PROGRAM WITH ABSTRACTS

WRIGHT STATE UNIVERSITY
BOONSHOFT SCHOOL OF
MEDICINE

4TH ANNUAL BSOM RESEARCH SYMPOSIUM

April 16, 2025

4:30 – 7:00 p.m.

Student Union: Apollo,
Atlantis, and Endeavor Rooms

Program

4:00 p.m.	Poster Setup and Registration
4:30 p.m.	Welcome from Dean
4:35 p.m.	Research Talks
5:30 p.m.	Poster Session and Refreshments
6:50 p.m.	Awards
7:00 p.m.	Adjournment

Index of Lead Presenters

This is the order of the abstracts in this program, as well as the layout of the posters throughout the Apollo room

Research Talks

Extracellular Vesicles in Severe Early-Onset Preeclampsia

Scout Bowman-Gibson, MD-PhD Candidate

Scout Bowman-Gibson is a third-year M.D./Ph.D. candidate at Boonshoft School of Medicine. She is from Cincinnati, Ohio and received her bachelor's degree in neuroscience at The Ohio State University. Scout joined Dr. Thomas Brown's lab in her first year of medical school. She has since contributed to several projects and publications involving pregnancy-specific conditions such as preeclampsia and fetal growth restriction. Scout's current work investigates maternal extracellular vesicles in severe early-onset preeclampsia. This foundational research will help to advance diagnostic and therapeutic development for gestational disorders.

Multiple aspects of Pregnancy-Associated Disorders

Thomas Brown, PhD

Thomas L Brown, Ph.D is a Professor and Associate Chair for Research in the Department of Neuroscience, Cell Biology and Physiology and the Department of Obstetrics and Gynecology. His research is focused on fetal growth and the pregnancy-associated disorders, preeclampsia and preterm birth. His laboratory focuses on placental-specific lentiviral transgenesis, mouse models of preeclampsia, regulation of fetal growth, nanoparticles, and extracellular vesicles.

Potential Strategies to Improve the Tolerability and Effectiveness of Topical Photodynamic Therapy for the Treatment of Precancerous Lesions

Mark Ortenzio, MS4

A native of Ohio, Mark Ortenzio completed his Bachelor of Science in Nursing at The Ohio State University in 2015. He spent the next six years working for The Ohio State University Wexner Medical Center as a registered nurse, initially in a cardiovascular unit and soon after in a medical intensive care unit. Throughout that time, he earned three board certifications: Certification in Critical Care Nursing (CCRN), Certified Emergency Nurse (CEN), and Trauma Certified Registered Nurse (TCRN). In 2021, Mark started medical school at Wright State University, Boonshoft School of Medicine. In 2022, he was accepted into a dual degree program within the Department of Pharmacology & Toxicology earning a Master of Science degree. As a current fourth year medical student, he was recently accepted into the Alpha Omega Alpha Honor Medical Society and Gold Humanism Honor Society. Mark is looking forward to completing both of his programs, earning an MD and MS in May of 2025, and beginning his residency in internal medicine.

Microvesicles as Effectors for Environmental Injuries

Jeff Travers, MD, PhD

A native of Wapakoneta, Ohio, Dr. Jeffrey Travers completed his BS, MD and PhD at The Ohio State University (currently national football champs!). He pursued his dermatology residency and immunodermatology fellowship at the University of Colorado and National Jewish Medical Center in Denver. Dr. Travers began his academic career at Indiana University in 1995 and served as Chair of the IU Department of Dermatology for nine years. In 2015, he came to WSU to chair the Department of Pharmacology & Toxicology and serve as Professor of Dermatology. Dr. Travers has been a VA staff physician and VA investigator since 2004. His laboratory and translational studies have garnered approximately ~$30M including extramural funding from the NIH and VA. His research group involving other VA investigators Drs. Craig Rohan and Mike Kemp and WSU investigators including Dr. Ravi Sahu studies mechanisms of photocarcinogenesis and how environmental stressors such as thermal burn injuries and UVB can generate systemic responses. The presentation for this research symposium outlines our cell, preclinical and clinical studies indicating a novel pathway and potential therapeutics for patients suffering from photosensitivity which manifests as abnormal reactions to sunlight.

Can Positive Childhood Experiences Counter Adverse Childhood Experiences? The Impact of Positive Childhood Experiences on Flourishing in Children with Autism and ADHD

Samantha Doehring, MS2

Samantha Doehring is a third-year medical student at Boonshoft School of Medicine. She is from St. Louis, MO and earned her B.S. in Chemistry and Biochemistry at the University of Arkansas where she graduated Summa Cum Laude. Before matriculating at Boonshoft, she worked as a patient care assistant in the Burn ICU where she saw firsthand how adverse childhood experiences affect a child's ability to flourish. This experience sparked her commitment to researching ways to help children overcome early-life challenges and bridge gaps in healthcare access. She is also involved in efforts to expand access to orthopedic medicine for underrepresented high school students, furthering her commitment to fostering equity in healthcare. She is excited to share her findings at the research symposium and highlight the importance of collaborative efforts to improve outcomes for underserved populations. Samantha is continuing to develop her skills as a physician-scientist and is looking forward to using research and advocacy to drive meaningful change in healthcare equity.

Katherine McGreal, MS2

Katie McGreal is a third-year MD student at the Boonshoft School of Medicine. She is previously from University Heights, OH, and earned her Bachelor of Science in Biology from the Ohio State University in 2022. She previously conducted endometrial cancer research at Ohio State's James Cancer Hospital investigating potential therapeutic targets. Last summer, she completed the BSOM Summer Research Program with the Department of Medical Education. Katie is currently involved with developmental pediatrics research at Dayton Children's Hospital.

Poster Session and Reception

Student Union Apollo Room

5:30 to 7:00 p.m.

On the following pages you will find information regarding the poster presentations for this evening's symposium. The poster number corresponds to the location of the poster.

Sakshi S, Ren H

Poster 1

MyoAAV-Mediated Lipin1 Restoration Reduces Dystrophic Diaphragm Muscle Pathology

Mentor: Hongmei Ren, PhD

COSM, Biochemistry and Molecular Biology

Respiratory failure is a leading cause of death in Duchenne Muscular Dystrophy (DMD), which is characterized by severe skeletal muscle degeneration, particularly affecting the respiratory muscles like the diaphragm. DMD is caused by mutations in the dystrophin gene, which leads to sarcolemmal instability and structural deterioration of the diaphragm muscle tissues. Our previous studies have shown that lipin1 plays a complementary role to dystrophin in restoring sarcolemmal integrity. This study explores the therapeutic potential of MyoAAV-mediated lipin1 gene therapy in alleviating diaphragm muscle pathology associated with dystrophic conditions. Our research demonstrates that restoration of lipin1 delivered via MyoAAV vector significantly reduced inflammation, fibrosis, and myofiber death. These findings suggest that MyoAAV-mediated lipin1 gene therapy is a promising strategy for treating respiratory complications in DMD, ultimately enhancing the quality of life of the patients.

Wilfred P, Raye Reese R, Khalilzadeh DM, Henkels KM, Rapp CM, Travers JB

Poster 2

Impact of Varying Degrees of Thermal Burn Injuries in Young Mice: Role of Microvesicle Particles and Platelet-Activating Factor in Thermal Burn Injury

Mentor: Jeffrey Travers, MD, PhD

BSOM, Department of Dermatology and Pharmacology and Toxicology

Thermal burn injuries (TBI) remain a significant global health issue, often leading to systemic inflammation and multi-organ failure. Mortality increases with burn severity due to shock, sepsis, ARDS, acute renal failure, and wound infections.
This study investigates how varying burn severities (12.5%, 25%, and 37.5% total body surface area (BSA)) drive systemic effects through microvesicle particles (MVPs) and platelet-activating factor (PAF). We hypothesize that increasing BSA TBI leads to elevated MVP release and PAF-mediated inflammation.
Using C57BL/6 wild-type (WT), PAF receptor knockout (PAFR KO), and acid sphingomyelinase knockout (SMPD1 KO) mice, we evaluated MVP levels, bacterial translocation (BT), and organ inflammation post-TBI through histology, MVP analysis, RT-qPCR, and BT assays. Topical imipramine was tested to block MVP release in WT mice.
Greater burn severity correlated with higher MVPs in blood, bacterial translocation to mesenteric lymph nodes, and inflammation in the lungs, small intestine, and liver. While 12.5% BSA TBI caused moderate MVP release and minimal bacterial translocation, 25% BSA TBI led to a significant rise. The most severe burns (37.5% BSA TBI) resulted in the highest MVP release and cytokine levels. Imipramine reduced MVP release and bacterial translocation in 37.5% BSA TBI, demonstrating therapeutic potential.
These findings highlight MVP and PAF as key mediators of TBI-induced toxicity. Targeting MVP release via FIASMs or PAFR inhibitors may prevent sepsis and organ failure, improving burn outcomes.

Kamau JK, Ren H

Poster 3

Lipin1 as a potential therapeutic approach for the treatment of cardiac abnormalities in Duchenne Muscular Dystrophy

Mentor: Hongmei Ren, PhD

COSM, Biochemistry and Molecular Biology

Cardiomyopathy is the leading cause of death in Duchenne muscular dystrophy (DMD) patients. DMD is caused by mutations in the dystrophin gene, which plays a major role in maintaining cardiac membrane stability and protecting it from contraction-induced damage. As a result, dystrophin mutation in DMD leads to sarcolemmal instability, inflammatory cell infiltration, cellular death, and fibrosis of the cardiac muscles, eventually leading to cardiomyopathy. Currently, there is no cure for the disease.

Lipin1 has dual functions acting as phosphatidic acid phosphatase required for lipid synthesis and as a transcriptional coactivator. Our current study shows that lipin1 is critical in maintaining membrane integrity and stability in the skeletal muscles of the mdx mouse model for DMD. In this study, we assessed the potential therapeutic effects of lipin1 restoration in ameliorating mdx cardiac pathology using a gene delivery approach.

Atluri U, Cvammen W, Kemp M

Poster 4

The Circadian Clock Modulating Compound SR8278 Slow Cell Proliferation Independent of REV-ERB

Mentor: Michael Kemp, PhD

BSOM, Department of Pharmacology and Toxicology

The small molecule compound SR8278 was initially identified as an antagonist of the REV-ERB proteins, which play an important role in regulating circadian rhythms. Furthermore, the use of SR8278 in preclinical models has been demonstrated to ameliorate a variety of different pathologies. Using RNA-seq analysis of HaCaT keratinocytes treated with SR8278, our laboratory found that SR8278 induces a down-regulation of genes involved in the G1/S phase transition of the cell cycle and an up-regulation of genes involved in cholesterol biosynthesis. RT-qPCR and western blot analyses confirmed that SR8278 treatment led to lower expression of several factors involved in DNA synthesis at both the mRNA and protein levels, respectively. Treatment of HaCaT and other cell lines with SR8278 slowed cell proliferation in a dose- and time-dependent manner and was not associated with an induction of cell death. To determine whether the anti-proliferative effects of SR8278 were mediated by REV-ERBs, HaCaT cell lines lacking expression of both REV-ERBα and β were generated using CRISPR/Cas9 genome editing. Interestingly, both the single- and double-knockout cell lines displayed largely normal growth rates that were still inhibited by SR8278. We conclude that the effect of SR8728 on cell proliferation is not mediated by REV-ERBs.

Bowman-Gibson S, Rackett TM, Attikple TI, DeRespiris HM, Lowell JM, Wilcher KE, Maxwell RA, Dhanraj DN, Brown TL

Poster 5

Elevated Levels of Circulating Extracellular Vesicles Inhibit Angiogenesis in Severe Early-Onset Preeclampsia

Mentor: Thomas Brown, PhD

BSOM, Department of Obstetrics and Gynecology

Preeclampsia is a common pregnancy-associated disorder and a leading cause of maternal and fetal morbidity and mortality. Circulating levels of maternal extracellular vesicles (EVs) are significantly elevated in patients with severe early-onset preeclampsia (sEOPE); however, it is not known how EVs contribute to the pathophysiology. To address this question, we evaluated the functional activity of EVs on cell migration and angiogenesis in human umbilical vein endothelial cells. Our results indicate that plasma-derived maternal EVs from sEOPE patients significantly inhibit cell migration and angiogenesis, compared to normotensive controls, and suggest that EVs may be an important mediator in the pathogenesis of this disorder.

Nair A, Kemp M

Poster 6

The Role of Rad51 and its Paralogs in DNA Damange Responses in Quiescent Cells Exposed to Solar Simulating UV Radiation

Mentor: Michael Kemp, PhD

BSOM, Department of Pharmacology and Toxicology

Rad51 is one of the important proteins in homologous recombination(HR),one of the two repair systems used to repair double strand DNA breaks. Rad51 along with its five paralogs Rad51B, Rad51C,Rad51D, XRCC2 and XRCC3 repairs the DNA double strand breaks. Studies have shown the role of Rad51 in S/G2 phase but its role in G0/G1 phase is still unclear. Our lab focuses on this, and thus we are studying the role of Rad51 and paralogs in quiescent cells. RT-qPCR and western blots helped us understand expression of Rad51 in proliferating and quiescent keratinocytes cells both at mRNA and protein levels.Using Pharmacological inhibitor of Rad51, our lab found that Rad51 promotes quiescent cell survival after exposure to UV radiation. However genetic knockdown of Rad51 at the RNA level does not support the role of Rad51 in UVB exposed quiescent cells. This may be due to the Rad51 paralogs. Like Rad51, the paralogs have primarily been studied in S/G2 phase. The role of the paralogs in UV exposed quiescent cells is unknown. To study the role of the Rad51 paralogs, we knockdown the paralogs with siRNAs and then check viability of cells in UV exposed quiescent cells. We conclude that Rad51 and/or one of its paralogs are important for cell viability and double strand break repairs in solar simulated light quiescent keratinocytes.

Reese R, Bryant J, Shamma H.N, Travers J

Poster 7

Collection and Characterization of Nasal Epithelium for Microvesicle Particle Determination and the Effects of Imipramine Post-Heat Exposure

Mentor: Jeffrey Travers, MD, PhD

BSOM, Department of Pharmacology and Toxicology

Introduction and Purpose: This study aims to investigate a nasal epithelium collection protocol to facilitate less-invasive research on the release of microvesicle particles (MVPs). MVPs are membrane-bound particles released through an interaction with acid sphingomyelinase, which can possibly be blocked via imipramine, an inhibitor of acid sphingomyelinase. Historically, research of MVPs in the skin have been tracked via skin biopsy. To decrease the invasiveness of the collection method, we set out to develop a protocol for the collection of nasal epithelium to assess its ability to serve as a surrogate for skin keratinocytes for further assessment of imipramine's impact on MVP release.

Methods: We first developed collection method utilizing bacteriostatic saline rinse with focus on swabbing the inferior nasal turbinate. To determine the optimal collection tool, we utilized a cell-counter to quantify cells and observed participants' comfort level. We then completed H&E staining to confirm the presence of epithelial cells. These nasal epithelial cells were then exposed to heat and the effect of imipramine exposure prior to treatment was assessed by measuring MVP-concentration. Findings: Based on numerical cell counts and participant comfort, we determined an interdental brush was the best collection tool. We also confirmed the presence of epithelial cells via H&E staining. Finally, we found that pre-treatment of nasal epithelium with heat injury released MVPs which was blocked by preincubation with imipramine.
Therefore, we have developed a nasal epithelial collection method to serve as surrogates for human skin studies and shown that imipramine reduces heat-induced MVP release.

Babel A, Soumakieh M, Chen A, Wong C, Ghouse N, Costa D, Almeida D

Poster 8

Virtual Reality Visual Field Testing in Glaucoma: Benefits and Drawbacks

Mentor: David RP Almeida, MD, MBA, PhD

The Centers for Advanced Surgical Exploration (CASEx), Erie, PA USA

Observations: A narrative literature review was conducted using PubMed and MEDLINE via EBSCOhost, covering articles published from 2014 to October 2023. The search terms used were "virtual reality visual field" AND "glaucoma." Filters applied included "Free full text," "Full text," and "Peer Reviewed." Inclusion criteria encompassed studies evaluating VRVFT in relation to glaucoma. Exclusion criteria included duplicates, meta-analyses, literature not discussing glaucoma or VRVFT, and other literature reviews. Sixteen studies met the inclusion criteria, comprising various study designs. VRVFT showed comparable reliability and efficacy to SAP in detecting glaucomatous visual field defects. Benefits of VRVFT included improved accessibility, patient comfort, and resource optimization. Drawbacks included technical limitations such as restricted luminance range, lack of sophisticated eye-tracking in some devices, and implementation challenges like patient technology familiarity and access to equipment. Conclusion: VRVFT presents several benefits, making it a promising alternative or complement to conventional glaucomatous visual field testing in outpatient clinics and remote settings. Addressing technical limitations and standardizing protocols are essential for broader clinical adoption.

Pallikaranai Venkatesaprasath S, Nedumaran UM, White S, Alfaheeda Z, Sulentic C

Poster 9

Comparative Analysis of Aryl Hydrocarbon Receptor-Mediated Regulation of the 3′ Immunoglobulin Heavy Chain Regulatory Region in Mice and Humans

Mentor: Courtney Sulentic, PhD

BSOM, Department of Pharmacology and Toxicology

The 3′ immunoglobulin Heavy Chain Regulatory Region (3′IGHRR) plays a critical role in antibody production by controlling Igh gene expression and class switch recombination (CSR). Studies have shown that TCDD (2,3,7,8-tetrachlorodibenzo-p-dioxin) interacts with the Aryl Hydrocarbon Receptor (AhR) to alter Igh gene regulation, but species-specific differences complicate this process. The mouse 3′IghRR consists of a single regulatory region with four enhancers (hs3A, hs1.2, hs3B, hs4), while the human 3′IGHRR is duplicated, with each copy containing three enhancers (hs3, hs1.2, hs4).
This study evaluates AhR activation on 3′IGHRR transcription using luciferase gene reporters transfected into mouse and human B-cell lines. In mouse B cells, TCDD inhibited both 3′IghRR and hs1.2 enhancer activity but increased hs4 enhancer activity. In human B cells, TCDD increased hs1.2 enhancer activity, and this effect occurred independently of the AhR transactivation domain (TAD). This suggests that AhR regulates the human hs1.2 enhancer via a non-canonical pathway, likely through protein-protein interactions or co-regulator recruitment rather than direct DNA binding.
Given major structural and functional differences in the mouse and human 3′IGHRR, these findings highlight species-specific IgH regulation. Understanding these differences is crucial for assessing human immune system responses to environmental toxicants.

Sairam P, Xu YJ

Poster 10

Genetic study of a ribonucleotide reductase mutant suc22-S239F that sensitizes the cells to hydroxyurea

Mentor: Yong-jie Xu, M.D., Ph.D

BSOM, Department of Pharmacology and Toxicology

DNA replication checkpoint (DRC) is critical in maintaining genomic integrity in the presence of replication stress, which is caused by dNTP starvation or anti-cancer drugs that damage DNA templates. The suc22 gene encodes the small subunit of ribonucleotide reductase (RNR), a key enzyme in dNTP biosynthesis and highly conserved in all eukaryotes. We have previously identified a missense mutation suc22-S239F, which impairs RNR function and sensitizes the cells to hydroxyurea (HU), an inhibitor of RNR and a classic anticancer drug.

This study aims to better understand the HU sensitivity caused by the suc22-S239 mutation by identifying suppressor mutations that restore HU resistance in the suc22-S239F mutants. Using chemical mutagenesis with N-methyl-N'-nitro-N-nitrosoguanidine (MNNG), we generated random mutations in the genome of the suc22-S239F strain. Colonies were replicated onto HU plates to screen the mutations that can suppress the HU sensitivity. Suppressor mutants, once isolated, were validated through spot assays and categorized based on their phenotypic response to HU and the DNA-damaging agent methyl methanesulfonate (MMS). To elucidate the genetic basis of suppression, whole-genome sequencing and backcrossing strategies were employed. Further, we examined the presence of compensatory mutations affecting nucleotide biosynthesis and its impact on the DRC.
Preliminary results indicate that certain suppressor mutations restore dNTP balance or bypass the DRC defect. Our findings will provide insights into the RNR regulation and its interplay with the DRC and the DNA damage response pathways. This research will enhances our understanding of DRC signaling and provide implications for targeting replication stress in cancer chemotherapy.

