (-0.13, -0.06)]. Perceived control did not moderate the relationship. In this sample of older adults with arthritis and MM, with high levels of illness intrusiveness and pain intensity, perceived control mediated the relationship between illness intrusiveness and QOL. Perceived control may be a target for future behavioral interventions to improve QOL in this population.

Funding:
This work was supported by the Graduate Center of the City University of New York (Doctoral Student Research Grant) and the CUNY Professional Staff Congress (TRADA-52-320); the National Institute on Aging under grant number T32AG049666; the National Institute on Aging under Grant number K24AG053462; the National Institute on Aging under grant number P30AGO22845; the National Center For Advancing Translational Sciences of the National Institutes of Health under grant number UL1TR002384. The content is solely the responsibility of the authors and does not necessarily represent the official views of the National Institutes of Health.

P3.05 Modified Frailty Index as a Predictor of Contralateral Amputation and Mortality after Primary Amputation

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Background: In patients with progressive chronic limb ischemia (CLI), there is an increased risk of lower extremity amputation that leads to loss of functional status and subsequent frailty. The modified frailty index score (mFI-5) has been used for concise comorbidity risk-stratification in patients undergoing various orthopedic surgeries to predict further adverse events. With this study we aim to investigate if mFI-5 can be used as a predictor of contralateral amputation and mortality in patients with primary lower extremity amputation secondary to CLI.

Methods: We completed a retrospective review of 693 patient charts who underwent primary amputation at a major tertiary facility from 2015 to 2022. Inclusion criteria consisted of below knee and above knee amputations. We recorded incidence and timing of primary and contralateral amputation along with demographics, components of mFI-5, subsequent stratification, and mortality. We performed statistical analysis using Chi-Squared tests and multivariate logistic regressions using a p value <0.05 to indicate significance.

Results: 257 patients underwent primary amputation for chronic limb ischemia and were stratified (MFI-5 = 0, 1, 2, 3+) by MFI-5 as not frail (3.9%) mild (22.2%) moderate (41.2%) and severe (32.7%). 152 patients (60.8%) were black and 106 (41.2%) were female. 47 (18.3%) patients received contralateral amputations and 61 patients (23.7%) died within a year of amputation. Neither MFI-5 nor frailty status predicted the incidence of contralateral amputations (p=.63 and p=.83). In patients who received contralateral amputation, frailty status played a predictive role in 1-year mortality (p=.02). In patients with moderate frailty, contralateral amputations were protective against death within a year (p=.011). When heart failure contributed to a patient's MFI-5 score, there was an increased risk of mortality in the year after primary amputation (p=.015). MFI-5 score predicted patients who underwent contralateral amputations were 4.05 times more likely to undergo procedure within 90 days of primary amputation (4.05, 95% [1.11, 14.79], p=.034).

Conclusions: MFI-5 is a useful tool in predicting mortality in primary and subsequent contralateral amputations in patients with CLI. This tool shows potential for risk stratification during perioperative planning and the optimization of patient care.

Keywords: Amputation, Frailty, Critical Limb Ischemia, Peripheral Arterial Disease

P3.06 Characteristics Associated with Blood Transfusion at Time of Cesarean Delivery

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Introduction
Cesarean delivery (CD) is one of the most common surgeries in the United States. Due to risk of hemorrhage, crossmatched blood is reserved preoperatively. Providing timely blood transfusion is important for patients, but reserving units can place significant burdens on blood bank resources. This study aims to determine clinical factors that predict need for blood transfusion at time of CD.

Methods
This was a retrospective cohort study of 1473 cesarean deliveries at one tertiary care university medical center between 2018-2022. Cases were excluded for multiple gestation (n=256), pre-operative concern for placenta accreta spectrum disorder (n=54), non-viable fetus (n=32), or delivery outside of the labor and delivery OR (n=19). Descriptive analyses were performed with t-tests and chi-square tests. Odds ratios were calculated for demographic and obstetric variables with statistical significance in univariate analysis ($p < 0.05$). Clinically relevant variables were analyzed with multiple logistic regression via backwards stepwise elimination.

Results
1,112 cases met inclusion criteria. 33 (3.0%) cases received intraoperative blood transfusion. Risk factors most strongly associated with intraoperative blood transfusion in univariate analysis were placenta previa, fibroid uterus, age, hours in labor, history of blood transfusion, history of other abdominal surgeries, and preoperative hemoglobin. In the multiple logistic regression model, factors associated with an increased need of transfusion included placenta previa (OR=8.37), fibroid uterus (OR=3.31), age per one year increase (OR=1.08), and hours in labor per one hour increase (OR=1.03) (Table 2.) The preoperative hemoglobin level was noted to be protective (OR=0.67). The mean number of transfused units of blood per transfused patient was 2.3 (SD=1.9).

Conclusion
The data offers preliminary evidence that specific clinical risk factors are significantly associated with intraoperative blood transfusions during CD. In cases with these risk factors, we recommend crossmatched blood available in the operating room, while a computerized type and crossmatch on file is permissible for cases without these factors.

