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Showcase**

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Abstract Booklet

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101 - Diffuse Intraductal Breast Papillomatosis in a 34 Year-Old Female with Maffucci Syndrome: A Rare Case Presentation

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Purpose: This report aims to raise clinical awareness of an exceptionally rare case of Maffucci syndrome in a 34-year-old female presenting with diffuse intraductal breast papillomatosis. It further explores a potential pathogenic link between Maffucci syndrome and a specific subtype of papillary breast carcinoma, supported by shared gene variants implicated in disease pathogenesis.

Methods: Maffucci syndrome is a rare, congenital, non-hereditary disorder characterized by enchondromas, hemangiomas, and skeletal deformities, typically presenting in early childhood. Since its initial description in 1881, fewer than 300 cases have been reported, with an estimated prevalence of <1 in 27 million. Somatic mutations in **IDH1** and **IDH2** are key drivers of Maffucci syndrome and are also implicated in malignancies such as gliomas, chondrosarcomas, intrahepatic cholangiocarcinoma, and acute myeloid leukemia. Most relevant to this case, tall cell carcinoma with reversed polarity (TCCRP)—a rare subtype of papillary breast carcinoma—is uniquely associated with hotspot **IDH2 R172** mutations, a genetic link otherwise uncommon in both breast carcinomas and Maffucci syndrome. Only one documented case of an IDH1-mutated solid papillary carcinoma with reversed polarity (SPCRP) exists in the current literature.

Results: The patient is a 34-year-old female with Maffucci syndrome, diagnosed in childhood via clinical and radiographic evaluation, with a history of skeletal and vascular complications, including primary chondrosarcomas of the left scapula and right distal patella/tibia. She initially presented in 2016 with left-sided hemorrhagic nipple discharge, prompting serial imaging and biopsies that identified recurrent intraductal papillary lesions, consistently benign. A right-sided lesion was excised in 2022, followed by two left-sided lesions resected in 2023 and 2024. Mammography in November 2024 revealed three nodular lesions in the left lateral breast, characterized as complex cystic masses. Core needle biopsy confirmed benign intraductal papillomas without atypia, underscoring a persistent pattern of rapidly developing and proliferative papillary breast neoplasms. Her left breast lesions were found to be stable on follow-up ultrasound in June 2025.

Conclusion and Importance: This case suggests a potential **IDH1/IDH2-driven** link between Maffucci syndrome and papillary breast neoplasia, highlighting the need for heightened surveillance given the malignant potential of Maffucci-associated tumors. Genetic and immunohistochemical analyses of the patient's

breast and enchondromal lesions are planned to further investigate a shared oncogenic mechanism.

102 - Perceptions and Needs of a Social-Media-Based Intervention for Prescription Opioid Misuse among Young Adults

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Purpose statement: Prescription opioid misuse (POM) is prevalent among young adults in the United States, and social media emerges as a promising intervention platform given its popularity. Although emerging evidence has shown feasibility of applying social media for substance use reduction trials, scarcity have been specifically designed for POM. In addition, notably, limited knowledge is available regarding thoughts of young adults, particularly those who engaged in POM, on such programs. Accordingly, the current formative study reported qualitative findings on perceptions and needs of a social-media-based intervention for POM among young adults.

Methods: Data was drawn from an on-going NIH-funded project aimed at developing a social-media-based intervention for POM. Recruited by social campaigns across multiple social media platforms, eighteen young adults who engaged in past-3-month POM completed 60-minute semi-structured in-depth audio-recorded interviews. Transcribed data were analyzed using a pragmatic approach by two professionals with expertise in POM. Themes and subthemes, along with illustrative quotations reflecting POM-related social media use and perceptions of social-media-based interventions, were identified and extracted.

Results: Findings suggested educational advertisements on Instagram and Facebook were the common sources of opioid-related content. They reported an optimistic attitude to the intervention, highlighting psychosocial content related to threats of opioids, benefits of opioid tapering, coping strategies, self-care skills, and access to professionals. Recommended features included the use of motivational visual techniques, with an emphasis on incorporating the peer support model and tailored outreach strategies. However, several implementation challenges were identified, such as the intricate nature of social media use, unstable internet connectivity, and a lack of intention to change.

Conclusion: The social-media-based intervention should prioritize psychosocial components related to POM, with a young-adult friendly design that leverages the peer support model. The implementation of such program should employ tailored

strategies to support young adults in overcoming barriers to intermittent internet connectivity and enhancing their engagement motivation. Future efforts are needed to examine the feasibility and efficacy of a social-media-based intervention for POM and to explore how to incorporate external functionality that can facilitate the intervention.

103 - Differentiation of Human Dental Pulp Stem Cells to Neuron-Like Cells in 3D Hydrogel Cultures for Neurodegenerative Diseases.

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Purpose Statement:

This study proposes to investigate the neuronal differentiation potential of human dental pulp stem cells (hDPSCs) in both 2D culture and 3D hydrogel scaffolds. By comparing outcomes between induction and maturation stages, and across different culture environments, this work aims to identify optimal conditions for generating mature neuronal phenotypes from hDPSCs. This will provide insights that could advance their application in neurodegenerative disease modeling and regenerative medicine.

Background:

hDPSCs are a promising, accessible source of stem cells that can differentiate into neuronal phenotypes, offering potential for regenerative therapies in neurodegenerative diseases. However, differentiation efficiency and maturation are variable, particularly in vitro, and may depend on culture conditions and substrate composition. Three-dimensional scaffolds made from extracellular matrix (ECM) components, such as hydrogels formed from crosslinked collagen IV, can provide structural support and bioactive signals that promote cell attachment, neuron formation, and cytoskeletal organization. Optimizing these factors is critical for generating functional neurons suitable for translational research.

Methods:

Passage 4 hDPSCs were cultured in 24-well plates in neuronal induction media for 7 days, with media changes every three days, followed by 7 days in maturation media with the same schedule. Neuronal differentiation was evaluated using immunofluorescence staining: Septin-8/DAPI and ActinGreen after induction, and MAP2/DAPI and Actin-Phalloidin Green after one week of maturation. Parallel cultures were differentiated in 3D collagen IV hydrogels. Fluorescence microscopy was used to visualize and characterize morphological changes, neurite-like extensions, and expression of neuronal markers.

Results:

The induction protocol promoted significant morphological changes, including cell elongation and early neuron-like processes, along with strong Septin-8 expression, highlighting early neuronal commitment. In contrast, the maturation protocol further enhanced neuronal features, with a higher MAP2 expression and continued well-defined actin cytoskeletal organization, indicating progression toward mature neuronal phenotypes. Septin-8 expression decreased in maturation media, reflecting the transition from early to later stages of differentiation. Cells cultured in collagen IV-supported hydrogels showed significantly improved attachment, spreading, and neuron-like extension compared to cells in hyaluronic acid hydrogels or in 2D culture, demonstrating that ECM composition has a significant impact on differentiation efficiency, neuronal morphology, and early neuron development.

Conclusion:

A sequential induction-maturation protocol effectively directs hDPSCs toward neuronal differentiation in both 2D and 3D cultures. Early differentiation was characterized by strong Septin-8 expression and morphological changes, while maturation promoted MAP2 expression and enhanced cytoskeletal organization. Collagen IV-supported hydrogels significantly improved cell attachment, neuron-like extension, and the differentiation efficiency compared to hyaluronic acid hydrogels or 2D culture, highlighting the critical role of extracellular matrix cues in promoting neuronal morphology. These findings are useful for additional molecular analysis and for further characterization of neuronal identity and functionality of these undifferentiated cells.

104 - Isolation and implantation of dental pulp stem cells from SMN Δ 7 mice for the treatment of spinal muscular atrophy

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Introduction:

Spinal muscular atrophy (SMA) is an inherited neurodegenerative disease caused by a deletion of the *SMN1* gene. Chronic deficiency of the SMN protein disproportionately affects the motor neurons within the anterior horn of the spinal cord, causing them to atrophy and die. The severity of SMA can vary and affects all age groups. Patients suffer from progressive neuromuscular degeneration, respiratory issues and shortened lifespan if left untreated. Current treatments slow the progression of the disease, but do not regenerate the lost spinal tissue.

Purpose statement:

Our goal is to investigate the feasibility of a personalized stem cell treatment. We aim to isolate dental pulp stem cells (DPSCs) from mice, then transplant them into the spinal cord of SMA mice to potentially provide a therapeutic effect and regenerate nervous tissue.

Methods:

DPSCs will be isolated from a control line of SMNdelta7 mice by dissecting the mandible and removing the inner pulp from the incisors and molars. Newly isolated DPSCs will be resuspended in DPSC basal media supplemented with FBS, ascorbic acid, L-glutamine, and gentamicin.

Heterozygous SMNdelta7 mice will be bred together to create null *SMN1* offspring. These mice are smaller in size, have progressive muscle weakness, and a lifespan of ~2 weeks. Post-natal day 1 mice will be intrathecally injected with 15-25,000 DPSCs. A grip strength test will be performed by allowing the mice to grasp onto a metal bar suspended slightly in the air, and recording the time until the mouse releases the bar. Additionally, an open field test will assess the willingness and ability of the mice to move and explore in a wooden box. Motor neuron count and muscle mass will be observed through sectioning and staining.

Results:

We expect that SMA mice treated with DPSCs will have longer hang times on the grip strength test, and an increase in time and distance moved on the open field test. Staining performed on the hind leg and spinal cord tissue sections is expected to show a larger mass and a higher motor neuron count, respectively.

Conclusion:

At the end of this study, we hope to confirm the feasibility of using DPSCs to treat neurodegeneration due to SMA. DPSCs have neuronal differentiation potential, making them an appealing candidate for stem cell therapies for neurodegenerative diseases like SMA. A successful engraftment of DPSCs into the spinal cord will potentially have numerous positive effects, including increased muscle mass, a normalized growth rate, and improved motor ability. Ultimately, we plan to harvest DPSCs from patient premolars or wisdom teeth for autologous transplantation into the spinal cord. Our use of stem cell engineering using DPSCs has promising applications for regenerative medicine focused on patient-specific care.

105 - The Vital Importance Between Core and Non-Core Temperature

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Purpose Statement: Body temperature measurement is a cornerstone of clinical assessment. Obtaining a core temperature is widely regarded as the gold standard

for accuracy, yet non-core temperatures are often preferred for convenience and patient comfort. Despite widespread use, non-core methods have been criticized for variability and reduced accuracy in critical scenarios where core temperature is preferred. The purpose of this project was to assess differences in core versus non-core temperatures in the emergency department (ED).

Methods: This retrospective review examined records from 1/1/2018-12/31/2023 from seven Prisma Health Upstate EDs. Individuals were eligible if they were ≥ 18 years, had one core and one non-core temperature, and a respiratory rate < 50 . Individuals were excluded if they had a disposition of "Left Without Being Seen", "Against Medical Advice", or "ED Dismiss". Core temperature was defined as rectal, bladder, or "core" temperatures, non-core was defined as temperatures taken as tympanic or axillary. Paired T-tests compared differences in the core and non-core temperatures, where $\alpha < 0.05$ indicated statistical significance. T-tests were stratified by three temperature levels, hypothermic (temperature ≤ 95 F), normal (95.1-100.3), and hyperthermic (≥ 100.4 F). Sensitivity analyses assessed differences among those who were ≥ 65 years, those receiving chemotherapy, those with insulin dependent diabetes mellitus (IDDM), those with a positive urine drug screen (UDS) or blood alcohol level (BAC), and those with a respiratory rate > 20 breaths per minute.

Results: The majority of the 2,339 eligible patients were White (76%) and female (52.4%) with an average age of 68 years. Mean difference between core and non-core temperatures was 0.51 (STD=2.51) ($p < 0.0001$). Average differences in the core temperature of -1.13, ($p = 0.0035$) and 0.9721 ($p \leq 0.001$) were seen in hypothermic (N=39) and hyperthermic (N=111) patients, respectively. On average, individuals ≥ 65 (N=1,159) had a higher core temperature compared to the non-core temperature (0.8117, $p < 0.0001$) and individuals with a respiration rate > 20 breaths per minute (N=603) had an average difference of 1.06 ($p \leq 0.0001$). Compared to non-core temperature, patients on chemotherapy (N=107) had an average difference in core temperature of 0.9336, ($p = 0.0003$) and IDDM patients (N=49) on average had a lower core temperature (-1.73, $p = 0.0009$). Patients with a positive UDS or BAC (N=293) showed an average difference of -0.5765 ($p = 0.0006$).

Conclusion: We identified a significant difference between core and non-core temperatures, noting heightened differences in critically ill and medically vulnerable patients presenting to the ED. While the increased invasiveness, cost, and availability of core temperature measurements make non-core temperatures more desirable in certain scenarios, we identified specific populations where extra caution should be used to obtain a more accurate temperature. Clinicians and treatment protocols should take into account these findings and consider obtaining core temperatures to help accurately guide clinical management for these patients.

106 - Preoperative American Shoulder and Elbow Surgeon Score as a predictive factor of postoperative outcomes in patients with arthroscopic rotator cuff repair

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Purpose Statement: The primary objective of this study was to determine if preoperative American Shoulder and Elbow Score (ASES) is predictive of postoperative ASES scores at two years in patients following rotator cuff repair, including the likelihood of achieving minimal clinically important difference (MCID) and substantial clinical benefit (SCB) thresholds. Secondary aims of this study were to determine if tear size, age, and/or sex were associated with changes in ASES, MCID or SCB thresholds.

Methods: This is a retrospective analysis of consecutive patients who underwent arthroscopic repair between 2015 and 2024 by fellowship-trained surgeons at a single academic center. Exclusion criteria included open procedure and patients with insufficient follow up. Statistical analyses included a paired sample t-test to evaluate changes in ASES scores, Pearson's correlation to assess linear relationships, binary logistic regression to evaluate likelihood of passing MCID and SCB thresholds and a multivariate linear regression to identify predictors of postoperative improvement. Data was analyzed with SPSS.

Results: A total of 502 patients were included. Analysis with a paired sample t-test showed significant improvement in ASES scores from preoperative to two-year follow up ($p < 0.001$). Multivariable linear regression indicated preoperative ASES was a significant predictor of ASES improvement ($\beta = -0.682$, $p < 0.001$). while tear size, age and sex did not demonstrate significant associations. The Pearson's correlation revealed a strong negative correlation between pre-operative ASES and ASES improvement ($r = -0.675$, $p < 0.001$) and a moderate positive correlation between two-year ASES and ASES improvement ($r = 0.571$, $p < 0.001$) with no so. Binary logistic regression demonstrated that lower preoperative ASES scores ($OR = .957$, $95\% CI = .940-972$, $p < 0.001$) were significantly associated with the likelihood of achieving MCID. Similarly, lower preoperative ASES scores were significantly associated with achieving SCB ($OR = .945$, $95\% CI = .929-960$, $p < 0.001$). Larger tear size was linked with a reduced change of achieving MCID ($OR = 2.036$, $95\% CI = 1.076-3.3852$, $p < 0.029$). Age and sex were not significant predictor of outcomes.

Conclusion At a minimum of a two year follow up after surgery, patients with a lower baseline ASES score demonstrated greater improvements and were more

likely to achieve clinically meaningful outcomes. Tear size negatively affected the likelihood of achieving MCID but not SCB, while age and sex were not predictors of outcomes. Considering initial ASES scores during preoperative planning may help anticipate postoperative success and patient satisfaction with rotator cuff repair.

107 - Emergency Department - Alternatives to Opioids Program Decreased Overall Emergency Department Opioid Use

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Purpose Statement: A three-year grant from the Substance Abuse and Mental Health Services Administration (SAMHSA), supported a program to deploy training and facilitated bedside utilization of various medications and procedures to address pain management without the use of opioids. This Emergency Department - Alternatives of Opioids (ED-ALTO) program, instituted within a busy level 1 trauma center emergency department (ED), provided electronic medical record (EMR) based order sets and enhanced training and bedside support for various procedures including, non-opioid pharmacotherapeutics, acupuncture, trigger point injections (TPIs), regional nerve blocks (RNBs), and Transcutaneous Electrical Nerve Stimulation (TENS) to provide alternatives to opioids to treat pain. The objective of study was to analyze the impact of the ED-ALTO program on the overall ED opioid utilization.

Methods: This is a single site prospective cohort study assessed all adult (18+) patients with reported pain, as stratified by organ system comparing the 6 months prior to program initiation against the full-time course of the program (8/1/ 2021-11/30/2024). This program was initiated within the only regional level 1 (~95K adult ED patients/year) trauma center ED located in Greenville, SC. We assessed overall utilization of the various alternative treatments and tracked overall percentage of patients that received any opioid stratified by organ system while in the ED.

Results: Non-opioid pharmacotherapeutics were most utilized ALTO therapy (85% of enrolled patients), followed by TENS therapy (72%), RNBs (14%), acupuncture (<1%), and TPIs (<1%), respectively. Commonly used pharmacotherapeutics included non-steroidal anti-inflammatories (NSAIDS) and steroidal agents, acetaminophen, skeletal muscle relaxants, benzodiazepines, antiemetics, anticonvulsants such as gabapentin, and topical agents such as lidocaine patches. Tracked trends in opioid utilization within the ED revealed decreases across several organ systems including Headache (0.9% decrease or about 162 patients spared opioids), Chest (1.4% decrease or about 545 patients spared opioids), Abdominal

(0.7% decrease or about 730 patients spared opioids), and Extremities (1.5% decrease or 1020 patients spared opioids).