LeHoty B, Mathew S, Highlander M, Elbasiouny S

Poster 11

Early Detection of Motor Unit Abnormalities in ALS: An Electrode Sleeve Analysis

Mentor: Sherif Elbasiouny, PhD

BSOM, Department of Neuroscience Cell Biology and Physiology

A new step in the early diagnosis of the fatal neurodegenerative disease amyotrophic lateral sclerosis (ALS) has been uncovered with a novel whole-limb surface electromyograph (sEMG) sleeve system. As new therapy options for ALS continue to arise, the need for a screening mechanism to detect ALS prior to debilitating symptom onset is imperative for these interventions to be effective. Yet the current diagnosis of ALS remains challenging, leading to delays in treatment and a poor prognosis. Our lab has paired with the Battelle engineering company to create a EMG system capable of detecting these ALS biomarkers in humans, after disease-specific motor unit firing abnormalities were found in neuron model simulations and ALS transgenic mice in Phase 1 of this project. These early biomarkers, identified as a dip in the motor unit's firing rate during initial muscle relaxation, were found in the tested ALS patients. They demonstrated a significant difference from healthy motor units- a finding that can revolutionize early ALS clinical diagnostics and improve patient outcomes.

Bhakta-Yadav M and Sulentic C

Poster 12

AhR modulates antibody production by targeting germline transcription of the IGH gene

Mentor: Courtney Sulentic, PhD

BSOM, Department of Pharmacology and Toxicology

This study evaluates the transcriptional regulation of the immunoglobulin heavy chain (IGH) gene in human B cells and the role of the aryl hydrocarbon receptor (AhR). The IGH gene codes for heavy chain of antibodies, with constant regions γ1-4, encoding for IgG1-4. This study used human Burkitt lymphoma cell lines, CL-01 and SKW. CL-01 cells are mature B-cells capable of switching from IgM to other isotypes. SKW cells are suitable for investigating IGH gene germline/sterile transcription, because they lack AICDA, essential for mature/functional transcription. The SKW WT cells also lack AhR expression. We used lentiviral transduction to create an SKW AhR+ clone, to study impact on IGH germline transcription. In CL-01WT cells, AhR activation (TCDD and indirubin treatment) significantly inhibited IgG secretion and γ1-4 transcription. AhRA treatment reversed these effects. In CL-01TA+ cells, enhanced AhR transactivation did not alter the degree of inhibition of γ2-4 compared to CL-01WT. It remains unclear if AhR influences mature IGH transcript transcription after class switch recombination or affects germline transcription beforehand. In SKW cells, TCDD significantly inhibited γ2-4 germline transcription in SKW AhR+ but not SKW WT cells, while AhRA significantly increased γ2-4 expression. AhR activation alters γ2-4 transcription in CL-01 cells independently of AhR transactivation function. AhR targets γ2-4 germline transcription in SKW cells. Collectively, these studies show AhR differentially alters IGH gene expression by regulating germline transcription likely via a non-canonical signaling pathway.

Soumakieh M, Hilali O, Kattan A

Poster 13

Management of Massive Pulmonary Embolism with Clot in Transit Using Fluoroscopic and Transthoracic Echocardiographic Guided Large-Bore Mechanical Trombectomy

Mentor: Ahmad Kattan, MD

HCA Florida Blake Hospital Department of Vascular and Interventional Radiology

Introduction: Massive pulmonary embolism (PE) with clot-in-transit (CIT) is a life-threatening condition requiring immediate intervention. Transthoracic echocardiography (TTE) offers a safer alternative to transesophageal echocardiography (TEE) for unstable patients by providing real-time imaging without the risks of sedation.

This case highlights the use of TTE-guided large-bore mechanical thrombectomy (LBMT) for managing massive PE with CIT.
Case Presentation: A 67-year-old male presented with dyspnea, hypotension, and right ventricular (RV) strain. TTE identified a CIT in the right atrium and RV. Due to recent intracranial bleeding, thrombolysis was contraindicated. LBMT was performed under fluoroscopic and TTE guidance to remove the thrombus while minimizing risks.
Results: Post-procedural imaging confirmed thrombus resolution, normalized RV size, and stabilized hemodynamics. The patient was discharged on anticoagulation without complications.
Conclusions: This case emphasizes the advantages of TTE over TEE in guiding LBMT, particularly for unstable patients. TTE provides real-time visualization and precise catheter placement without the risks associated with sedation, providing a safe and effective approach for managing massive PE with CIT.

Fadell S, Hellmann D, Curry J

Poster 14

Mycotic Abdominal Aortic Aneurysm in a Middle-Aged Female: A Case Report

Mentor: Jarrod Curry, DO

Kettering Health Department of Diagnostic Radiology

Mycotic abdominal aortic aneurysms (MAAAs) are a rare but serious condition, comprising only 0.6% to 2% of all aortic aneurysms in Western countries. They are commonly associated with gram-positive bacterial infections, often arising from septic emboli, hematogenous spread, direct inoculation, or extension from adjacent infected tissue. We present the case of a 59-year-old female with an atypical presentation of MAAA, highlighting diagnostic and management considerations.
The patient presented to the emergency department with severe lower abdominal pain radiating to her left flank, persisting for four days. Her medical history included polycystic kidney disease, hypertension, emphysema, and nicotine dependence. Initial findings included fever and pustular lesions on her hands and feet. Imaging revealed a fusiform ectasia of the infrarenal abdominal aorta measuring 3 x 3 cm, with adjacent fat stranding suggestive of aortitis. Laboratory studies showed elevated inflammatory markers without blood culture positivity. Subsequent CT-guided biopsy identified Cutibacterium acnes and Staphylococcus hominis. The patient was empirically treated with a six-week course of intravenous antibiotics. Despite therapy, the aneurysm expanded to 4.4 cm, necessitating endovascular aneurysm repair (EVAR), which was successfully performed.
Follow-up imaging demonstrated widely patent stents and a reduction in aneurysm size to 4 cm. This case underscores the importance of maintaining clinical suspicion for MAAA in atypical presentations and highlights the utility of antimicrobial therapy combined with surgical intervention. Thorough diagnostic workup and timely treatment are critical to improving outcomes in this rare and potentially fatal condition.

Theodore D, Bhatt N

Poster 15

Development of Psychotic Symptoms Involving Cochlear Implantation

Mentor: Nita Bhatt, MD

BSOM, Department of Psychiatry

A 47-year-old male with a psychiatric history of schizophrenia and post-traumatic stress disorder (PTSD) was admitted to the psychiatric unit April 2024 for competency restoration. Patient was arrested in February 2023 for violating a protective order, and again June 2023. His understanding of court proceedings was impaired by perceptual disturbances, delusional beliefs, and paranoia, leading to an inability to participate in his defense.
Although cooperative during assessment, the patient demonstrated communication difficulties, partly attributed to hearing impairment due to a cochlear implant. Patient denied current PTSD symptoms but reported a traumatic history linked to a home invasion. He later attributed PTSD to other events, and reported PTSD resolved two years ago. He reported persistent anxiety, panic, and auditory disturbances, alongside paranoid and somatic delusions. Thought processes were evasive, disorganized, and paranoid.
The patient developed persistent hearing loss after encephalitis at age five. A cochlear implant was placed in 2015, after the onset of psychosis. The patient developed symptoms involving the device, including the belief he had a Neurolink device placed to treat PTSD, command hallucinations received as broadcasts, and thought broadcasting. Psychotic symptoms reportedly began in 2010, first charted schizophrenia diagnosis was in 2022. He has had six psychiatric hospitalizations since diagnosis. Medication history includes trials of multiple antipsychotics. Current regiment is haloperidol, olanzapine, tamsulosin, vitamin D, iron, benztropine. Social history included homelessness, computer technician vocational training, tobacco use. Family history of father and brother with schizophrenia.

Cox R, Karr E, Weaver J

Poster 16

Spontaneous pneumomediastinum presenting as dysphonia

Mentor: Rachel Cox, MD

BSOM, Department of Internal Medicine

Spontaneous pneumomediastinum (SPM) is a rare condition characterized by the presence of air in the mediastinum without trauma, typically due to the Macklin effect, where alveolar air travels along bronchovascular sheaths. Although generally self-limited, SPM may lead to serious complications, including hypertensive pneumomediastinum, mediastinitis, and tension pneumothorax. Classic symptoms include chest pain, dyspnea, and subcutaneous emphysema.
We report the case of a 19-year-old male presenting to the emergency department with dysphonia after repeated heavy lifting. He reported no chest pain, dyspnea, or trauma but described episodes of vomiting prior to onset. On examination, he had subcutaneous emphysema extending from the neck to the chest, a nasally altered voice, and stable respiratory function. Computed Tomography (CT) imaging revealed extensive air in the neck and mediastinum. Esophagram ruled out esophageal injury, and the patient was managed conservatively with overnight observation and discharged in stable condition.
This case highlights a unique presentation of SPM with isolated dysphonia, differing from the more common symptoms of chest pain or dyspnea. Recognition of atypical presentations is essential to prevent misdiagnosis and avoid unnecessary interventions. While rare, SPM can typically be managed conservatively, provided complications are excluded through appropriate diagnostic workup.

McMillan L, Fisher A, Murray B

Poster 17

Massive Bilateral Chylothorax with Negative Magnetic Resonance Lymphangiography Following Low-Energy Blunt Spinal Trauma: A Case Report

Mentor: Brian Murray, DO

BSOM, Department of Emergency Medicine

Introduction: Chylothorax, an uncommon complication of blunt thoracic trauma, typically results from thoracic duct injury leading to chyle accumulation in the pleural space. Delayed presentations, particularly after low-energy trauma, are rare and challenging to diagnose. Bilateral chylothorax is also exceedingly rare in the setting of trauma, though it is more common in the setting of malignancy. Negative imaging studies further complicate diagnostics and management.
Case: A 22-year-old white male presented with back pain and delayed onset dyspnea following low-energy blunt thoracic trauma. Diagnostic imaging revealed bilateral pleural effusions confirmed as chylothorax via pleural fluid studies with persistent high-output chylous drainage. Despite this, inpatient magnetic resonance lymphangiography failed to identify lymphatic injury. Conservative management with dietary modifications led to resolution without more aggressive intervention.
Discussion: This case emphasizes the diagnostic complexity and management of delayed symptomatology with traumatic chylothorax. Negative lymphatic imaging should not exclude the diagnosis when the index of clinical suspicion is high. Multimodal diagnostic and treatment approaches and individualized management strategies are essential for optimal outcomes.
Conclusion: Traumatic chylothorax should be considered in low-energy trauma, particularly in patients with progressive dyspnea or respiratory compromise. Advanced imaging, including various forms of lymphangiography, may fail to identify the site of lymphatic injury even during periods of high chylous output.

Haridhas A, Hammer K, Akbar M

Poster 18

Case of Toxic Epiderman Necrolysis Secondary to Cabotegravir Long Acting Injectable

Mentor: Muhammad Akbar, MD

Premier Health Hospitalist Group

Introduction/Purpose: Cabotegravir is an integrase inhibitor approved in December 2021 as a long-acting injection, making it the only FDA-approved injectable option for HIV Pre-exposure Prophylaxis (PrEP). While integrase inhibitors have been known to cause hypersensitivity reactions, there is currently insufficient data on them causing Steven-Johnson syndrome (SJS) or Toxic epidermal necrolysis (TEN). Thus, we are writing to report a case of cabotegravir-induced TEN to support the relationship between Cabotegravir and TEN.
Case Description: A 23-year-old transgender woman was admitted to the inpatient burn unit after presenting with a new onset desquamating rash encompassing the face and oral mucosa and 3 days of worsening dysphagia, difficulty talking, and angioedema with high concern for SJS. Past medical history was significant for a change in HIV PrEP regimen from oral Truvada (emtricitabine/tenofovir disoproxil fumarate) to oral and then intramuscular Cabotegrivir 3 weeks and 3 days before presentation, respectively. Skin punch biopsy confirmed a diagnosis of SJS/TEN. The rash then progressed, encompassing 90 percent of her body. Her hospital course was complicated, requiring care by the burn and plastic surgery team. The patient became bacteremic due to extensive skin involvement. Blood cultures turned positive for MRSA, corynebacterium, and pseudomonas, treated with daptomycin and cefepime. The role of IV steroids and IVIG is controversial in SJS/TEN management; our patient received both medications
during their hospital stay.

The role of IV steroids and IVIG is controversial in SJS/TEN management; our patient received both medications during their hospital stay. Clinical Relevance: Given the significant morbidity and mortality associated with SJS/TEN, it is crucial for providers to counsel patients on the potential side effects of this new PrEP medication.

Gore A, Fisher A

Poster 19

Rapid Diagnosis of Acute Aortic Dissection with Point-of-Care Cardiac Ultrasound

Mentor: Hillary J. Mckinley, MD

BSOM, Department of Emergency Medicine

Background: Aortic dissection (AD) is a rare but life-threatening condition with a 40% mortality rate at initial presentation. This case highlights the role of point-of-care ultrasound (POCUS) in the rapid diagnosis of AD, leading to expedited imaging and surgical intervention.
Case Description: A 55-year-old female with hypertension and a history of renal cell carcinoma presented with sudden 10/10 chest pain. EMS noted hypotension (60s/40s mmHg), which improved to 110/54 mmHg with IV fluids. She denied back or abdominal pain but had mild right leg paresthesia and weak right lower extremity pulses. POCUS, performed for undifferentiated hypotension and chest pain, identified a pericardial effusion without tamponade and a dilated aortic root. Further image review revealed an intimal flap in the ascending and descending aorta. CT confirmed AD extending from the aortic valve to the right iliac artery.
Discussion: POCUS facilitated early recognition of AD through secondary findings, expediting definitive imaging and intervention. While AD typically affects older males, this case underscores its occurrence in women with atypical presentations. POCUS is a rapid, non-invasive tool that improves diagnostic accuracy and reduces delays in hemodynamically unstable patients. Emergency physicians should incorporate POCUS in the evaluation of unexplained chest pain.

Gwin E, Murray B

Poster 20

Occlusive Esophageal Hematoma: Implications for Emergency Medicine

Mentor: Brian Murray, DO

BSOM, Department of Emergency Medicine

Introduction: An esophageal hematoma is the result of blood collecting beneath tissue in the esophageal wall. This can be caused by a variety of etiologies including vomiting, trauma, or iatrogenic (1). The purpose of this case report is to illustrate the potential implications of esophageal hematomas.

Case: An 82-year-old female with multiple comorbidities had been admitted after presenting with constipation, bright red blood per rectum, and hematemesis. She underwent an EGD that showed esophagus full of clot, covering the entire esophagus starting from 18cm at incisors and extending 30cm to GE junction. It appeared to almost completely occlude the lumen. The etiology was possibly underlying Mallory-Weiss tear or localized perforation of unknown source, with resulting bleeding. She did require blood transfusions. She had had no chest pain although suffered occasional dysphagia and had had prior dilated esophageal stricture 5 years prior. Recommendations were conservative management, including nothing-by-mouth and G-tube placement for feeds.
Significance: The implications are that patients who present to the emergency department and are found to have an esophageal hematoma may present with symptoms such as chest pain, dysphagia, or hematemesis and therefore a GI bleed or hematoma should be high on a clinician's differential to distinguish the patient's presentation from other life-threatening conditions that are respiratory or cardiac in origin (2). Conservative management is mainstay, and patients are typically kept nothing-by-mouth until resolution (3).

Boyes D, Hacker D

Poster 21

Pernicious Anemia Unmasking Gastric Cancer

Mentor: Daryl Hacker, MD

BSOM, Gastroenterology

Pernicious anemia is a rare autoimmune condition characterized by autoantibodies against intrinsic factor and/or gastric parietal cells. Here, we report a case of intestinal gastric cancer presenting concurrently with pernicious anemia. An 80-year-old male with a history of vitamin B12 deficiency presented to the ED with a 5-day history of generalized weakness, dizziness, and poor appetite. Notably, the patient also had an unintentional 10-pound weight loss over the previous month. CBC showed an anemia without prior workup found in the medical records. Given the combination of his history of vitamin B12 deficiency and current anemia, the patient was subsequently worked up for pernicious anemia with an iron panel, serum gastrin, anti-IF antibodies, and EGD. Workup revealed positive intrinsic factor antibodies with EGD showing a distal antral mass with pyloric channel deformity concerning for gastric adenocarcinoma. The pathology report showed a tubovillous adenoma, and the patient was subsequently evaluated by surgical oncology. Patients with pernicious anemia are at a significantly increased risk for gastric cancer, so an EGD with biopsies to evaluate for the presence of malignancy and atrophic gastritis is paramount for evaluation. This case report serves as a reminder that if there is high suspicion for vitamin B12 deficiency and pernicious anemia, providers should complete a full pernicious anemia workup including an EGD with topographical biopsies to confirm atrophic gastritis risk stratification and rule out gastric neoplasia

Williams K, Durstock N, Saeed O, Warwar R, Mihok B

Poster 22

Rapidly Developing and Elusive Rhino- Orbital - Cerebral Mucormycosis

Mentor: Omar Saeed, DO

Kettering Health Ophthalmology

Purpose: To report a case of rapidly progressing rhino-orbital cerebral mucormycosis that was particularly difficult to diagnose, initially presenting as orbital apex syndrome. Major findings: In this case, a 59-year-old male patient with uncontrolled diabetes presented with a history of facial pain with no ocular involvement. Within 1 day of hospitalization, the patient developed complete ophthalmoplegia and total visual impairment of the right eye. Over the course of 2 hospital stays, several biopsies resulted in no significant histopathological findings, and several cultures resulted in growth of only a single colony of Rhizopus mucor from the sinonasal mucosa. Given the high clinical suspicion of an invasive fungal infection, a universal PC test was performed from a rapidly developing abscess in the frontal lobe and confirmed a diagnosis of mucormycosis. Conclusions: Orbital apex syndrome is a significant diagnosis that can be caused by a variety of factors, including those of fungal, bacterial, neoplastic, or inflammatory origin. Fungal infections, are a particularly concerning cause of orbital apex syndrome, given their ability to penetrate in and through the orbit to the brain, often resulting in an alarmingly high mortality rate. Mucormycosis, specifically rhino-orbital cerebral mucormycosis, is a very severe opportunistic invasive fungal infection, most often afflicting the immunocompromised. A clinician must be very thorough in their workup to not miss such a devastating diagnosis. Histopathology and cell cultures are currently the gold standard for diagnosis, with the potential to augment their technical success using molecular techniques, such as universal PCR.

Sze N, Cox R, Berglund A, Kobzik A

Poster 23

Acute Epstein-Barr Virus Related Myopericarditis in Immunocompetent Young Adult

Mentor: Andrew Berglund, MD & Alexander Kobzik, MD

BSOM, Premier Health and Wright Patterson Air Force Base Departments of Internal Medicine

Background: Epstein-Barr virus (EBV) is a highly prevalent infection typically presenting as a self-limiting, mild illness. More than 90% of the world's population carries EBV as a latent infection, which manifests as infectious mononucleosis. While cardiovascular involvement is rare, it can be life-threatening and thus crucial to recognize early. We present a young immunocompetent adult presenting with rare cardiovascular manifestations of EBV infection leading to life threatening illness.