P3.07 Utilizing the 5-Item Modified Frailty Index to Predict Postoperative Complications After Cochlear Implantation

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Introduction: Cochlear implantation (CI) is a well-established intervention for addressing hearing loss, especially among older adults. However, CI utilization rates in eligible patients remains low, in part due to concerns about surgical risks, particularly in elderly populations. Frailty, as measured by the 5-Item Modified Frailty Index (mFI-5), has been identified as a more reliable predictor of postoperative outcomes than chronological age in other surgical populations. This will be the largest study to show the relationship between frailty and postoperative outcomes in CI recipients using a large national database.
Methods: A retrospective cohort study was conducted using the Epic Cosmos database. Adults who underwent cochlear implantation between 2015 and 2023 were identified. Data collected included mFI-5 scores, demographic data, and postoperative outcomes including rates of CI explantation, inpatient admission, non-home discharge, and major complications such as stroke, myocardial infarction, and renal failure. Cochran-Mantel-Haenszel tests and multivariate logistic regression were performed to assess the association between mFI-5 scores and postoperative outcomes measures, controlling for age.
Results: A total of 23,550 cochlear implantations were analyzed. The average age was 64.1 years (SD 17.3), with 53.1% being male. The average mFI-5 score was 0.66 (SD 0.81), with 53% having an mFI-5 score of 0. Postoperative explantation, inpatient admission, and major complications each occurred in <1% of cases. The mFI-5 was a strong predictor for outcomes, with each one-point increase being associated with higher odds of postoperative admission (OR 1.84), non-home discharge (OR 1.41), and major complications (OR 2.15). This was as high as 6.96, 2.94, and 8.27 respectively, for severely frail patients (mFI-5 ≥3). Age was not as strong a predictor of the outcome measures. Although, patients >80 years showed decreased odds of inpatient admission (OR 0.52) and increased odds of non-home discharge (OR 1.98). Explantation rates weren't significantly associated with frailty or age.
Conclusion: Frailty as measured by the mFI-5 is a strong predictor of postoperative outcomes in CI patients. Though CI remains a generally safe procedure with low overall complication rates, assessment of frailty alone or in conjunction with age is superior to age alone in preoperative evaluation for CI candidates to better predict and mitigate postoperative risks. In contrast to prior studies, frailty score does predict rates of postoperative complication for CI surgery.

P3.08 AI-powered Connectomic Analysis Platform Facilitates Rapid Assessment of Residual Consciousness in the Intensive Care Unit

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The leading cause of death in patients who are successfully resuscitated following cardiac arrest resulting in hypoxic-ischemic brain injury is withdrawal of supportive care following a poor neurological prognosis. Accurate detection of residual consciousness can facilitate a more informed discussion regarding withdrawal of supportive care in these circumstances. Currently, modalities such as somatosensory evoked potentials (SSEP) and imaging are coupled with the physical exam to determine the probability of residual consciousness. Resting state fMRI, an imaging modality frequently used in the research of disorders of consciousness, has proven difficult to integrate into the clinical workflow because of the time and expertise required to process and interpret these studies. This project seeks to utilize an AI-powered connectomic analysis platform to process resting state fMRI scans of comatose, post-cardiac arrest patients in the intensive care unit (ICU) and determine the ability of the resultant functional connectome maps to detect residual consciousness. We identified 17 patients who had suffered cardiac arrest resulting in a comatose state with both SSEP and appropriate resting state fMRI studies performed during their stay in the ICU. SSEP findings and outcomes measures including Glasgow Coma Scale (GCS), death at discharge, and withdrawal of supportive care are being compared to these functional connectome maps for networks of interest including the default mode, somatosensory, and visual networks. Preliminary results indicate potential for functional connectome maps to be useful supplemental tools for the detection of residual consciousness in patients who are comatose following cardiac arrest.

This project received no specific funding.

P3.09 Structural Brain Abnormalities and Neuropsychiatric Symptoms in Post-COVID Condition: Links to Cognitive, Emotional, and Physical Health Outcomes

Presenter: Jared Thomas BS[1,2]
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Background: Patients with post-COVID condition (PCC) may present with persistent neuropsychiatric symptoms. This study aims to evaluate structural brain abnormalities and neuropsychiatric symptoms in PCC.

Methods: 29 PCC participants (42.4±12.2 years, 10 males/19 females, 242±156 days post-COVID) and 25 healthy controls (44.1±12.3 years, 11 males/14 females) underwent 3T MRI and completed the NIH Toolbox and PROMIS. Regional and whole-brain cortical thicknesses and volumes were compared using ANCOVA, controlling for age, sex, and intracranial volume. Linear regression analyses assessed whether abnormal brain measures predicted neurobehavioral T scores.

Results: PCC participants reported high rates of concentration problems (92.9%), fatigue (85.6%), and memory difficulties (78.5%). Compared to controls, PCC had larger putamen, amygdala, and hippocampal volumes (all $p<0.023$) and significantly greater cortical thickness in the entorhinal, posterior cingulate, and isthmus cingulate (all $p<0.032$). Additionally, 12 cortical volumes in the frontal, parietal, and temporal lobes were larger in PCC than controls (all $p<0.05$). NIH Toolbox and PROMIS indicated poorer psychological well-being and motor function; cognitive performance remained normal. Abnormal grey matter volumes predicted poorer T scores across domains; for example, larger right rostral middle frontal volumes were associated with increased fear/somatic arousal ($R^2=0.63$, $P = 0.036$).

Conclusion: Approximately 8 months post-COVID-19, PCC participants exhibited detectable brain morphometric abnormalities, including larger volumes and thicker cortices in several regions. These findings may reflect ongoing neuroinflammation linked to diminished psychological well-being.

P3.10 Single-Center Analysis of Ondansetron Use in Pregnancy and the Risk of Congenital Heart Defects

Presenters: Michelle Nguyen[1], Hannah Ashe [1]
Mentors: Shifa Turan MD [1,] Katherine Goetzinger, MD [1]
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Nausea and vomiting affect approximately 70% of pregnant women, with ondansetron, an antiemetic, prescribed in about 20% of cases. Concerns exist regarding ondansetron exposure during early pregnancy due to a potential association with congenital anomalies, particularly congenital heart defects (CHD). We hypothesize that first-trimester exposure to ondansetron may increase CHD risk in infants, with exposure timing possibly influencing outcomes.