Conclusion: We report decreases across several organ systems within this level 1 trauma center ED. These decreases spared any opioid use in a total of approximately 2,500 patients. This data is limited in that it includes all patients with pain in the ED within these time periods and includes use of any opioid. This data does not assess the individual MMEs per patient, it reports on overall opioid usage in the ED. Further research should be conducted on the ongoing assessment of opioid utilization after cessation of this program.

108 - Circles of Difference: Ethnic-Specific RNA Biomarkers in Breast Cancer

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Purpose Statement:

African American women experience higher breast cancer mortality and are more frequently diagnosed with aggressive tumor subtypes compared to other racial and ethnic groups. Despite advances in cancer genomics, the absence of population-specific diagnostic tools contributes to persistent disparities in clinical outcomes. Circular RNAs (circRNAs) are stable, non-coding RNAs with emerging potential as non-invasive biomarkers in cancer detection and profiling. This study aims to identify tumor-associated circRNAs in African American breast cancer patients using a circRNA analysis pipeline. Discovering circRNA biomarkers specific to African American patients is a key step toward advancing precision oncology and achieving equity in cancer diagnostics and treatment.

Methods:

Serum samples from 35 African-American breast cancer patients and 15 healthy female controls were obtained from the Prisma Health Cancer Institute Biorepository. Following cell-free RNA isolation and circRNA enrichment, full-length circRNA libraries were prepared using the circFL-seq protocol and sequenced using Oxford Nanopore long-read technology. After basecalling and adapter trimming, reads were aligned to the GRCh38 human reference genome. Differential expression analysis using edgeR identified circRNAs associated with cancer status. Expression profiles were compared to public circRNA datasets from individuals of European ancestry to assess race-associated differences.

Results:

Differential gene expression analysis identified 11 circRNAs associated with race, 27 with tumor status, and 4 showing a race-tumor interaction, revealing race-specific differences in breast tumor biology. Among these, circRNAs from *REG3A*, a secreted lectin involved in inflammatory signaling and epithelial-mesenchymal transition (EMT), were upregulated in African-American tumors. *REG3A* drives tumor progression through STAT3 and mTOR activation. Similarly, circRNAs from *REG1A*, a secreted lectin involved in immune modulation, were upregulated and are linked to tumor progression and resistance to immune surveillance. CircRNAs from *CTNNA2*, a cell adhesion gene, were upregulated, indicating altered adhesion signaling and a potential regulatory role in tumor progression. In addition, *AC011754.1*, a long noncoding RNA was also differentially expressed and may contribute to race-specific tumor regulation.

Conclusion:

This study identifies a race-specific gene expression profile in African-American breast cancer involving dysregulation of immune and epithelial pathways. CircRNAs from *REG1A*, *REG3A*, *CTNNA2*, and *AC011754.1* may act as molecular drivers of aggressive tumor phenotypes and serve as race-conscious diagnostic and therapeutic biomarkers. CircRNAs regulate gene expression by blocking microRNAs, limiting their ability to suppress targets involved in proliferation, invasion, and immune response. These findings highlight a critical gap in cancer genomics and underscores the need to integrate race-informed molecular data into precision oncology to drive equitable biomarker discovery and improve outcomes in underrepresented populations.

110 - Precision Oncology Begins Here: Uncovering NSCLC Mutations in Prisma Health Patients

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Purpose Statement

Effectively treating and managing non-small cell lung cancer (NSCLC) disease is a significant challenge. No two tumor mutation profiles are the same, and novel mutation discoveries in NSCLC are ongoing. This is especially true in inpatient populations that historically have been under-surveilled. This project sought to characterize NSCLC mutations in a southeastern United States cohort specific to the upstate of South Carolina to explore the potential for individualized, mutation-specific, targeted treatment.

Methods

We analyzed NSCLC mutation data from the upstate of South Carolina, represented by the Prisma Health Cancer Institute (PHCI) cohort, which included 222 unique patients and spanned 50 tumor suppressor genes and oncogenes. More than 50 novel NSCLC mutations were identified, of which 25 were not previously described in publicly available mutation datasets, including TCGA, COSMIC, and ClinVar. Additionally, more than 10 of these actionable NSCLC mutations were evaluated for novelty by Foundation Medicine.

Results

Over 50% of the novel mutations identified were tumor suppressors, with *ATM* and *PTEN* accounting for more than 20%. Among the oncogenes, *PIK3CA*, *EFGF*, and *KIT* accounted for 6.8%, 5.1%, and 5.1%, respectively. Globally, of the 50 tumor suppressor genes and oncogenes evaluated, novel mutations were identified in 23 of those genes, eight tumor suppressors and 15 oncogenes.

Conclusion

In this regional NSCLC cohort, 23 novel genes and their previously-undescribed mutations were identified, the majority occurring in tumor suppressor genes. This predominance of tumor suppressor alterations suggests important prognostic and therapeutic implications, as such mutations are often associated with poorer outcomes and resistance to select therapies. These findings underscore the need for comprehensive genomic profiling to guide more precise, patient-specific approaches to oncologic care in NSCLC.

111 - Predicting Stroke Incidence Using Brain Age Gap

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Purpose: Brain age has become a potential biomarker for stroke research. Current studies draw conclusions using the brain age of a patient after they had a stroke. In our study, we calculated the patient's brain age before they have a stroke. Using the brain age, we can calculate the brain age gap, which is the difference between their brain age and chronological age. The brain age gap serves as an indicator of overall brain health. A larger gap may indicate a decline in brain health, suggesting potential cognitive or neurological concerns. This study utilizes the brain age of patients to determine whether brain age, specifically the brain age gap, can serve as a predictive marker for future stroke risk.

Methods: We designed a retrospective study that analyzed data collected from 2,518 participants in Iceland over six years. Each participant underwent two MRI scans, one at baseline and one at follow-up. Brain age was calculated using an MRI software program, and from that data, we were able to calculate the brain age gap (BAG). The participants were then categorized into two groups: those who did not

have a stroke during the study (n=2,546) and those who had a stroke during the study (n=62). The Body Mass Index (BMI), smoking status, alcohol consumption, educational level, and blood pressure levels of the participants were also assessed during the study.

Results: We performed a one-tailed t-test comparing the baseline BAG between the two groups, stroke and non-stroke, and found a trend toward significance (p=0.08). The mean BAG of the non-stroke group was -3.76 years and the mean BAG for the stroke group was -2.76 years. These results are trending towards our hypothesis that a higher, or more positive brain age gap, increases the odds of having a stroke. We set up a logistic regression model with brain age gap and chronological age as covariates, which also showed a trend toward significance (p = 0.08). We tested pairwise interactions between BMI, hypertension, smoking, alcohol consumption and chronological age, and found a significance between alcohol consumption and stroke incidence (p=0.05). Meaning, a higher brain age gap is associated with having a stroke in participants who consumed higher amounts of alcohol.

Conclusion: Although the data does not show a significant difference in the baseline brain age gap (BAG) between the stroke and non-stroke groups, the data shows a trend: a higher brain age gap is associated with increased odds of having a stroke. The findings suggest that the results might become statistically significant if there were a larger sample size. If the brain age gap becomes statistically significant with a larger sample size, it has the potential to become a clinically significant biomarker for predicting stroke incidence.

112 - Bilateral ectopic pregnancies 19 days apart: a case report

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Purpose Statement

Ectopic pregnancies are the leading cause of maternal morbidity and mortality in the first trimester of pregnancy, with an incidence of 5-10% of all pregnancies. Interstitial pregnancies account for around 10% of all ectopic pregnancies (2). The estimated incidence of bilateral tubal ectopic pregnancies is 1 in 725 ectopic pregnancies (3). In our case, this incidence is likely even more rare given the rarity of interstitial ectopic pregnancies. Here we present the case of a patient who underwent surgery for tubal ectopic pregnancy followed by a second contralateral interstitial ectopic pregnancy requiring surgical management.

Methods

This is an IRB exempt case report. One singular patient chart underwent retrospective review. Imaging was obtained during laparoscopic surgery.

Case Presentation

24 y.o. G2P1001 female who presents as a transfer due to abdominal pain and spotting in the setting of pregnancy of unknown location. She was attempting pregnancy and is 5w3d by LMP. She went to the ED, at which time her beta hCG was 1307 with no IUP on US. She followed up with her OB/GYN 48 hours later, at which time the beta was 1881. She noticed severe abdominal pain and some vaginal spotting. She subsequently presented for evaluation in the ED, where ultrasound again showed no IUP with a significant amount of free fluid in the posterior cul-de-sac/right adnexal region. Beta continued to trend upwards to 5298. Her hemoglobin level dropped by 4 points, from 12 to 8.4. Due to concern for a ruptured ectopic, she was transferred for emergent evaluation. She underwent an uncomplicated diagnostic laparoscopic right salpingectomy with removal of ectopic tissue. Her post-operative course was uncomplicated. She did not follow up for further hCG draws until she presented to the ED with a complaint of abdominal pain. Her hCG on day 19 after surgery was 1433, with repeat TVUS showing complicated pelvic fluid, mass in the left pelvis superior to the ovary, and a possible gestational sac, without yolk sac or fetal pole. Patient underwent left laparoscopic salpingectomy with wedge resection and removal of interstitial ectopic mass. Pathology findings from both surgeries confirmed ectopic pregnancies, and the patient's post-operative course was uneventful.

Results

Imaging showed ruptured ectopic from two separate surgical encounters: a ruptured right ectopic located in the fallopian tube and a ruptured left interstitial ectopic located in the left cornua.

Conclusion

This case highlights the importance of maintaining a high index of suspicion for ectopic pregnancy in all reproductive-age biological females who present with abdominal pain for evaluation at the emergency department. While rare, it is possible to have bilateral ectopic pregnancies, both of which require surgical management.

113 - Quantification of Plantar Pressure Wounds in Type 2 Diabetic Patients During Treatment

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Purpose Statement:

In the United States, approximately 24% of individuals with diabetes will require an amputation due to foot ulcers that progress from minor wounds into severe complications caused by prolonged pressure on the affected area. According to the NIH, the five-year mortality for Charcot, DFU, minor and major amputations were

29.0, 30.5, 46.2 and 56.6%, respectively. Pressure plays a major role in how these wounds form and worsen, as excessive loading can delay healing and increase the risk of infection. Despite these outcomes, there are few products on the market that are both rapidly produced and tailored to the individual patient to effectively reduce plantar pressure during ulcer healing. While offloading remains a critical component of diabetic foot ulcer treatment, there is little literature that quantifies plantar pressures related to wounds. This study aims to quantify plantar pressures in individuals with type 2 diabetes during weight bearing. We quantified changes in plantar pressures of diabetic foot wounds during clinical treatment.

Methods:

Following IRB approval and in partnership with Prisma Health, patients cleared by the clinician were consented and enrolled. Data from 15 patients is being collected; results from 5 patients are reported here. Participants (4M/1F, 145-330 lb) all had ulcers on the forefoot. Whole-foot pressure data was collected using the F-Scan system, and localized wound pressure data using the I-Scan system (Tekscan Inc., Boston, MA), each calibrated per manufacturer specifications. System accuracy was validated in the lab using a standard compression fixture applying pressures from 13-315 kPa in ~10 lb increments. The average error between systems was 4% relative to a full-scale body weight of 230 lb. Sensors were aligned on rigid foam mats in a standardized foot-stance configuration, with the I-Scan placed directly over the F-Scan at the wound. During data collection (100 Hz), participants stood on both feet, then completed three single-leg stances per foot. Pressure recordings were captured before and after debridement. Data was processed in MS Excel. Moving average (0.1 s) and peak pressure values were calculated and compared across foot regions over 5 visits.

Results:

Figures 1 and 2 show pressures for Volunteer 7 pre-debridement, with peak pressure (250.7 kPa) beneath the second metatarsal, the ulcer site. Post-debridement, this dropped to 210.6 kPa. Similar trends were seen across participants. Figure 3 shows average maximum plantar pressures, with forefoot regions, also ulcer sites, exhibiting the highest values.

Conclusion:

Ulcer sites consistently demonstrate elevated plantar pressures. On average, pressure values at the wound were higher before debridement than after, likely due to hard callus removed during the procedure. The high mortality rate from diabetic foot ulcer complications highlights the need to analyze the correlation between ulcer pressure and wound progression to assist in treatment and offloading.

114 - Characterization of long non-coding RNA (lncRNA) for Early-Detection of Triple-Negative Breast Cancer (TNBC)

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Introduction:

Triple-Negative Breast Cancer (TNBC) is known as the most aggressive subtype of breast cancer (BC) as it proliferates rapidly, has high rates of metastasis, and recurrence. TNBC is known as such due to missing receptors for estrogen (ER), progesterone (PR), and HER2 (HR), which are used primarily to detect and treat BCs. Without these receptors, TNBC is commonly diagnosed at later stages with a poor prognostic outlook. Alternative biomarkers for the early detection of TNBC are crucially needed, which leads to candidates such as long non-coding RNAs (lncRNAs). lncRNAs are powerful regulatory elements and several have been highly associated with devastating cancers like TNBC. Specifically, a lncRNA known as H19 is of interest because it is normally expressed only at specific developmental stages which make it an excellent biomarker candidate for high precision and accurate detection of cancers like TNBC and beyond.

Purpose Statement:

Molecularly characterize lncRNAs, like H19, at the isoform-level to elucidate their potential use as a biomarker.

Methods:

In a previous study by this group (supported in part by Prisma), a list of lncRNAs was established that are differentially expressed in TNBC biopsy samples, with H19 being one of the top candidates. H19 is well-characterized in literature but rarely any distinction is made at the isoform-level, which we saw differences between isoforms in our study. Since then, we have focused on further investigating and characterizing the isoforms of H19 to assess if they induce different genomic and cellular cascades based on their sequence, secondary structure, and localization within the cell.

To achieve this, we use In Vitro Transcription (IVT) to produce artificial lncRNAs and then transfect them into mammary epithelial cell lines to observe for any induced changes. Quantitative methods like flow cytometry are used with markers tailored to detect changes in molecular characteristics like proliferation, epithelial-to-mesenchymal transition (EMT), and stemness factors. Assays like wound-healing and invasion assays are used for assessing functional differences, particularly in reference to increased metastatic potential.

Results:

Our previous study found significant changes within the differential expression profile of lncRNAs between early and late stage TNBC tissue biopsy samples. These are encouraging results for our current efforts as we investigate cellular and functional changes and aim to compare models of early and late-stage BC. Our initial results from our cellular and functional assays are supportive but require

further optimization and repeated trials to allow for data analysis. The expected results of this research translate into improving early diagnosis rates of TNBC.

Conclusion:

The results of this study would lead to improved analytical understanding of lncRNA expression in relation to tumorigenesis and the development of better biomarker screens for TNBC detection and treatment guidance.

115 - Large Volume Hydrodilatation for the Treatment of Adhesive Capsulitis

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INTRODUCTION:

Adhesive capsulitis (AC) commonly known as “frozen shoulder”, is characterized by fibrosis and contracture of the glenohumeral joint capsule, leading to progressive stiffness, pain, and limited range of motion (ROM) across multiple planes which is used to confirm diagnosis. Incidence is typically 3-5% of the general population with the highest incidence among diabetics. Age ranges affected are typically 40-60 years old with women being more commonly affected than men. While corticosteroid injections, physiotherapy and hydrodilatation are common treatments, no consensus exists regarding the most effective approach.

PURPOSE Statement:

To determine if a novel technique with large volume hydrodilatation in conjunction with suprascapular nerve block is an effective initial treatment for adhesive capsulitis.

METHODS:

Seventy-one patients diagnosed with AC underwent a novel ultrasound-guided large-volume glenohumeral joint hydrodilatation protocol, including an ultrasound-guided suprascapular nerve block at the suprascapular notch of the scapula prior to the procedure. The hydrodilatation included 9cc 1% lidocaine and 1cc triamcinolone, followed by the injection of up to 110cc sterile saline. Immediately post-procedure, patients performed two sets of 10 forward wall crawls and held a 1-minute external rotation doorway stretch for two repetitions in the clinic, with outpatient physical therapy was prescribed as well. ROM was measured immediately pre-procedure, post-procedure, and at the final clinic follow-up. PROMs were assessed 6+ months following hydrodilatation using the Numeric Rating Scale (NRS) for pain, the Shoulder Pain and Disability Index (SPADI), and the Single

Assessment Numeric Evaluation (SANE). Any further treatments that patients required were also recorded.

RESULTS:

There were 47 female and 24 male patients included. Average pre-procedure forward flexion was 107°, which increased to 156° immediately post-procedure ($p<0.01$), and remained at 153° ($n=45$) at follow-up ($p<0.01$). External rotation pre-procedure ROM was 31°, increasing to 68° ($p<0.01$) immediately post-procedure, and 63° ($n=34$) at follow-up ($p<0.01$). Abduction demonstrated pre-procedure ROM of 84°, immediate post-procedure ROM of 120° ($p<0.01$), and a final follow-up ROM of 101° ($n=30$) ($p<0.01$). Average fluid volume of hydrodilatation was 70cc (range 40-110). 35 patients completed 6+ months PROMs (average=15 months). The average NRS was 2, SPADI 14.6, and SANE 85.3 compared to the contralateral shoulder SANE of 95.

CONCLUSION:

Our novel ultrasound-guided hydrodilatation procedure for AC resulted in significant improvements in ROM and satisfactory 6+ month PROMs. These findings suggest that it could be an effective lasting alternative or adjunct to traditional treatments.