Case Description: A 20-year-old male presented to the emergency department for fever, dizziness, nausea, and vomiting. Notable vitals were fever of 103.1, tachycardia of 159 beats per minute, and hypotension. Physical exam revealed painful oral ulcers, bilateral lower extremity vesicular rash, and diffuse abdomen tenderness. Key laboratory findings include leukopenia of 3.5 K/μL, elevated creatinine at 1.2 mg/dL, and lactic acidosis of 9.5 mg/dL. His hospital course was complicated by bowel ischemia necessitating surgical resection and seizure-like activity requiring intubation. Trans-thoracic echocardiogram revealed reduced ejection fraction of 20-25% and left ventricular (LV) apical thrombus with diffuse ST elevations on electrocardiogram. An EBV quantitative panel was positive, confirming a diagnosis of myopericarditis. He was discharged home after 17 days.

Discussion: This case highlights a rare presentation of EBV myopericarditis leading to LV thrombus and embolic ischemia. EBV thromboembolism is rare and typically occurs in immunocompromised patients or those with pre-existing thrombus risk. Clinicians should remain vigilant for cardiovascular involvement and ensure whether facilities are equipped to manage severe cases. Early intervention can improve outcomes and reduce complication risk.

Buchinsky D, Bracken RB, Syed S, Polenakovik H, and Hakim J

Poster 24

Clear Cell Urothelial Carcinoma: A Rare Encounter

Mentor: Jonathan Hakim MD

BSOM, Department of Surgery

Clear Cell Urothelial Carcinoma (CCUC) is a rare urothelial cancer variant first described in 1995 that remains sporadically reported in literature. It predominantly affects men in their 8th decade. Due to CCUC's clinical rarity, additional reported cases may aid future clinicians in decision making on surgical management. We present a case of an 88-year old male with primary CCUC and highlight the aberrant histopathological findings with literature review. An 88-year old male with a history of smoking presented to clinic with painless hematuria of six months duration. Computer Tomography (CT) of the abdomen/pelvis without contrast and renal ultrasound in combination demonstrated right sided hydroureteronephrosis down to a bladder mass. This was confirmed to be a bladder tumor on office cystourethroscopy. Following TURBT procedure, the pathology report came back suggesting 3.6cm superficial clear cell urothelial carcinoma. Muscularis propria was present and not involved. The TURBT was repeated 6 weeks and the pathology was low grade Ta Transitional Cell Carcinoma (TCC) of the bladder. Histologically, CCUC is characterized by a glycogen-rich clear cytoplasm, severe atypia and a "nested" growth pattern. CCUC may be differentiated from non-CCUC by as few as a 30% clear cell change morphology of all cells. Importantly, CCUC must be differentiated from Renal Cell Carcinoma and Clear Cell Adenocarcinoma. Treatment for CCUC has varied by case, with some surgeons electing to treat with radical cystectomy while others opting for local resection. Our case helps further characterize CCUC and contributes to the paucity of published literature concerning surgical management.

Spencer E, Arya S

Poster 25

A Term Neonate with Respiratory Compromise Secondary to Congenital Dacryocystocele

Mentor: Shreyas Arya, MD

Dayton Children's Hospital, Department of Pediatrics

Introduction: Congenital dacryocystocele (CDC) is a rare cause of upper airway obstruction and occurs due to cystic swelling of the nasolacrimal duct. As neonates are obligate nose breathers, any obstruction in the nasal passage may lead to significant respiratory distress. We present the case of a neonate with recurrent oxygen (O2) desaturations and respiratory compromise thought to be secondary to mild micrognathia but ultimately found to be due to CDC. A polysomnography (PSG) performed as part of the micrognathia work up showed a disproportionately high apnea-hypopnea index, which lead to further workup and subsequent diagnosis of CDC.
Case Description: A full-term female neonate presented with multiple episodes of O2 desaturations and respiratory distress in the delivery room. Physical examination revealed mild micrognathia. The patient was placed on nasal cannula O2 and transferred to a tertiary care center for an airway evaluation. Pediatric otolaryngology and plastic surgery were consulted, and a PSG was completed which showed significant O2 desaturations and a severe degree of obstructive sleep apnea, out of proportion to the mild micrognathia. A computerized tomography scan identified a cystic lesion on the inferior aspect of the left lacrimal duct consistent with CDC. This was confirmed with nasal endoscopy and treated with marsupialization.
Conclusion: The differential diagnosis for neonates with upper airway obstruction should include CDC. Diagnosis and treatment of a CDC should involve a multidisciplinary approach. PSG has the potential for expanded use in neonates, but further research is needed to identify appropriate candidates and normative values.

Robertson A, Starrett W

Poster 26

Atypical Widespread Herpes Zoster in a Patient with Bullous Pemphigoid: A Diagnostic Challenge

Mentor: William Starrett, MD

Dayton Veterans Affairs Medical Center, Department of Infectious Disease

Purpose: This case highlights the diagnostic challenge of differentiating autoimmune and infectious causes of bullous eruptions. Initially diagnosed with bullous pemphigoid (BP), the patient's worsening symptoms and lesion distribution led to the discovery of an atypical, widespread varicella zoster virus (VZV) infection. This case emphasizes the importance of considering a broad differential in blistering dermatoses, particularly in elderly patients.
Case Presentation: A 91-year-old male with a history of recurrent blisters presented with acute worsening of a painful bullous eruption on his left lower extremity (LLE). He was initially diagnosed with BP and started on prednisone. However, his condition deteriorated, prompting dermatology and infectious disease consultations. The unilateral distribution and worsening symptoms raised suspicion for an alternative etiology. VZV PCR from vesicular fluid returned positive, confirming herpes zoster. Retrospective testing revealed elevated BP230 levels, supporting a concurrent BP diagnosis.
Conclusion: This case illustrates the complexity of diagnosing blistering diseases, particularly when autoimmune and infectious processes overlap. The chronic inflammation of BP may have facilitated a more widespread VZV presentation, or VZV may have triggered BP through immune dysregulation. Clinicians should maintain a broad differential when evaluating bullous eruptions, particularly in elderly patients, and consider early virologic testing in atypical presentations. Proper diagnosis is critical, as corticosteroid treatment for BP can worsen an undiagnosed VZV infection if not managed appropriately.

Park YJ, Jinka S, Johnson RM

Poster 27

Systemic Reaction to Acellular Fish Skin with No Previous Allergy: A Case Report

Mentor: R. Michael Johnson, MD, FACS

BSOM, Department of Plastic Surgery

Introduction: Acellular fish skin grafts (AFSGs), a type of biologic skin substitute, play a crucial role in chronic wound management due to their biocompatibility, antimicrobial properties, non-immunogenicity, and cost-effectiveness. Despite these known advantages, we report a rare case of systemic immune reaction following AFSG application in a patient with no prior history of fish allergy.
Purpose: This case highlights a rare immune reaction to AFSG, despite its acellular nature. It challenges the assumption of complete immunologic safety and suggests potential immune mechanisms that may contribute to such reactions. Case Description: A 39-year-old male with history of myelomeningocele, spina bifida, and a chronic stage IV right ischial wound presented with right lower extremity cellulitis and fever following initial AFSG application to a right heel wound. Initially, allergy was ruled out. He required intravenous antibiotics and was discharged one week later. Upon re-evaluation in the clinic, a new AFSG was applied to ischial and heel wounds, after which the patient developed shortness of breath, vomiting, and urticaria. The patient was subsequently treated with albuterol, diphenhydramine, and steroids, leading to symptom resolution. A de novo IgE-mediated reaction to AFSG was suspected. Relevance/Significance to Clinical Practice: This case represents a unique instance of anaphylaxis secondary to AFSG, which has not been previously reported in the literature. It challenges the assumption of acellular skin grafts' non-immunogenic properties. Clinicians should be aware of the potential for delayed hypersensitivity reactions, counsel patients appropriately, emphasize post-application monitoring, and consider alternative skin substitutes when necessary.

Raccuia J, Fox R, Lowery C

Poster 28

Acute Traumatic Abdominal Intercostal Hernia: An unusual case that highlights the potential benefit of multidisciplined surgeons and robotic platforms in the rural community setting

Mentor: James Raccuia, MD

BVHS; Surgical Associates of Northwest Ohio

Acquired Abdominal Intercostal Hernia (AAIH) is a rare condition that occurs as a surgical complication or secondary to blunt trauma and is surgically corrected. However, robotic techniques and acute care surgical training that may offer the most advantageous treatment are often unavailable. This case demonstrates a unique incidence of an AAIH and the advantage of multidisciplined surgeons covering acute surgery services in a rural setting. An 83-year-old male presented to the emergency department with complaints of right sided chest pain, abdominal distention, and lack of a bowel movement for 24 hours after a fall. Pertinent medical history includes previously irradiated prostate cancer of a right lateral seventh rib metastasis. Computed tomography scans of the chest, abdomen, and pelvis demonstrated an acutely displaced right seventh rib fracture at the site of prior therapy with an AAIH containing small bowel with resultant obstruction. A multidisciplined surgeon covering acute services performed a robotic diagnostic laparoscopy, discovering bowel strangulation and necrosis. Resolution was achieved with bowel resection, a primary anastomosis, and hernia repair utilizing peritoneum and biologic mesh. There were no post-operative complications, and the patient fully recovered. Acute laparoscopic intraabdominal repairs, including internal peritoneal and mesh reinforcement of hernias in difficult anatomical locations that are practically surgically inaccessible without robotic assistance, are rarely options in rural settings. Minimally invasive approaches improve recoveries, and the shrinking field of rural surgeons without accessible technology and the increasing incidences of injury in geriatric populations reinforces the benefit of multidisciplined training and robotics in rural hospitals.

Rowland S, Hobayan G, Stanford S, Lamb J

Poster 29

Where Did All the Platelets Go? Brought to You by Dapagliflozin

Mentor: James Lamb, MD

BSOM, Department of Internal Medicine

Background: In drug-induced immune thrombocytopenia (DITP), medications trigger thrombocytopenia through immune-mediated destruction or suppressed platelet production. Dapagliflozin, a SGLT2 inhibitor, has rarely been implicated in DITP. In 2021, Seecheran et al. observed significantly reduced platelet reactivity in dapagliflozin users compared to controls.1 In 2021, Kannan et al. demonstrated resolution of thrombocytopenia following dapagliflozin cessation.2 In 2018, Kohlmorgen et al. showed reduction of CD62-positive platelets in healthy humans, indicating reduced platelet activation.3 CASE DESCRIPTION: A 60-year-old female was admitted for acute on chronic congestive heart failure. Cardiology initiated guideline-directed medical therapy, including dapagliflozin. On hospital day six, she developed a petechial rash with thrombocytopenia, prompting hematology/oncology consultation. Peripheral smear showed no platelet clumping. Abdominal computed tomography revealed no hepatosplenomegaly. ADAMTS13 was normal, making thrombotic thrombocytopenic purpura unlikely. Bone marrow biopsy revealed compensatory hyperplasia. Testing for human immunodeficiency virus (HIV) and hepatitis C was negative. Immune thrombocytopenic purpura (ITP) was diagnosed by exclusion. Platelet count reached a nadir of 1,000 without significant bleeding or bruising. Treatment included high-dose prednisone followed by rituximab. At discharge, platelet count was 31,000. The first normal platelet count was 177,000, 56 days after discontinuing dapagliflozin. DISCUSSION: ITP is characterized by thrombocytopenia due to autoantibodies against platelets. It can be primary or secondary to medications or conditions such as systemic lupus erythematosus, HIV, or hepatitis C. Dapagliflozin was suspected to have triggered an immune response leading to DITP. In conclusion, dapagliflozin is a rare cause of drug-induced ITP, which may resolve with medication discontinuation and specialist follow-up.

Kamoua R, Cuculicchio P, Koehler A, Proctor K, Harvey R

Poster 30

Acute Bilateral Homonymous Hemianopia: Tumefactive MS or a Brain Tumor?

Mentor: Russell Harvey, MD

BSOM, Department of Internal Medicine, Kettering Health Medical Center

Background: Tumefactive multiple sclerosis (TMS) is a diagnostic challenge that mimics CNS tumors, leading to misdiagnosis and unnecessary procedures. Differentiating TMS from malignancy is crucial and requires clinical judgment along with advanced imaging. We present the case of a 23-year-old female with acute right homonymous hemianopia, highlighting the diagnostic challenge of differentiating tumefactive lesions from CNS tumors. Case Presentation: A previously healthy 23-year-old woman presented with sudden-onset blurry vision in the right visual field of both eyes, impairing daily activities. Neurological examination was unremarkable. CT revealed a left occipital hypodense lesion, raising concerns for an ischemic event or neoplasm. MRI showed two heterogeneously enhancing occipital white matter lesions without significant mass effect, raising suspicion for tumefactive demyelination versus neoplastic processes. Extensive infectious and autoimmune workup was unremarkable.

Lumbar puncture demonstrated the presence of oligoclonal bands in the CSF. The absence of progressive mass effect and clinical and radiologic findings strongly suggested TMS. High-dose corticosteroids led to symptomatic improvement, further supporting the diagnosis. Discussion: TMS presents a diagnostic challenge due to radiologic overlap with primary or metastatic brain tumors. Unlike neoplasms, TMS lesions feature incomplete ring enhancement, lack of solid enhancing core, and notable steroid responsiveness all vital distinguishing factors. Conclusion: This case highlights the importance of integrating imaging characteristics, clinical progression, laboratory findings, and therapeutic response to distinguish TMS from malignancy. Early recognition prevents unnecessary invasive procedures and ensures timely, appropriate management, ultimately improving patient outcomes.

Fayiga F, Feron H, Hadsall S, Duarte A

Poster 31

ANCA-Negative Granulomatosis with Polyangiitis associated with Refractory Facial Pyoderma Gangrenosum-like Lesion in a Pediatric Patient

Mentor: Sophia Hadsall, MD and Ana M. Duarte, MD FAAD

Children's Skin Center

Granulomatosis with polyangiitis (GPA) is a systemic, ANCA-associated vasculitis characterized by necrotizing granulomatous inflammation and pauci-immune vasculitis, with cutaneous involvement reported in nearly 50% of cases. We describe a rare presentation of ANCA-negative GPA in a 14-year-old Hispanic female presenting with a refractory, ulcerative pyoderma gangrenosum (PG)-like lesion of the left temporal region, associated with systemic manifestations. Diagnostic evaluation revealed proteinase 3 antibody positivity, histopathological evidence of granulomatous inflammation, and characteristic imaging findings. Unlike idiopathic PG, GPA-associated PG-like lesions are distinguished by systemic disease involvement, including mucosal surfaces and serologic markers. (6) Despite initial resistance to standard therapies, the patient demonstrated marked clinical improvement and lesion resolution following treatment with intravenous immunoglobulin (IVIG), rituximab, systemic corticosteroids, and adjunctive topical therapy. This case underscores the diagnostic complexity and therapeutic challenges of distinguishing PG-like lesions from PG and highlights the importance of targeted therapy in pediatric populations.

Lekkala K, Oroszi T

Poster 32

Drug induced hypersensitivity syndrome- A clinical case presentation
Vancomycin Induced Red Man Syndrome

Mentor: Terry Oroszi, MS, EdD

BSOM, Pharmacology and Toxicology

Drug-induced hypersensitivity syndrome (DIHS), also known as drug rash, is characterized by an eosinophilia reaction and is associated with systemic symptoms known as DRESS. It is an unanticipated reaction generated by a drug that affects multiple organs and organ systems simultaneously. Symptoms include high fever, lymphadenopathy, morbilliform eruption, and haematological abnormalities. This case concerns a 69-year-old female with a history of hypertension, type 2 diabetes, and hypothyroidism, as well as noticeable symptoms such as facial edema, pustular rash, and recurrent fever. She had recently been hospitalized for an otogenic brain abscess with skull base osteomyelitis and undergone a subtotal petrosectomy with labryinthectomy. On examination, the patient presented with erythematous and pustular rashes over the upper limbs, face, chest, and oral cavity, as well as facial edema. Symptoms appeared after three days of using vancomycin and levetiracetam. A provisional diagnosis of DHIS was made, with Red Man Syndrome indicated as a Vancomycin-induced hypersensitivity reaction. Red Man Syndrome is an anaphylactoid reaction mainly occurs because of rapid infusion of drug, primarily because of allergic reaction to medications involving the release of histamine and other inflammatory mediators. Antibiotics were discontinued, and antihistamines and corticosteroids were administered, along with supportive care such as fluid and electrolyte correction. This case emphasizes the necessity of early detection and therapy of DIHS, as well as the need for close monitoring of high-risk drugs.

Saleh L, Savona F, Zayed O, Walusimbi M

Poster 33

Multiple Small Bowel and Colonic Perforations Secondary to CMV in Newly Diagnosed AIDS Patient

Mentor: Mbaga Walusimbi, MD, MS, FACS

BSOM, Department of General Surgery

Introductory Statement: Cytomegalovirus (CMV) clinical manifestations primarily affect immunocompromised individuals and can rarely lead to small bowel (SB) deep ulcers and microperforations. This is most commonly seen in patients with AIDS and a CD4 count <50 who are not receiving antiretroviral therapy (ART). Due to diagnostic challenges and severe complications, the outcome of CMV gastrointestinal (GI) disease is associated with high morbidity and mortality. Purpose: This case report demonstrates the challenges in diagnosing, managing, and treating a rare manifestation of CMV involving the SB and colon.

Case Description: A 38-year-old female from Ecuador 4-months postpartum with unknown cause of infant demise presented to the ED with a 15-day history of abdominal pain, diarrhea, vomiting, and hypotension. Two exploratory laparotomies revealed multiple SB and colon microperforations, leading to bowel resections. Infectious etiology was suspected resulting in new diagnosis of AIDS (CD4 count 13). Final surgical pathology was positive for CMV. The patient recovered well from surgery and was started on appropriate systemic therapy, however ultimately left AMA and was noncompliant with ART. The patient was readmitted three days later with DIC, GI bleed, multi-system organ failure and disseminated toxoplasmosis. The patient ultimately passed away approximately 45 days after initial presentation. Relevance/Significance to Clinical Practice: This case underscores the complexities of managing CMV GI disease. Early recognition of immunity status is crucial to broadening the differential to include opportunistic infections. Timely diagnosis and initiation of therapies with good patient compliance could significantly impact outcomes.

Hua K, Semon G, Leon A

Poster 34

A Surgical Approach to Intercostal Hernias with Incorporation of FiberTape and Rib-plating: A Case Report on Classification and Management

Mentor: Gregory Semon, DO and Astrid Leon, MD

BSOM, Department of Surgery

Costal margin injuries and intercostal hernias occur due to protrusion of lung tissue through a thoracic wall defect. Causes stem from increased intrathoracic pressure from coughing/straining, trauma or surgical procedures. Optimal surgical approaches to lung hernias continue to be an evolving field as techniques vary from simple suture repair to complex techniques involving rib plating, mesh repair and rib approximation. This case report details a recent operation of a 61 year-old male presenting with left sided rib pain and dyspnea following a COVID-19 infection in August 2024 with CT imaging revealing a significant intercostal hernia between the 8th and 9th rib space. Treatment plan was guided by the Sheffield classification of costal margin injuries and required a combination of suture repair, mesh repair and rib approximation utilizing FiberTape. The use of FiberTape as an alternative to conventional sutures in rib approximation provided increased tensile strength and durability of the surgical repair. Post operative recovery was uneventful at 2-week outpatient visit and patient is continuing to show clinical improvement with no hernia reoccurrence. The purpose of this case report is to add additional methodology in classifying and managing lung hernias and provide a novel use case for FiberTape in an orthopedic adjacent setting.