This retrospective cohort study analyzed data from the University of Maryland Medical Center between June 2018 and 2023. Pregnant individuals using antiemetics in the first trimester were categorized into two groups: ondansetron-exposed and a control group with no ondansetron exposure. The primary outcome was CHD incidence, while secondary outcomes included extracardiac anomalies, gestational age at birth, and NICU admissions. Statistical analysis included chi-square or Fisher's exact tests for categorical variables and Student's t-test for continuous variables, with significance set at $p < 0.05$. The cohort included 198 ondansetron-exposed cases and 327 controls, with no significant differences in maternal age, BMI, race, parity, or pre-existing diabetes. CHD was identified in 4.4% of the cohort, with a trend toward higher incidence in the ondansetron group (6.6% vs. 3.1%, $p = 0.06$, OR 2.2). Extracardiac anomalies showed no significant difference (13.1% vs. 8.6%, $p = 0.10$), but ondansetron exposure was associated with lower gestational age (37.7 ± 2.8 vs. 38.4 ± 1.8 weeks, $p < 0.05$) and higher NICU admission rates (14.6% vs. 7.8%, $p < 0.05$).

In conclusion, our findings suggest a potential link between ondansetron exposure in early pregnancy and increased CHD risk, alongside associations with lower gestational age and higher NICU admissions, warranting caution and further research.

P3.11 To Wait or Not to Wait: Factors that Influence Referrals to Baltimore Infants and Toddlers Program

Presenter: Olivia Girvan, MSPH[1]
Mentor: Rebecca Carter, MD[1]
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Background
Early intervention (EI) improves cognitive, behavioral, and social outcomes for children with developmental delays, thus clinical guidelines support universal screening and prompt EI referrals.[1,2,3,4] Different referral practices may influence EI receipt and local data shows that developmental delays disproportionately affect Black children and low-income families.[6,7,8,9]

Objectives and Methods
Our retrospective chart review examined EI referral practices at a large, academic pediatric primary care practice to inform how gaps in EI access may be addressed to create equitable developmental outcomes. This study answers the questions: of the children who are referred to Baltimore Infants and Toddlers Program (BITP), what proportion are referred immediately after failure of the Ages and Stages Questionnaire (ASQ) and are there factors associated with immediate referral? Considering prior research, our hypothesis was that a larger proportion received a delayed referral and odds of immediate referral were associated with age, gestational age, and sex.

Results
53% of the study population received an immediate referral (N=360). Among patients not immediately referred, referral took an average of 7 months. Delays in referral were significantly associated with age, number of siblings, and ASQ domain.

Conclusions
Findings demonstrate the need for pediatricians to refer more frequently and create follow-up opportunities for patients who have suspected delays but do not initially meet the threshold for referral based on shared decision making. Future directions include creating a protocol with this anticipatory guidance to encourage more timely EI referrals, thereby reducing the chance that referral practices lead to inequitable developmental outcomes.

P3.12 Neurocardiogenic Injury: A Radiographic and Clinical Biomarker Analysis in Aneurysmal Subarachnoid Hemorrhage Patients

Presenter: Shamsuddin, Zain[1]
Mentor(s): Gunjan Parikh, MD[1]
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Abstract

Aneurysmal subarachnoid hemorrhage (SAH) can lead to severe neurological and systemic complications, including neurocardiogenic injury, which is associated with increased morbidity and mortality. The modified Graeb and SEBES (Subarachnoid Hemorrhage Early Brain Edema Score) scores have been proposed as radiographic markers for early brain injury in SAH, yet their relationship to neurocardiogenic injury—characterized by elevated troponin levels, EKG abnormalities, and reduced ejection fraction—remains unclear. Extensive animal studies suggest that excessive catecholamine release within the myocardium is the most likely cause of cardiac dysfunction following SAH. This study assesses whether mGraeb and SEBES scores correlate with markers of neurocardiogenic injury and could serve as predictive tools for cardiac complications in SAH patients.

In this analysis, data from patients with confirmed SAH were reviewed for mGraeb and SEBES scores on initial imaging, alongside troponin levels, EKG findings, and echocardiographic ejection fraction. Statistical methods were used to correlate these scores with troponin elevations, EKG abnormalities, and reduced ejection fraction, evaluating their potential as biomarkers to identify high-risk patients early in the clinical course. Preliminary results indicate a significant association between mGraeb and markers of neurocardiogenic injury, supporting their use in stratifying cardiac risk in SAH management. This study underscores the importance of integrated neurocardiac assessment in SAH to enhance patient outcomes.