116 - Staff Nurse Perceptions of Patient Care Transitions between Procedural and Non-procedural Areas

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¹Prisma Health

Purpose:

The purpose of this study was to identify the clinical nurse perceptions of patient care transitions between procedural and non-procedural areas and to explore if there is an association between the clinical nurse's perceptions and their demographic variables.

Literature Review:

Patient care transfers can be complex, and inadequate communication between sending and receiving clinicians has been identified as a contributor to adverse events. Although there is extensive research on the value of effective handoff communication from shift to shift and between inpatient environments, there is limited studies on patient care transitions between procedural and non-procedural areas.

Methods:

This study utilized a cross-sectional design of a convenience sample of nurses within an acute care hospital in system. Data was collected in a secure on-line database using a confidential, minimally modified version of a validated survey. Study team members recruited participants for 4 weeks via bulletin board postings and informational cards while rounding.

Results:

101 nurses from 5 hospitals participated in the study. 33% worked in a procedural area, 85% were female, 62.4% held a BSN or greater degree, 86.1% were clinical nurses, and 90% worked full time. There were statistically significant differences between sending and receiving units with questions pertaining to: whether a verbal handoff was given or charting tasks were completed ($p=0.000$), being too busy to prepare for patient transferring in/out and notifications of when a patient will leave/arrive to the unit ($p=0.000$), respecting decisions on the disposition of patients and appropriate placements ($p=0.000$), efficient, effective, and safe transfers, and the "batching" of patients leaving/arriving to their area ($p<0.006$).

Conclusions:

The differences in the perceptions of handoff communications between procedural and non-procedural areas with patient care transitions highlights the need to bridge the gaps between those perceptions to decrease negative clinical practice outcomes.

117 - Comparison of Operative versus Non-Operative Treatment for Minimally Displaced Tibial Plateau Fractures Stratified by Schatzker Classification

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Purpose Statement: The purpose of this study was to compare patient-reported outcomes between operative and nonoperative management of minimally displaced tibial plateau fractures, stratified by Schatzker classification.

Methods: A retrospective comparative cohort study was conducted of skeletally mature patients aged 18-80 years with tibial plateau fractures treated between 2016-2024. Patients were identified using CPT code review (27530, 27535) and institutional databases. Demographics, injury characteristics, and comorbidities

were collected. Patients were contacted at ≥ 1 year follow-up to complete a survey consisting of the WOMAC (pain and function), Lysholm (knee function), Rasmussen, and PROMIS (physical and mental health) scores. Comparisons between operative and nonoperative groups were performed using chi-square and t-tests, with significance set at $p < 0.05$.

Results: Forty patients were included (20 nonoperative, 20 operative). Groups were similar with respect to gender, BMI, and comorbidities. Operative patients were younger (45.5 vs. 61.9 years, $p < 0.01$), and Schatzker classification differed between cohorts, with operative patients more frequently presenting with higher-energy fracture types ($p < 0.01$).

Patient-reported outcomes showed no statistically significant differences between groups. WOMAC scores trended higher in the operative group (33.2 ± 22.4 vs. 19.9 ± 21.3) but did not reach significance ($p = 0.06$). No statistically significant differences were observed in Lysholm (65.1 ± 22.8 vs. 77.2 ± 24.0 , $p = 0.11$), PROMIS Physical (45.2 ± 9.4 vs. 49.8 ± 11.2 , $p = 0.16$), PROMIS Mental (49.2 ± 10.1 vs. 53.7 ± 10.4 , $p = 0.17$), or Rasmussen scores (13.0 ± 1.4 vs. 13.2 ± 1.8 , $p = 0.69$). One nonoperative patient (5%) ultimately required conversion to total knee arthroplasty six months after injury.

Conclusion: Tibial plateau fractures are clinically significant due to their intra-articular nature and risk of post-traumatic arthritis. Prior studies of operatively treated fractures have shown worse patient-reported outcomes with higher-energy injuries, but the relative benefit of surgery compared with nonoperative care has been unclear. In this study, when controlling for injury severity by Schatzker classification, operative and nonoperative management of minimally displaced tibial plateau fractures demonstrated no statistically significant differences in functional outcomes at ≥ 1 year. WOMAC scores trended higher in the operative group but were not statistically significant. One nonoperative patient (5%) ultimately required total knee arthroplasty. These findings suggest that operative fixation does not provide a consistent functional advantage for minimally displaced fractures when controlling for injury severity and classification. Larger multicenter studies are warranted to determine long-term joint survivorship, as well as the true rates of nonoperative failure and surgical reoperation.

118 - Impact of Metabolomics in Multidrug Resistant Colorectal Cancer Cells

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¹Clemson

Purpose: The objective of this study was to evaluate the metabolomics of multidrug resistant colorectal cancer cells that were treated with atorvastatin and doxorubicin.

Methods: The CACO2 cells, a colorectal cancer cell line, were bi-weekly treated either with 10µM atorvastatin, 40µM Atorvastatin, or 40nM doxorubicin, a positive control, for 3-4 months. The drug-treated cells were monitored for drug-resistance through quantitative PCR (qPCR) through changes in the *ABCB1* gene, which encodes for the P-glycoprotein (P-gp) transporter. Once *ABCB1* overexpression was observed, the cells were confirmed for protein expression through flow cytometry, western blots and immunostaining. Drug resistance was tested on the cells using the Prestobluе proliferation assay using chemotherapy medications that are used in colorectal cancer therapy, oxaliplatin and irinotecan. The drug-resistant cells were assessed with the Biolog Phenotype Mammalian Microarray 1 (PM-M1) for the metabolic profile of colon cancer cells that developed multidrug resistance. The PM-M1 assay evaluates the production of NADH in the presence of different carbon-based energy sources, providing functional information on the major energy pathways of the cells.

Results: The overexpression of *ABCB1* was achieved in the drug-treated CACO2 cells by the 4th month of the study. The protein analysis with western blots and flow cytometry showed similar results with P-gp overexpression in the atorvastatin-treated and doxorubicin-treated cells. The chemotherapy-resistant assay revealed that the atorvastatin-treated and doxorubicin-treated cells were resistant to the colorectal chemotherapy medications. The metabolomics assays showed interesting differences in NADH levels between the untreated (negative control) and the doxorubicin-treated (positive control) cells, with 21 compounds: the NADH levels were higher for the DMSO cells in 16 wells and for the doxorubicin cells in 5 wells. The cells exposed to doxorubicin usually show little or no metabolic activity in the PM-M assays. In this case, the low number of compounds showing relevant differences, with even 5 showing higher energy production by cells exposed to doxorubicin, indicates that the CACO2 cells have developed drug resistance to the drug. The cells exposed to atorvastatin showed dose-dependent trends: the NADH levels observed with the 10µM atorvastatin-treated cells showed very few differences when compared to both untreated and doxorubicin-treated cells, while the ones with the 40µM dose showed significantly decreased energy production.

Conclusion: Colorectal cancer patients with chemotherapy-resistant/multidrug-resistant (MDR) tumor cells are at higher risk for treatment failure. Cancer patients with MDR tumors have a poor prognosis compared to patients who are responsive to chemotherapy treatment, which may be due to drug exposure of statins or chemotherapy agents. With the identification of MDR in cancer patients, doctors will be able to provide a more precise approach in treating patients with more effective drug therapies.

119 - Cracking the LC/MS Code: AI Uncovers Breast Cancer Biomarkers in Glycomics Data

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Purpose statement

Liquid chromatography-mass spectrometry (LC-MS) is a powerful tool for profiling glycan expression patterns in cancer, yet its use in deep learning guided biomarker discovery remains underexplored. Deep learning, a branch of modern artificial intelligence (AI) inspired by the architecture of the human brain, excels at recognizing complex, high-dimensional patterns that are difficult to capture with conventional statistical approaches. Our work introduces an interpretable deep learning framework that reframes LC-MS glycomics as an image recognition task to classify breast cancer status and prioritize glycan biomarker candidates using a within-subject, paired study design. The framework provides a scalable molecular adjunct to imaging and pathology, offering potential to help resolve indeterminate findings and support longitudinal monitoring.

Methods We collected LC-MS data from 38 patients with unilateral breast cancer, each contributing two samples: cancerous breast (Class A) and contralateral non-cancerous breast (Class B), resulting in 76 paired samples. Raw spectra were encoded as high-resolution images utilizing mass-to-charge (m/z), retention time (RT), and ion intensity, thereby enabling applications of modern deep learning models. Deep learning models, particularly convolutional neural networks, are well-suited for image-based tasks because they automatically learn multi-level feature representations, reducing the need for manual feature engineering. A ResNet-50 convolutional neural network was trained using six-fold cross-validation. Model interpretability was achieved using Gradient-weighted Class Activation Mapping (Grad-CAM) to produce class specific consensus saliency maps across correctly classified cases. Peaks within salient regions were detected via kernel density estimation and matched to glycan structures using ppm-tolerant searches.

Results

The classifier achieved high performance in discriminating cancer vs non-cancer images, with a mean accuracy of 91.3%, area under the ROC curve (AUC) of 0.94, and F1-score of 0.90. Grad-CAM visualizations localized reproducible, class-distinct spectral regions between Class A and Class B. Salient features in cancer-enriched zones aligned with complex fucosylated glycans, including H6N5F1S3, a structure previously implicated in breast cancer subtypes.

Conclusion Our results demonstrate that deep learning can effectively classify LC-MS glycan profiles from paired cancer and non-cancer samples and identify interpretable, class-specific biomarker features. This pipeline supports a scalable and biologically grounded framework for integrating deep learning and glycoinformatics in breast cancer diagnostics and biomarker discovery. These results outline a practical path toward targeted, quantitative assays and prospective validation as a complementary adjunct to traditional imaging and pathology. More broadly, by positioning deep learning within the wider landscape of AI-driven

medicine, this work highlights its potential to transform precision oncology through automated, interpretable, and clinically actionable molecular insights.

120 - Vaginal Progesterone Prevents Pre-term Birth, But How?

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Purpose Statement

Nationally, one in ten babies will be born pre-maturely, generating an estimated healthcare burden of \$33 Billion. American College of Gynecology (ACOG) recently published guidelines encouraging vaginal progesterone for the prevention of pre-term birth; however, the biological mechanisms are not yet understood.

Lactobacillus crispatus dominate vaginal microbiomes in early pregnancy are associated with favorable gestational outcomes, and limited studies suggest that progesterone and *Lactobacillus crispatus* create a positive feedback loop in the vaginal cavity. This study sought to elucidate if vaginal progesterone in pregnancy supports the establishment of *Lactobacillus crispatus* dominant vaginal microbiomes which were associated with reduced risk of pre-term birth.

Methods

Pregnant women ages 18 and older are being recruited from Prisma Health's maternal fetal medicine clinic with a sample size goal of up to 60 participants. Enrolled participants are asked to permit a clinician-ordered vaginal swab for microbiome sequencing at three time points throughout pregnancy (pre-progesterone treatment, during treatment and post-treatment cessation). The results of this study may lead to prospective interventions and/or alternative therapeutics for pre-term birth.

Results

Approximately 25% of participants have been enrolled, all in the prospective follow-up period. Early sequencing results will be shared in the presentation.

Conclusion

Presenting our preliminary findings at the Prisma Health Research Day will provide expert feedback from academic health colleagues that will improve the interpretation of results and aid in tailoring the next steps.

121 - Correlating US, MRI, and Gross Pathology in Cases of Placenta Accreta

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Purpose statement

Placenta accreta spectrum (PAS) is a high-risk complication of pregnancy defined by a placenta that is morbidly adherent to myometrial tissue. The strongest risk factor for PAS is a history of cesarean section. With rising rates of cesarean section, there is a rising incidence of PAS diagnosis. PAS creates a “high-risk” pregnancy that must be closely monitored and is associated with increased morbidity and mortality at delivery including life threatening hemorrhage, blood transfusion, ICU admission, operative complications, and cesarean-hysterectomy. Pregnancies complicated by PAS are important to identify in order to be managed by high risk, multidisciplinary obstetric teams. Currently, there is limited consensus regarding objective findings such as radiologic imaging to diagnose PAS. (1-2) From 2018-2021, postpartum hemorrhage caused 9.2% of pregnancy-related deaths in South Carolina (3). The purpose of this study is to review and summarize established radiological and gross pathological findings of placenta accreta spectrum and apply these to a patient case.

Methods

A review of literature was performed focusing on MRI and US imaging characteristics in PAS cases. A list of abnormal findings associated with each modality was compiled. Similarly, gross pathological findings were reviewed. We use a case example to correlate imaging modalities with gross observations.

Results

We compiled radiological findings including ultrasound, MRI, and gross pathological features.

Our analysis identified 15 ultrasound findings, 11 features on MRI, and 7 correlating gross pathological abnormalities described in the literature to aid in PAS diagnosis. We created a table correlating these findings with PAS pathophysiology. Our patient, with five prior cesarean sections, demonstrated more than 50% (9 of 15) of the described ultrasound markers, 4 MRI features, and 3 gross pathological abnormalities.

Conclusion

We identified a list of ultrasound and MRI abnormalities helpful in identifying and managing patients with PAS. Data from our confirmed PAS patient highlights that individual patients cannot be expected to demonstrate all findings. These results emphasize the need for further investigation into PAS diagnostics.

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124 - A Comparison of Push-off and Gait Strength following Open Haglund's Resection vs. Percutaneous Zadek Osteotomy for Insertional Achilles Tendinopathy

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***This is an ongoing study. 31/40 patients have completed the protocol are included in this preliminary data.

PURPOSE STATEMENT: The gold standard for surgical treatment of insertional Achilles tendinopathy (IAT) is the open midline Achilles tendon splitting Haglund's resection (OH). However, the percutaneous Zadek osteotomy (ZO) is a safe and effective alternative intervention. Retrospective studies have compared patient-reported outcomes and radiographic findings between ZO and OH; however, data on post-operative strength remain limited. Accordingly, the current prospective study evaluated the postoperative push-off and gait strength following OH vs ZO for IAT.

METHODS: Thirty-one patients >18 years of age who underwent unilateral OH (N=17) or ZO (N=14) for IAT with ≥1-year follow-up met the inclusion criteria; patients with prior midfoot/hindfoot surgery, recent lower extremity surgery, neuromuscular conditions were excluded. Static plantarflexion/dorsiflexion strength were assessed in seated and supine positions. Standing strength was evaluated by unilateral and bilateral calf raises performed on pressure plates. Single-leg balancing was timed. Finally, vertical and anterior ground reaction forces at toe off

were captured during gait. The mean difference between operative/non-operative limbs was calculated for each measurement and reported as percentage of body weight (%BW).

RESULTS: In patients who underwent OH, a significant decrease in lower anterior ground reaction force of the operative limb was observed (0.0095 ± 0.013 , $p=0.007$). Also, following OH, patients demonstrated a decrease in unilateral vertical ground reaction force when compared to the non-operative limb (0.021 ± 0.035 , $p=0.02$). Interestingly, following OH patients balanced on their operative limb a mean 8.3 ± 11.7 seconds longer in comparison to their non-operative limb ($p=0.01$). No significant differences were observed in the ZO cohort.

CONCLUSIONS: Statistically significant decreases in operative limb strength during unilateral calf raise and forward propulsion was observed following OH for IAT. Meanwhile, no such loss of strength was observed following ZO. While both procedures are safe and effective surgical options for managing IAT, these preliminary findings suggest ZO may allow for preserved post-operative strength relative to OH.

125 - A Peer Support Specialist-Delivered Interpersonal Violence Prevention Program (THRIVE): Outcomes for Women in Substance Use Treatment

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Purpose Statement: The majority of persons in substance use treatment have an interpersonal violence history, with sexual violence (SV) and intimate partner violence (IPV) disproportionately affecting women (approximately 60-80%). Both violence history and substance use place women at risk for cumulative trauma exposure and adverse mental health outcomes. Violence prevention programs have primarily focused on college populations and not addressed risk factors associated with illicit substance use. We developed and conducted a pilot trial of The Healthy Relationships and Interpersonal Violence Education (THRIVE) program. THRIVE is a two-session violence prevention program for women in substance use treatment that addresses the intersection between substance use and a broad range of interpersonal violence. THRIVE is delivered by peer support specialists (PSS), trained individuals with lived experience who can address barriers to care, including stigma, cost, and lack of connection between informal and formal care.

Methods: We collected data from 90 women in substance use treatment who enrolled in THRIVE. Participants completed baseline, post-intervention, one- and three-month follow-up surveys assessing knowledge and attitudes towards SV and

IPV, protective behaviors, victimization, mental health, substance use, help-seeking, and program feasibility. We conducted interviews with 10 completers and 2 non-completers. We conducted descriptive statistics, repeated measures ANOVAs, and McNemar's tests to examine program outcomes.

Results: At baseline 49% experienced SV and 57% experienced IPV victimization in the past three months. Repeated measures ANOVAs indicated significant improvements from baseline to three-month follow-up on problematic substance use symptoms ($F(3, 132) = 21.52, p < .001$), knowledge of national and local resources for SV and IPV ($F(3, 132) = 8.51, p < .001$), protective dating behaviors ($F(3, 132) = 10.14, p < .001$), and resistance responses to sexual aggression ($F(3, 129) = 7.08, p < .001$). A McNemar's test indicated a significant change in reported intimate partner violence victimization from baseline (55%) to one-month follow-up (33%) ($p < .01$), and from baseline to three-month follow-up (44%) ($p < .01$). No statistically significant changes in sexual violence victimization were observed over the course of the study. Participants indicated high levels of satisfaction and engagement ($M = 4.4$ out of 5). Qualitative data supported the crucial role of peer support specialists in addressing stigma and bridging informal to formal care.