Tallada S, Andrassy B, Mukhdomi J, Harris M, Mukhdomi T

Poster 35

Stellate Ganglion Block for Headache Pain and Cognitive Impairment Associated with Long COVID Persisting over 12 Months

Mentor: Taif Mukhdomi, MD

Interventional Pain Medicine/Anesthesiology

Background: Post-acute sequelae of COVID-19 (PASC) are debilitating health conditions affecting over 7% of the US population. Clinical PASC manifestations are variable but consistently involve dysautonomia and elevated inflammatory biomarkers. Common symptoms include pain, fatigue, cognitive impairment, sensory loss and orthostatic intolerance. As neuroimmune hyperactivation and reductions in cerebral blood flow are each implicated in PASC pathophysiology, stellate ganglion block (SGB) represents a promising treatment option due to its ability to reset autonomic activity and repurfuse the brain. We sought to retrospectively assess the potential of SGB to treat head and neck pain, cognitive impairment, and fatigue associated with PASC persisting over 12 months. Case Presentation: We reviewed and analyzed case data from two middle-aged female patients with painful longstanding PASC managed with repeat unilateral SGB. Procedures were performed under ultrasound guidance, with 3 mL 0.5% bupivacaine + 12 mg betamethasone as the injectate. Each patient received two SGBs, with all procedures being tolerated well. No complications occurred. One patient had a recurrence of migraine pain following the blocks, while the other experienced durable relief. Both patients saw improvements in cognitive function and fatigue postoperatively, which were sustained. Conclusions: Most literature on SGB for PASC management concerns its ability to reverse sensory loss, rather than relieve chronic pain. This case series provides preliminary evidence supporting the effectiveness of SGB for managing pain and cognitive impairment in PASC. As PASC symptoms with longer durations tend to be less effectively managed with SGB, we speculate that chronicity of the patients' symptoms hampered SGB-mediated pain relief.

Davis C, Curry B, McCoy L

Poster 36

CN VI Palsy caused by Plasmacytoma in Multiple Myeloma: Case Study

Mentor: Luke McCoy, MD

BSOM, Department of Internal Medicine

Masses of plasma cells, called plasmacytomas, can seed in various portions of the body causing devasting mass effect to nearby structures. In this case, a 65 year old male with a past medical history of Multiple Myeloma (MM) presented to the ED with a four week history of worsening double vision. Diplopia was slowly progressive and made worse with leftward gaze. Physical exam showed an isolated CN VI palsy without other focal deficits.

Subsequent imaging showed a large lytic mass in the clivus and central sphenoid measuring 3.8 x 5.5 cm with partial obstruction of the left sigmoid sinus. The patient was first diagnosed with MM 4 years prior and had been through multiple chemotherapeutic regimens before stopping therapy secondary to acute on chronic heart failure. Through literature review ~6% of patients with MM go on to develop extramedullary disease, with an average presentation of 19 months after diagnosis. (1) The mass was never biopsied but believed to be a plasmacytoma. He was treated with a short course of high dose steroids and ultimately elected to pursue hospice therapy before passing away 2 months later. This case provides educational value of an unusual presentation of a likely plasmacytoma in MM.

Khouzam J, Frommeyer, T, Agarwal, A

Poster 37

Successful Leadless Intracardiac Pacemaker for Delayed Onset Bradyarrhythmia After Spinal Cord Injury: A Case Report and Literature Review

Mentor: Ajay Agarwal, MD

BSOM (VA), Department of Internal Medicine

Bradyarrhythmias are a well-documented complication of high cervical spinal cord injury (SCI) primarily occurring within two weeks post-injury due to disrupted autonomic regulation. Our literature review shows that case reports with delayed bradyarrhythmias are exceedingly rare, with the latest finding up to 21 months after initial injury. The existing body of research highlights the pathophysiologic mechanisms of autonomic dysregulation just after injury, including unopposed parasympathetic innervation to the heart but offers limited insight into delayed-onset bradyarrhythmias. Consensus supports the use of permanent pacemakers as an effective therapeutic approach in SCI patients with significant bradyarrhythmias, but the choice of device, traditional transvenous pacemaker, epicardial pacemaker, or leadless permanent pacemaker (L-PPM), varies based on specific individual patient factors. We present a unique case of a 30-year-old woman who developed symptomatic bradyarrhythmia six years after a C3 SCI, significantly later than previously reported cases. The patient acutely presented with altered mental status, confusion, and hypothermia. Extended Holter monitor showed prolonged cardiac pauses up to 9.9 seconds due to high-degree atrioventricular block, with subsequent electrocardiogram confirmation. An L-PPM was successfully implanted, which was particularly advantageous given the patient's underlying autonomic dysregulation and chronic immunosuppression, common in high cervical SCI. Autonomic dysreflexia increases susceptibility to infections that are typically associated with traditional transvenous pacemakers. L-PPMs are implanted without leads or subcutaneous pockets, which reduces risk of infection. This case extends the timeline for vigilance in cardiac monitoring for bradyarrhythmia after SCI while highlighting the role of L-PPM as current ideal management in these patients.

Stammen B, Quinter S

Poster 38

Recognizing Patterns of Melanoma Recurrence: A Case Series

Mentor: Suzanne Quinter, MD

University of Cincinnati, Department of Dermatology

Melanoma recurrence occurs in approximately 13% of high-risk primary melanoma cases within two years, making early detection critical. Given recurrent melanoma's poorer prognosis, recognizing different recurrence types—true scar, local satellite/in-transit, and nodal—is essential. This case series aims to provide examples of the different presentations of recurrent melanoma and highlight the appropriate treatment for each type of recurrence.
Case Descriptions: Case 1: An 84-year-old male with a history of right post-auricular melanoma developed a true scar recurrence five years post-excision, presenting as a pigmented macule. Case 2: A 76-year-old male with melanoma in situ treated with Mohs surgery developed a true scar recurrence within two years, appearing as a hazy brown macule. Case 3: A 76-year-old male with a history of melanoma on the back developed a true scar recurrence, confirmed as melanoma in situ. Case 4: An 84-year-old female with invasive melanoma had multiple true scar recurrences over five years, ultimately requiring systemic therapy. Case 5: A 69-year-old male developed an unnoticed firm dermal nodule, confirmed as a local satellite/in-transit recurrence. Case 6: A 76-year-old male developed both true scar and nodal recurrence, requiring immunotherapy and palliative radiation. Conclusion & Clinical Significance: Recognizing melanoma recurrence types is crucial for guiding treatment. True scar recurrences mimic benign changes, demanding long-term monitoring and post-surgical photographs. Local satellite/in-transit recurrences highlight the need for palpation, while nodal recurrences require vigilant lymph node assessment. Post-surgical photographs, palpating surgical sites at each follow-up, and teaching patients self-examination can improve recurrence detection.

Bingi S, Oroszi T

Poster 39

Drug Induced Gastrointestinal Bleed - A Case Report

Mentor: Terry Oroszi, MS, EdD

BSOM, Department of Pharmacology and Toxicology

Background: Drug induced Gastrointestinal bleeding is a significant adverse effect related to prolonged use of Aspirin. In this case, long term Aspirin therapy in elderly patients with multiple comorbidities are focused. Case Presentation: An 87-year-old man arrived with concerning symptoms, including three episodes of black-colored vomiting and one episode of black stools over two days. He also experienced loss of appetite and general weakness. His medical history included hypertension, diabetes, and a past hemiarthroplasty, with ongoing medications such as Telmisartan, Janumet, and Ecosprin (75 mg).

A thorough clinical evaluation revealed accelerated hypertension, upper GI bleeding likely due to prolonged aspirin use, hypertensive encephalopathy, UTI (urosepsis), acute kidney injury, and hypokalemia. Further investigations, including CT scans, endoscopy, and urine culture, confirmed the presence of esophageal and gastric ulcers along with a large hiatus hernia. Discussion: The patient's GI bleeding was linked to long-term aspirin use, which caused mucosal damage and ulcer formation. Endoscopy confirmed the diagnosis, and treatment focused on supportive care, including PPI's, sucralfate, and fluid resuscitation. As tests revealed an E. coli infection, antibiotics were adjusted accordingly. Management efforts prioritized stabilizing blood pressure, treating the infection, and ensuring proper nutritional support. Conclusion: This case highlights the need for careful monitoring of antiplatelet therapy in older adults to reduce the risk of GI complications. Healthcare providers should evaluate bleeding risk factors and implement gastroprotective measures, particularly for patients with multiple health conditions.

Ekeh B, Lanier A, Dhanraj D

Poster 40

Incidental Pyometra Found via Hysteroscopy in the OR

Mentor: David Dhanraj, MD and Ariel Lanier, MD

BSOM, Department of Obstetrics and Gynecology

Background: Pyometra is a rare condition defined as a uterus filled with purulent material. It occurs in less than 1% of gynecologic cases. It most commonly presents with vaginal discharge, postmenopausal bleeding, fevers, chills, and suprapubic discomfort. Methods: We describe a unique case of a 68-year-old postmenopausal female who initially was admitted to the hospital for hypoglycemia. The patient was further worked up for her presentation and a history of constitutional symptoms such as 12-lb weight loss, early satiety, fatigue, and constipation. A CT scan incidentally revealed a 7.2 x 8.9 x 7.3 cm pelvic mass, concerning for a tumor, within the uterus. The same finding was seen on transvaginal ultrasound (TVUS). Results: Following consultation, the gynecology team took this patient to the operating room for a dilation and curettage with hysteroscopy to investigate the incidental pelvic mass found on CT scan. An unexpected diagnosis of pyometra was made and the patient was subsequently diagnosed with cervical cancer. Conclusion: This unique case contributes to the limited knowledge of pyometra and its presentation so that the manifestation may be more widely recognized by clinicians.

Lee EJ, Zamor J

Poster 41

Incarcerated Gravid Uterus: A Case of Recurrent Entrapment and Successful Intraoperative Reduction

Mentor: Jenny Zamor, DO

BSOM, Department of Obstetrics and Gynecology

Background: Uterine incarceration is a rare but severe complication of pregnancy, occurring when the gravid uterus becomes trapped within the pelvis between the sacral promontory and pubic symphysis instead of assuming its expected anterior ventral position as an abdominal organ as pregnancy progresses. This can lead to significant maternal and fetal morbidity, including uterine rupture and pregnancy loss. While manual reduction techniques exist, strategies to prevent recurrence remain poorly documented. Identifying effective methods to reduce and maintain proper uterine positioning is critical. Case Presentation: A 26-year-old gravida 1 para 0 female at 15 weeks gestation presented to an outside hospital ED with complaints of urinary retention. Physical exam and imaging confirmed an incarcerated retroverted gravid uterus, successfully reduced manually after failed passive reduction techniques. Two days later, the patient returned with recurrent incarceration, requiring transfer after unsuccessful attempts at reduction with significant pain reported. At our facility, osteopathic manipulative techniques and anesthesia were utilized before a successful intraoperative manual reduction. Additionally, a donut pessary was placed under ultrasound guidance to maintain uterine positioning, an atypical use of this device. The patient remained asymptomatic, and the pessary was removed at 20 weeks without recurrent incarceration. Discussion and Conclusion: While pessaries are commonly used for pelvic organ prolapse, their role in preventing recurrent uterine incarceration remains underexplored. This case highlights the potential of the donut pessary as a low-cost, noninvasive intervention to prevent post-reduction recurrence of uterine entrapment. Manual reduction combined with pessary placement may be an effective strategy for preventing recurrence while improving pregnancy outcomes.

Ji K, Gantt C, Hefelfinger D, Angeles JP, Froehle A, Krishnamurthy A

Poster 42

The Impact of BMI and Preoperative Opioid Use Interaction on Total Inpatient Opioid Dose Following Anterior Cervical Discectomy and Fusion

Mentor: Andrew Froehle, PhD

BSOM Department of Orthopedics

Increased BMI, as well as chronic pre-operative use are found to be individually associated with increased inpatient opioid dosing requirements after surgery. However, little research has been done on the interaction between these two variables. The objective of this study is to investigate the interaction between BMI and preoperative opioid use and analyze its effects on total inpatient opioid dosing requirements and pain following primary anterior cervical discectomy and fusion surgery (ACDF).

A retrospective chart review was conducted of patients who underwent ACDF at Miami Valley Hospital between January 2010 and December 2021 (n=390). Our results were limited by only 1.3% of patients disclosing prior opioid usage. Total opioid usage was measured using morphine equivalent dose (MED). The correlation model found statistically significant correlations, but they were unable to support our hypothesis of high BMI and prior opioid usage increasing MEDs administered after ACDF. While statistically insignificant, total MED was increased by more patient reported preadmission and post-operative pain. The linear mixed models showed that BMI and prior opioid usage increased total inpatient MEDs individually ($P<0.05$), but not together ($P = 0.119$). Prior opioid usage and higher classes of obesity contributed to greater reported pain postoperative day one. In conclusion, due to this being a preliminary study, our findings indicate that our sample size was not sufficient to elicit a correlation between BMI and prior opioid usage on total opioid dosing requirements and warrant a larger sample size in future studies.

Reddy A, Shams S, Fischer K, Valencia D, Nazir R, Schwartz B

Poster 43

Sex Differences in Incidence of Patient Prothesis Mismatch Following Valve-in-Valve Transcatheter Aortic Valve Implantation

Mentor: Damian Valencia, MD

Kettering Health, Department of Interventional Cardiology

Female sex is associated with greater mortality and readmission following transcatheter aortic valve implantation (TAVI), and is a complication for patient prosthesis mismatch (PPM). Valve-in-valve (ViV) TAVI for treatment of degenerated bioprosthetic valves has greater risk of PPM. We sought to determine if sex-specific differences exist in rates of PPM following ViV-TAVI. This retrospective study analyzed 77 patients who underwent ViV-TAVI at Kettering Health from 2015 to 2021, evaluating PPM incidence and BVF utilization. Indexed effective orifice area (iEOA) following ViV-TAVI was compared between females and males using an unpaired t-test. Fisher's exact test assessed the association between BVF and PPM for the overall cohort and within each sex. Statistical analyses were performed using R software. Males comprised 57% (BMI 28.8 kg/m^2) and females 43% (BMI 29.1 kg/m^2) of the cohort. No significant difference in average iEOA between females and males existed [$p = 0.370$]. Severe PPM occurred in 33.3% of females and 36.4% of males. BVF rates were similar between sexes (33.3% in females; 29.6% in males), with an overall reduction in PPM [$p = 0.028$]. Subgroup analysis revealed significant reduction in females [$p = 0.029$] but not in males [$p = 0.505$]. Cramér's V paralleled these results. The similar rates of PPM between sexes suggest appropriate patient selection and valve sizing play crucial roles in PPM prevention. The significant reduction of PPM with BVF in females calls for further research into sex-specific outcomes and optimization of ViV-TAVI results.

Bryant J, Owens W, Fisher G, Owens M, Rohan C, Travers J

Poster 44

The Role of Topical Imipramine and Amitriptyline in Managing UVB-Induced Redness in Rosacea

Mentor: Jeffrey Travers, MD, PhD

BSOM, Department of Dermatology and Pharmacology and Toxicology

Background: Rosacea is a chronic inflammatory condition with limited therapeutic options. It is typically exacerbated by stimuli such as sunlight and alcohol use. Functional inhibitors of acid sphingomyelinase (FIASMs) such as amitriptyline and imipramine have been shown to inhibit the production of microvesicle particles (MVPs) which are membrane-bound mediators of cell signaling and biological activity. It is hypothesized that FIASMs, through their ability to inhibit the release of MVPs, may reduce the erythema response associated with ultraviolet B light exposure in rosacea patients. Type of Study: This study was conducted as a single-center, double-blinded, placebo-controlled randomized clinical trial. Methods: Patients with rosacea and non-rosacea controls were recruited, de-identified, and then randomized to receive 4% amitriptyline or 4% imipramine on either the left or right side of their face and a placebo medication on the other. Baseline erythema, photography, pain, and itch measurements were taken. Respective topical medications were applied, then 300Joules/m2 of artificial UVB light was administered and subsequent measurements were taken after UVB administration at 10 min, 60 min, 120 min, and 24 hours. Results: UVB-induced erythema in patients with rosacea had a statistically significant reduction from baseline in 4% topical amitriptyline and 4% imipramine compared to vehicle (one-tailed t-test, p= 0.043). Conclusion: Topical FIASMs such as amitriptyline and imipramine work by blocking the release of microvesicle particles and thus reducing the erythema associated with rosacea. These medications may serve as an adjunct treatment to UVB exposure in rosacea patients without adverse events or safety concerns.

Lee D, Carnes S, Fonseca L, Parekh A, Robertson A, Kumar G

Poster 45

Examining Impact of Insurance Type on Genetic Testing in Pediatric Neurology

Mentor: Gogi Kumar, MD

BSOM, Department of Pediatrics, Dayton Children's Department of Pediatric Neurology

Background: Studies examining the impact of insurance type on the ease of obtaining genetic testing are scarce. Therefore, we aim to analyze how different types of insurance influence the time taken to obtain genetic test results among pediatric neurology patients. Methods: This was a retrospective cohort study from Dayton Children's Hospital, including patients with at least one neurological genetic result found in the electronic medical record from January 1, 2014, to March 1, 2023. Variables collected include demographics, health insurance, and genetic testing results.

Results: A total of 141 patients were included and 215 genetic reports were examined. Most patients were male (51.8%), white (78.0%), and not Hispanic/Latino (96.5%) with the mean age at the time of genetic testing being 7.9 years. Most patients had Medicaid as their primary insurance (60.3%) when compared with private insurance (39.7%). There was no statistically significant difference from mean time lapse between test order date and results date for Medicaid patients (27.3 days) versus private insurance (31.5 days, P = 0.40). Molecular genetics testing and epilepsy gene panel order were the most common tests ordered for both Medicaid (86.1%, 37.2%) and private insurance (88.5%, 39.7%, respectively). Conclusions: Our results suggest that there is no significant difference for time to result between pediatric neurology patients who carry public versus private insurance for genetic testing.

Bartoletti DA, Chen AY, Schaeffer MR, Parikh, PP

Poster 46

Injury Factors and Patterns of Bicycle Trauma at an Urban Level 1 Trauma Center: A Retrospective Cohort Study

Mentor: Priti Parikh, PhD

BSOM, Department of Surgery

Objectives: The primary objective of this study was to determine independent risk factors for injury severity score and ventilator days for persons involved in a bicycle crash. Secondary objectives were to evaluate for correlation between injury severity score or ventilator days and helmet use, intoxication, or vehicle category. Methods: We conducted a retrospective chart review of 434 bicycle-related injuries presenting to a Level 1 trauma center in Dayton, Ohio. We performed a manual chart review to determine bicyclist helmet status, intoxication, and vehicle category for crashes involving a motor vehicle. Results: Of 434 bicycle-related injuries, the median age of injured persons was 48.5 years. Over 80% of bicycle related injuries were from males. Age was significantly associated with injury severity score ($p < 0.001$), despite being correlated with increased likelihood of wearing a helmet ($p < 0.001$) and decreased likelihood of intoxication ($p = 0.037$). Wearing a helmet was inversely correlated with ventilator days ($p = 0.017$) and intoxication ($p < 0.001$). Injury severity score was not independently associated with helmet use or intoxication. Conclusions: As the American population continues to age and as Americans increasingly move toward active transportation options, including bicycling, we must be aware that age is an independent risk factor for injury severity in bicycle-related injuries. In our study, injury severity score was not associated with helmet use or intoxication.

Kulkarni E, Waters K, Pascoe J, Eberhart G

Poster 47

Factors Associated with Parenting Styles: A Primary Care Stud

Mentor: John Pascoe, MD

BSOM and Dayton Children's, Department of Pediatrics

Introduction: Parenting behaviors affect children's wellbeing but are not routinely assessed in children's primary health care. Purpose: This study examines the psychosocial and child health correlates of parenting styles in child health care settings, as assessed by a new tool, the Quick Parenting Assessment (QPA). Methods: Primary care givers (PCGs) of children aged 15 months through 10 years of age completed the Parenting Styles Survey in primary care venues. The survey included several validated questionnaires: Quick Parenting Assessment (QPA), Maternal Social Support Index (MSSI), Rand Depression Screener, UCLA Loneliness Scale, and Children with Special Health Care Needs (CSHCN) Screener. Lower QPA scores (0–2) were classified as positive parenting (P-PCGs), and higher scores (≥3) as negative parenting (N-PCGs). Chi-square, Fisher's exact, and Mann-Whitney U tests were used for analyses. Findings: Of the 96 respondents, 68.8% were classified as P-PCGs and 31.2% as N-PCGs. P-PCGs reported higher mean MSSI scores (24.0±7.0), compared to N-PCGs (20.0±8.0, $p = 0.041$). N-PCGs had higher rates of positive depression screens (43.3%) than P-PCGs (20.3%, $p = 0.020$). 10% of N-PCGs reported feeling isolated, compared to 4.3% of P-PCGs ($p = 0.032$). Children's health was related to PCG's parenting style. 67.9% of N-PCGs were raising children with a positive CSHCN screener, compared to 42.2% of P-PCGs ($p = 0.040$). Conclusion: Negative parenting behaviors are related to psychosocial factors and children's health. These findings provide additional validity evidence for a brief parenting assessment tool and may assist in its clinical application.