P3.14 The Function of Epithelial 5HT4 Receptors in Gastrointestinal Motility

Presenter: Blayne Schenk[1]
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Serotonin (5HT) is a signaling molecule in the gastrointestinal (GI) tract with prokinetic effects on gut motility. Although 5HT4 receptor (5HT4R) agonists have been used to treat constipation, they have exhibited variable efficacy likely due to: 1) a lack of 5HT4R agonist targeted delivery; 2) 5HT4R on cells outside the gut (i.e. in the CNS and ENS). Determining the locations of the targeted prokinetic effects of 5HT agonism is key to finding novel targeted therapies for gut motility disorders. Aims included to develop and validate a mouse model with selective 5HT4R ablation in the gut epithelium and to investigate the consequent effects on GI motility and the enteric nervous system (ENS). To obtain mice with 5HT4R deleted only in the GI tract's mucosa layer, $5HT4R^{FL/FL}$ female mice were crossed with Villin-cre::$5HT4R^{FL/FL}$ male mice, creating Villin-cre::$5HT4R^{FL/FL}$ mice. BaseScope was used to evaluate 5HT4R expression in the epithelium and ENS of the ileum and colon, as well as in the brain. GI function was assessed via in vivo motility assays and an ex vivo motility assay, colonic migrating motor complexes. Results showed red chromogenic staining with the HTR4 probe in the brain and the ENS layer of the ileum and colon but not the epithelial layer, confirming the targeted ablation of 5HT4R. Male Villin-cre::$5HT4R^{FL/FL}$ mice demonstrated increased: colonic motility with faster rectal bead expulsion time, short anal contractions and whole colon length. Female Villin-cre::$5HT4R^{FL/FL}$ mice had decreased short oral contractions and colonic enteric neuronal density, and increased short anal contractions. In conclusion, the Villin-cre::$5HT4R^{FL/FL}$ mouse model is a validated model of targeted 5HT4R ablation in the GI epithelium. The selective deletion of 5HT4R in the epithelial layer results in faster colonic motility, particularly via increased short anal contractions, and subtle ENS structural changes.

This research was supported by the North American Society For Pediatric Gastroenterology, Hepatology & Nutrition.

P3.16 A Content Analysis of Hospitals' Community Health Needs Assessments in the Most Violent Cities: 2023 Update

Presenter: Ai Alexa Tarui M.S.[1]
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The Patient Protection and Affordable Care Act created a mandate for non-profit hospitals to conduct community health needs assessment (CHNAs) every three years. The resulting information in these publicly available documents allow researchers to analyze health needs and conduct empirical analyses of hospitals' efforts to address issues of population health concern, including violence prevention. This study performs a content analysis of CHNAs from the hospitals located within the twenty most violent U.S. cities and compares the content of CHNAs released shortly after the ACA was implemented to hospitals' most recently updated CHNAs. A total of eighty-seven CHNAs were analyzed for the presence of specific violence-related keywords, as well as the designation of violence as a listed overall health need. Eighty five percent of hospitals utilized violence-related terminology and 56% of hospitals identified violence as an overall health need. The results of this study demonstrated a significant increase over prior CHNAs for the identification of violence as a health need (56% vs 32%) and usage of violence-related terms (85% vs 74%). Of the terms used, only violence in reference to intimate partner/domestic/sexual violence (76% vs 42%) increased. This study suggests that although there has been an increasing recognition over the last decade of violence as a health issue, hospitals still have not fully embraced the issue. These findings represent an opportunity for additional education and program development for community responses to violence.

P4.01 Trauma Exposure Among Healthcare Providers Working in HIV Care in South Africa Impact on Well-Being and Patient Care

Presenter: Se-Eun Lee[1]
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South Africa has one of the world's highest HIV prevalence rates, with over 7.7 million people living with HIV (PLHIV), many of whom experience high levels of trauma, including intimate partner violence, racial trauma tied to Apartheid, and systemic violence in high-HIV-prevalence communities such as townships affected by gang violence (Statistics South Africa, 2022; UNAIDS, 2021; BMC Public Health, 2021). This study investigated how trauma exposure impacts healthcare providers working in HIV care in Khayelitsha, South Africa.

Through semi-structured interviews, we gathered qualitative data from 10 healthcare providers (doctors, nurses, social workers, adherence counselors, and community health workers) and 10 stakeholders from organizations that support PLHIV. We employed thematic analysis to identify key patterns of stress and coping mechanisms related to trauma exposure.

Findings revealed that providers face both direct and secondary trauma, emotional exhaustion, and a desire to leave their roles due to insufficient support structures. Additionally, the absence of formal trauma-informed interventions worsened the effects of trauma on their well-being and the quality of patient care. Providers reported that a lack of clinical supervision and debriefing amplified stress, highlighting a critical need for support.

This study underscores the urgent necessity for trauma-informed interventions tailored to HIV care settings. By addressing the mental health needs of providers, such interventions may improve both provider well-being and patient outcomes, creating a more sustainable healthcare environment for trauma-exposed PLHIV.

This research was supported in part by the MPower UM Scholars at SOM.

P4.02 The High Risk of Opioid Overdose in Older Adults: A Retrospective Chart Review

Presenter: Erin Lynch
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Background: In Maryland, opioid overdose fatalities are highest among adults aged 55 and over.

Objectives: This retrospective chart review aims to compare intake characteristics and treatment outcomes of 49 adults in outpatient opioid treatment in Baltimore as a function of age.

Methods: Intake characteristics and treatment outcomes were compared between 24 older (aged 55-70) and 25 younger (aged 23-35) adults using ANOVA and $\chi 2$ statistics (alpha=0.05).

Results: 84% of the patients were prescribed methadone and 54% were male. Older adults were more likely to be Black/African American (68% vs. 24%). They had longer histories of opioid use (30 vs. 9 years) and tobacco use (45 vs. 14 years) (ps< 0.05). At intake, there were equal amounts of use between older and younger adults for cocaine (49%), fentanyl (61%), and benzodiazepines (27%). Cannabis use at intake was less common for older adults (17% vs. 56%; $\chi 2 = 8.15$). During treatment, older adults were less likely to test positive for cocaine (26% vs. 77%) or benzodiazepines (29%). Additionally, older adults remained in treatment longer (186 vs. 105 days, F=6.7) and had higher retention rates (21% vs. 0%) ($\chi 2 = 5.8$).

Conclusion: Older adults showed less polysubstance use and longer retention in care. However, continued fentanyl and benzodiazepine use could put older adults at greater risk of overdose due to age-related vulnerabilities and prolonged substance use. These differences highlight the unique clinical characteristics of older adults at risk of overdose, which can inform age-friendly addiction treatment approaches.