Conclusions and Implications: In sum, THRIVE shows promise as an accessible prevention program that overcomes barriers to care and is scalable to South Carolina and nationally. THRIVE has the potential to reduce SV and IPV, substance use, and violence-related mental health disorders for women in treatment for SUDs.

126 - Evaluation of a Deep Learning Model to Identify Important Proximal Humerus Fracture Features on X-ray

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Introduction: Proximal humerus fractures (PHF) are one of the most frequently observed fractures in the elderly, but clear guidance on optimal treatment approaches is limited. Many factors are important when deciding the best treatment approach, including a patient's personal preferences, age, and fracture characteristics. Agreement on the identification of specific PHF feature characteristics on X-ray has been low among orthopaedic surgeons, necessitating additional research and tools to assist surgeons in the identification of these features. With current advancements in AI, deep learning models offer a novel approach to assist surgeons in this endeavor.

Purpose statement: The goal of this project was to build a deep learning model capable of identifying PHF fracture features on X-ray and evaluate the model's performance.

Methods: Prior to this work, an established Delphi method was completed in which orthopaedic surgeons helped identify the following list of important PHF features to be classified by the deep learning model: *Topographical parts, displacement of parts, dislocation, head shaft angulation, head shaft translation, head split fracture, head impaction, and bone quality*. The data sample used to build the model consisted of patients seen for an acute PHF at Prisma Health. Any X-rays taken during this initial encounter and subsequent encounters spanning up to 2 weeks were taken and compiled into X-ray image composites for each patient. These X-ray composites were then imported to Labelbox, an AI labeling software, for five orthopaedic surgeons to identify the presence of each PHF feature. 1,623 X-ray composites were labeled by surgeons and served as the gold-standard dataset to build the deep learning model. A Multiple Instance Learning (MIL) approach was implemented using a modified ResNet-50d backbone architecture. The model processed variable-sized patient bags containing the X-rays in each patient composite. The data was split into 10 partitions for training and testing, and performance metrics were computed based on the held-out partition. Model performance was assessed on the identification of head shaft angulation (HSA) and head shaft translation (HST).

Results: For identification of HSA, 10-fold cross-validation achieved a patient-level accuracy of 76.63% $\pm$ 4.78% and ROC AUC of 89.75% $\pm$ 3.02%, with balanced accuracy of 73.88% $\pm$ 5.69% and average precision of 82.89% $\pm$ 4.56%. The model performed better in the identification of HST, with a patient-level accuracy of 76.97% $\pm$ 3.67% and a notable ROC AUC of 93.83% $\pm$ 1.18%.

Conclusion: Our deep-learning model was able to identify HSA and HST on PHF X-ray, a promising step towards the development of a more robust model to assist surgeons in their identification of important PHF features. Advances in the identification of important PHF features can further expand the study of associations between PHF feature patterns, treatment choice, and patient outcomes.

128 - Not a Minute to Lose: Prehospital Antibiotics Associated with Improved Morbidity and Mortality in Septic Patients

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Purpose Statement. Early administration of antibiotics for septic patients improves patient prognosis. While many studies report prehospital antibiotic administration (PHAA) significantly decreases time to antibiotics, no studies in the United States have investigated the association between PHAA with clinical and operational effectiveness. Our purpose was to investigate the association between PHAA and 1) operational outcomes (emergency department (ED) sepsis screen, ED sepsis orders, lactate acquisition) and 2) clinical outcomes (septic shock, intensive care unit (ICU) admission, 30-day mortality).

Methods. This retrospective study included all patients arriving between 1/1/23 and 12/31/24 by Prisma Health ground ambulance to 7 Prisma Health Upstate EDs with an EMS primary impression of sepsis. Patients were eligible for prehospital ceftriaxone or piperacillin and tazobactam if presenting with any two Systemic Inflammatory Response Syndrome (SIRS) criteria. Chi-square, T-test, and Wilcoxon Rank Sum assessed differences in the distribution of demographic, clinical, and operational outcomes by PHAA, with $\alpha < 0.05$ indicating statistical significance. Multivariable logistic regression calculated adjusted odds ratios and 95% confidence intervals, between PHAA with operational and clinical outcomes accounting for a priori confounders of age, sex, race, ED of arrival, acuity, blood culture results, EMS fluid bolus, baseline ED mean arterial pressure, and any clinical or operational characteristics significantly associated with PHAA.

Results. Of 639 eligible patients, most were male (51.8%) and White (84.6%), with an average age of 69 years. Of 450 (70.4%) patients who received PHAA, 142 (31.6%) and 308 (68.4%) received ceftriaxone and piperacillin and tazobactam, respectively. Individuals who were older (70 years vs. 67 years) and had a lower BMI (28.6 kg/m^2 vs. 31.3 kg/m^2) were significantly more likely to receive PHAA. Females were significantly less likely to receive PHAA (41.3% vs. 58.7%) compared to males. There were no significant differences in ED patient acuity or baseline ED vitals by PHAA status. PHAA was associated with increased odds of receiving an ED sepsis screen (aOR=1.64, 95%CI=1.07-2.51) and was not associated with use of ED sepsis orders (aOR=1.27, 95%CI=0.73-2.24) or lactate acquisition (aOR=0.97, 95%CI=0.26-3.70). PHAA was associated with decreased odds of developing septic shock (aOR=0.56, 95%CI=0.34-0.92), ICU admission (aOR=0.47, 95%CI=0.28-0.79), and 30-day mortality (aOR=0.52, 95%CI=0.30-0.91).

Conclusion. Prehospital antibiotic administrations were associated with increased odds of initiating ED sepsis protocols and decreased odds of septic shock, ICU admission, and 30-day mortality among patients with sepsis, providing strong evidentiary support for the continued use of PHAA by Prisma Health ground ambulances. Limitations of this retrospective single-site analysis include reduced generalizability, inability to account for unknown confounders, selection bias, and underestimation of the true number of outcomes due to potential misclassification bias. Our findings bolster support for the call to develop evidence-based guidelines for the use of PHAA in the United States.

129 - Connections to Contraception in the Emergency Department: A Scoping Review

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Purpose Statement: Unwanted pregnancies disproportionately affect groups that lack primary care or are otherwise medically underserved. The emergency department (ED) represents a novel venue to initiate contraception; however, little is known about the availability, targets, or implementation of programs that seek to initiate contraception in the ED. This scoping review seeks to identify and describe programs in the U.S. that provide Connections to Contraception (C2C) or decrease pregnancy risk and explore clinician attitudes on these services in the ED.

Methods: PubMed, CINAHL, Scopus, and MedLine were utilized to identify programs in academic literature, media, or academic conferences. Programs were included if they discussed or evaluated programs aimed at connecting patients to contraception in the ED or were otherwise aimed at decreasing unwanted pregnancy in the United States. Two reviewers independently performed a systematic process to select titles, abstracts, and perform full text data extraction for literature meeting inclusion/exclusion guidelines, disagreements were resolved through consensus. Percent agreement was used to assess reviewer agreement. Results were reported per the Preferred Reporting Items for Systematic Reviews and Meta Analyses extension for Scoping Reviews. All data were summarized descriptively in tables.

Results: Twenty of 1978 titles met inclusion criteria, outlining 9 unique programs designed to decrease risk of unwanted pregnancy. Most programs were located in the Eastern United States (3), with one in the Midwest, one Southwest, and one of the West Coast, no programs were located in the Southern U.S. All programs targeted adolescent females, 2 programs included women up to 45 years, and 2 included males. Activities included motivational interviewing, referrals, provision of safe-sex-items, and initiation of long-acting reversible contraceptives in the ED. Studies assessed feasibility, acceptability, and adoption metrics, contraception initiation, pregnancy status, and impact of interventions on Length-of-Stay.

Conclusion: Few ED-based programs exist to decrease risk of unwanted pregnancy in the US. Existing programs vary widely in activities and lack standardized outcome measures. Continued study in different geographic regions, with standardized outcomes is necessary to understand the efficacy of these programs on unwanted pregnancy.

130 - Disaster Medicine and Mobile Integrated Health: A Worthy Partnership

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Purpose Statement: Mobile Integrated Healthcare (MIH) programs utilize community paramedics (CPs) to provide individualized medical and public health services to patients in the community, especially to those affected by social determinants of health. Although community paramedics are well positioned to address the complex patients and vulnerable populations that would be most impacted by a natural disaster, scant literature has explored the utility of these specialized emergency medical services (EMS) clinicians during a natural disaster. This article summarizes an overview of an MIH-integrated shelter staffed by a multidisciplinary team of CPs, medical students, and EMS physicians following Hurricane Helene in South Carolina.

Methods: A special medical needs shelter was set up in a large arena typically used for public events to accept both patients from the community and those discharged from emergency departments who had additional care requirements. The typical patient was faced with loss of power and home displacement in the setting of multiple medical co-morbidities, which most often included oxygen concentrator dependency. Additionally, some of these individuals required daily maintenance drugs that were not transported with the patient.

Results: The CPs were tasked with collaborating with the healthcare system, which included physical therapists, occupational therapists, wound care clinicians, social workers, and case management to obtain medications, perform diagnostic testing of blood glucose levels, care for complex wounds, and coordinate transportation back to the residence after both the patient residence and medical conditions were deemed safe and baseline medical needs could be met.

Conclusion: This experience underscores the critical role of MIH during a disaster as CPs are directly connected with local resources and have established relationships with both the hospital and public health partners, which is essential for an integrated approach to ensuring the safety of medically fragile patients.

131 - Impact of Point of Care Ultrasound on Time to Reperfusion Therapy for Patients with Pulmonary Embolism

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Purpose Statement: Patients diagnosed with a pulmonary embolism (PE) in the emergency department (ED) can have variable presentations and risks of mortality.

Those with high-risk PE can experience hemodynamic instability, cardiac injury, and death. Thus, timely diagnosis of a high-risk PE is important because they may be candidates for reperfusion therapy, such as thrombolytic medication or thrombectomy. Point-of-care ultrasound (POCUS) has the potential to expedite definitive diagnosis and treatment in PE patients. This study assessed the association between POCUS and time to computed tomography (CT) acquisition and time to reperfusion therapy for patients diagnosed with a high-risk PE in the ED.

Methods: This was an multi-hospital retrospective study of adults (18+ years) diagnosed with a PE in the ED. Data were reviewed from seven hospitals in the Southeastern United States from 1/1/2023 to 12/31/2024. Two investigators performed an independent chart review to collect timestamps for each outcome, including: time to CT order and CT acquisition, time to alteplase, and time to thrombectomy. A third investigator reviewed all timestamps for POCUS. Chi-square and T-tests examined differences in demographic/clinical characteristics by POCUS status. Quantile regression assessed differences in the median time to CT order, CT acquisition, alteplase, and thrombectomy by POCUS status.

Results: Of the 803 eligible patients, the majority were female (51.7%) and White (75.2%) with an average age of 61.3 years (STD=17.6). All patients had CT imaging performed, 113 (13.9%) had POCUS, 28 (3.4%) received thrombolytics and 82 (10.1%) underwent thrombectomy. Patients were more likely to have POCUS performed if they were considered to have a high acuity (Emergency Severity Index 1 or 2) compared to the non-POCUS group (68.1% vs 52.4%, $p=0.0018$). On initial presentation, patients in the POCUS group had a higher HR (100.4 bpm vs 95.8 bpm, $p=0.0262$), higher RR (20.8 vs 19.3, $p=0.0005$) and lower SBP (131.5 mmHg vs 139 mmHg, $p=0.0017$). The median time to POCUS was 57 minutes (IQR=125). In patients who had POCUS, there was a decrease in the median time to CT order of 32 minutes (56 min vs 88 min, $p<0.0001$) and a decrease of 24 minutes in median time to CT acquisition (135 vs 159, $p=0.005$). The median time to thrombolytics was decreased by 12 minutes ($p=0.7482$) and median time to thrombectomy was decreased by 112 minutes ($p=0.5896$) in the POCUS group).

Conclusion: Use of POCUS in patients diagnosed with a PE was associated with a significant decrease in the time to CT imaging acquisition and the median time to reperfusion therapy. Decreasing time to definitive imaging and reperfusion therapy for patients diagnosed with PE in the ED has the potential to optimize patient care. Additional analysis should be performed on a larger sample size to confirm these relationships.

132 - Saving Time, Saving Lives? A Systematic Review of Prehospital Antibiotic Administration

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Purpose Statement. Prehospital antibiotic administration (PHAA) is used globally to expedite treatment for sepsis or open fractures, yet effectiveness measures vary significantly by region. To date, no evidence-based guidelines exist which standardize and promote treatment with PHAA, likely owing to heterogeneity in existing studies and lack of synthesized evidence of effectiveness. Our purpose was to systematically review all peer-reviewed literature on PHAA to summarize PHAA protocol characteristics, identify common outcomes, and assess PHAA effectiveness on clinical and operational outcomes.

Methods: PubMed, CINAHL, EMBASE, and Scopus were queried from database inception through 6/1/2025. Peer-reviewed articles written in English were included if they examined the association between an operational or clinical outcome and PHAA. Studies in military populations were excluded. Two authors independently selected articles and extracted data, assessed by percent agreement (PA) with a third author resolving disagreements. Quality assessment was performed independently by two authors using the Effective Public Health Practice Project (EPHPP), with disagreement resolved through consensus. A standardized spreadsheet extracted PHAA protocol characteristics, clinical and operational outcomes, and results. Protocol characteristics, outcomes, and results were qualitatively summarized. Methods followed the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines. Registration with the PROSPERO international registry of systematic reviews and meta-analyses was confirmed on 7/8/2025 (CRD420251089632).

Results: Of 9,486 articles identified, investigators reviewed 8,411 titles (PA=98.1%), 83 abstracts (PA=87.5%) and 74 full-text (PA=86.3%), yielding 19 articles for data extraction (PA=90.5%). Most studies were observational (79.0%) with moderate quality (52.6%). PHAA occurred throughout Europe (47.4%), the U.S/Canada (36.8%), and Australia/New Zealand (15.8%) and was performed by paramedics, physicians, and nurses. Prehospital antibiotics were delivered most often for sepsis (84.2%), followed by open fractures (15.8%). Ceftriaxone was most frequently administered (68.4%). Commonly occurring clinical outcomes included 30-day mortality (52.6%), intensive care unit (ICU) admission (26.3%), ICU length of stay (LOS) (26.3%), and hospital LOS (31.6%). PHAA was often associated with improvement in mortality and hospital/ICU LOS. Operational outcomes included time to antibiotics (36.8%), blood-culture contamination (36.8%), and protocol adherence (26.3%). PHAA often decreased time to antibiotics, with no difference in blood-culture contamination (comparing cultures drawn in the prehospital environment vs. hospital) and high protocol adherence. Heterogeneity in PHAA protocols, staff, and populations precluded meta-analysis.

Conclusion. Prehospital antibiotic administration is prevalent worldwide with high feasibility. Many studies trended toward clinical benefit, yet heterogeneity prevents synthesis of results. Consensus on evaluation measures and robust collaborative studies are necessary to increase evidentiary support for evidence-based PHAA guidelines. Findings are limited by heterogeneity, language-restricted publication bias and exclusion of gray literature.

133 - Factors and birth outcomes associated with transfer or lost-to-follow-up during prenatal care: The CRADLE study

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Purpose: Prenatal care improves maternal and neonatal outcomes during pregnancy, at delivery and post-partum. However, discontinuity of receiving care from a single practice may disintegrate cohesive care coordination and rapport between clinicians and patients, and thus may also be associated with worse birth outcomes. The present study is a secondary analysis of the CRADLE randomized clinical trial which randomly assigned patients to group (GPNC) or individual prenatal care (IPNC) arms. It was conducted at a single prenatal care clinic site in Greenville SC. We aimed to identify factors associated with care discontinuity represented by **T**ransfer or **L**ost-to-follow-up (TL) of prenatal care during pregnancy and to examine its association with preterm birth (PTB) and low birth weight (LBW).

Methods: We analyzed data observed from a subset of CRADLE study participants who had no intrauterine fetal demise or spontaneous abortion. We categorized the subset into two groups of TL and non-TL, where transfers were voluntarily made. PTB was defined as gestational age at delivery before week 37 and LBW as birth weight <2,500g. We first compared in a bivariate analysis fashion baseline socio-demographic, social determinants of health, behavioral, and clinical factors between TL or non-TL patients, using chi-square and Wilcoxon tests. Then we applied backward elimination selection procedure to a multivariable logistic regression to identify significant factors in a multivariable analysis setting. Finally, to test the significance of associations of TL with PTB and LBW adjusting for those significant factors, we used multivariable logistic regressions.

Results: N=259/2,258 (11.5%) patients transferred (N=222) or were lost to follow-up (N=37). There was no significant difference in the rate of TL between IPNC and GPNC arms (11.5% vs 11.4%, p=0.963). From the bivariate analysis, factors significantly associated with TL included younger age, non-Hispanic race, English as the primary language, high school education or higher, drinking alcohol, food insecurity, unstable housing, higher CESD depression score, nulliparity, and no hypertension (all p<0.05). Backward elimination selection resulted in the following

factors: unstable housing (aOR=2.36, 95%CI=(1.23, 4.52), p=0.010), higher CESD score (1.04 (1.00, 1.09), p=0.037), and no hypertension (aOR=3.56 (1.48,8.55), p=0.005). After adjusting for these factors, the PTB rate was not significantly different TL and non-TL patients (10.4% (23/221) vs 9.4% (188/1999), aOR=1.47 (0.43, 4.99), p=0.543), nor was the LBW rate (15.9% (10/63) vs. 8.9% (177/1997), aOR=7.88 (0.58, 109.5), p=0.124).