Mussin Philips C, Nguapa LA, Crawford T, Cardosi A, Ekeh AP

Poster 48

Does state recreational cannabis laws effect motor vehicle crashes?

Mentor: Akpofure Peter Ekeh, MD

BSOM, Department of Surgery

Introduction: As cannabis legalization increases, research focusing on its impact on impaired driving and motor vehicle crashes (MVCs) remains unclear. This study evaluates the effect of delta-9 Tetrahydrocannabinol (THC) on drivers presenting to a Level 1 trauma center following MVCs, focusing on positivity rates, trends, and outcomes before and after the 2023 recreational cannabis law. Methods: We analyzed all patients admitted as drivers in MVCs at our Level 1 Trauma center from January 2017 to September 2024. We collected data on demographics, urine THC presence, other drugs, injury severity score (ISS), and mortality. Statistical analysis was performed using χ^2 and logistic regression.

Results: Of 3,877 drivers admitted, 578 (14.9%) tested positive for THC (yearly range 12.8–18.2%). No significant difference in THC positivity was observed before and after the legislation (χ^2, p=.397) or over time (OR=1.00, 95% CI, p=.102). THC positivity was not associated with mortality (OR=1.6, 95% CI, p=.156). However, THC+ drivers had slightly higher ISS (13.3 vs. 11.8; p=0.006) and were more likely to test positive for two or more drugs (8.1% vs. 1.5%, p<.01), including alcohol, cocaine, and amphetamines. Conclusion: THC+ driver incidence in MVCs remained stable over time and post-legislation. While THC status did not affect outcomes, it was linked to higher ISS and more frequent poly-drug use. As THC use rises, targeted screening and interventions in trauma centers are crucial. Future studies should focus on serum THC levels to better assess impairment in MVCs.

Parekh A, Nelson A, Fischer A, Cardosi A, Terry J, Walusimbi M

Poster 49

Preventing Stroke in Patients with Blunt Cerebrovascular Injury

Mentor: John Terry, MD

BSOM, Department of Clinical Neurosciences

Blunt cerebrovascular injury (BCVI) is injury to the carotid or vertebral arteries caused by blunt trauma or high-speed deceleration. The incidence of BCVI in trauma patients is 1-3% but has increased with broad screening. Stroke rates range from 6-14% and carry mortality rates up to 40%. Treatment involves anticoagulation, antiplatelet therapy, or endovascular treatment for stroke prevention. Outcomes are similar but timing to start varies. We aim to determine the incidence of BCVI and stroke following BCVI, in-hospital mortality rate, long-term outcomes and to examine how therapy type and timing relate to stroke and mortality. We completed a retrospective study at a level 1 trauma center with an annual trauma census of roughly 3000 admissions. We reviewed charts from 01/2021 to 07/2024. Adult patients who had CTA diagnosed BCVI were included. BCVIs were graded based on the Biffl scale. Charts were reviewed to identify type and initiation time of treatment, ICU LOS, stroke, and in-hospital mortality. Incidence of BCVI at our institution during our study period was 1.2%. Of patients with BCVI, 7.6% developed a stroke during hospitalization. All-cause, in-hospital mortality rate was 22.1% for BCVI patients and 25% in BCVI complicated by stroke. Of the 79 patients who did not die during hospitalization and with outpatient follow up, 21.5% had long-term sequelae. Statistical analysis indicated that the type of therapy affected mortality rate. Despite increased awareness and screening, BCVI remains associated with high stroke and mortality rate. Our results indicate that different types of therapy result in differential outcomes.

Leon T, Haker K, Gaudin D

Poster 50

The Role of Intraoperative Speech Evaluation in Second-sided MRgFUS VIM Thalamotomy

Mentor: Daniel Gaudin, MD, PhD

Miami Valley Department of Neurosurgery, Clinical Neuroscience Institute

Introduction: Staged bilateral MRgFUS thalamotomy shows promise for treating bilateral essential tremor, but permanent bilateral ablations have led to complications of speech and language. Recent studies suggest better outcomes with staged MRgFUS, however, speech and language remain of particular concern. Objective: To evaluate the safety and efficacy of bilateral MRgFUS thalamotomy for essential tremor, and assess the impact of intraoperative speech monitoring during second-side procedures. Methods: Thirteen patients undergoing second-side MRgFUS thalamotomy for bilateral tremor at Miami Valley Hospital (April 2020–March 2023) were reviewed. Data collected included skull density ratio (SDR), operative details, sonication parameters, and ablation temperatures. Outcomes were analyzed using operative notes and two-week follow-up assessments. A speech therapist evaluated speech quality during the second procedure. Results: Following the first-side procedure, 23.1% reported changes in speech. Additional AE of the first-side included lip numbness (30.8%), finger numbness (8%), unsteady gait (8%). Nearly all resolving by two weeks. On the second-side, speech deficits were limited to 8% of patients. Intraoperative speech evaluations determined that 0% strayed away from baseline. At two weeks follow up, 23.1% reported minor speech changes. Other AE included lip/tongue numbness (53.8%), gait imbalance (8%), At two weeks, persistent AE included taste deficits (30.8%), lip/tongue numbness (30.8), imbalance (8%), and leg weakness (8%). Conclusion: Effects related to speech were limited following second-sided thalamotomy with intraoperative speech evaluation. Minor speech changes persisted at two weeks, but rates remained low indicating the role of intraoperative speech monitoring in minimizing speech deficits following staged bilateral MRgFUS thalamotomy.

Meyers D, Patel D, Semon G, Cardosi A

Poster 51

Outcomes of Pre-Hospital Thoracostomy Performed in Air Ambulances and Ground Transport Mobile ICUs: A Single-Center Retrospective Study

Mentor: Gregory Semon, DO

Premier Health, Department of Trauma Surgery

Background: Pre-hospital thoracostomy is a critical intervention in trauma and medical emergencies, yet evidence regarding its outcomes across different transport modalities remains limited.
This study analyzed the outcomes of pre-hospital thoracostomies performed during both air and ground critical care transport.

Methods: A retrospective chart review was conducted at Miami Valley Hospital examining adult patients who underwent pre-hospital thoracostomy during air ambulance or ground mobile ICU transport between January 2011 and July 2024. The study included 18 adult patients who received thoracostomies during either air (n=11) or ground MICU (n=7) transport. Primary outcomes included survival rates and procedure-related complications. Secondary outcomes included analysis of mortality patterns based on transport method, injury mechanism, and procedure type. Results: Overall survival rate was 38.9%, with ground MICU transport showing higher survival (57.1%) compared to air transport (27.3%). Bilateral procedures (n=6) demonstrated an 83.3% mortality rate, with trauma cases requiring bilateral intervention showing 100% mortality. Transport completion rate was 62%, with 7 patients experiencing pre-hospital mortality. Among trauma cases (n=13), survival rate was 30%, while medical cases (n=5), including cardiac and pulmonary causes, showed 60% survival. Gunshot wound cases (n=4) had a 75% mortality rate. Conclusions: Pre-hospital thoracostomy outcomes varied significantly based on transport method and indication. Ground transport demonstrated better survival rates, likely due to case severity and patient selection rather than procedural effectiveness. Key risk factors for poorer outcomes included bilateral procedures (83.3% mortality) and trauma cases needing multiple interventions. While thoracostomy remains viable in both settings, indications for the procedure are associated with cases that have baseline high mortality rates thus indicating that further study is warranted.

McGlone C, Zhang C, Sandhur B, Finley R, Begley T, Madow B

Poster 52

Comparison of Volk and Phelcom Smartphone-based Portable Fundus Cameras for the Identification of Common Retinal Diseases

Mentor: Brian Madow, MD, PhD

University of Buffalo, Department of Opthalmology

Introduction: This study compared the diagnostic accuracy of two smartphone-based fundus cameras (Phelcom Eyer and Volk VistaView) for the diagnosis of retinal conditions and staging of diabetic retinopathy (DR). Methods: Patients with normal maculas, non-proliferative DR, proliferative DR, early and advanced age-related macular degeneration (AMD), and branch retinal venous occlusion were included in the study. Images were obtained following a dilated fundus exam (DFE) by a vitreoretinal specialist. Images were evaluated for pathology by three blinded ophthalmologists. A secondary analysis assessed the accuracy of staging of DR. Results: A total of 108 eyes were imaged. The Phelcom camera had a higher proportion of quality images (94% vs. 54%, $P < 0.0001$). However, overall diagnostic accuracy was poor with both devices (62% for Phelcom, 54% for Volk, $P = 0.11$). Images from the Phelcom device did have a higher rate of accuracy in patients with normal maculas compared to DFE (69% vs. 47%, $P = 0.045$). The Phelcom Eyer demonstrated a higher accuracy with the staging of DR (59% vs. 44%, $P = 0.03$), primarily due to overreading in the Volk group (36% vs. 19%, $P = 0.0005$). Intra-user consistency was moderate ($k = 0.512$), while inter-user consistency was poor ($k = 0.088$ for Volk, $k = 0.270$ for Phelcom). Conclusion: While both devices demonstrated low rates of accuracy in the diagnosis of retinal disease and staging of DR, their utility as screening tools for use in the primary care setting to facilitate referral for retinal care remains promising.

Ekeh P, Clawson O, Cardosi, Aviles J

Poster 53

Efficacy of Pre-Hospital Whole Blood versus Packed RBC's Therapy Among Trauma Patients

Mentor: Peter Ekeh, MD

BSOM, Trauma Surgery

Introduction: Early and continued use of Low Titer 'O' Whole Blood (LTOWB) is associated with improved patient outcomes compared to Component Therapy (CT)1. Extensive literature exists on this topic, but it is generally limited to the military setting, not the general population. This study seeks to determine if a change in patient outcomes is clinically significant between LTOWB and CT treated groups in the general population; with the rise of trauma patients increasing 136.1% between 2004-20162, the importance of this study is evident. Methods: This retrospective chart review was performed over a 4-year period at Miami Valley Hospital, including 2 years of CT data and 2 years of LTOWB therapy data. All patients included were adults and were evaluated for necessity for blood by the Shock Index or if HR was greater than systolic BP. This data was collected from CareFlight's Protean platform and Miami Valley Hospital Trauma Registry. Introductory Results: The data from the CT cohort is pending; and preliminary data suggests improved outcomes for the LTOWB cohort when compared to national non-LTOWB studies. Abdelwahed3 describes in his study that with an ISS median of 24, his median hospital length of stay (LOS) was 15, and the LTOWB cohort LOS was 9 with an ISS median of 27. Conclusion: Outcomes with LTOWB seem to have the same benefit in the general population as it does with the military population, but more work needs to be done to solidify the early promising results.

McGreal K, Doehring S, Becker A, Manger J, Stolfi A, Journell L

Poster 54

Can Positive Childhood Experiences Counter Adverse Childhood Experiences? The Impact of Positive Childhood Experiences on Flourishing in Children with Autism and ADHD

Mentor: Jeannette Manger, PhD

BSOM, Department of Medical Education

Positive Childhood Experiences (PCEs) are ones that nurture children's sense of belonging, connection, and safety, promoting child flourishing and countering the effects of Adverse Childhood Experiences (ACEs).

ACEs disproportionately affect children with autism spectrum disorder (ASD) and attention deficit hyperactivity disorder (ADHD) compared to children without. This study investigated the effects of PCEs on flourishing in children 6-17 with ASD, ADHD, and ACEs in the 2021-2022 National Survey of Children's Health. Flourishing was defined as positive responses to 3 of 3 questions about a child's ability to stay in control, learn new things, and finish tasks. Seven PCEs were grouped into 0-2, 3-4, and 5-7 PCEs. Ten ACEs were grouped into rankings of 0, 1, and ≥2. Children with ASD alone were more likely to flourish (22.4% vs. 13.5%, P=0.010) and less likely to have two or more ACEs (P< 0.001), but there was no difference in the number of PCEs between groups. At all categories of ACEs, children with 5-7 PCEs had significantly higher adjusted odds of flourishing compared to children with 0-2 PCEs, impacting children with both ASD + ADHD (AOR 8.91; 95% CI, 1.60-49.50) and with the greatest effect seen at two or more ACEs (AOR 10.62; 95% CI, 3.36-33.63).Flourishing increased with higher PCE exposure, even among children facing multiple ACEs. These findings highlight the importance of expanding PCE opportunities for children with ASD, ADHD, and comorbid conditions to enhance resilience and mitigate ACE effects.

Dhanraj D, Kauser H, White C, Kutmah H, Gordnier T, Maxwell R

Poster 55

Maternal Mortality QI Project: Obstetrics to Primary Care Provider Communication

Mentor: Theresia Gordnier, MD; David Dhanraj, MD; Rose Maxwell, PhD

BSOM, Department of Obstetrics and Gynecology

Background: Sixty-one percent of maternal deaths in Ohio between 2008 and 2018 were identified as preventable. Many postpartum women experience healthcare gaps, particularly not attending a Primary Care Provider (PCP) visit within the first year after childbirth. This results in missed opportunities to address chronic conditions, mental health, and preventive care.1 Objective: This quality improvement project aims to increase the percentage of postpartum women who visit a PCP within one year of delivery. Design: This project follows the Plan-Do-Study-Act (PDSA) approach to improve postpartum primary care follow-up rates. Interventions include verifying PCP information at prenatal visits, providing patients with a handout on establishing primary care and enhancing provider communication via Epic. Baseline PCP visit rates will be compared to post-intervention data to evaluate the impact. Methods: The study population consists of pregnant women at various clinics. Phase 1 will take place at Miami Valley Hospital Labor and Delivery, Berry Health Center OB/GYN, and Premier OB/GYN Sugar Camp. In Phase 2, Five Rivers Family Health Center and other PCP offices will join to enhance the project. The measures include percentage of patients with a PCP identified at delivery, those attending a PCP visit within one year, and women alive one year after delivery.

Conclusion: Addressing postpartum healthcare gaps through structured interventions can enhance long-term maternal well-being. Standardizing the OB-to-PCP communication process at hospital discharge may improve patient outcomes by closing the gap in care after delivery and reducing follow-up losses.

Kiggins C, Singh L, Grant L

Poster 56

Telehealth as Harm Reduction

Mentor: Larrilyn Grant, MD

BSOM, Department of Psychiatry

The COVID-19 pandemic catalyzed significant advances in substance use disorders (SUD) treatment through the expansion of telehealth. Telehealth is an effective and accessible means of delivering healthcare to individuals with SUD, improving treatment adherence, reducing the risk of overdose, and reducing re-admission rates and post-discharge appointment wait times. Before the pandemic, in-person evaluations were required before prescribing medications like buprenorphine. However, in March 2020, the DEA and SAMHSA issued guidelines permitting the use of telehealth for prescribing buprenorphine without an initial in-person evaluation.1 This policy was extended beyond the pandemic due to public demand. Harm reduction, a nonjudgmental approach aimed at minimizing the adverse effects of behavior, is integral to SUD treatment and is well-suited for telehealth integration.2 Telehealth not only facilitates the practice of typical harm reduction strategies in SUD, but telehealth in and of itself can be considered a harm reduction strategy. It enables treatment of patients who would otherwise likely be excluded from care.3 This study explores the intersection between telehealth and harm reduction in SUD through two clinical cases. The cases demonstrate that while telehealth may challenge practitioners to step outside of their traditional comfort zones, it offers a vital opportunity for connection, supports the delivery of care that meets professional standards, and generates actionable clinical insights to guide effective treatment planning. Together, these cases underscore telehealth's role as a harm reduction strategy, showcasing its potential to expand access and improve outcomes for patients with SUD.

O'Malley C, Gresham S, Bohne W, Bartoletti D, Nawaz M, Journell L, Stolfi A, Manger J

Poster 57

Integrated Curricular Mindfulness in Medical Education: A Pilot Study

Mentor: Jeannette Manger, PhD

BSOM Department of Medical Education

Purpose: Mental health struggles are common for undergraduate medical students, but curricular interventions are rarely used to address these issues. We implemented a 5-minute mindfulness intervention at the beginning of class sessions to support first year medical students in learning about mindfulness and centering them for the class. Methods: Using a mixed methods approach, we administered a pre- and post-course survey to measure student knowledge and attitudes regarding mindfulness, academic self-efficacy, and test anxiety. At the beginning of each class session, team-based learning activity, and exam during one course (14 weeks), students completed a 5-minute guided mindfulness activity and learned a brief background on the benefits of the activity. At the end of the course, students were invited to participate in an interview about their experiences. We used constant comparative analysis for qualitative analysis. Attitudes about mindfulness were measured on a 5-point Likert scale from 1 = completely disagree to 5 = completely agree, and compared between pre-and post-course surveys with Wilcoxon signed ranks tests. Results: For 33 students who completed pre-and post-course surveys, familiarity with mindfulness increased from a mean ±SD of 3.5±1.2 to 4.5±0.6 (P<0.001). Students' perceptions of whether practicing mindfulness is beneficial increased from 4.0±0.9 to 4.4±0.7 (P=0.017), and whether it impacts their lives increased from 3.5±1.2 to 4.0±1.0 (P=0.044).Emergent themes from interviews (n=11) indicate that students appreciated the activities, and some students experienced a mindset shift as a result. Conclusion: We found that an integrated curricular mindfulness intervention supported student attitudes, self-efficacy, and test anxiety, suggesting that small interventions at the curricular level could improve medical student mental health.

Westrick A, Benintendi I, Ferrini V, Kress N, Severt B

Poster 58

Determining the Value of Premedical Undergraduate Suturing Experience, a Quality Improvement Project

Mentor: Bridgett Severt, MS

BSOM, Department of Anatomy

Pre-medical education does not typically include training in suturing techniques.1 However, research shows that early exposure to suturing workshops improves confidence during patient interactions.2,3 Two medical students therefore piloted a two-part undergraduate suturing workshop, utilizing donor bodies, for students interested in healthcare professions. The objectives were to evaluate the usefulness of an undergraduate suturing workshop, identify areas of improvement, and mentor participants interested in medical careers. A total of 21 students completed the workshop between 2022-2025. Participants included 2nd-5th year undergraduate students. Eleven students completed the post-workshop survey including questions on overall experience, usefulness, uniqueness, and confidence with suturing on a five-point Likert scale. A paired t-test was used to compare changes in confidence before and after the workshop, indicating a significant increase in self-reported confidence ($p<0.0001$). In addition, 64% of students indicated the workshop was "very useful" in helping them learn about the healthcare field, 27% responded with "moderately useful", and 9% responded with "neutral." 100% of students indicated they would recommend the session and 91% rated the session as "highly unique." Students suggested that the following would be helpful: more suturing mentors, a third session, offering the workshop twice a year, and including first aid and IV insertion. This quality improvement project demonstrated a significant increase in students' suturing skill confidence while allowing them to learn more about the healthcare field.