This research was supported in part by the University of Maryland School of Medicine Office of Student Research.

P4.03 Pediatric Clinic Food Pantry Initiatives and Effect on SDOH Questionnaire Responses

Presenter: Ashley Nguyen[1]
Mentor(s): Rebecca Carter, MD[1]
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Inner-city food deserts endanger the health and well-being of pediatric populations and impact child development overall, due to decrease in quality of food, access to regular meals, and overall food insecurity. Associations between quality of food and access to regular meals on childhood development have been well-studied yet remains a major problem in most inner-city populations. In this study, we analyzed patient responses to food insecurity screening questionnaire responses at an urban, academic primary care clinic treating mostly underserved communities in Baltimore, Maryland. The clinic launched a food pantry initiative in November 2023 available to their patients identified as food insecure, opening the question as to whether the food pantry opening changed food insecurity identification and patient responses to the questionnaire. We found there was no association between responses to the questionnaire in the 6 months prior to food pantry launch in November 2023 to the 6 months post-launch. A lack of association persisted with stratification of data in the first 3 months post-launch and the second 3 months post-launch demonstrating that access to the pantry alone is insufficient to fully address this important barrier to health. There is much work to be done in identifying and solving food insecurity in the Baltimore pediatric population with refining the food pantry initiative and training physicians and healthcare staff to identify patients as such.

P4.04 Assessing Dietary Quality in Older Veterans: A Comparison of Dietary Intake Tools

Presenter: Sanam Patel[1,2]
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The 24-hour recall is the gold standard for dietary intake assessment in nutrition research; however, traditional methods require time and financial resources to implement. The Automated Self-Administered 24-Hour (ASA24®) Dietary Assessment Tool allows participants to complete a recall independently. Studies suggest participants prefer this online tool to interviewer administered processes. However, there is limited data on utilization preference among older adults given technology challenges and higher prevalence of disabilities. The study sought to compare utilization of the ASA24, assisted (aASA) and unassisted (uASA), with a shorter diet screener, the Short Healthy Eating Index (sHEI). In a randomized order, 7 Veterans ≥65yrs completed each assessment. During the assisted ASA24, a researcher read questions aloud, typed and searched food items, and provided explanations when necessary. Participants provided feedback on the various methods, and results from the dietary analyses were compared across conditions. The total HEI score was highest in the aASA (64.8), followed by uASA (60.8) and sHEI (51.9). Total Kcalories were also reported higher in aASA vs. uASA (2386.8 and 2091.8, respectively). 57% of participants reported difficulties with the uASA (e.g., computer operation skills; reading difficulty; struggling with question comprehension or searching for food items). Total time for completion was on average 23 mins higher in uASA vs aASA. Overall, the sHEI may not accurately reflect dietary intake in an older Veteran population. The aASA24 may be preferred among Veterans, but the uASA can be utilized more regularly, given adequate training and support.

P4.05 Does MAPSE change after fluid resuscitation in ED patients who present with sepsis?

Presenter: Drupad Patel
Mentor: Alexis Salerno, MD[1]
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Sepsis is a life-threatening condition associated with high mortality rates despite advances in medical care. Myocardial dysfunction is a common complication of sepsis and is associated with poor outcome. Point-of-care ultrasound measurements such as Mitral Annulus Plane Systolic Excursion (MAPSE) can be used to evaluate for signs of myocardial dysfunction, but have yet to be studied in the setting of sepsis in the ED. Our study aimed to evaluate the change in MAPSE before and after treatment of sepsis patients in the ED. An increase of at least 1 mm was hypothesized. We conducted a cohort study at an academic emergency department starting in June 2024. Patients in sepsis were identified utilizing Systemic Inflammatory Response Syndrome (SIRS) criteria and clinical suspicion of sepsis by the attending emergency physician. Informed consent was obtained from the patient or by the patient's legally authorized representative if the patient was altered. After consent was obtained, a MAPSE measurement was obtained using the Apical 4 Chamber view on ultrasound before and 2 hours after treatment. Descriptive analysis was performed of the data. Many patients were interviewed but only 6 have consented so far to being included into the study. 33.3% of patients in the study were female (n=2) and 66.7% of patients were male (n=4). The median age was 59 years old. The median (IQR) of the change in MAPSE was an increase of 1.55 (1.10-1.78) mm. It was observed that MAPSE increases following fluid resuscitation. These findings may inform risk stratification and treatment optimization strategies for septic patients in the ED in the future.

Funding Acknowledgement: This research was supported in part by the Program for Research Initiated by Students and Mentors (PRISM), University of Maryland School of Medicine Office of Student Research.

P4.06 Hemoglobin A1c Before and After COVID-19 in Adolescents

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Background: COVID-19 may impact pancreatic function and increase risk for type 2 diabetes. However, the full impact of COVID on blood glucose has yet to be fully understood. Furthermore, limited research has focused on the adolescent population, an age-group typically with milder or even asymptomatic COVID infections. Here, we aimed to utilize the longitudinal Adolescent Brain Cognitive Development (ABCD) Study to compare HbA1c levels in adolescents with and without a history of COVID-19.

Methods: ABCD Data Release 5.1 (November 2023) was used to compare 49 participants (170 ± 8.9 months, 25M/24F) with a documented COVID-19 history and 206 uninfected Controls (169 ± 9.3 months, 117M/89F). Group effects were evaluated cross-sectionally after COVID (Years 3 and 4) using a linear model and longitudinally (Years 2-4) using repeated measure analysis. Both models were covaried for sex, race, family income, and BMI.