Conclusions: Although reasons for TL were unknown, TL patients were more likely to be living with unstable housing, normotension, and depression symptoms independent from other factors. Although the PTB or LBW rate were not significantly associated with TL, continuity of prenatal care at a single practice, if possible, should be emphasized especially among populations with the factors associated with TL.

134 - Case Report: Placement of an EnVisio SmartClip Clip in the Breast Using CT Guidance

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Purpose Statement

The management of non-palpable, clinically occult breast cancers typically involves placement of a marker clip at the time of biopsy, followed by localization—commonly wire-guided localization (WGL)—to facilitate surgical excision. While WGL is widely used, newer localization technologies offer potential advantages, particularly when conventional methods are not feasible. The purpose of this case is to describe the successful use of electromagnetic-guided localization as an alternative approach in a patient where WGL could not be performed.

Methods

We present a case of a patient with a non-palpable breast cancer in which the marker clip placed during biopsy was not visualized on mammography, preventing standard WGL. To achieve accurate localization, an EnVisio SmartClip, an electromagnetic localization device, was placed under CT guidance. This allowed the surgical team to precisely identify and excise the lesion.

Results

The patient tolerated the procedure well without complication. The electromagnetic SmartClip enabled intraoperative identification of the target lesion and guided successful excision with clear margins. No perioperative complications occurred, and the localization process was straightforward and reproducible for the surgical team.

Conclusion

This case highlights the utility of electromagnetic-guided localization as a feasible

alternative to traditional wire-guided methods when visualization or technical limitations preclude standard approaches. Broader adoption of electromagnetic localization may improve patient comfort, streamline operative planning, and expand options for challenging cases. As localization technologies continue to advance, this case underscores their potential role in replacing conventional methods and improving the overall management of non-palpable breast cancers.

135 - Patient Reported Outcome Measures and Complication Rates after Minimally Invasive vs. Open Calcaneal Osteotomy

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Purpose Statement: A calcaneal osteotomy is a common component of surgical management for various foot and ankle deformities. While this procedure has been demonstrated in the literature to provide safe and effective healing for this patient population, the lateral calcaneus is prone to wound breakdown and delayed wound healing. Meanwhile, a minimally invasive (MIS) calcaneal osteotomy may accomplish the same hindfoot modification, while minimizing potential wound complications. Currently, literature remains limited regarding any direct comparison of outcomes between these two procedures. Accordingly, the current retrospective study pursued comparisons of postoperative outcomes and complication rates of patients undergoing an open vs. MIS calcaneal osteotomy.

Methods: All patients who underwent an open or MIS calcaneal osteotomy between March 2021 and January 2024 at a single institution were identified and retrospectively reviewed. All procedures were performed by one of two fellowship-trained orthopaedic foot and ankle surgeons on patients > 18 years of age at the time of surgery. Demographic information, Patient-Reported Outcomes Measurement Information System (PROMIS) scores, and complications were recorded for each patient at a minimum of 12 months follow-up.

Results: Thirty-three patients who underwent open calcaneal osteotomy and 21 patients who underwent MIS calcaneal osteotomy met the inclusion criteria for the current study. Patients were followed for a mean 26.6 ± 12.0 (range, 12-50) months. A significant improvement in PROMIS function ($p=0.002^*$, $=0.048^*$), pain ($p<0.001^*$, $=0.002^*$) and mobility ($p=0.005^*$, $=0.010^*$) scores were observed in the open and MIS cohorts, respectively. There was no significant difference in the union rate observed between cohorts ($p=0.250$). However, there were significantly fewer postoperative wound complications ($p=0.009^*$) and postoperative

corticosteroid injections ($p=0.009^*$) reported in the MIS cohort. Additionally, there were fewer total ($p<0.001^*$) and minor complications ($p=0.003^*$) observed in patients who received an MIS calcaneal osteotomy in comparison to those who received an open calcaneal osteotomy.

Conclusion: While patient reported outcomes were significantly improved in patients who received an open or an MIS calcaneal osteotomy, data from the current study indicate the MIS procedure may allow for a significantly lower complication rate. Both an open and MIS calcaneal osteotomy appear to offer effective bone healing with no difference in union rates. However, future expansion of the current study may allow for prospective or longer-term comparisons amongst these procedures. Nevertheless, this retrospective review may better guide surgeons when designing treatment of various foot and ankle deformities requiring correction.

136 - EM CARES: Creation of the Clinical, Administrative, Research, Education, and Service Initiative to Support Emergency Medicine Resident Well-being, Resilience, and Professional Growth

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¹Prisma Health Upstate

Purpose Statement. Fostering development of required competencies for medical residents may require additional activities beyond patient care, and the burden of these activities in addition to clinical load may decrease a resident's sense of wellness. The Clinical, Administrative, Research, Education, and Service (CARES) award provides a \$1000 incentive for performance of additional activities, aiming to enhance well-being, resilience, and professional development of emergency medicine (EM) residents. The purpose of this project was to evaluate the reach and implementation of the CARES award 6 months post-implementation.

Methods. Graduate medical education (GME) co-directors developed the activities and point assignments for each domain of CARES through a consensus-based process. Each domain had points assigned to 5 activities. Residents had to accumulate 1000 points to be eligible for \$1000. CARES was piloted from 12/1/2023-6/1/2024 for EM residents at Prisma Health Upstate. Residents were eligible if they were in good standing with the EM program. The Reach, Effectiveness, Adoption, Implementation, and Maintenance (RE-AIM) framework guided the evaluation of the CARES intervention. On 11/1/2024 GME co-directors and EM chief residents (CRs) participated in 30-minute semi-structured interviews. GME co-directors were asked about perceived barriers and facilitators to implementation and recommended adaptations for future iterations. CRs were

asked about resident-reported implementation barriers, recommended adaptations for CARES and whether they perceived CARES met the goal of enhancing the well-being, resilience, and professional development of EM residents. Thematic analysis occurred through multiple cycles of inductive coding performed independently by two investigators. The Framework Method was utilized to assign themes. Summary statistics (mean, standard deviation) described points accumulated for activities in each domain.

Results. Thirty of thirty-one EM residents were eligible, with 11 (36.7%) receiving the award. Residents performed ≥ 1 activity in following domains, Clinical (100.0%), Research (96.7%), Education (90.0%), Administrative (46.7%), and Service (40.0%). Four GME co-directors of the program and four CRs were interviewed. GME co-directors reported supportive leadership, financial capital and resident interest/engagement as facilitators driving CARES implementation, documentation and tracking were the largest barriers. A tiered point system to provide smaller monetary amounts for smaller point values was recommended for future iterations. CRs agreed that documentation and tracking were the largest barriers to resident participation and recommended increasing family-friendly activities. Whereas all GME co-directors felt that CARES met the stated goals, nearly all CRs felt CARES increased professional productivity, but none felt that CARES increased EM resident well-being and resilience.

Conclusion. One-third of residents in an EM residency cohort participated in this incentive model with resident representatives reporting CARES had little influence on well-being and resilience. Future evaluations of this program will assess the resident participation following initiation of recommended adaptations and all EM resident perspectives on how CARES influences their well-being, resilience, and professional development.

137 - The Relationships between Sleep as Measured with Oura Rings and Occupational Health Outcomes in Emergency Physicians

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Purpose Statement

Emergency physicians (EP) frequently work long and irregular hours under great stress, which can lead to a decline in sleep health. This decline can consequently result in reduced recovery and adverse health and wellbeing outcomes, which in turn may compromise the quality of patient care. While many studies have utilized self-report measures to examine the effects of sleep on the wellbeing of clinicians, the advent of wearable technology furnishes an opportunity to assess these impacts

more directly. The purpose of this study is to examine relationships between objective sleep duration and efficiency and a variety of self-reported occupational health outcomes in EP.

Methods

Questionnaires including measures of sleep health (Buysse, 2014), fatigue (Frone & Tidwell, 2015), emotional exhaustion (Maslach et al, 1997), burnout (Muir et al., 2023), and professional fulfillment (Trocker et al., 2015) were administered monthly across 5 months to 39 EP. Oura rings provided objective measures of total sleep duration and sleep efficiency.

Results

Preliminary Spearman correlational analyses revealed associations between sleep efficiency and professional fulfillment ($r_s = 0.23, p < .01$), sleep efficiency and self-reported sleep health ($r_s = 0.37, p < .001$) and sleep duration and self-reported sleep health ($r_s = 0.26, p < .001$). Linear mixed models examined associations between self-reported sleep health and fatigue, emotional exhaustion, burnout, and professional fulfillment. Better self-reported sleep health was a significant predictor of lower levels of fatigue ($\beta = -0.58, SE = 0.15, p < .001$), emotional exhaustion ($\beta = -0.57, SE = 0.27, p < .05$), and burnout ($\beta = -0.98, SE = 0.33, p < .01$) and greater professional fulfillment ($\beta = 0.39, SE = 0.14, p < .01$).

Additional linear mixed models will build upon these analyses by examining how sleep duration and sleep efficiency predict self-report outcomes while controlling for individual differences and covariates. Full results from these analyses will be presented at the time of the conference.

Conclusion

The findings of this study support long-held beliefs that sufficient and regular sleep serves as a protective factor against burnout and negative well-being outcomes among clinicians. While the nature of work in emergency medicine poses an unavoidable barrier to quality sleep, these findings emphasize the importance of optimizing organizational practices and utilizing effective interventions to support sleep health within practical constraints. Policies and practices supportive of sleep health may improve clinician well-being and professional fulfillment, which could offer downstream benefits for patient health and organizational outcomes. Future research should continue to leverage objective sleep measurement to examine the impacts of sleep on operational performance and patient-related outcomes and assess the impacts of organizational- and policy interventions on sleep health in clinicians.

138 - The Impact of Emergency Department Shift Scheduling on Clinician Fatigue and Well-being: A Qualitative Study

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Purpose Statement

Emergency Department (ED) clinicians face heightened risks of fatigue, burnout, and diminished well-being, much of which is linked to the structure and distribution of shift schedules. Inflexible scheduling, insufficient recovery time, and misalignment with circadian rhythms compromise performance and contribute to workforce attrition. This study aims to identify how specific features of shift scheduling, including shift length, timing, distribution across the week, and flexibility, relate to clinician fatigue, burnout, well-being, and preferences.

Methods

Semi-structured interviews were conducted with 13 physicians (5 leaders) and 18 nurses (2 leaders) across multiple EDs in Prisma Health (PH) hospitals. Participants were recruited through departmental announcements and invitations, and the study protocol was approved by the Prisma Health Institutional Review Board. Guided by a structured protocol, participants were asked about their ideal schedules, the impact of current schedules on fatigue and recovery, preferences for nights and weekends, flexibility in requesting or swapping shifts, and what a biologically “fatigue-optimized” schedule would look like.

Interview transcripts were cleaned, verified with audio, and analyzed using a codebook developed and refined by a team including three members for each group. Interrater reliability was established through dual coding of a subset, after which one researcher coded all nurse transcripts and another coded all physician transcript.

Results

Preliminary analyses reveal that predictability and consistency of shifts were viewed as essential for recovery, while irregular shifts were reported to disrupt routines and increased fatigue. Many clinicians preferred consecutive blocks for extended recovery, though 4-6 day stretches were often reported as exhausting and emotionally draining.

Nurses generally favored 12-hour shifts for fewer workdays and longer recovery, though some preferred 8-hour shifts for quicker recuperation. Physicians favored 9-10 hour shifts, frequently describing 12-hour as too demanding.

Fatigue was shaped by timing and workload as much as duration. Midday and late evening shifts were consistently described as draining due to constant busyness, family disruption, and misaligned sleep. High patient acuity and volume were often stronger contributors to exhaustion than shift length.

Night shifts posed universal challenges. Some grouped 5-7 nights together for recovery efficiency, while others described persistent difficulty adapting biologically and socially.

Control and flexibility differed by role. Nurses generally expressed higher satisfaction with self-scheduling, and most reported being close to their ideal schedules. Physicians, by contrast, described less autonomy, constrained request days, and frustration when schedules did not align with their preferences.

Conclusion

Clinician fatigue, burnout, and well-being are closely tied to schedule design, with some overlapping challenges and notable differences between nurses and physicians. Capturing these perspectives provides a foundation for developing the best scheduling practices that balance clinician well-being with operational feasibility, ultimately supporting workforce sustainability and patient care.

140 - Classification of Orbital Floor Fracture Patterns Associated with Inferior Rectus Muscle Entrapment

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Purpose Statement: Certain orbital floor fracture types have been associated with orbital soft tissue entrapment leading to irreversible inferior rectus muscle injury and permanent diplopia. This fracture, often referred to as trapdoor type, occurs more frequently in the pediatric population since the facial skeleton is still elastic. Literature on adult entrapment is scarce. The authors discuss the spectrum of clinical and radiologic presentations of inferior rectus muscle entrapment in the adult population and propose a novel classification based on bone and soft-tissue interactions seen on imaging.

Methods: A systematic review of literature was performed using the following search terms: orbital fracture, orbital floor, inferior rectus muscle AND (herniation or entrapment), entrapment. Clinical descriptions and radiologic patterns of orbital floor fractures and the inferior rectus muscle were analyzed in the included studies.

A retrospective case series consisting of three adult patients with inferior rectus muscle entrapment in traumatic isolated orbital floor fractures was performed.

Results: Twenty-nine studies with a total of 275 adult and pediatric patients who had inferior rectus muscle entrapment were included in our systematic review. The three patients included in our case series had comminuted orbital floor fractures with clinical and radiographical evidence of entrapment. Surgical release of the entrapped inferior rectus muscle was performed within 24 hours of presentation and resulted in restored baseline gaze in all patients at 2-months follow-up.

Based on our review and case series, we developed a classification system for orbital floor fractures associated with entrapment based on the fracture pattern and/or comminution seen on CT imaging (Figure 1). Type I is a linear type fracture and consists of a true trapdoor pattern with minimal or no displacement of the orbital floor. On CT, this type is characterized by the absence of orbital floor displacement. This type can be further sub-divided based on the location of the inferior rectus - in the internal orbit (Type Ia) or in the maxillary sinus (Type Ib). The hinged type (Type II) occurs when a piece of orbital floor fractures in a swinging door fashion and orbital soft tissue herniates into the maxillary sinus. Our three patients sustained comminuted orbital floor fractures, which we designated as Type III, where the inferior rectus muscle and perimuscular soft tissue are displaced into the maxillary sinus and the muscle is incarcerated within the bony fragments.

Conclusion: We propose a classification system consisting of three main types of orbital floor fractures associated with inferior rectus entrapment. Entrapment in adult patients occurs in the setting of comminuted floor fractures. This classification system can serve as a groundwork for future studies addressing treatment in adult patients with orbital floor fractures.

141 - A Novel Reconstructive Technique for Patients with Congenital Cleft Earlobes Derived from an Anthropometric Analysis

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Purpose Statement:

Congenital earlobe clefts are the most common lower auricular malformation. Patients with congenital cleft earlobes often have two lobe segments of unequal length. Many existing surgical repair techniques are complicated by post-operative ear shortening and disrupts the aesthetic points of the earlobe. In this study, we established normal earlobe aesthetic points and ratios by analyzing unaffected

patients' ears. Subsequently, we developed a technique to repair cleft earlobes that restores these aesthetic points and ratios.

Methods:

One-hundred unaffected subjects' ears were examined. The ratios measured included: earlobe height to total ear height, antitragus to transverse earlobe crease length to total earlobe height, transverse earlobe crease to bottom of earlobe length to total earlobe height, and transverse earlobe crease to bottom of earlobe length to horizontal length of the total earlobe. After determining the presence of a transverse earlobe crease in the majority of unaffected ears and performing an anthropometric analysis, we developed a reconstructive technique that creates this crease and restores these aesthetic ratios. First, the lateral cleft ear lobe is incised from the highest point (A) transversely to the mid-lobe (B) and then towards the thickest portion of the lobule (C). This creates a rhomboid defect and lengthens the lobule. The medial cleft ear lobe is now exposed. A rhomboid incision is made through the medial cleft ear lobe starting from a point 2 mm lateral from the junction of the lobule and the cheek (D) to the inferior border (E) to a point on the lateral edge (F) and then back to point A. The distances between points A-B and B-C should be roughly equal to A-F and E-F respectively. The tissue lateral to A-F-E is discarded, and the rhomboid-shaped flap is rotated and inset, creating a transverse crease within the lobule.

Results:

The included unaffected subjects' mean age was 31.9 years. Approximately 62% were White, 14% were Black, and the rest identified as Asian, Hispanic/Latino, mixed, or other. The average ratios were as follows: earlobe height to total ear height was 0.28, the antitragus to transverse earlobe crease length to total earlobe height was 0.42, transverse earlobe crease to bottom of earlobe length to total earlobe height was 0.64, and transverse earlobe crease to bottom of earlobe length to horizontal length of the total earlobe was 0.57. Our described technique closely restored these ratios in patients with congenital cleft earlobes, as seen in our case example.