Lindsay J, Incristi A, Hull A, Gadun A, Ballengee S, Kessler G, Kraszpulska B

Poster 59

Utility and Prevalence of Virtual Learning in Medical School Anatomy Curriculum: A Single Institution Perspective

Mentor: Barbara Kraszpulska, PhD

BSOM, Neuroscience Cell Biology & Physiology

Human anatomy is a key component of medical education, traditionally taught through dissection and lectures. However, challenges such as limited exposure to material, difficulty visualizing structures, and cadaver shortages have prompted the integration of virtual anatomy technologies. These resources offer advantages by accommodating different learning styles, enabling analysis of anatomical structures in various planes, and increasing exposure to learning materials. While previous research has explored the modernization of anatomy education with virtual tools, there is limited focus on student feedback and outcomes. This study aims to provide insights into the impact of virtual resources on shaping the learning outcomes of students in medical school anatomy courses. An Institutional Review Board (IRB)-approved survey was conducted with first-year medical students enrolled in an introductory human anatomy course at a single institution. Students completed Likert scale and open-ended questions about the effectiveness of virtual learning tools. Surveys were distributed to students at the start of the course and after each of the three required exams. Of the 58 students who completed the consent form, 42 responded (72.4%). The total number of responses was 65. Among respondents, 69% found virtual resources effective compared to traditional methods, and 72% rate their usefulness as moderately, very, or extremely useful. Short answer responses reveal students have a positive view of virtual tools and find them helpful in achieving successful outcomes. Overall, the results suggest that virtual resources complement traditional cadaveric dissection, especially in the context of growing cadaver shortages.

Zayed O, Parikh P

Poster 60

Initiatives to Combat Burnout: Lessons from a Surgical Training Program

Mentor: Priti Parikh, PhD

BSOM, Department of Surgery

Surgical residency is widely recognized for its demanding nature, often leading to emotional exhaustion and mental burnout. While extensive literature highlights these challenges, limited data exists on effective strategies to mitigate them. This study evaluates the impact of targeted interventions within our residency program. Our residency joined the Surgical Education Culture Optimization through Targeted Interventions based on National Comparative Data (SECOND) Trial, which provides quartile-based benchmarks comparing program well-being and cultural metrics nationwide. Data comes from annual post-ABSITE surveys. In 2019, our program ranked in the 4th quartile (lowest) for Burnout, Emotional Exhaustion, Suicidal Thoughts, and Work-Life Integration. Additionally, mistreatment categories, including verbal/emotional abuse, racial discrimination, and gender discrimination—were outliers, indicating above-average incidences. To address these issues, we implemented resident- and faculty-led interventions in 2019, including a Diversity, Equity, and Inclusion (DEI) Committee, a Wellness Committee, and professional development initiatives. The DEI Committee fostered inclusivity through annual resident-driven talks, engaging in DEI professional societies, scholarships and more. The Wellness Committee promoted work-life balance via structured wellness days and retreats. Professional development initiatives focused on expanding access to workshops and invited talks, awards for resident achievements, and enhanced career development resources. By 2023, Burnout, Emotional Exhaustion, and Work-Life Integration improved from the 4th to the 2nd quartile. Mistreatment benchmarks, including verbal/emotional abuse and racial discrimination, were no longer outliers. Our results demonstrate the efficacy of a multifaceted approach in improving resident well-being. However, gender-based mistreatment and mental health challenges persist, highlighting the need for sustained efforts.

Bartoletti D, Abuhaidar M, Flowers S, Crawford T, Hershberger P

Poster 61

The Role of Stress Mindset in Burnout and Resilience Among Medical Residents: A Cross-Sectional Study

Mentor: Paul Hershberger, PhD

BSOM, Department of Family Medicine

Stress is ubiquitous in the practice of medicine. The way individuals view stress is known to impact the experience of stress itself. While widely viewed as negative, various studies have indicated that viewing stress positively in a way that can promote growth, and resilience has been associated with better well-being. Our cross-sectional study aimed to examine relationships between stress mindset, resiliency, grit, and burnout in several Wright State University (WSU) residency programs. A survey sent to residents consisted of the following measures: Stress Mindset Measure (SMM), Grit Scale, Mini ReZ Survey (stress and resilience), and Adverse Childhood Events (ACE). A total of 85 residents participated in this study. There was a large positive correlation between stress mindset and burnout ($r_s = 0.50$, $p < .0001$). Burnout was also positively associated with the Mini Z scores. An ordinal logistic regression modeled the odds of increasing burnout and found a significant relationship between stress mindset and burnout (odds ratio = 0.779; 95% confidence interval = 0.695 – 0.866). For a one-unit increase in stress mindset (i.e., viewing stress more positively), the odds of higher levels of burnout decreased by 22.0%. In conclusion, our study found that a more positive stress mindset is associated with lower burnout among residents, highlighting the importance of resilience in medical training. These findings underscore the need for targeted interventions to support resident well-being and long-term career sustainability.

Suppa E, Crawford T, Flowers S, Hershberger P

Poster 62

Health Behaviors of Provider and Patient - How We are Truly in this Together

Mentor: Paul Hershberger, PhD

BSOM, Department of Family Medicine

Objectives: To analyze Family Medicine residency physicians' emphasis on health and lifestyle behaviors, compared to their confidence in counseling patients on the same behaviors. Methods: A survey, administered via REDCap, was distributed to current and previous residents (up to 5 years post-residency) via an emailed web link. Respondents rated how much emphasis they placed on various lifestyle behaviors in their own life (i.e., physical activity, diet, limiting screen time, etc.) on a scale of 1 (not important) to 7 (extremely important). Respondents then rated their comfort in managing these same behaviors in their patients from 1 (not comfortable) to 7 (very comfortable). Survey responses were stratified by resident status, age, and gender. Fisher's exact and Wilcoxon rank sum tests examined differences in responses by demographic characteristics; spearman correlations were calculated to assess correlations between resident emphasis response and the comfortability counseling on each behavior. Results: Seventy-nine individuals completed the survey. Although not statistically significant, compared to current residents, residency graduates showed equal to or higher levels of comfortability counseling in all health-related behaviors. Significant positive, small to moderate correlations were observed in all instances comparing the emphasis respondents placed on their own health-related behaviors and their comfort counseling patients on those same behaviors. Discussion: Our data indicates that providers who emphasize certain health behaviors are more comfortable counseling patients on these behaviors. Thus, a shifted focus prioritizing resident wellness and health behaviors could pay dividends when it comes to counseling current and future patients in the areas of lifestyle medicine.

Saravanan S, Petsinger I, Manne R, Tom J, Nahhas R, Harper B, Grant L

Poster 63

Evaluating the Impact of an Interactive Intimate Partner Violence Module on Medical Student Preparedness, Knowledge, and Confidence

Mentor: Larrilyn Grant, MD

BSOM, Department of Psychiatry

Intimate Partner Violence (IPV) is a cyclical pattern of behavior that can cause physical, psychological, and/or sexual harm with significant risks including PTSD. The primary aim of such actions is to establish or maintain power or control over the partner. While many organizations recommend screening for IPV, there is limited exposure to IPV in medical school curricula. This critical gap in knowledge represents an opportunity for further education and discussion. Thus, an interactive module on IPV was created for third year medical students on their psychiatry clerkship to teach learner skills in assessment, treatment planning, and resources. This study evaluates the module's effectiveness and medical students' readiness in addressing IPV in clinical settings. Methods: The module created included IPV screening and management. A pre and post module survey was administered to assess baseline knowledge, confidence, and preparedness in addressing IPV. Data was analyzed using paired t-tests to assess the module's effectiveness. Data was collected from 59 third year medical students in the 2024-2025 academic year. Discussion: Data from 52/59 (88%) respondents showed statistically significant improvements in knowledge, confidence, and preparedness after completing the module. More students correctly identified risk factors, felt adequately trained, and were more comfortable discussing IPV, which may improve patient disclosure and outcomes. This suggests the module effectively improved students' understanding and approach to IPV. Conclusion: The IPV module successfully enhanced students' knowledge and confidence in addressing IPV. Future studies should assess long-term retention and its impact on clinical practice.

Castle A, Hershberger P, Johnson N, Zinn E, Journell L, Todd A, Crawford T

Poster 64

Inherent personality characteristics and motivational interviewing skill performance success amongst medical students

Mentor: Paul Hershberger, PhD

BSOM, Department of Family Medicine

Introductory Statement: This study aimed to determine if certain inherent personality characteristics predicted motivational interviewing (MI) skill performance success amongst medical students. MI is an approach to patient engagement and activation, known to contribute to improved patient health outcomes. However, there are few studies exploring what traits may contribute to student success with MI.

Purpose: The purpose of this study is to determine what personal characteristics are most closely correlated with high MI skill performance. Methods: Two years of medical students at Wright State University Boonshoft School of Medicine voluntarily completed several inventories during their first year that related to personality and learning: The Big Five, Dweck Implicit Theory, Grit, Locus of Control, and General Strategies for Learning. During their third year, subjects participated in an interactive MI exercise to assess skill development, "ReadMI". Upon completion of ReadMI, students were given a subjective "MI Spirit" score by a trained facilitator as a measure of MI performance in a pair of role plays. Data were analyzed utilizing Spearman's correlations and an Ordinal Logistic Regression model for 185 students that completed all activities. Findings: There were significant positive correlations between MI Spirit score and both implicit morality ($r_s = 0.199$, $p = .007$) and implicit person ($r_s = 0.163$, $p = .027$). The regression model controlled for age, gender, and race. Implicit theories create a framework for fostering judgments and reactions. These findings suggest that students with higher scores on implicit morality and person may demonstrate more skilled use of the MI approach.

Lindsay J, Incristi, A, Speers J, Arnett B, Arens K, Journell L, Parikh, P

Poster 65

The Critical Role of Mentorship in Shaping Medical Students Without Home Residency Programs

Mentor: Priti Parikh, PhD

BSOM, Department of Surgery

Medical students pursuing competitive specialties without corresponding residency programs at their home institution face challenges in building strong residency applications. This study explores these barriers and how students navigate them, aiming to inform resource development for medical schools and students. Surveys and interviews were conducted with graduates and medical students interested in non-home program (NHP) specialties, focusing on mentorship, perceived barriers, and strategies for connecting with mentors. Follow-up interviews explored the actions taken by residents to match, the role of mentorship, and its impact. Data were analyzed using descriptive statistics and inductive thematic analysis. 14/21 residents (66.7%) and 37/130 students (28.4%) responded; 21.4% of residents and 21.6% of students participated in interviews. Common barriers included lack of home residency programs, limited research opportunities, and insufficient mentorship. 97% of respondents sought mentorship outside their institution. Interviews highlighted that mentorship was crucial for securing research opportunities, application advice, and early exposure of the specialty. Students often sought career-aligned mentors outside their institution for guidance on sub-internships, research, networking, and letters of recommendation. Despite barriers, proactive efforts for career guidance and mentorship were essential for students pursuing specialties without home residency programs. The study underscores the value of mentorship in overcoming these challenges.

Dai J, Mitchell J, Manger J

Poster 66

Insufficient Sleep in Ohio and Its Complication in Risky Behavior

Mentor: Jeannette Manger, PhD

BSOM Department of Medical Education

Background: Insufficient sleep is a major public health concern in the United States. Lack of sufficient sleep causes impaired decision making that can increase the chance of participating in risky behavior. Methods: County Health Rankings data from Ohio in 2016 and 2022 were reviewed for percentage of insufficient sleep and risky behaviors. We identified excessive alcohol use, driving deaths due to alcohol, drug overdose mortality, and percentage of smokers as risky behaviors. Urban and rural counties were identified via HRSA. Paired t-tests, Pearson/Spearman correlations, independent t-tests, and multiple linear regression were used for analysis. Results: There was a significant increase in insufficient sleep from 35.76% in 2016 to 40.45% in 2022 in Ohio ($t=-22.99$, $p<.001$). At the county level, smoking ($r=0.74$, $p<0.001$) and drug overdose mortality ($r=0.517$, $p<0.001$) were positively correlated with insufficient sleep, while excessive alcohol use was negatively correlated ($r=-0.53$, $p<0.001$). No significant differences in sleep or risky behaviors were seen between urban and rural counties. Conclusion: This study examines the relationship between insufficient sleep and risky behaviors at the county level in Ohio. The findings highlight the importance of implementing screening and intervention programs to improve sleep, which may potentially help reduce risky behaviors in communities. This has implications for both medical practitioners and public health initiatives, particularly in addressing pressing issues like drug overdose in Ohio.

Ferguson L, Grant L

Poster 67

Harnessing AI and Large Language Models in Psychiatry Medical Education"

Mentor: Larrilyn Grant, MD

BSOM, Department of Psychiatry

Artificial intelligence (AI) and large language models (LLMs) are becoming increasingly important as they integrate into various sectors, including healthcare. This study aims to investigate the implementation of AI and LLMs in psychiatry education, along with the current policies and attitudes toward their use in medical education at both the undergraduate and graduate levels. A national survey targeting psychiatry residency program directors and Directors of Medical Education in Psychiatry at LCME-accredited medical schools was conducted, collecting and analyzing data from 75 participating institutions. A comparison of institutional policies concerning faculty use of AI in medical education revealed that faculty were more likely to be permitted to use AI with medical students than with residents and fellows. Institutions allowing AI use with medical students had flexible policies established by each department, whereas AI use with residents and fellows had clearly defined purposes. Institutions most commonly employ AI for research, content development, literature reviews, and writing letters of recommendation. The results of this study provide valuable insights into how technology is utilized in medical education, the existence of policies on AI, and the attitudes of faculty and students toward incorporating AI into medical education. This research will enhance our understanding of the current use of technology integration in medical education and help inform future educational strategies in psychiatry.

Rajput G, Sumit A, Gao A, Vennemeyer S, Menon A, Haworth K, Wu D

Poster 68

Developing a Data Dashboard to Support Student Success in a Medical Sciences Baccalaureate Program

Mentor: Danny TY Wu, PhD

University of Cincinnati College of Medicine, Department of Biomedical Informatics

Overview: Pre-medical students face the challenge of managing rigorous academic and extracurricular demands, which can lead to burnout. Effective tracking and visualization of their activities are crucial in keeping records of student progress. Objective: This study aimed to develop and evaluate a user-friendly dashboard tailored for pre-medical student data management. Methods: This study focused on user needs assessment, ideation, and prototyping of the user-centered design. The study recruited nine faculty and staff members from the Medical Sciences Baccalaureate Program (MSBP), who are potential users of the data dashboard via snow-ball sampling. Semi-structured interviews identified the following components about each participant: Job title & experience, Typical documentation process, Pain points, Potential solutions, and Hypothetical interface Components. Results: Using affinity diagramming and Miroboard, five key themes emerged, guiding the creation of an initial dashboard prototype. Two themes focused on pain points in program related factors and data management shortcomings. Three themes suggested potential solutions including creating a dashboard that could 1) perform automated quantitative/qualitative data analysis, 2) provide standardization in data /user accessibility, and 3) include components for visual, longitudinal, and intentional tracking of MSBP student data. The themes informed the iterative design of the final prototype, which received positive feedback from the MSBP committee. Limitations include a small sample size and lack of student-centered design. Future work will focus on addressing implementation challenges and refining the design based on student feedback.

Farmer A, Siek C

Poster 69

Analyzing Interconception Care Within Pediatric and Primary Care Visit

Mentor: Cynthia J. Sieck, PhD, MPH

Dayton Children's Hospital, Center for Health Equity, Director of Health Outcomes Research

The US has the highest infant and maternal mortality rates despite being high in income and the highest spending country in healthcare. Several studies have aimed to improve these rates, and the incorporation of maternal interconception care has recently been introduced. Interconception care has been recommended as a strategy to improve birth outcomes by modifying maternal risks between pregnancies. In 2020, the AAP released a study looking at how providing interconception care during pediatric visits can impact infant mortality. Purpose: We aimed to see how interconception care has been implemented amongst family medicine and pediatric visits and the different outcomes that were reported. Methodological: We performed a scoping literature review using the search terms: interconception care pediatrics, interconception care implicit, interconception care. Databases searched included PubMed and Google scholar, and we excluded articles that were dated before 2016 and outside of the US. Findings: Findings are ongoing; we have collected 17 articles, excluded 3 articles and 14 are currently in final review. Study designs include randomized control trials, observational, and prospective. The specialty visits that were documented were pediatric and primary care adult visits with a range of focus on IMPLICIT study model, contraception care, teen pregnancy adolescent visits and frequency of visits. Study results also looked at improvement of co-morbidities. Our goal is to identify the challenges that pediatricians (and surrounding specialties) encounter with interconception care and how we can improve the efficiency of the different models in order to decrease maternal and infant mortality.

Barney T, Patel D, Manger J

Poster 70

Assessing Socioeconomic Patterns of Excessive Alcohol Consumption in Ohio: A County Level Analysis

Mentor: Jeannette Manger, PhD

BSOM Department of Medical Education

Background: Excessive alcohol consumption poses significant public health challenges, with complex socioeconomic factors influencing drinking behaviors. Understanding the relationship between socioeconomic determinants and excessive drinking patterns at the state and county levels is crucial for informing targeted interventions. Objective: To investigate the associations between excessive drinking (binge or heavy drinking) and socioeconomic factors, including median household income, mental health provider availability, health insurance coverage, educational attainment, and unemployment rates across counties in Ohio. Methods: We analyzed data from the 2023 County Health Rankings for 88 counties in Ohio. Spearman correlations were used to assess associations between excessive drinking and socioeconomic variables. Paired t-tests examined changes in excessive drinking from 2016 to 2022. Linear regression determined predictors of excessive drinking in 2022. Results: Excessive drinking showed a moderate positive correlation with median household income (ρ=0.435, $p<0.001$) and high school completion (ρ=0.407, $p<0.001$), and a moderate negative correlation with being uninsured (ρ=-0.403, $p<0.001$) and unemployment rates (ρ=-0.371, $p<0.001$). No significant association with mental health provider availability. Excessive drinking increased from 17.4% in 2016 to 19.0% in 2022 ($p<0.001$). Unemployment was the strongest predictor in the regression model.

Fisher A, Hawkins S, Johnson A, Goodnight J

Poster 71

Mental health stigma and perceived competence and confidence of collegiate EMT's before and after additional mental health training

Mentor: Jackson Goodnight, PhD

University of Dayton, Department of Psychology

The COVID-19 pandemic has exacerbated mental health issues among college students, highlighting the urgent need for effective mental health training for Emergency Medical Services (EMS) providers on campus. While research often focuses on raising mental health awareness among students, little is known about how collegiate EMS providers perceive and respond to mental health emergencies. This study evaluated stigma, perceived competence, and confidence in managing mental health emergencies compared to medical and trauma scenarios, before and after targeted mental health training. A total of 46 student members of Emergency medical services (EMS), completing pre- and post-training surveys that included demographic information, EMT experience, the Perceived Ability to Attend to Various Patient Presentations Survey, the GAD-7 Anxiety Scale, the Center for Epidemiologic Studies Depression Scale, and Day's Mental Illness Stigma Scale. Results indicate lower competence and confidence for mental health scenarios compared to other emergencies. Training was followed by a statistically significant increase in participants' perceived knowledge and ability to manage mental health emergencies, and a statistically significant reduction in mental health stigma. These findings emphasize the critical importance of targeted interventions for collegiate EMS providers in addressing mental health crises.

Nguapa L, Fadell S, Tisherman S

Poster 72

Effect of Prescribing 30 minutes of Outdoor Activity

Mentor: Sara Tisherman, MD

BSOM, Department of Family Medicine

This quality improvement project aimed to increase physical activity among patients aged 18-75 with a BMI over 30 at SOIN Family Practice. Previous studies show that 30 minutes of exercise, five days per week, can improve health which includes reduced cardiovascular risk and boosted immune system. We hypothesized that "prescribing" outdoor activity via educational pamphlets would encourage and motivate patients to engage in regular exercise, whether that was walking or participating in an actual routine. For the best results, the busiest day of clinic was selected and the 22 patients meeting inclusion criteria received pamphlets and a brief discussion on the benefits of exercise and Vitamin D. Baseline data on outdoor activity minutes (based on patients' reports) were collected. In a two-week follow-up, 13 patients responded: seven reported increased time doing outdoor activity, two reported no change, and four continued to report 0 minutes. The mean improved from 46.18 minutes of outdoor activity to 108.08 minutes. Results from a paired t-test indicated a statistically significant increase in outdoor activity ($p = 0.01$). Key successes included choosing the clinic's busiest day and making repeated follow-up calls to maximize response rates. Challenges included patient health limitations, weather conditions, and reliance on family or pets to encourage activity. To improve future outcomes, we recommend expanding criteria to include patients with a BMI over 25, allowing indoor and outdoor activities, and implementing standardized follow-up questionnaires. These adjustments could help overcome external limitations and broaden the impact of exercise prescriptions for obesity and health management.