Results: Demographically, the COVID and Controls were comparable in terms of age, sex, race, family income, and BMI. In the cross-sectional analysis, compared to Controls, the COVID group had statistically higher, albeit normal, HbA1c values (5.30 ± 0.43 vs. 5.16 ± 0.30, $p<0.01$). Of the participants, 10 COVID and 40 Controls had pre- and post-pandemic HbA1c values. Again, there was a significant increase in HbA1c levels (5.25 ± 0.26 vs. 5.15 ± 0.27, $p=0.04$) for the COVID group compared to Controls.

Conclusion: Our findings suggest that COVID-19 may increase blood glucose levels in adolescents. Although the A1c values were still in the normal range, the increase after infection emphasizes the need for continued screening of adolescents with a history of COVID-19.

P4.07 Utilization of continuous high fidelity vital sign wave-form morphometrics to predict life saving interventions following traumatic injury

Presenter: Rohit Chari[2]
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Trauma management requires rapid, life-saving interventions (LSIs) under high pressure and with limited information. This study explores the use of machine learning algorithms that analyze continuous, non-invasive vital sign data to aid early decision-making in trauma cases.

We developed machine learning models using data from the first 15 minutes post-admission for trauma patients aged 18–65 years, treated at the R Adams Cowley Shock Trauma Center. Predictive variables included vital signs, blood volume, electrocardiographic waveforms, oximetry, and blood pressure trends. Models were designed to predict broad categories of LSIs, using both basic and expanded vital signs along with clinical data.

Various modeling strategies, including logistic regression, XGBoost, and Random Forest, were applied to data from 3,000 patients (81.7% blunt trauma, 17.1% penetrating trauma; 27.1% female; mean age 38.7). Accuracy was assessed with the area under the receiver operator curve (AUROC) at pre-hospital and early in-hospital intervals (5 and 15 minutes). Models yielded AUROC scores from 0.786 to 0.957, depending on the dataset and LSI type. Expanded vital signs generally improved model performance, particularly for Airway and Respiration LSIs, though some groups like Limb Salvage and Cardiovascular Procedures showed lower accuracy, indicating a need for further tuning.

Our results suggest that machine learning-based support using early vital sign trends may enhance LSI decision-making, potentially improving outcomes in acute trauma care.

P4.08 Guideline-Concordant Care for Older HIV Patients with DLBCL, NSCLC, and Liver Cancers

Presenter: Hannah Ashe
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With the success and widespread prevalence of anti-retroviral therapy, the population of people living with HIV is aging. Despite the tremendous advancements in cancer care and HIV treatment in the past several decades, it has been well-documented in the literature that patients with HIV experience worse cancer outcomes and are less likely to receive optimal, standard of care treatment compared to non-HIV counterparts. This study aims to evaluate the likelihood of older adults (>55 years old) with HIV to receive NCCN guideline-concordant cancer treatment as compared to non-HIV positive patients, specifically focusing on diffuse large B-cell lymphoma, non-small cell lung cancer, and liver/intrahepatic bile duct cancers. We conduct a single-center pilot retrospective study focusing on patients HIV and non-HIV infected patients over the age of 55 diagnosed with either DLBCL, NSCLC, and liver cancer between the years of 2015-2022. We assess differences in adherence to these guidelines and their impact on clinical outcomes. Our preliminary results suggest that while HIV patients are likely to be offered guideline concordant care, there seems to be a discrepancy in how frequently they receive it. With this research, we aim to enhance the quality of care and health outcomes for the growing population of older adults with HIV.

P4.09 Evaluating Quality of Life Improvements in Radiation Cystitis and Head and Neck Cancer Patients Following Hyperbaric Oxygen Therapy

Presenter: Lealem Aderie[1]
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Background: Radiation therapy remains a critical modality in the treatment of various cancers, but it often leads to adverse effects in surrounding tissues and organs. These side effects may manifest months after treatment and commonly involve the skin, gastrointestinal tract, and urinary system, resulting in inflammation, fibrosis, and pain. Hyperbaric Oxygen Therapy (HBO2) is a treatment option that has shown potential in mitigating these side effects by promoting angiogenesis, reducing inflammation, and decreasing fibrosis. This retrospective study evaluates the impact of HBO2 treatments on the quality of life (QoL) in patients with radiation-induced tissue damage.

Methods: We analyzed the quality of life in 40 patients who received HBO2 for radiation-induced injuries, including radiation cystitis (n=22), head and neck radiation injury (n=13), and other radiation-related complications (n=5). Two validated surveys were used: the Rand Corporation's SF-36 and the European Organization for Research and Treatment of Cancer Quality of Life Questionnaire (EORTC QLQ-H&N35). Statistical analysis focused on changes in QoL domains.

Results: In the analysis of SF-36 data, patients with radiation cystitis experienced an improvement in the pain domain (Mean difference [MD] = 58.4 ± 14.9, 95% CI). No other significant improvements were observed in the SF-36 data. In the EORTC QLQ-H&N35 data, patients with head and neck radiation injury experienced an overall QoL improvement (MD = 12.9 ± 8.6, 95% CI) post-HBO2 treatment.

Conclusion: HBO2 treatment demonstrated a benefit in reducing pain for patients with radiation cystitis and improving overall QoL in those with head and neck radiation injuries. Despite limitations, including a small sample size and incomplete survey data, the findings suggest that HBO2 can be a valuable intervention for patients suffering from chronic effects of radiation therapy, particularly in head and neck injury cases.