Conclusion:

Our technique effectively utilizes the uneven tissue distribution in patients with congenital cleft ears. It lengthens the earlobe, restores aesthetic ratios derived from an anthropometric analysis, and creates the natural notching or crease within the lobule that separates the helical rim from the rest of the lobe.

142 - Trivia night in the emergency department: Can we teach our patients at least one new thing while they wait?

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Purpose statement: As emergency department overcrowding worsens, health care providers can turn lengthening wait times into an opportunity to teach our patients and their families about important health topics.

Methods: We created a trivia game to play on the video monitors in the waiting room of our busiest emergency department, Greenville Memorial Hospital. The game tests players' knowledge about important health topics and is presented in a question-answer-explanation format. We provided links to sources through QR codes to encourage players to read further.

After sending our study protocol through our IRB, we launched *The Waiting Game* in January 2025. We invited participants to complete a REDCap survey accessible through a QR code link embedded in the trivia game and printed on signs placed around the waiting room. We also included instructions explaining how to use QR codes.

We collected survey responses for three months.

Results: During the three-month study period, *The Waiting Game* reached the eyes of 10,375 patients, who waited at least 30 minutes in the waiting room. We received 14 survey responses from players who spanned all adult age groups.

Respondents enjoyed the game. 93% rated it *good* or *very good*. 86% reported that they learned at least one new thing from the game. 86% indicated that participating in the trivia game helped the wait time feel shorter.

Comments were generally positive. Most respondents enjoyed the trivia question-answer format. Those who rated the game poorly did not leave comments to explain their answers or offer suggestions.

Conclusion: We learned that surveying patients who are sick and injured enough to seek emergency care is difficult. Future studies would benefit from active solicitation of survey participation, both verbally and by handing players a paper questionnaire. However, we did get some valuable feedback on *The Waiting Game*.

This is a low-cost way to reach tens of thousands of people in all stages of life to disseminate evidence-based, engaging health education content in place of cable TV programming. We plan to continue to update the content of the game seasonally and expand the audience to our other emergency departments across the hospital system.

You can see an excerpt of *The Waiting Game* at <https://meramsay.substack.com/p/the-waiting-game>.

143 - Development, Validity, and Acceptability of the Peer Recovery Coach (PRC) Service Checklist for Medication for Opioid Use Disorder (MOUD) Support

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Purpose Statement:

This study aims to develop and evaluate the Peer Recovery Coach (PRC) Service Checklist for Medication for Opioid Use Disorder (MOUD) Support to standardize peer-delivered services, enhance treatment initiation, and promote sustained engagement among individuals with opioid use disorder (OUD) across rural and urban settings.

Background: OUD continues to pose a significant public health challenge, prompting the need for interventions that improve both treatment entry and long-term recovery outcomes. Peer recovery support services (PRSS) have emerged as a promising approach, offering guidance and encouragement from individuals with lived experience. The variability in how PRSS services are defined and implemented has created a limitation in efforts to evaluate effectiveness systematically. Furthermore, disparities in patient needs and resource availability between rural and urban settings add another layer of complexity to service delivery. In response, this study focuses on developing a structured tool designed to assist PRCs in supporting MOUD treatment initiation and sustaining engagement among individuals with OUD across diverse settings.

Methods: Development of the PRC Service Checklist for MOUD Support drew on three sources: the existing PRC Checklist for Substance Use Disorder (SUD), established recovery capital frameworks, and theories of social support. Peer recovery coaches who engaged with OUD clients in both rural and urban communities, (N = 5) provided qualitative information regarding the services they routinely deliver. Feedback from patients seeking MOUD in rural mobile clinic settings (N = 22) was then incorporated through a mixed-methods process to refine the checklist. A broader group of PRCs (N = 60) provided final evaluations regarding the checklist's acceptability. This group was recruited from recovery community organizations, healthcare systems with embedded PRCs, and research centers for substance use across six U.S. states (SC, CT, FL, NJ, and MD).

Results: The initial group of PRCs (N = 5) emphasized support and encouragement, knowledge sharing, and access to services as essential for MOUD initiation and maintenance, with housing identified as a common barrier. Minimal rural-urban differences were reported, though resource limitations in rural areas highlighted the need for access to both remote and in-person recovery services. The majority of patients seeking MOUD indicated interest in receiving all services and activities outlined in the checklist. Overall, among PRCs, satisfaction with the

tool was high, with $\geq 95\%$ endorsing that the checklist was comprehensive, aligned with their scope of practice, easy to implement, and likely to be valuable in supporting patient care.

Conclusions: The PRC Service Checklist for MOUD Support shows strong preliminary validity. The high acceptability among PRCs and substantial interest from individuals with OUD leads to the next steps of piloting the effectiveness of the checklist with 90 participants in a real-world setting as part of a larger NIH-funded trial.

144 - National Trends and Regional Variations in Mental Health Disorders Among Older Adults Treated in the U.S. State Mental Health System

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Purpose statement: Understanding regional variations in mental health disorder trends among older adults is important for improving mental health services nationally and regionally. The study examined national trends in major mental health disorders, including anxiety (ANXD), trauma and stressor (TSRD), bipolar (BIPD), depressive (DEPD), and schizophrenia or other psychotic (SOPD) disorders, among older adults in the U.S. and explored regional variations.

Methods: The study analyzed all ten rounds (2013-2022) of Mental Health Client-Level Data for older adults (≥ 60). After applying inclusion and exclusion criteria, the final sample comprised 4,195,615 individuals. Unadjusted and adjusted logistic regression models, controlling for age, sex, and race/ethnicity, were used to assess trends over time.

Results: Nationally, ANXD and TSRD showed increasing trends from 2013 to 2022, with ANXD prevalence rising from 13.29% to 22.62% (adjusted odds ratio (AOR): 1.90, 95% confidence interval (CI): 1.26-2.88) and TSRD from 8.73% to 14.30% (AOR: 1.70, CI: 1.30-2.23). Conversely, BIPD (17.03% to 14.23%; AOR: 0.79, CI: 0.68-0.92) and SCOD (27.19% to 24.29%; AOR: 0.78, CI: 0.70-0.87) exhibited declining trends. Regional analyses revealed notable variations. TSRD increased significantly in the Northeast (AOR: 1.84, CI: 1.32-2.57), while both ANXD (AOR: 3.12, CI: 2.06-4.73) and TSRD (AOR: 1.68, CI: 1.18-2.37) showed upward trends in the Midwest. South showed an increase for ANXD (AOR: 2.02, CI: 1.47-2.79) and TSRD (AOR: 2.08, CI: 1.61-2.69), and a decrease for SOPD (AOR: 0.82, CI: 0.72-

0.94). In the West, ANXD (AOR: 1.90, CI: 1.20-3.01) and TSRD (AOR: 1.29, CI: 1.07-1.55) increased, whereas BIPD (AOR: 0.69, CI: 0.55-0.86) and DEPD (AOR: 0.75, CI: 0.69-0.91) declined.

Conclusion: While BIPD and DEPD exhibited declining trends, ANXD and TSRD increased nationally and across most regions. These findings highlight the need to investigate factors driving the rising prevalence of ANXD and TSRD in older adults and implement targeted interventions for improved management.

145 - Wastewater-Based Epidemiology (WBE): Effects of Focused Education on Attitudes Regarding Integration into Healthcare

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Purpose Statement

Wastewater-based epidemiology (WBE) is an evolving discipline that employs the analysis of human excreted biomarkers in untreated, community wastewater to provide near real-time population-level health assessments. Its popularity grew during the COVID-19 pandemic where wastewater-derived measurements of SARS-CoV-2 supported public health decision-making and intervention. However, understanding its utility in the clinical realm is currently underexplored. Thus, this study has three primary aims: 1) generate empirical evidence to support the integration of WBE into the healthcare setting via an educational webinar, 2) assess change of knowledge on the topic of WBE, and 3) capture perspectives on its utility in the healthcare setting via pre- and post-workshop surveys and in-depth interviews. Overall, this study will serve as a foundation for subsequent investigation into the use of WBE for chronic disease prevention and management, reduce costly hospital readmission rates, and offer objective, inclusive, and cost-effective population health data.

Methods

In April 2025, we conducted a live, two-hour educational webinar to a broad audience of healthcare providers, students, etc., that focused on introducing the concept, history, and applications of WBE. A pre-workshop survey was distributed to registered participants via REDCap inquiring about overall familiarity with WBE and

select applications. A follow-up survey was distributed following the webinar's completion which focused on capturing change in knowledge and/or perspectives of WBE to assess the effectiveness of the webinar. We will conduct descriptive statistics on the survey data collected and interview webinar participants to explore integration methods of WBE into clinical care.

Results

At present, all survey data have been collected, and statistical analysis is ongoing. In total, 29 participants responded to the pre-workshop survey and 15 (52%) completed the follow-up survey. Comparing responses between the pre- and post-workshop surveys, initial findings indicate an overall increase in support of WBE (93% to 100%), a reduction in concerns regarding WBE's accuracy (40% to 9%), and an increase in support of the use of WBE outside of infectious disease (80% to 93%). Commonly identified uses of WBE that participants identified as most helpful in a clinical setting include infectious diseases, health and behavior, and antibiotic resistance.

Conclusion

Wastewater-based epidemiology is a unique approach to ascertain inclusive, anonymous, minimally invasive, and rapid population health information that holds potential to enhance community health insights, support patient care, and reduce hospital readmissions. Assessing attitudes regarding its implementation in healthcare is essential to identify and understand specific barriers and facilitators of this use. These preliminary findings provide foundational evidence that integration of WBE into clinical practice may be supported by the healthcare community, indicating its value, and evaluating the impact of education on these attitudes is critical in guiding successful program initiatives, offering as a roadmap for future work.

148 - Unlocking the Spectrum: A case-based discussion of Autism and Catatonia

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Purpose statement:

We would like to summarize the current state of the literature regarding the presence of a correlation between the diagnoses of ASD and catatonia, special diagnostic considerations needed for this patient population, and best practices in treatment for patients with these comorbid conditions.

Methods:

We completed a literature review paired with a case presentation to frame our discussion on the interplay between and key considerations for the diagnoses of ASD and Catatonia.

Results:

- There appears to be a correlation between ASD and either a full diagnosis of catatonia or the presence of catatonic features.
- Patients with ASD may respond differently to first-line treatments for catatonia than other patient populations.
- There have been several proposed mechanisms to explain the link between catatonia and ASD.

Conclusion:

ASD and catatonia have significant symptom overlap, which can cause uncertainty in diagnostic practices. Due to this, careful consideration needs to be given when evaluating patients with features of these conditions. Additionally, alternative treatment strategies may need to be employed, as some studies have shown variable responses to our usual first-line treatments for catatonia. Whether these diagnoses exist on a shared spectrum or are separate but linked, there is still much to be understood about the connection between these diagnoses, and further research in this area is justified to guide clinical practice.

149 - Missing the Forest for the Trees: Missed Opportunities for STI Diagnosis in the Presence of Newly Diagnosed HIV

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Purpose Statement: This study investigates the time to testing for sexually transmitted infections (STIs) among newly diagnosed HIV-positive patients in the southeastern United States, where over half of the nation's new HIV cases occur. While prior research highlights that STIs are a risk factor for HIV and should guide testing, less attention has been paid to how an HIV diagnosis influences subsequent STI testing.

Methods: A retrospective cohort study of 155 newly identified HIV patients between January 2022 and July 2024 was performed using electronic health records (EHRs). Data collected included demographics, timing of STI testing, and co-infection rates.

Results: The average patient age was 36.5 years; 73% were male and 77% identified as Black. Most new HIV diagnoses came from the emergency department (48%), followed by outpatient clinics (28%) and inpatient wards (24%).

Results show, 89% of patients were screened for syphilis, with 39.6% testing positive. Notably, 40% of syphilis cases were diagnosed after patients received an HIV diagnosis. Among patients who were never tested for syphilis (17 patients), it is estimated that six are likely syphilis-positive.

For gonorrhea, 8% tested positive via urine screening, with 52% of positives identified after the HIV diagnosis. Rectal gonorrhea was detected in 2.6%, and oral gonorrhea in 3.9%; most of these positives were diagnosed post-HIV diagnosis. At least 13.5% had never undergone urine gonorrhea testing, and 71% had not been tested rectally, suggesting that likely eight patients may have undiagnosed gonorrhea.

For chlamydia, 4.5% were screened, with 50% of those tests performed after HIV diagnosis. Rectal chlamydia was identified in 4.5%, but no oral chlamydia testing was found. A significant portion (14% urine, 70% rectal, 58% oral) had never been tested for chlamydia, indicating that about 5.5 patients were never diagnosed.

Trichomoniasis was detected in 4.5%, with 85% diagnosed after the HIV detection. Nearly 40% had never been tested for trichomoniasis, implying that at least one person may be infected unknowingly.

Conclusion: This study highlights the gaps in complete STI testing in the presence of a new HIV diagnosis. A singular focus on the HIV diagnosis, instead of the complete spectrum of STI infections, may result in detrimental outcomes for patients who are already immunocompromised.

150 - Bridging Gaps in Care: Addressing Health Disparities in Colorectal Cancer Screening

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Purpose Statement: The purpose of this study was to identify barriers in access to Colorectal cancer screening at Prisma Health's FMC Colonial.

Introduction: Colorectal cancer (CRC) is the third most diagnosed cancer and third leading cause of cancer-related death in both men and women in the U.S., with increasing incidence among individuals under 50 years of age. Early screening and detection improve outcomes by identifying cancers at more treatable stages. Non-adherence to screening guidelines is a major contributor to worse outcomes. Barriers to screening predominantly affect marginalized groups due to remaining systemic injustices. In South Carolina, disparities exceed the national average.

Methods: An Epic report of patients aged 45-75 seen at FMC Colonial in the past year determined potential factors contributing to CRC screening rates. The report established each patient's age, insurance status, sex, and race. Pivot tables were produced to describe how each demographic factor contributed to rates of CRC screening and identify areas of intervention. The percentage of patients at goal was calculated by dividing the number of patients up to date on CRC screening by the total number of patients.

Results: Among 3,397 eligible patients, 57.96% were up to date with recommended screening. Screening rates varied significantly by age group,

insurance status, and sex. Only 48.6% of patients aged 45-54 were screened, compared to 59.8% of those 55-64 ($p < 0.000001$) and 65.9% of those 65-75 ($p < 0.000001$). Insurance status was strongly associated with screening. Patients with Medicare (62.2%) and private insurance (60.0%) had significantly higher screening rates compared to those with Medicaid (46.9%) and the uninsured (43.7%). Specifically, Medicaid patients had lower rates than both Medicare ($p < 0.000001$) and private insurance ($p < 0.000001$), and uninsured patients had a lower rate compared to Medicare ($p < 0.000001$) and private insurance ($p < 0.000001$). Differences in screening rates among sexes were less pronounced but still significant, with screening rates higher among females (60.4%) than males (53.9%, $p = 0.00024$). In contrast to existing literature, no significant differences were found between racial groups.

Conclusion: CRC screening rates in this population were influenced by age, insurance status, and sex, with older, insured, and female patients more likely to be screened. While no statistically significant racial disparities were identified, screening rates were lower among younger adults, males, and uninsured patients. These findings emphasize the need for targeted, clinic-based interventions, such as in-clinic education, counseling on testing options, and connecting patients to state-funded programs to support the uninsured, to improve overall screening rates.

151 - The association between residential segregation and early-stage cancer diagnosis in the U.S.

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Purpose Statement: Limited healthcare resources in racially and economically segregated areas may contribute to late-stage cancer diagnoses. However, a comprehensive evaluation of residential segregation and cancer diagnosis stage is limited. We aim to use contemporary nationwide data to examine the relationship between zip-code level residential segregation and early-stage diagnosis of all major cancer types.

Methods: Data were analyzed from the 2018-2022 National Cancer Database and American Community Survey. Early-stage diagnosis was defined as stage I-diagnosis. Residential segregation was measured by the zip code level Index of Concentration at the Extremes (ICE). Multivariable logistic regressions were conducted and adjusted for covariates including age, sex, comorbidity score, insurance, diagnosis year, state, and zip-code level metropolitan status and social deprivation index. Stratified analyses were conducted by cancer site and

sociodemographic variables, and trend analyses were performed to assess the dose-response relationship.

Results: Data from 3,730,811 patients were analyzed. Compared to patients living in the most segregated areas, the adjusted odds ratio (aOR) of early-stage cancer diagnosis was 1.24 (1.23,1.26), 1.16 (1.15,1.17), 1.12 (1.11,1.13), and 1.08 (1.07,1.09) for the four ICE groups (p-trend <.0001). Consistent patterns were observed among the majority of cancer sites, with strongest associations in melanoma, oral cavity and pharynx, female breast, uterine corpus, and lung. Similar associations were observed across sociodemographic groups.

Conclusion: Zip-code level residential segregation is significantly associated with lower likelihood of cancer diagnosis at early stage. Geographically targeted cancer prevention is required to promote cancer health equity.

152 - Donor and Recipient Characteristics among Rural Multi-listed Kidney Transplant Recipients

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Purpose Statement: Rural patients who qualify for kidney transplants are less likely to undergo transplant compared to their urban counterparts. Multi-listing (i.e., being added to the waiting list at >1 center) has been shown to increase transplantation rates and may serve as a strategy to improve access for rural patients. However, little is known about multi-listed rural transplant recipients. The purpose of this retrospective cohort study is to determine whether rural kidney transplant recipients who were multi-listed prior to transplant differ in demographic, clinical, and donor characteristics from those who were not multi-listed.