Meyers D, Hull A, Manger J

Poster 73

Clinic Counts & Chlamydia Crisis: An Analysis of STI Services and Infection Rates Across Ohio and Its Neighbors (2016-2022)

Mentor: Jeannette Manger, PhD

BSOM, Department of Medical Education

With a steady increase in the number of STI diagnoses present within the US and most of its states, it is necessary to evaluate methods of STI prevention and their effectiveness in prevention of new STI diagnoses. This paper aims to evaluate the effectiveness of STI clinics in their prevention of new STI diagnoses by comparing the mean number of new chlamydia infections in a state to the number of STI clinics present within Ohio and its neighboring states from 2016 and 2022. It was established that there was a significant difference in the mean number of chlamydia infections between states bordering Ohio in both 2016 and 2022. However, a correlational analysis of the mean number of chlamydia infections and the number of STI clinics in Ohio and its neighboring states yielded statistically insignificant findings for both 2016 and 2022. Finally, the same correlational analysis was expanded to encompass the entirety of the U.S. and yielded statistically insignificant findings as well. These findings are likely to indicate that other factors outside of the number of STI clinics within a state are influencing the mean number of chlamydia infections in that same state.

Osei Afoduo K, Ansah Adjei B, Baah J, Penney T, Gershwin K, Okoto Amankwah S, Liang S, McKay V, Kwon J, Kyei G, Mattar C

Poster 74

Exploring Barriers to and Opportunities for Infection Prevention and Control at an Academic Medical Center in Ghana

Mentor: Caline Mattar, MD

Washington University in Saint Louis Infectious Disease Department

Background: Healthcare-associated infections (HAIs) contribute significantly to morbidity and mortality globally and disproportionately impact low- and middle-income countries (LMIC). Millions of patients are affected by HAIs annually, resulting in prolonged hospital stays, greater morbidity and mortality, increased cost, and emerging antimicrobial resistance. Objective: We aimed to identify barriers to and opportunities for implementing an infection prevention and control (IPC) program at a new ultra-modern teaching hospital in Accra, Ghana. Design: Qualitative study. Setting: The University of Ghana Medical Center (UGMC) is a public, 750-bed tertiary care center located in Accra. Participants: Healthcare personnel (HCP) and hospital leaders at the UGMC were recruited through purposive sampling. Methods: In-depth interviews with hospital leaders and focus group discussions with HCP were conducted to better understand the barriers and opportunities to implement IPC practices at the UGMC Results: Key barriers to IPC identified included inadequate PPE, heavy clinical workload, and suboptimal hand hygiene practices. Participants emphasized the importance of behavioral change, increased communication and reminders, and education on proper hand hygiene techniques. Continuous training and education programs, particularly focusing on effective hand hygiene and proper PPE usage, were highlighted as opportunities for improving IPC practices. Conclusions: Understanding local perceptions, available resources, staffing, and workflow are key to successfully implementing IPC interventions. Tailoring interventions to local needs are essential, especially in the context of LMIC.

Bohne W, Fadell S, Steele C, Froehle A

Poster 75

Musculoskeletal Soft Tissue Injuries, Reported in the NEISS Database, 2003-2023

Mentor: Andrew Froehle, PhD

BSOM, Department of Orthopedic Surgery

Introduction: Soft-tissue musculoskeletal injuries (MSKIs) constitute a large proportion of U.S. emergency room (ER) visits, imposing a significant healthcare burden. Understanding MSKI epidemiology is essential for identifying at-risk populations, improving prevention, and optimizing resource allocation. This study analyzes trends in MSKIs presenting to U.S. ERs from 2003 to 2023 using the National Electronic Injury Surveillance System (NEISS). Methods: A retrospective analysis of NEISS data was conducted, focusing on low-energy mechanism injuries classified as "Strain," "Sprain," and "Avulsion." Non-MSKI avulsions were manually excluded. Demographic and injury data, including age, gender, race, severity, and affected body region, were analyzed. Piecewise regression assessed trends in injury incidence rates (IR) ($\alpha = 0.05$). Results: The final dataset included 941,996 observed injuries, extrapolated to 36,605,488 nationally. Annual IR declined significantly, with breakpoints in 2010, 2019, and 2020 ($P<0.001$). The IR did not increase post-COVID-19 ($P=0.388$). Severe injuries comprised 0.63% of cases, with minimal change over time. Most injuries affected the lower extremities (56.8%) and occurred in males aged 18–44. Demographic variations were statistically significant but had weak effect sizes. Conclusion: This 21-year analysis demonstrates a decline in soft-tissue MSKIs and severe injuries in ERs, possibly influenced by societal events such as the Affordable Care Act and COVID-19. These findings underscore the impact of healthcare policy and public health crises on ER utilization patterns.

LoCascio K, Koppaka A, Manger J

Poster 76

Exploring the Socioeconomic Drivers of Type 2 Diabetes Mellitus Prevalence and Their Implications for Treatment in the Midwest

Mentor: Jeannette Manger, PhD

BSOM, Department of Medical Education

Type 2 Diabetes Mellitus (T2DM) is a leading chronic disease globally with its prevalence steadily rising and significantly impacting public health systems. Previous research has indicated correlations between resource scarcity, low income, and limited education completion and T2DM prevalence. However, the degree of influence of these factors on incidence and progression remains unclear. This study aims to identify the most significant socioeconomic determinants of T2DM prevalence and progression in the Midwest to aid healthcare providers in creating maximally effective T2DM treatment plans. Methods include using data from County Health Rankings & Roadmaps (CHR&R) for Ohio, Illinois, Indiana, and Michigan. We employed ANOVA to compare T2DM prevalence, paired t-tests for state-level comparisons, stepwise regression to identify key socioeconomic predictors, and Spearman correlations. Results revealed that Ohio had the highest T2DM prevalence at 10.75%, significantly higher than Illinois (9.78%), Michigan (9.86%), and Indiana (10.60%). When exploring socioeconomic factors, the best fitting regression model accounted for 77.6% of variance in T2DM. Food insecurity emerged as the most significant predictor ($B = -.0000073$, $t = 5.45$, $p < .001$), suggesting a strong inverse relationship between food insecurity and diabetes prevalence. Median household income had some predictive power ($B = -3.10E\text{-}5$ $t = -4.25$, $p < .001$) and high school completion did not. Access to exercise opportunities was negatively correlated with physical inactivity (-0.527, $p<.0.001$). We urge providers in Ohio and surrounding states to prioritize addressing food insecurity and enhancing exercise opportunities as part of a comprehensive approach to developing T2DM interventions and treatment plans.

Li G, Choudhury W, Manger J

Poster 77

A Study into Exercise and Obesity on Diabetes in Ohio, Colorado, and Mississippi

Mentor: Jeannette Manger, PhD

BSOM, Department of Medical Education

Introduction: With an increasing prevalence in the US, Type 2 diabetes is associated with physical inactivity and obesity. Previous studies have shown that exercise plays an important role in diabetes prevention and management. Purpose: We aimed to investigate relationships among obesity rate, access to exercise opportunities, and diabetes prevalence in Ohio, Colorado, and Mississippi. Methods: We used IBM SPSS Statistics to analyze County Health Rankings data of the three states from 2016 and 2022 by conducting paired t-tests, Spearman correlations, and one-way ANOVA tests. Results: We found associations among obesity rate, access to exercise opportunities, and diabetes prevalence in all three states. When comparing data from 2016 and 2022, we observed consistent increases in obesity rate in these states (Ohio: $t = -19.138$, $p < 0.001$; Colorado: $t = -17.992$, $p < 0.001$; Mississippi: $t = -17.775$, $p < 0.001$). While access to exercise opportunities remained high in Colorado ($t = 0.301$, $p = 0.765$), there were significant decreases both in Ohio ($t = -19.138$, $p < 0.001$) and in Mississippi ($t = 2.659$, $p = 0.010$) from 2016 to 2022. Surprisingly, there was no significant increase in diabetes prevalence in any of the states (Ohio: ($t = 7.670$, $p < 0.001$, actually a significant decrease; Colorado: $t = 0.219$, $p = 0.827$; Mississippi: $t = 1.539$, $p = 0.128$). Other factors that may affect diabetes prevalence, such as types and duration of physical activity, diet, cultural differences, and other environmental factors, should be addressed in future studies.

Waters K, Woten O, Silverstein S, Maxwell R, Paton S, Dhanraj D

Poster 78

Beyond the Numbers: Community Voices on Reducing Maternal Mortality in Montomgery County, Ohio

Mentor: David N. Dhanraj MD, MBA, CPE, FACOG

BSOM and Premier Health, Departments of Obstetrics and Gynecology, Population and Public Health Services

Background: Montgomery County has one of the highest maternal mortality rates in Ohio with significant racial disparities. Postpartum visits are an important avenue to address this issue. Reducing maternal mortality requires considering healthcare delivery, social determinants of health, and community engagement. Purpose of Study: The purpose of this study is to gather patient and community input regarding maternal mortality and postpartum care in order to (1) better understand patient experience and (2) inform quality improvement practices. Methods: Semi-structured interviews (n=10) and two focus group sessions were conducted with female-identifying community members in Dayton, OH. Interviews were recorded at community events and transcribed with word processing software. Interview content was analyzed using Taguette software and iterative categorization methodology. A follow-up survey (n=7) assessed participant stressors. Results: Of the 26 participants, 84% identified as Black and 81% were aged 20-49. Participants identified stress, particularly familial and financial stressors, as primary contributors to maternal health issues in the postpartum period. Key barriers to postpartum appointment attendance included transportation, maternal stress, lack of support, cultural differences between staff and patients, and technology issues. Suggested healthcare delivery improvements included virtual visit options, modified appointment reminders, and cultural sensitivity training for staff. Conclusions: Addressing maternal mortality requires understanding patients' socioeconomic and cultural situations and barriers to postpartum care. This qualitative study provides valuable patient information for quality improvement. Future work should focus on developing community-based interventions to address identified issues.

Chen L, Gilbert S, Manger J

Poster 79

The Impact of Mental Health on Academic Performance in Ohio in 2022

Mentor: Jeannette Manger, PhD

BSOM, Department of Medical Education

Background: Previous research has shown a significant link between mental health issues and low academic performance. Our study explores the delicate connection between mental health issues and academic performance in Ohio school children, particularly, how the dynamic may differ between rural and non-rural communities. Methods: We utilized County Health Rankings data from the years 2016 and 2022 from all 88 Ohio counties, which we further substratified as 44 rural and 44 non-rural counties. From CHR, we chose data categories to represent measures of academic performance, internalizing mental health problems, and access to mental health services, and utilized SPSS for data analysis. Results: While a weak but significant correlation between internalizing mental health problems and academic performance in reading ($r = -0.419$, $p < 0.001$) and mathematics ($r = -0.382$, $p < 0.001$) was observed, disparities persist in rural areas due in large part to limited access to mental health services. In addition, despite similarities in academic performance between rural and non-rural areas, lower high school graduation rates in rural counties ($t = -2.964$, $p = 0.004$) underscores the long-term implications of untreated mental health issues. Conclusions: Our study highlights the significant impact of internalizing mental health factors on Ohio children's academic outcomes, specifically in the context of geographic location and access to mental health care. We emphasize the need for collaborative efforts among leaders at both the state and community levels in Ohio in order to ensure equitable opportunities for the academic and emotional well-being of all children.

Medhavi A, Nicholas G, Manger J

Poster 80

Investigating the Relationship Between Adult Obesity and Socioeconomic Factors in Ohio

Mentor: Jeannette Manger, PhD

BSOM, Department of Medical Education

Background: Obesity remains a significant public health concern in the United States, leading to severe health outcomes and increasing healthcare costs. Socioeconomic and lifestyle factors play a significant role in shaping obesity prevalence, and are important to be studied. Objective: This study explores the relationship between adult obesity and socioeconomic factors— median household income, access to exercise opportunities, excessive drinking, and diabetes prevalence—in Ohio. Methods: Data from the County Health Rankings for 2016 and 2023 were analyzed using regression models, correlation tests, and paired t-tests. These statistical approaches assessed the associations between obesity rates and selected variables across Ohio counties. Results: Findings indicate a negative correlation between obesity and exercise opportunities, with a 0.047% decrease in obesity rates per 1% increase in exercise access. A strong positive correlation exists between obesity and diabetes prevalence ($r = 0.590$, $p < 0.001$), while median household income negatively correlates with obesity ($r = -0.590$, $p < 0.001$). The prevalence of obesity in Ohio increased from 32.08% in 2016 to 38.11% in 2023 ($p < 0.001$). Stepwise regression identified diabetes prevalence as the only significant predictor of obesity, while excessive drinking showed a weak but significant negative correlation with obesity. Conclusion: Our study highlights the multifaceted nature of obesity, with economic and health factors playing key roles. Public health strategies should focus on addressing economic disparities and chronic disease management to mitigate obesity rates.

Walter A, Russell A, Manger J

Poster 81

Factors Driving Potentially Preventable Hospitalizations in Ohio and Surrounding States

Mentor: Jeannette Manger, PhD

BSOM, Department of Medical Education

Preventable hospitalizations impose a significant burden on patient health. Most current literature has targeted preventable hospitalization rate (PHR) at the national level but not the state level, which may be crucial in designing interventions. This study aims to identify factors associated with PHR in Ohio, along with differences in PHR and associated variables between Ohio and surrounding states. Data were gathered from the County Health Rankings and Roadmaps 2023 dataset. We performed Spearman's rank correlation coefficients and linear regressions ($p<0.05$) to identify factors significantly associated with PHR in Ohio and surrounding states. We used one-way ANOVAs ($p<0.05$) to analyze differences in PHR and primary care provider (PCP) and mental health provider rates, median income, and high school completion rate between Ohio and Indiana, Michigan, Pennsylvania, and Kentucky. We found that median income, high school graduation rate, and mental health provider rate were significantly associated with PHR in Ohio. Ohio counties had a significantly lower mean PHR per 100,000 people (3140.49) than Kentucky (4167.63) and a higher PHR than Michigan (2608.71). In Kentucky, high school graduation rate and median income were significantly predictive of PHR, while in Michigan, high school completion rate, median income and mental health provider rate were significantly predictive of PHR. These data suggest factors associated with PHR differ between states, and that PHR variation between states is likely influenced by many variables. These differences should be considered when implementing programs to reduce PHR.

Szep A, Durrani M, Manger J

Poster 82

Examining the Relationship Between Teen Pregnancy and Educational Outcomes in Ohio

Mentor: Jeannette Manger, PhD

BSOM, Department of Medical Education

Objective: The aim of this study is to explore the relationship between educational outcomes, school funding, and teen birth rates in Ohio counties between 2020 and 2024. Methods: Using data from County Health Rankings, we performed regression, correlation, and paired t-test analyses through the SPSS software. Results: The results of our tests showed significant negative correlations between markers of educational success and teen birth rates, including high school graduation rates ($r = -0.384$, $p < .001$ in 2020, $r = -0.665$, $p < .001$ in 2024), math ($r = -0.548$, $p < .001$ in 2020, $r = -0.426$, $p < .001$ in 2024), and reading standardized test scores ($r = -0.538$, $p < .001$ in 2020, $r = -0.553$, $p < .001$ in 2024). Between 2020 and 2024, the teen birth rate decreased in the state of Ohio, and in 2024, public school funding was able to predict 14.8% of the variance in the Ohio teen birth rate. This study suggests that investing in education and addressing demographic factors could help reduce teen birth rates, highlighting the need for comprehensive policies and interventions in this area, but due to the complexity of the issue and the potential influence of other demographic factors like race, socioeconomic status, and healthcare access, further research is needed to fully understand and address teen birth rates.

Berges M, Ahmad A, Manger J

Poster 83

Examining Low Mammogram Rates in Native American Populations in Arizona and New Mexico

Mentor: Jeannette Manger, PhD

BSOM, Department of Medical Education

Introduction: Many Native American women lack equitable access to healthcare resources and as a result face unnecessary health challenges. Several social determinants of health could be playing a key role in these mammogram screening and breast cancer incidence rates. Purpose: The purpose of this study is to examine what socioeconomic factors present barriers to mammogram screenings and access to healthcare among Native American women in the Southwestern United States. Methods: We used data from the Wisconsin Population Institute County Health Rankings. With SPSS software, we analyzed data from Arizona and New Mexico to explore what factors were causing lower mammogram rates in counties with a higher percentage of Native Americans in the population. Findings: Mammogram screening rates showed a significant decrease across all populations, with an inverse correlation between areas with high Native American populations and those receiving mammograms. Furthermore, counties ranked in lower health quartiles tend to have higher Native American populations and are associated with a lower percentage of individuals earning an income in the top 20%. Conclusion: There are several barriers impacting Native American women that are affecting their ability to receive quality healthcare treatment. Addressing these barriers and focusing on preventative care is essential to improving their quality of life and helping them receive the treatment they need.

Cordonnier E, Sabbasani J, Manger J

Poster 84

The Digital Divide and Breast Cancer Screening: The Impact of Braodband Access on Screening Mammography Rates Among Ohio Female Medicare Beneficiaries

Mentor: Jeannette Manger, PhD

BSOM, Department of Medical Education

Introduction: Breast cancer represents a leading cause of cancer among United States women, and screening mammography remains critical for early detection and treatment. Despite Medicare coverage, screening rates for women aged 65-74 have declined in recent years. Various socioeconomic factors have been associated with screening access disparities, but data is limited regarding how broadband access is implicated. This study aims to evaluate how broadband access and other socioeconomic factors affect screening mammography rates. Methods: The County Health Rankings & Roadmaps for Ohio counties was used to identify screening mammography rates among female Medicare beneficiaries aged 65-74 from 2016-2023. Paired t-tests, Spearman correlations, and linear regression were used to analyze the impact of broadband access and other socioeconomic indicators like median household income, education levels, and rurality on screening rates. Results: Screening mammography rates significantly declined from 85.21% in 2016 to 38.10% in 2023 ($p < 0.001$). Positive correlations were observed between screening rates and high school completion ($r = 0.66$), median household income ($r = 0.53$), and broadband access ($r = 0.55$), while the ratio of primary care physicians to population showed a negative correlation ($r = -0.41$). Regression analysis identified broadband access as the strongest predictor of screening rates, explaining 28.1% of the variance ($p < 0.001$). Discussion: Broadband access was found to significantly influence screening mammography rates among Ohio women on Medicare. Addressing this disparity through targeted interventions, such as expanding digital access and improving health literacy, is essential to enhancing preventive care and reducing breast cancer mortality.

Donepudi S, Kaul S, Yakich N, Pascoe J

Poster 85

Variation in Rates of Early Autism Spectrum Disorder Diagnosis Among the States

Mentor: John Pascoe, MD, MPH

Dayton Children's Hospital, Department of Pediatrics

Introduction/Purpose: Early identification and diagnosis of Autism Spectrum Disorder (ASD) in children is crucial for effective early intervention. The recent trend in decreasing mean age of ASD diagnosis is not uniform for all U.S. children and previous studies have indicated geographic variations in diagnosis rates of childhood chronic health conditions. The purpose of this study is to compare rates of early ASD diagnosis (children less than six years old) among states. Methods: Deidentified health records from the EPIC electronic health record system were utilized to capture data for children less than six years old seen at health facilities across the United States that use EPIC (N=9,240,000). Records were stratified by state and rates of ASD diagnosis were compared among them. Chi Square was utilized for inferential statistical analysis. Results: The mean rate and standard deviation (SD) of ASD diagnosis were 2.16(.16) % for children one SD above the mean rate of diagnosis for the sample and 0.49(.21) % for children below one SD. Eight states were above, and eight states were below one SD of the mean rate of early ASD diagnosis. Vermont had the highest rate of early ASD diagnosis, while South Dakota had the lowest, with a Relative Risk of 28.5 (95% Confidence Interval, 24.5-33.1). Conclusion: This study provides valuable insights into the patterns and prevalence of state-level early ASD diagnosis that may be used to inform future research that examines interventions and policies to improve rates of early ASD diagnosis.