P4.10 Exploring the Role of Estrogen-Receptor Expressing Neurons of Barrington's Nucleus on Lower Urinary Tract Function

Presenter: Cassandra Seifert[1]
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Barrington's nucleus (Bar), a brainstem nucleus with estrogen receptor-expressing neurons, drives micturition by innervating motor neurons that promote synergistic contraction of the bladder's detrusor muscle and relaxation of the external urethral sphincter (EUS). Menopause is associated with an increased prevalence of urinary incontinence, yet the mechanism of action of estrogen as a modulator of lower urinary tract (LUT) function remains unexplored. This research characterizes proenkephalin (Penk)-expressing neurons, a unique estrogen receptor expressing neuronal subpopulation in Bar, and compares quantities of estrogen receptor-alpha (Esr1) positive and negative Penk neurons between male and female mice at developmentally critical timepoints. We collected brain tissue at the level of Bar from male and female Penk-IRES2-Cre transgenic mice crossed to a reporter mouse line (H2B-mCherry) at 8, 14, and 17.5 weeks of age. We performed immunohistochemistry using an antibody directed against the Esr1 receptor. With fluorescence imaging, we quantified the red Penk-mCherry labeled neurons contained within Bar and the number of overlapping blue Esr1-expressing neurons. The total number of Penk+ neurons in Bar increases with age in both male and female mice. Furthermore, the number of Penk+ neurons expressing Esr1 in Bar increases with age in male and female mice while the number of Penk+ neurons negative for Esr1 expression remains constant. Lastly, the number of Penk+ neurons expressing Esr1 in Bar is significantly greater in male mice compared to female mice. Penk+ neurons with the capacity to respond to estrogen signaling via Esr1 increase in population size in early development while the number of Penk+ neurons without the capacity to respond to estrogen signaling via Esr1 remains constant, suggesting a role for estrogen in both developmental learning of neurological control of the LUT and in altered micturition behavior with aging and menopause.

P4.11 Sugammadex Practice Patterns Before and After Implementation of a Quality Improvement Measure

Presenter: Kelly Zhou, BS[1]
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Sugammadex is superior to neostigmine for reversal of neuromuscular blockade after general anesthesia but carries a high cost. Thus, quality improvement (QI) measures such as “Variation in Sugammadex Administration (NMB-04)” that aim to promote judicious use of sugammadex can benefit hospitals. This metric identifies the proportion of general anesthesia cases with sugammadex administration where the cumulative dose is ≤200 mg or ≤3 mg/kg. For this project, we examined sugammadex dosing practices before and after the implementation of NMB-04 at our institution and analyzed the prevalence of sugammadex usage in young pediatric patients and in patients with severe renal impairment since its adoption.

Anesthesia records of patients from 6/2016 to 4/2024 were obtained from the Anesthesiology Perioperative Data Warehouse. Data were examined to determine any associated changes in sugammadex dosing patterns before and after NMB-04 implementation (11/2019). Adverse events from medication administration were also identified by the Department of Anesthesiology’s safety program. Results demonstrated a significant decrease in average sugammadex dose in the 12 months after implementation of NMB-04 (2.67 to 2.48 mg/kg, $P < 0.001$), but the effect did not persist. Methods to extend this change should be investigated as it may result in cost-savings, without significant adverse events. Sugammadex use in pediatric patients and in patients with severe renal dysfunction is frequent in our institution and appears to be safe.

P4.12 Unexpected Challenges after Kidney Transplant: The Patient Experience

Presenter: Natalie Gorham[1]
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Long term kidney transplant recipient (KTR) outcomes are well documented, yet no existing literature details the KTR recovery experience. This study seeks to understand the recovery experience in KTR during the immediate (0-3 month) post-operative period. 50 English speaking KTR ages 18-88 were interviewed in person during clinic visits and corresponding charts reviewed. The interview included Likert scale and open-ended questions to assess unexpected challenges (UC). UC were defined as delayed graft function (DGF), ER visits, readmissions, unexpected pain at home, discharge with a wound vac or drain, or medication side effects. We compared similar groups of KTR with self-reported UC and KTR without UC based on interview at 25.04+/-20.68 days post-transplant. Comparisons were made using the Chi-Square and independent sample t-test using SPSS. Among 50 KTR, 64% had UC. UC included DGF (40%), discharge with drain (26%), readmission (26%), unexpected medication side effects (14%), infection (8%), and other complications (20%). KTR who experienced UC reported lower satisfaction with pre-transplant education (p=0.002), lower accuracy of pre-transplant education (p=0.008), and a trend toward more medication side effects (p=0.053) compared to KTR without UC. While most KTR were satisfied with kidney transplant, our work showcases the need to better educate future KTR regarding possible complications after surgery during pre-transplant patient education.

P4.13 Uterine Fibroid Embolization Awareness: Lessons from a Private, Non-Profit Healthcare Institution

Presenter: Shirin Parsa, B.S.[1]
Mentor: Amina Farooq, M.D.[1]
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This study examines the vital role of the University of Maryland Medical Center (UMMC) in enhancing awareness and access to uterine fibroid embolization (UFE) among underserved populations, particularly African-American women in Baltimore, who are disproportionately affected by symptomatic fibroids. UMMC, established in 1823, serves as a private, non-profit teaching hospital deeply committed to bridging healthcare access gaps through services such as advanced interventional radiology (IR). Despite the proven effectiveness of UFE and other minimally invasive procedures, awareness remains critically low in these vulnerable communities, highlighting an urgent need for targeted outreach and education initiatives. This research employs a mixed-methods approach, comprehensively assessing current referral patterns, treatment accessibility, and their broader impact on community health outcomes. Results indicate a significant increase in fibroid referrals and UFE procedures at UMMC over the past decade, demonstrating the IR department's success in improving access to care. However, challenges persist regarding awareness and understanding of treatment options available to these populations. The findings suggest that fostering strong partnerships with healthcare providers and engaging in meaningful community outreach are essential strategies for advancing reproductive health equity. UMMC's unwavering commitment to these initiatives is critical in addressing global and systemic healthcare disparities and ensuring that more women benefit from effective fibroid treatments, ultimately enhancing community health outcomes. Ultimately, this work emphasizes the pivotal role of non-profit healthcare institutions in delivering equitable care and improving population health, thus fostering a healthier and more informed community.