Methods: We utilized the US Scientific Registry of Transplant Recipients (SRTR) data to identify adult deceased donor solitary kidney transplant recipients with no prior transplant history. The study was limited to candidates who were added to the kidney transplant waiting list between 2019 and 2023. Only individuals residing in rural areas were included in the data set. Included patients were divided into two cohorts based on whether they were on the waiting list at >1 center prior to transplant. Donor and recipient characteristics were compared between cohorts.

Results: We identified 6,246 rural kidney transplant recipients for inclusion, of which 829 (13.3%) were multi-listed prior to transplant. Multi-listed recipients were more likely to be college educated (54% vs 44%, p<0.001) and employed (26% vs 22%, p=0.02). They also had a shorter median time on dialysis prior to transplant (33 months [interquartile range (IQR)=18-50] vs 35 months [15-62], p=0.01). Donors for multi-listed recipients were more likely to have hypertension and/or diabetes (38% vs. 33%, p=0.02). The median Kidney Donor Profile Index was

higher for multi-listed individuals (50% [IQR=25%-69%] vs 44% [23%-66%], $p=0.006$).

Conclusion: In this study of rural kidney transplant recipients, multi-listing was generally associated with recipient characteristics favorable to graft survival but donor characteristics that would be expected to decrease graft survival.

Funding: This study was funded by a seed grant from the Prisma Health Education and Research Institute.

Disclaimers / Conflicts of interest: The authors have no conflicts of interest germane to this analysis. The data reported here have been supplied by the Hennepin Healthcare Research Institute as the contractor for the Scientific Registry of Transplant Recipients (SRTR). The interpretation and reporting of these data are the responsibility of the author(s) and in no way should be seen as an official policy of or interpretation by the SRTR or the U.S. Government. The SRTR data system includes data on all donor, wait-listed candidates, and transplant recipients in the US, submitted by the members of the Organ Procurement and Transplantation Network (OPTN). The Health Resources and Services Administration (HRSA), U.S. Department of Health and Human Services provides oversight to the activities of the OPTN and SRTR contractors.

153 - Future Doctors, Present Support: A Community CGM Effort

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Purpose statement: The goal of this project is to assess the impact of attending the continuous glucose monitor (CGM) clinic on clinical outcomes related to diabetes. This project evaluated outcomes in patients with diabetes who attended both a CGM placement and interpretation visit and in those who only attended a CGM placement visit. The project aims to highlight the positive impacts that providing patients with professional CGMs has on patient outcomes.

Background: Managing diabetes is a relentless mental and physical battle. The constant calculations, the fears of highs and lows, and the pressure of getting dosing right every single day can wear on patients. In 2022, medical students, family medicine physicians, and pharmacists at the Prisma Health Family Medicine Clinic joined forces to distribute professional CGMs in an effort to improve care for patients with diabetes. The primary goal of the CGM clinic is to assist patients in improving their glycemic control and medication regimen. In particular, the CGM clinic focuses on helping patients lower their A1C, increase their time in range (TIR), and decrease long-term diabetic complications. The clinic also serves to help ensure patients with diabetes receive their annual diabetic exams and stay up-to-date on vaccines.

Methods: This is a retrospective chart review of clinical outcomes of 265 patients who attended the CGM clinic between February 2022 and May 2025. Clinical outcomes assessed include development of heart failure, chronic kidney disease, and ASCVD; A1c, BMI, blood glucose levels, TIR, time above range (TAR), time below range (TBR), glucose management indicator (GMI), and glucose variability; and ACE/ARB, GLP-1a, SGLT2, and statin prescriptions. Patients with diabetes are enrolled in the CGM clinic, where they attend a CGM placement visit and an interpretation visit. At the interpretation visit, students, pharmacists, and physicians interpret CGM results alongside each patient. Patients learn more about their diabetes by seeing how their diet, exercise habits, and sleep patterns can influence their glucose levels. Healthcare workers, students, and patients work together to make appropriate adjustments to each patient's medication regimen and lifestyle habits.

Results: Data analyzed until Spring 2024 indicated that patients who wore professional CGMs had lower A1Cs (10.1% to 8.7%) and increased time in range. We expect to see more positive and significant changes in patients who attended an interpretation visit following placement than those who did not attend an interpretation visit.

Conclusions: This family medicine resident and student-led project demonstrates the impact that improved access to CGM technology can have on clinical outcomes in an under-resourced setting.

154 - Physicians Fighting Food Insecurity

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Purpose Statement: Food insecurity (FI) is associated with poor health outcomes, including obesity, diabetes, hypertension, and mental illness. Although food voucher programs help address FI, their clinical impact is understudied. At Prisma Health, where 1 in 5 patients face barriers to healthy eating, we implemented a voucher program at a Family Medicine clinic to improve food access and assess health outcomes.

Methods: Between February 1 and November 1, 2024, nurses and program coordinators recruited patients during routine visits if they met ≥ 1 of the following criteria: (1) positive screen on a validated FI questionnaire; (2) homelessness; (3) on Medicaid; (4) uncontrolled DM ($A1c \geq 8.0\%$), or (5) HTN ($\geq 140/90$ mmHg). Participants received one to three \$15 vouchers per visit, redeemable for produce at a nearby market. Voucher use was tracked at the individual level, and clinical data were obtained through manual chart review. Analyses included negative binomial regression to identify factors associated with voucher redemption, paired t-tests to evaluate pre-post differences in clinical outcomes, and multivariable linear regression to assess associations between voucher redemption and outcomes.

Results: We distributed 4,552 vouchers to 943 participants and 54.6% were redeemed. After exclusions, 877 participants were analyzed: 78% female, 85% Black, and 78% extremely low income. Diagnoses included DM (22%), HTN (52%), depression (19%), anxiety (23%), and overweight/obesity (61%; among 710 patients with BMI data). HTN (IRR 1.26, $p = 0.0018$), age ≥ 45 (IRR 1.42, $p = 0.0002$), Black vs. White race (IRR 1.37, $p = 0.0009$), and Latino vs. Black race (IRR 1.39, $p = 0.0339$) were independently associated with higher redemption. In pre-post analyses, BMI decreased by 0.44 in 535 overweight/obese patients ($p = 0.0006$); systolic BP decreased by 11.2 mmHg in 136 patients with uncontrolled HTN ($p < 0.001$); A1c decreased by 1.17 in 68 patients with uncontrolled DM ($p = 0.0013$); and PHQ-9 decreased by 8.8 points in 30 patients with depression and baseline PHQ-9 ≥ 10 ($p < 0.0001$). Voucher redemption was not independently associated with pre-post differences in clinical outcomes.

Conclusion: This study identified patients more likely to redeem vouchers in a food access program, including those with hypertension, age ≥ 45 , and Black or Latino race. Participation in the program was associated with improvements in BMI, systolic blood pressure, A1c, and PHQ-9 scores among those with uncontrolled chronic conditions. However, voucher redemption was not independently associated with these pre-post differences, suggesting that the benefits may have stemmed from engagement with the program itself rather than the number of vouchers redeemed. As the first study of its kind in South Carolina—one of seven states with food insecurity prevalence above the national average—future research is warranted to evaluate the impact of longer-term or higher-intensity programs.

155 - How can a brief assessment of cultural values predict healthcare decisions and outcomes?

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Purpose Statement

A person's cultural values and beliefs guide their choices. Knowing a person's values can serve as a framework to understand their choices. This can be applied to patient care.

There are scenarios in primary care in which patient values seem to conflict with evidence-based medicine. For example, imagine a PCP is frustrated when a patient with diabetes does not follow advice about reducing BP/lipids/weight/smoking/A1c; assessing this case from Values Orientation perspective may show the patient is not ignoring evidence-based medicine, but instead *choosing* a higher risk of complications in favor of preserving their day-to-day quality of life. So the answer may not be for the PCP to present more evidence, data, and research to the patient, but instead to understand the patient values and bridge the gap with compromise.

My project goal is to utilize a brief assessment of 11 core Values Orientation questions to provide the PCP a resource to refer to. The above diabetes scenario could theoretically have been predicted and accounted for via a values assessment - for example, we would know if the patient places higher value in the future (long-term diabetic complications) or present (diabetic lifestyle) circumstances to primarily influence decisions. If values are ascertained up front, shared decision-making conversations could be approached from a place of understanding, which can streamline patient care and improve health outcomes.

Methods

Patient questionnaire detailing 11 core values, question to assess each value, and 3 answer choices to rank from first, second, and third best choices. Continuously reviewing questions with peers to confirm the readability and clarity before administering to patients.

example:

Time

What aspect of time should most influence our actions and decisions?

- Past (primarily influenced by past events or traditions)
- Present circumstances
- Future prospects.

Results

Behaviors/Outcomes to predict:

1) Treatment Adherence Objective Measures

- A1c trend in Diabetics
- Lipid Panel trend on statin
- Follow-up vs no-show appointment rate

2) Care Gaps completion: Preventative screenings - Colonoscopy, Mammogram, Pap, immunizations

3) Other: number of ED visits/hospitalizations, adherence to prescribed pharmaceuticals, number of providers seen, number of yearly visits. These could be cross referenced for cultural values per demographic like marital status and children, age, employment/insurance status, race/ethnicity.

Conclusion

How Assessment of Cultural Values Could Modify Clinical Approach/Treatment:

Treatment planning/Accommodation Some seek help for psychological concerns and substance abuse from alternative sources (e.g., clergy, elders, social supports). Invite these support people to appointments

Reduce conflict in clinical settings: When Patient Values conflict with Evidence-based medicine like the diabetes example above, PCP re-frames discussion and focus on compromise, not conflict.

Logistics: Double-book appointment slots for high-risk no-show patients. Document "Patient Preference" to not receive vaccines and cite cultural value

156 - Navigating Addiction, Pregnancy, and Parenting: Barriers and Facilitators to Accessing Information Among Mothers with Opioid Use Disorder in Rural South Carolina

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Purpose Statement (goal of the project): The purpose of this study was to explore the perspectives of mothers with opioid use disorder (OUD) in Pickens County, South Carolina, a rural community where support for addiction, pregnancy, and parenting is limited despite the rising rates of Neonatal Opioid Withdrawal Syndrome (NOWS). This study focused on identifying barriers and facilitators to accessing information and services regarding addiction, pregnancy, and parenting among mothers with OUD.

Methods (brief description of study design and methods): Thirty mothers participated in semi-structured interviews between September 2024 and February 2025. The study was conducted in two phases. Phase 1 explored barriers and facilitators to accessing information and services related to addiction, pregnancy, and parenting. Phase 2 focused on mothers' strategies for and concerns with using social media to access information about opioid use during pregnancy. Data from both phases were analyzed using thematic analysis to identify patterns and themes across participant responses. The data was coded independently and subsequently organized and analyzed in Atlas.ti software.

Results (key findings): Phase 1 revealed eight themes related to general information-seeking, including: lack of trust in healthcare providers and peers, limited availability of resources, stigma and judgment, transportation challenges, reliance on self-determination, support systems, confidentiality concerns, and difficulty navigating governmental assistance such as Medicaid, WIC, and housing programs. Phase 2 focused on online and social media resources, identifying four themes: lack of trust in online content, need for information tailored to individual circumstances (e.g., MAT use or child's age), confidentiality and preference for anonymity, and insufficient availability of relevant resources. Mothers frequently searched for rehabilitation facilities accommodating mothers and babies, MAT guidance, opioids, effects on themselves and their children, pregnancy and child

development information, and government assistance. Facilitators to online information-seeking included: user-friendly apps, one-on-one conversations, and anonymous online searches. Barriers to information-seeking included: stigma, or fear of judgement, a lack of resources specific to their circumstances, overall lack of information related to addiction, and the clarity of information. Together, these findings highlight ongoing gaps in information access and opportunities to improve dissemination through both traditional methods as well as digital channels.

Conclusion (explication of findings applicability to healthcare): Mothers in Pickens County consistently face barriers in accessing information related to addiction, pregnancy, and parenting, both through traditional sources (i.e., physicians, treatment facilities, etc.) and online platforms. Improving the availability, credibility, and accessibility of these resources is critical to supporting this vulnerable population in Pickens County. Next steps include the development of a social media campaign to address these challenges, with the ultimate goal of linking individuals to appropriate community services.

157 - Socioeconomic Factors Influencing Initial Treatment Decisions in Newly Diagnosed Hypertensive Adults: A 2022 Patient Cohort Analysis

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Purpose Statement

Hypertension remains a major public health challenge, with increasing evidence that socioeconomic status (SES) influences both its prevalence and management. While low SES is consistently associated with elevated blood pressure, few studies examine how SES affects initial treatment decisions at the time of diagnosis. This project investigates the impact of SES on early hypertension management among newly diagnosed adults in South Carolina.

Methods

Using de-identified 2022 Electronic Health Record (EHR) data from Prisma Health, we isolated 1,619 adults aged 35 and older who were newly diagnosed with hypertension (ICD-10 I10). Baseline blood pressure was established from the most recent pre-diagnosis visit. We assessed demographic and SES indicators - including marital status, insurance type, and zip code-level income and education - against guideline treatment initiation and prescription patterns within 30 days of diagnosis.

Results

Overall, 32% of patients did not receive guideline antihypertensive medication within 30 days of diagnosis. Older adults and males were less likely to be treated, whereas patients with Stage II hypertension had higher odds of receiving guideline medications. Patients with Medicaid Managed Care were less likely to receive guideline treatment relative to other insurance arrangements. Surprisingly, individuals in the highest income zip codes were the least likely to receive guideline medications. Among those treated, multiple drug classes were more often prescribed to Black or African American patients, those aged 60 - 69, and individuals with Medicare Fee-for-Service.

Conclusions

By identifying barriers in the earliest stages of hypertension management, our study provides new evidence on treatment disparities that emerge after an initial hypertension diagnosis. These findings deepen the understanding of how demographic and socioeconomic factors shape initial care and highlight critical areas for further research.

158 - Perceived Needs of Mothers with Opioid Use in Rural South Carolina: A Qualitative Comparison of Maternal and Organizational Perspectives

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• Purpose statement (goal of the project)

Pickens County, South Carolina is a rural and underserved area that is heavily impacted by the opioid epidemic. An average of 856 opioid prescriptions are dispensed per 1,000 residents and nine out of every 1,000 infants will be diagnosed with Neonatal Opioid Withdrawal Syndrome (NOWS). The purpose of this study is to develop novel, wrap-around services and support for women with opioid use disorder (OUD) and their newborns with NOWS in Pickens County. In doing so, we conducted interviews with mothers with opioid use disorder and agency heads in Pickens County to compare perceptions of barriers and facilitators to care.

• Methods (brief description of study design and methods)

We conducted 30 interviews with both mothers with OUD and agencies within Pickens County about available perinatal and substance use resources to determine the strengths, gaps in services, and needs of women and children with NOWS in

Pickens County, where there are no birthing hospitals. We conducted in-depth interviews guided by the Social Ecological model and components of community-based participatory research with 13 key community leaders and 17 mothers. Interviews were then transcribed verbatim and independently coded by two team members. Deductive analysis was performed to determine high-level themes through the utilization of Atlas.ti.

- **Results (key findings)**

The results of the agency interviews provided nine themes that impact prevention and treatment of NOWS in rural South Carolina: care during pregnancy and delivery, addiction treatment availability, trauma-informed and inclusive addiction treatment, comprehensive early childhood systems, housing, transportation, mental health and well-being, parent and caregiver support and local support. The results of mothers' interviews provided five themes that impact prevention and treatment of NOWS in rural South Carolina: lack of trust, individual experiences, confidentiality, lack of information, and government assistance. Themes from these interviews were compared between agencies and mothers on perceptions of barriers, facilitators and resources in the community.

- **Conclusion (explication of findings applicability to health care)**

These themes provide evidence that there are important social determinants at work in this community. Comparing themes between agencies and mothers allow us to bring healthcare services in line with the needs of this community. Expanded services including improved transportation and trauma-informed treatment for OUD are vital to improve health outcomes for mothers and infants with NOWS

159 - Addressing Gaps in Access: Examining Language Barrier Accommodations in Medicaid Member Handbooks, 2015-2019

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Purpose Statement: This study examines the linguistic inclusivity of Medicaid Managed Care Organization (MCO) handbooks from 2015 to 2019 by analyzing the percentage of plans with language barrier accommodations (LBA). In this analysis, LBA were measured as the presence of interpreter services and written translation services, recognizing that these services address different aspects of communication. To assess accessibility, the study examined whether instructions for obtaining these services were provided in languages other than English. Comprehensiveness was further evaluated by quantifying the number of non-English languages represented in each handbook. Through a comparison over the study period, the study seeks to identify gaps in LBA shaped by state-level policies

and MCO plan-level characteristics that prevent limited English proficiency (LEP) enrollees from fully understanding, accessing, or benefiting from their healthcare coverage.

Background: Language barriers hinder healthcare access for individuals with LEP, a population overrepresented in Medicaid, which insures approximately 80 million Americans annually. About 70% of beneficiaries receive care through Medicaid Managed Care (MMC), presenting a critical opportunity for language-based equity interventions. Managed Care Organizations, which deliver MMC, provide members with member handbooks, a primary resource guiding enrollees on benefits and services. However, their effectiveness in addressing language needs has not been studied.

Methods: A systematic search using manual efforts and Freedom of Information Act requests located all publicly available Medicaid handbooks from 2015-2019 (N=657) across 39 states with comprehensive MCO plans. These handbooks were coded by independent reviewers to assess the outcomes of LBA, including the presence and number of non-English languages offered. Random mixed-effects logistic and linear regression models were conducted to analyze state-level factors (political affiliation, LEP population percentage, and Medicaid expansion status) and MCO-plan factors (enrollment size and profit status).