Mike C, Waters K, Kaul S, Eberhart G, Pascoe J

Poster 86

Families' Unmet Social Needs in Children's Primary Care: Is There a Gradient?

Mentor: John Pascoe, MD, MPH

Dayton Children's Hospital, Department of Pediatrics

Introduction: Children in families with unmet social needs (USNs) are more likely to experience adverse health outcomes over time. Purpose: This study aims to identify factors associated with USNs as reported by primary care givers (PCGs). Methods: This cross-sectional study surveyed English-speaking PCGs of children <18 years old in primary care offices. PCGs completed a survey that included several validated questionnaires, Maternal Social Support Index (MSSI), Rand Depression Screener, and a social needs screener. Chi-square or Fisher's exact tests, multinomial logistic regression, and ANOVA were used for analysis. Findings: Among 1,167 respondents (78% response rate), PCGs were mothers (79.9%) and fathers (13.6%) with 72.0% White and 16.0% Black. The mean (SD) child age was 6.4 (5.3) years. USNs were reported as 0 (53.6%), 1 (12.6%), or ≥ 2 (33.8%). As USNs increased, social support (MSSI) scores decreased ($p < 0.001$). The mean (SD) MSSI scores were 25 (7), 23 (6), and 19 (7). Among underinsured respondents, 17.1% had 0 USNs, 12.9% had 1, and 70.0% had ≥2, compared to 56.6%, 12.8%, and 30.6% in adequately insured respondents ($p < 0.001$). Positive depression screens were reported in 20.7%, 26.0%, and 54.8% of PCGs with 0, 1, and ≥ 2 USNs ($p < 0.001$). Conclusion: As USNs increased, caregivers reported lower levels of social support and higher rates of positive depression screens. The families of underinsured children were more likely to report ≥ 2 USNs. These findings support the need to examine the relation between caregivers' resources/mental health and their USNs.

Khatri R, Fuglsang S, Manger J

Poster 87

Social and Structural Determinants of Mammography Screening Rates Among Female Medicare Beneficiaries: A Retrospective Analysis

Mentor: Jeannette Manger, PhD

BSOM, Department of Medical Education

Introduction: Despite Medicare fully covering annual mammogram costs, less than one half of female Ohio residents aged 65-74 sought yearly mammograms. As such, our analyses explore which social and structural determinants of health predict the likelihood that a woman aged 65-74 on Medicare will receive an annual mammogram. Methods: Using data from the County Health Rankings database, we conducted Pearson and Spearman correlation tests to examine relationships between English non-proficiency, high school graduation rates, residential segregation, primary care access, and mammography screening rates. We also conducted a stepwise multiple linear regression to identify predictors of annual mammography rates in Ohio. Results: Mammography screening rates were significantly correlated with English proficiency ($r = 0.39$, $p < 0.001$), high school graduation rates ($r = 0.51$, $p = 0.001$), median household income ($r = 0.37$, $p < 0.001$), and primary care physician availability ($r = 0.38$, $p < 0.001$). There was no correlation between residential segregation and screening rates. High school graduation rate and limited English non-proficiency were the only significant predictors of mammography screening rates. Conclusion: Social determinants of health including education, English proficiency, and access to care, significantly influence mammography screening rates among Medicare beneficiaries. Addressing disparities in education, language access, and healthcare availability may help reduce the gap in breast cancer screening rates. Further research is needed to explore the role of health literacy and geographic access in improving screening rates.

Kim S, Lesch H, Nolan K, Parikh P, Bruun J

Poster 88

Evaluating Standardized Order Sets: Perception and Usability in Geriatric Trauma Care

Mentor: Priti Parikh, PhD

BSOM, Department of Surgery

Introduction: Geriatric trauma patients present with complex medical needs and higher risks for complications, requiring efficient and accurate treatment plans. Standardized order sets (SOSs) can improve care, but non-technical barriers may hinder their integration. This study assesses the usability and perception of a new SOS by providers for geriatric trauma patients at a Level 1 trauma center. Methods: A geriatric trauma order set was developed based on literature and past practices and implemented in December 2022. An IRB-approved Qualtrics survey was distributed to trauma surgery residents/fellows, attending surgeons, and advanced practice providers between May and June 2024. The survey evaluated the order set's use, usability, benefits, challenges, and areas for improvement. Quantitative data were analyzed descriptively, and qualitative data were analyzed thematically. Results: Among 49 respondents, 61.2% had used the order set, 26.5% were unaware of it, and 12.2% were aware and had not used it. Of those who used it (n=30), 90% found it easy to use and 73% used it for more than 50% of geriatric trauma admissions. The order set was utilized 504 times from January 2023 to June 2024, with 4,260 orders completed. Benefits included improved patient care, reduced polypharmacy, better adherence to delirium protocols, and enhanced staff communication. Suggestions for improvement included increasing staff awareness, linking with existing order sets, and frequent reminders. Conclusion: Standardized order sets can enhance geriatric trauma care, but challenges such as awareness and training must be addressed. Future research should evaluate long-term patient outcomes and investigate educational strategies to increase adoption in clinical practice.

Chirakos I, Schroeder B

Poster 89

Regional Correlation of Big Five Personality Traits with Rates of Insufficient Sleep and Diabetes in the United States

Mentor: Jeannette Manger, PhD

BSOM, Department of Medical Education

Background: Diabetes and insufficient sleep are prevalent health concerns, and determining potential contributing factors could help decrease the incidence of these issues. This study aims to explore potential associations between insufficient sleep and diabetes mellitus, examining whether these negative health outcomes can be linked geographically and by personality traits. The results extrapolated from this study could help create more effective programs to combat and lower adverse diabetes and insufficient sleep outcomes. Materials and Methods: Data for diabetes and insufficient sleep were gathered using 2023 County Health Rankings & Roadmaps. Furthermore, data for the big five personality traits was collected from "The Personality of the U.S. States: Stability from 1999-2015" by Elleman et al., which used Synthetic Aperture Personality Assessment (SAPA) project data. All data was categorized into four regions: Northeast, Midwest, South, and West and Spearman correlation tests were implemented to analyze the relationships between personality traits and each health issue in the four different regions. Results: The Spearman correlation analysis indicated strong positive correlations between extraversion and diabetes and between extraversion and insufficient sleep in the Northeast. Moreover, a strong negative correlation was found between intellect and diabetes in the Northeast.

Brahmandam S, Murray T, Crawford T

Poster 90

Exploring the relationship between Illicit Substance use and Engagement with Health Care Providers Among Older African Americans Living with HIV

Mentor: Timothy N Crawford, PhD, MPH

BSOM, Department of Population and Public Health Sciences and Department Family Medicine

Objective: This study's purpose was to explore the relationship between substance use and engagement with health care providers (HCPs) among older African Americans with HIV in Ohio. Background: Optimal engagement with HCPs is important to improve the health of people with HIV (PWH). However, substance use may pose a barrier to being engaged with their provider. Methods: Cross sectional survey data collected among 52 older (50+ years) African Americans with HIV in Ohio. We calculated unadjusted odds ratios (OR) and 95% confidence intervals (CI) to explore the relationship between perceptions of engagement with HCP and licit (alcohol and tobacco) and illicit (opioid, methamphetamine, cocaine, and cannabis) substance use. Results: Majority of the sample used at least one of the substances. Alcohol (94.2%), tobacco (80.8%), and cannabis (67.3%) were the most prevalent substances used followed by cocaine (53.8%), methamphetamine (51.9%) and opioid (50.0%) use. The median engagement with HCP score was 31.0 (IQR = 15.3). There were significant associations between engagement with HCP and substance use. Low engagement with HCP were associated with increased odds of opioid (OR=1.24; 95% CI=1.13-1.39), cannabis (OR=1.14; 95% CI=1.06-1.26), cocaine (OR=1.23; 95% CI=1.12-1.37), methamphetamine (OR=1.24; 95%Ci=1.24; 95% CI=1.13-1.40), and tobacco use (OR=1.14; 95% CI=1.04-1.29). Conclusions: The main finding shows that PWH with illicit substance use are less engaged with their HCPs. This can help explain the poor outcomes and be used to improve HIV care outcomes among this population.

Paradine K, Anderson H, Manger J

Poster 91

The Intersection of Broadband and Health- Exploring Rural-Urban Disparities in Colorado

Mentor: Jeannette Manger, PhD

BSOM, Department of Medical Education

Background: Reliable broadband is essential for healthcare, however many U.S. communities, especially rural and low-income areas, lack critical access. Expanding broadband allows access to services such as telehealth, health education, and prescription services which can greatly improve health equity in vulnerable populations. Purpose: This study explores broadband access and health outcomes in Colorado's rural and urban counties. It assesses disparities in broadband coverage, premature death, life expectancy, and socioeconomic factors, aiming to inform policies improving telehealth and primary care access. Methods: Colorado counties were classified as rural or urban using U.S. Census definitions and County Health Rankings data (2016-2023). Statistical analysis, including an unpaired t-test, two paired t-tests, and Pearson correlation, assessed broadband access, socioeconomic status, and healthcare outcomes. Key variables included broadband access, years of potential life lost, and life expectancy. Results: Significant differences in broadband access were found between rural (83.36%) and urban (91.38%) counties ($p < .001$). Years of potential life lost increased in urban counties from 5734.99 to 6328.66 ($p < .001$) and rural counties from 6735.08 to 7687.00 ($p < .001$). A positive correlation between broadband access and life expectancy ($r = .580$, $p < .001$) and a negative correlation with socioeconomic factors ($r = -0.433$, $p < .001$) were found. Conclusion: This study highlights the impact of broadband access disparities on healthcare outcomes in rural Colorado. Limited connectivity, coupled with socioeconomic challenges, contributes to higher years of potential life lost. Addressing broadband gaps can inform policies promoting equitable healthcare access for underserved populations.

Abbah SK, Kaveti LS, Crawford TN

Poster 92

Beyond the Prescription: How Food and Housing Insecurity Disrupt HIV Treatment and Adherence to care among Older African Americans with HIV in Ohio

Mentor: Timothy N. Crawford, PhD, MPH

BSOM, Department of Population and Public Health Sciences

Background: HIV disproportionately affects older African Americans (AA) in the United States, consistently accounting for a substantially higher percentage of new infections relative to their share of the population. Socioeconomic factors, including food and housing insecurity, significantly impact HIV outcomes, particularly ART adherence, retention in care, viral suppression, and overall well-being. Purpose: To explore the impact of food and housing insecurity on health outcomes among older AA people with HIV (PWH). Methods: Multivariable logistic regression models, controlling for age, years living with HIV, and sexual orientation, were conducted to examine the associations between food and housing insecurity and medication and visit non-adherence. Findings: Fifty-two participants were included in the study with a mean age of 53x4.7 ± 2.1. Approximately 58.0% self-reported food insecurity and almost half (48.1%) reported housing insecurity. Almost a third of the sample missed a clinic visit within the past 12 months and 48% were non-adherent to their medications. Those with housing insecurity had 4.18 times higher odds (95% CI: 0.85 – 24.12) of visit non-adherence, compared to those who were housing secure. Food insecurity increased the odds of a missed visit by 3.78 times (95% CI: 0.46 – 39.09). Food insecure (OR: 1.91; 95% CI: 0.36 – 10.22) and housing insecure participants (OR: 1.11; 95% CI: 0.28 – 4.24) had higher odds of medication non-adherence compared to their food secure and housing secure counterparts. Conclusion: Older AA PWH experiencing food and housing insecurity are at higher risk of clinic visit and medication non-adherence, which can hinder viral suppression and overall health outcomes.

Williams K, Crudele M, Manger J

Poster 93

Positive Correlation of Smoking Percentage and Mentally Unhealthy Days in Ohio 2016-2022

Mentor: Jeannette Manger, PhD

BSOM, Department of Medical Education

There is substantial research interest regarding the effects of smoking on physical health, however the impacts on mental health are more novel. Smoking rates are substantially higher among those with a pre-existing mental illness (such as schizophrenia or generalized anxiety disorder)1. Additionally, second-hand smoke exposure among non-smokers has been attributed to an increased risk of developing symptoms of poor mental health (such as anxiety or depression)2,3. It has also been shown that smoking cessation leads to improved mental health4. However, there is limited research regarding the negative effects of smoking on mental health, especially in the state of Ohio, across rural and urban counties, and in comparison to surrounding states. This study aims to clarify these relationships and help guide further research in the field. This article will expose the relationships between these two variables that are ever-increasing in relevance and importance as well as provide direction for further research. County health rankings, a de-identified national database, was used to research these trends and associations. Data from 2022 was used when comparing the two variables. Data from 2016 and 2022 were used to track the short-term changes. These years are especially interesting as they may highlight the changes from the COVID-19 pandemic. Spearman correlation, unpaired t-test, and ANOVA test were used to statistically analyze the data where appropriate. Smoking percent and mentally unhealthy days in Ohio significantly increased from 2016 to 2022. There are significant differences in smoking percent among adults and mentally unhealthy between Ohio, Michigan, Kentucky and Indiana.

Becker A, McGreal K, Doehring S

Poster 94

The Effect of Breastfeeding on Emotional State of the Child

Mentor: Chasity O'Malley, PhD

BSOM, Department of Medical Education

Background: Breastfeeding offers numerous benefits, including enhanced nutrition, cognition, immune response, and mother-child bonding. Objective: To explore the relationship between breastfeeding and emotional health in children aged 6 months-5 years. Methods: The 2019-2022 National Survey of Children's Health data was analyzed to assess associations between breastfeeding during the first 6 months (never, partly, or exclusively) and flourishing in children aged 6 months-5 years. A subset of children aged 3-5 years was evaluated for mental, emotional, developmental, or behavioral problems. Adjusted odds ratios (AOR) and 95% confidence intervals (CI) were determined using multiple logistic regressions, controlling for family demographics. Results: A total of 49,599 children (representing 17,345,316 nationwide) were included: 16.4% never breastfed, 55.0% partly breastfed, and 28.7% exclusively breastfed. No association was found between breastfeeding and flourishing. However, children who were never breastfed had significantly higher odds of mental, emotional, developmental, or behavioral problems compared to those exclusively breastfed (AOR 1.8, 95% CI 1.2-2.6). Conclusions: These findings reinforce the importance of breastfeeding support and advocacy. However, children can still flourish regardless of breastfeeding status, emphasizing that multiple factors contribute to a child's emotional well-being. Mothers may face many challenges in the attempt to breastfeed their child, and while it should be encouraged, it is not the sole determinant of a child's emotional state.

Asgary R, Anderson H, Naderi R

Poster 95

SMS text strategies for hypertension control: a scoping review

Mentor: Ramin Asgary, MD, MPH, FASTMH

The George Washington University - Milken Institute School of Public Health

Background: Around half of American adults have hypertension; many are uncontrolled. HTN contributes to 700,000 deaths in the US and costs about $130 billion, annually. Purpose: This study aimed to evaluate SMS text strategies for hypertension control for their efficacy, key components, user engagement, and feasibility. Methods: We conducted a scoping review of literature focusing on clinical trials and prospective studies in Medline/PubMed and Cochrane Library from Jan 1980 to Dec 2021. The full texts of the resultant articles were qualitatively assessed for internal and external validity, intervention components, efficacy and effectiveness, and delivery methods. Two reviewers independently evaluated each study and then met and refined the final assessment. Results: 28/90 studies were qualitatively reviewed. Studies were randomized control trials, using usual care versus health messaging. Intervention duration was between 1 day to 18 months. 21/28 studies involved some tailoring, either of content, timing, or frequency of messages. 11/28 studies used bidirectional messaging. 10/28 studies demonstrated significant reductions in blood pressure; 7 showed no improvement; 11 only measured process outcomes (e.g. adherence or monitoring). Barriers included forgetfulness, not reading messages, technology literacy, and bidirectional texting. Flexibility of timing, choice of language, reminders, and consistency in messages were appreciated. Relationship between the specifics and frequency of SMS texts and the intervention efficacy was unclear. Conclusions: SMS texting was cost-effective, acceptable, and improved blood pressure or adherence. Identifying effective SMS components remains challenging. Healthcare access and resources are essential for effectiveness. Practical relevance, cultural appropriateness, comprehensibility, and user engagement merit further evaluation.

Bute L, Abboud A, Wilcher K, Whitehead K, Dhanraj D, Talbot T, Maxwell R

Poster 96

The Association of Social Factors, Barriers to Care, and Stress Among Postpartum Women Within Racial Groups

Mentor: Rose Maxwell, PhD, MBA

BSOM, Department of Obstetrics and Gynecology

Introduction: Mounting evidence suggests that postpartum stress disproportionately affects marginalized racial groups, contributing to adverse maternal outcomes.1-3 This study aimed to identify factors associated with stress among postpartum women and to examine differences within and across racial groups. Methods: Paper questionnaires were administered to English-speaking postpartum women (≥18 years) prior to hospital discharge. Participants completed demographic questions, a resiliency assessment, and a checklist of barriers to care (e.g., transportation, finances, childcare), indicating whether they felt overwhelmed by stress. Chi-square and t-tests compared women who reported stress (SP) with those who did not (NSP). Results: Of 109 completed questionnaires, 61% were returned by white participants and 27% by Black-identifying participants. SP and NSP groups were similar in education level and marital status, yet SP participants reported significantly more barriers overall. Within racial groups, Black-identifying SP participants had higher rates of lacking enough money (45% vs. 0%, p=.03), feeling too tired for everyday activities (50% vs. 0%, p=.01), and trouble getting places (40% vs. 0%, p=.03) compared to Black-identifying NSP participants. Among white participants, SP individuals were more likely than NSP individuals to report financial strain (31% vs. 7%, p=.02), excessive fatigue (50% vs. 10%, p<.001), and childcare difficulties (36% vs. 3%, p<.001). Conclusions: This study highlights the differential racial experience of barriers to care among stressed and non-stressed women. Addressing the systemic inequalities underlying psychological stress during the perinatal period is necessary for delivering equitable care.

Jenkins W, Silverstein S, Handysides D, Herring P, Daniulaityte R

Poster 97

Qualitative Exploration of Wave Four: Methamphetamine and Opioid Treatment and Health Risks

Mentor: Sydney Silverstein, PhD

BSOM, Department of Population and Public Health Science

Background: Polysubstance use has increased, with methamphetamine as the leading stimulant present in overdose deaths. Stimulants increase the risk of overdose, cardiovascular conditions, mental illness and blood-borne diseases. This study explores polysubstance users' perceptions of their current health, strategies to reduce health risks associated with polysubstance use, and beliefs and experiences of treatment in the Dayton, Ohio area. Methods: Qualitative interviews were analyzed from 89 participants meeting the following eligibility criteria: 1) ≥ 18 years of age; 2) living in the Dayton area; and 3) used methamphetamine within the past 30 days. Participants were recruited through flyers, outreach referrals, and snowball sampling methods. Structured survey data was collected and stored within REDCap, and qualitative interviews were audio recorded, transcribed verbatim, and analyzed thematically in ATLAS.ti using the health belief framework. Results: Participants described a lack of adequate methamphetamine treatment options compared to opioid use disorder treatment and using methamphetamine during treatment. Individuals explained existing physical and mental health conditions and oral health concerns, perceived to be induced or exacerbated by polysubstance use. Healthy eating and drinking habits, safe intravenous practices, and using methamphetamine to prevent or reverse an opioid overdose were identified strategies to reduce health consequences associated with substance use. Conclusions: Our findings substantiate a holistic treatment approach and suggest a public health initiative increasing awareness and education on polysubstance use health risks, screen and review patient health history, increase cross-sector collaboration, and expand access to treatment services and resources to improve well-being.

Acknowledgements

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