P4.14 Can Peripheral Nerve Block Success Predict Phantom Limb Pain Relief from Post-Amputation Nerve Reconstruction?

Presenter: Daisy Martinez[1]; Anthony DeMartino[1]
Mentors: Khanjan Nagarsheth[1]; Georg Furtmueller[1]
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Postamputation pain is a spectrum of debilitating sensations that impacts millions of people in the United States. While the development of postamputation pain, including phantom limb pain (PLP), is multifactorial, it has been associated with disorganized axonal sprouting resulting in a neuroma and subsequent central nervous system changes. Nerve reconstruction surgeries, such as Regenerative Peripheral Nerve Interface (RPNI) and Targeted Muscle Reinnervation (TMR), provide transected nerve fibers proper target organs for reinnervation and have been shown to significantly reduce PLP. This case series aims to describe perioperative peripheral nerve blocks as a diagnostic tool for identifying patients who would benefit from RPNI or TMR. We conducted a retrospective search of patients who underwent major extremity amputation and who received a diagnostic peripheral nerve block before undergoing reconstructive nerve surgery (TMR and/or RPNI). Six patients (58-80 years old) with below knee amputations were examined. All patients experienced a reduction in PAP, specifically PLP, after a diagnostic PNB. The average time between amputation and revision surgery was approximately two years (Mean: 22.35 months). Following surgical intervention, all patients reported a reduction in PLP episodes after nerve reconstruction surgery. Two patients no longer reported PLP. Ambulation rates also improved following revision (50% vs 83%). PNBs can be used as an effective diagnostic tool to identify patients that will significantly benefit from amputation revisions with TMR or RPNI.

P4.15 Post-Operative Weight-Bearing Status on Double Support Time measured by Apple Health Metrics

Presenter: Prateek Swamykumar, BS[1]
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OBJECTIVES: To investigate if smartphone-captured mobility metrics can detect functional differences in patients with either early weight-bearing versus delayed weight-bearing after lower-extremity fractures.

METHODS:

Patient Selection Criteria:
Inclusion: Adults aged 18 and above with lower extremity fractures (pelvic, hip, femoral shaft, distal femur, tibial plateau, pilon, ankle, or hindfoot) treated operatively within 7 days of injury and ownership of an iPhone with Apple Health application for at least 1 year before injury.
Exclusion: Patients with bilateral lower extremity injuries.

Outcome Measures and Comparisons:
Primary Outcome: Double Support Time, measured by the Apple iPhone Health application.
Secondary Outcomes: Walking speed, step length, walking asymmetry, and step count.
Comparisons: Early weight-bearing (as tolerated within 3 weeks post-fixation) versus delayed weight-bearing (non or limited weight-bearing for ≥6 weeks post-fixation) controlling for pre-injury mobility, age, sex, open fractures, and fracture location.

RESULTS: Of the 126 eligible patients, 74 met the inclusion criteria (mean age, 46 [SD, 19] years; 43% female), with 27 patients in the early weight-bearing group and 47 patients in the delayed weight-bearing group. Double support time within 12 weeks of injury was not statistically different between early and delayed weight-bearing patients (mean difference, 0.1%; 95% CI -0.7% to 0.4%; p=0.69). The overall and between-group double support time estimates remained similar over the 26 weeks after injury.

CONCLUSIONS: Among patients with surgically treated lower extremity fractures, smartphone-collected step counts were higher in early versus delayed weight-bearing patients in the 12 weeks after injury. This finding suggests data collected by patients' smartphones could be a reliable measure of weight-bearing compliance for clinical practice and research.

P4.16 Surgeon Performed Peripheral Nerve Blocks for the Identification of TOS

Presenter: Josiah Hardy[1]
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Thoracic Outlet Syndrome (TOS) represents a complex and multifaceted group of disorders characterized by the compression of neurovascular structures as they traverse the thoracic outlet. Patients present with pain radiating through the arm and hand, paresthesia, and weakness of the upper extremity muscles. Peripheral nerve blocks of the anterior scalene and pectoralis muscles are typically performed by radiologists and pain management specialists to help with the diagnosis of TOS. We examined patients who underwent peripheral nerve blocks performed by a vascular surgeon to determine the efficacy of surgeon-performed blocks in the diagnosis and treatment TOS. We conducted a retrospective chart review of patients who received an ultrasound-guided peripheral nerve block of either the anterior scalene or pectoralis minor muscles performed by a vascular surgeon at a single institution from 2022 to 2023.

A total of 87 patients who received peripheral nerve blocks were included in this study. Fifty-seven (65.5%) patients were female and 66 (75.9%) were white with a median age of 38 (IQR, 26-47). Most patients were diagnosed with neurogenic TOS (72.4%) and the majority had their right arm affected (60.9%). Following nerve block, 57.5% of patients had a surgical intervention: neurolysis of brachial plexus (42.5%), first rib resection (86.5%), pectoralis minor tenotomy (40.2%), resection of anterior scalene with or without the middle scalene (26.4%). Of the 37 (42.5%) patients who underwent surgery, 26 (70.3%) reported improvement or resolution of their symptoms at their post-operative follow-up. Ultrasound-guided peripheral nerve blocks performed by vascular surgeons offer an efficient way to work up neurogenic TOS and identify patients who may obtain prolonged symptomatic improvement following vascular surgery.