Results: From 2015 to 2019, the percentage of MCO handbooks providing non-English interpreter service instructions rose from 50.4% to 91.1%, while those offering non-English written translation service instructions increased from 62.8% to 90.1%. The average number of non-English languages offered also increased from four to 14. Plans in states that have expanded Medicaid and plans with greater MCO enrollment were more likely to have language accommodations, while for-profit MCOs, states with higher LEP populations, and states with Mixed political partisanship were less likely to have language accommodations ($p < 0.05$).

Conclusions: Although language barrier accommodations have improved nationally, values for these measures indicate remaining gaps for millions of enrollees. Enhanced policy efforts, such as Medicaid expansion and stronger federal oversight, are needed to expand language accessibility and reduce disparities in healthcare access, particularly for diverse linguistic states with a large LEP population.

160 - Assessment of caregiver views regarding health care and wellness for adults with intellectual disability in a primary care clinic

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Purpose statement

Comprehensive medical care of adults with intellectual and developmental disabilities (IDD) is complex. Access to adequate care is difficult for all adults with IDD and exacerbated for those living in rural areas. We employ a sequential mixed-methods study model to investigate specific needs and barriers to care for adults with IDD and whether a difference exists between rural and non-rural populations. These data will inform efforts to improve healthcare in this patient population.

Methods

A qualitative interview investigating themes surrounding medical care for adults with IDD was conducted with caregivers for adults with IDD. Participants were recruited from the Center for Adults with Developmental Disabilities (CADD) at Prisma Health in Columbia, SC. A trained research assistant conducted each interview which was recorded and analyzed with qualitative research software. A quantitative survey was then built and is currently being distributed.

Results

Twenty participants completed an interview. Participants expressed satisfaction with their care at CADD and Prisma Health. Nevertheless, many faced frequent emergency room visits and challenges in healthcare overall. Participants observed that resources are limited and result in unequal access to services. The transition from pediatric to adult care varied from smooth to difficult with many noting lack of guidance in navigating healthcare services. Participants identified barriers to medical care for individuals with IDD including long wait times, unhelpful customer support, extensive paperwork relating to insurance coverage, and out-of-pocket costs for dental treatments and specialized equipment. A key unmet need was the lack of home care services for adults with IDD. While many attend adult day programs, satisfaction varies with particular concern about safety. While scheduling and appointment satisfaction was generally high, almost all faced transportation challenges.

Most participants found the transition of insurance coverage at age 18 to be straightforward but occasionally reported unexpected changes in coverage. They reported challenges accessing specialty providers including dentists and psychiatrists. Participants noted inadequate insurance coverage for services like physical, occupational, speech, and behavioral therapy. They expressed concerns about discrimination and provider reluctance to accept Medicaid. Participants highlighted concerns about inadequate patient care when caregivers are absent or deceased. The lack of record-sharing hindered adequate care. Finally, training for healthcare professionals and hospital staff on sensitivity and compassion toward individuals with IDD was suggested.

Conclusion

These findings reveal that caregivers of adults with IDD face significant barriers including administrative issues, financial challenges, inadequate guidance for navigating healthcare, transportation problems, insurance complications, and insufficient services. A healthcare system may better serve this population by directly addressing these barriers. We aim to further clarify most prominent barriers

by quantifying caregivers' perceptions with ongoing survey of a population extending across primary care offices in both the Upstate and Midlands of South Carolina.

162 - Barriers and Facilitators to Practicing Lifestyle Medicine in the Primary Care Setting

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Purpose statement

To explore the experience of board-certified Lifestyle Medicine (LM) primary care physicians and determine facilitators and barriers of implementing LM within a large healthcare delivery system, specifically examining physician methodology, social determinants of health, and cultural competence.

Methods

Eight board-certified LM primary care physicians completed a semi-structured interview to explore methodology, facilitators, and barriers to employing LM practices. All interviews were recorded and transcribed using Microsoft Teams with identifying characteristics removed. All transcripts were coded using the Dedoose analysis software.

Three coders individually reviewed the transcripts, then collaborated to develop an initial codebook. Facilitators were assessed by inquiring about physician methods and resources and questioning about perceived patient outcomes. Barriers were assessed by inquiring about physician's perceived challenges to initiating LM-focused behavior changes with patients. Strategies to overcome barriers were assessed to understand specific approaches that LM physicians use to aid patients with LM behavior change.

Results

Common themes from each of the eight interviews suggest that LM interventions are individualized for each patient based on: 1) the pillar(s) of LM being addressed ; 2) the patient's readiness to change; 3) the stage of the disease process the patient is in; and 4) which Social Determinant(s) of Health the patient is facing and their ease of being addressed.

Physicians' primary methodologies included motivational interviewing and shared decision-making. Facilitators to effective patient care included tools such as the FITT principle (Frequency, Intensity, Time, Type) for physical activity, and SMART goals (Specific, Measurable, Achievable, Relevant, Timely). LM physicians also relied

on community-based resources such as FoodShare, Exercise is Medicine Greenville® and Walk with a Doc.

Physicians also personalize LM counseling through the lens of cultural diversity. Physicians reported that interacting with patients from different backgrounds presents an opportunity for creativity, humility, and shared decision-making as the physician and patient can collaborate to make healthier choices without compromising culture. For example, providers connected patients to plant-based cookbooks with culture-specific cuisine.

Barriers to effective patient care reported by physicians included economic instability, food insecurity, and knowledge gaps. Additionally, physicians reported that language differences and environmental factors (e.g., lack of access to green spaces) hinder the patients' ability to implement prescribed lifestyle modifications. Strengths of this study included anchoring clinical practice in the six pillars of LM. Though within the same health system, physicians worked in different clinics with patients from a variety of socioeconomic backgrounds, thus limiting perceptions of barriers.

Conclusions

Lifestyle medicine physicians utilize the six pillars of LM as a framework to counsel patients on chronic disease management in conjunction with modern day medicine. Physicians rely on motivational interviewing, shared decision-making, established LM tools, community resources, and understanding a patient's cultural and socioeconomic barriers to instill lifestyle change.

163 - Implant-based Breast Reconstruction - A Systematic Review and Meta-Analysis of Prepectoral versus Submuscular Implant Placement

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Background: Implant based breast reconstruction began in the 1970s. Over the ensuing decades the placement of silicone breast implants has varied from underneath a muscular chest wall coverage to a subcutaneous location. With the advent of the incorporation of dermal matrix as a component of breast reconstruction, along with more cohesive gel implants, there has been renewed enthusiasm for pre-pectoral (subcutaneous) implant placement. Pre-pectoral reconstruction has the advantage of not detaching the pectoralis muscle from the sternum and ribs, thereby using the same plane of dissection as the mastectomy

for reconstruction. In this fashion, there is considerably less pain and many of the procedures, including immediate reconstruction, can be performed on an outpatient basis.

Purpose Statement: The purpose of this research was to perform a meta-analysis of the literature comparing the two planes of reconstruction for risks of complications and outcomes.

Methods: A comprehensive literature review was completed on PubMed, Ovid, and MEDLINE databases using the key search "prepectoral OR pre pectoral AND submuscular OR dual plane OR subpectoral OR sub pectoral AND breast reconstruction". The search was completed on the seventeenth of July in 2024. Cochrane's Collaboration tool for assessing risk-of-bias was also conducted on the included studies.

Results: Out of the total of 824 studies that resulted from this search, 47 studies met criteria of directly comparing outcomes between pre-pectoral and sub-pectoral (total or partial) implant-based breast reconstruction and were included in this study. Pre-pectoral cohort had statistically higher rates of seroma than the sub-pectoral counterpart (OR: 1.41, 95% CI: 1.08-1.85). Rippling was seen at higher rates in the pre-pectoral group (OR: 2.21, 95% CI: 1.52-3.21). The submuscular group was found to have higher rates of animation deformity (OR: 0.09, 95% CI: 0.03-0.25). There was no significant difference in hematoma, infection, wound healing, flap/nipple necrosis, implant exposure, explantation, capsular contracture, implant malposition or readmission rates.

Conclusions: Pre-pectoral implant-based reconstruction has a similar risk profile to sub-pectoral reconstruction, especially in the setting of acellular dermal matrices. Surgeons can confidently utilize either reconstructive plane to best fit the patient and mastectomy flap needs. However, there is a higher expected rate of rippling and seroma formation with prepectoral implants, while there is a higher rate of animation deformity with submuscular implantation. Therefore, the choice of location of the implant may depend on these findings, as well as other factors that could not be determined from this study, such as, thickness of skin flaps, size of implant, number of stages for reconstruction and surgeon experience.

165 - Cost-Analysis of Three Different Intermaxillary Fixation Methods: Materials and Operative Time

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Purpose Statement: When treating facial trauma, three main systems for intermaxillary fixation (IMF) are widely available to surgeons: self-tapping IMF screws, Erich arch bars, and hybrid arch bars. The purpose of this study is to perform a cost-analysis of these methods, factoring in materials, operative room time, and anesthesia time costs. This will help guide decision-making for surgeons and hospital systems.

Methods: This is a prospective study that includes adult patients who underwent IMF at our institution. Demographics, mechanism of injury, type of fracture treated, IMF method, device cost and placement time, operative and anesthesia time costs related only to the IMF portion of the procedure were collected and analyzed.

Results: Thirty patients were included; 13 patients had IMF screws placed, 9 patients had hybrid arch bars placed, and 8 patients had Erich arch bars placed to treat their traumatic facial bony injuries. No difference in demographics, comorbidities, other traumatic injuries, mechanism of injury, or type of fracture treated were found among the three treatment groups. Materials costs were significantly different - Erich arch bar materials are the cheapest (\$5 per patient), while hybrid arch bars are the most expensive (averaging \$1,377.11 per patient). However, when factoring in anesthesia time and billed operative room time pertinent to the IMF portion of the procedure in addition to charges for removal under sedation, the total costs were actually significantly more expensive in the Erich arch bar treatment group (\$14,624) than the hybrid arch bar group (\$10,078) and IMF screws group (\$1,015). No difference in complications were noted among the groups.

Conclusion: While materials for Erich arch bars are the most inexpensive, the operative and anesthesia time to place the patient in IMF makes this method the most cost-inefficient. IMF screws are overall the most cost-effective with no difference in complication rates.

166 - Physical Reminders Did Not Improve Sepsis Documentation Among Pediatric Residents: A Quality Improvement Initiative and Discussion of Alternative Strategies

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Purpose Statement:

At Prisma Health Richland, low compliance in documenting pediatric sepsis cases has raised concerns from the medical staff, as there is only an estimated 30% rate of documentation. With 8% of pediatric sepsis cases undiagnosed in the ED, our aim was to ***improve documentation compliance to 50%, widening the net for sepsis screening to better capture pediatric sepsis before complications.***

In the US, around 750,000 cases of sepsis are identified per year, which costs the healthcare system around \$20 billion to treat. Therefore, it has become a priority to recognize and treat sepsis at an early stage. However, sepsis is characterized by high diagnostic and prognostic uncertainty, which often results in delayed recognition and treatment, especially among patients who develop sepsis in hospitals. When recognized and treated in concordance with sepsis guidelines, outcomes including mortality and cost are improved. One contributing factor may be due to low documentation rates.

Methods:

Posters were placed in pediatric resident call rooms and reminder notes were placed on computer terminals used by residents for documentation reminding them of the expectation to document when patients met sepsis criteria. Data were extracted from the electronic health record every two weeks for patients admitted to pediatric and infant units for whom sepsis was coded as a diagnosis. Provider notes were reviewed to determine if documentation of the presence of sepsis criteria improved. Following the conclusion of data collection, resident focus groups were held to identify barriers to appropriate documentation.

Results:

Documentation rates improved transiently following placement of reminder materials but subsequently declined to baseline levels.

Themes identified during focus groups as barriers to documentation included:

- Alert fatigue
- Difficulty with EPIC's user interface

Physician burnout

- Lack of certainty for sepsis based on underlying comorbidities or potential alternative diagnoses at presentation

Conclusion:

Use of physical reminders in the documentation work environment did not consistently improve sepsis documentation.

At Prisma Health Richland, appropriate recognition of sepsis and use of guideline based order sets has been shown to improve sepsis mortality in the adult population by 7.6-9.2%. Similar improvements have not been shown in the

pediatric population where order set usage is less frequent. Barriers identified by pediatric resident physicians during focus groups suggest that challenges with the EHR and alert fatigue (which requires an individual physician action) play a role in low documentation rates and presumably less frequent order set usage. Integration of techniques not reliant on individual physician action, such as automated inclusion of AI generated smart phrases in documentation for patients for whom sepsis alerts are generated or incentivizing adherence by connecting rates to compensation may represent alternative ways to increase awareness of and adherence to system level quality initiatives.

167 - Impact of Bundled Interventions on Nurses' Medication Practices in a Rural Hospital

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Purpose statement. Medication administration errors harm over 100,000 patients annually and affect more than 7 million people across healthcare settings (Carthon, 2015), costing approximately \$21 billion each year (AHRQ, 2019). Study explores the impact of the "Respect the Pass" intervention on nurses' knowledge, attitudes, behaviors, and mindfulness during medication administration in a rural hospital, Oconee Memorial Hospital Surgical Specialty nursing unit.

Grounded in human factors engineering and holistic nursing principles, this study aligns with Prisma Health's learning organization model. Study hypotheses are "Respect the Pass" intervention will significantly improve nurses' knowledge, attitudes, behaviors, and mindfulness related to medication administration over time. Tools such as signage, dome lights, mindful huddle activities, and aromatherapy discs will be adopted into routine nursing practice. The purpose of the study is to enhance both patient safety and nurse well-being in high-pressure medication delivery. Investigators evaluate changes in staff mindfulness awareness and knowledge, attitudes, and behaviors of medication administration.

Methods. A mixed-methods approach assessed specified outcomes plus supported the broader goal of promoting nurse-patient partnership in medication safety. Focus groups assessed the most-preferred, feasible interventions.

Design: Quasi-experimental, pretest-posttest predictive design to assess the impact of the "Respect the Pass" intervention. Respect the Pass interventions include:

a) **Environmental Modifications:** Cautionary signage—"Respect the Pass: Medication Administration in Progress"—installed on the nursing unit; b) **Visual Alerts:** Dome lights above patient doors during medication administration utilizing existing Hill-Rom system; c) **Mindfulness-Based Training:** Staff received mindfulness literature and training related to focused medication administration

using STOP (Stop, Take a breath; Observe, Proceed in the moment) and the 5 Rights; d)**Aromatherapy**: Nurses wear dime-sized aromatherapy discs on their badges; e)**Daily Practice**: 60-second mindfulness exercises incorporated into shift huddle; f)**Scripted Messaging**: Staff use mind/body/spirit messages to respectfully delay non-urgent requests during med passes.

Instruments: "Nurses' knowledge, attitudes, & behaviors about med administration (KAB)" and "Mindfulness attention awareness (MAAS)" surveys.

Results. 57/61 (93%) of unit staff participated in the study

One sample statistics t-tests pre and post intervention matched pairs (n=33) for KAB presurvey M=43 (3.89); KAB post survey M=43.15 (5.37) $p<.001$; and for MAAS presurvey M=22.63 (14.90); post survey 29.74 (12.57) $p<.001$

The Cronbach's alpha reliabilities for KAB measured .78 pre and .82 post; the MAAS of .91 pre and .92 post respectively.

Nurses (n=41) preferred to develop their med administration skills through the continuous offering refresher courses. Mindfulness-based training was assessed as the most preferred and feasible intervention.

Conclusion. Statistically significant and positive results demonstrated Knowledge Attitudes and Behaviors in medication administration increased; Mindfulness Attention Awareness improved. Instruments-demonstrated excellent reliability. There was excellent engagement of nursing staff. "Respect the Pass" bundled interventions for medication administration in the rural hospital supported increased knowledge, attitudes, and behaviors and mindfulness attention awareness of nurses.

168 - Pain Reduction Following Patch-Augmented Rotator Cuff Repair

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Purpose Statement: Persistent postoperative pain is a key determinant of patient satisfaction after rotator cuff repair (RCR). Patch augmentation has been introduced to enhance tendon healing, but its effect on pain relief has not been extensively characterized. We hypothesized that patients would experience a significant decrease in pain scores at one-year follow-up, as measured by the Visual Analog Scale (VAS). We also analyzed functional and quality-of-life measures, including the American Shoulder and Elbow Surgeons (ASES) score, Single Assessment Numeric Evaluation (SANE), and the Veterans RAND 12-Item Health Survey (VR-12) physical (PCS) and mental (MCS) component scores

Methods: We performed a retrospective review of patients who underwent arthroscopic RCR with patch augmentation at a large academic medical center. All

cases were performed by fellowship-trained shoulder surgeons who elected to use patch augmentation for tears considered “at risk” for failure based on pre-operative imaging, patient factors, and intra-operative findings. Patients were included if they had documented pre-operative pain scores and a minimum of one-year follow-up.

Results: Twenty-six patients met inclusion criteria, with a mean age of 57.1 years; 15 (58%) were male. Seventeen patients (65%) had small to medium tears, and nine (35%) had large to massive tears; six procedures (23%) were revision repairs.

Mean VAS pain improved from 4.9 to 2.3 at one-year follow-up ($p = 0.01$), representing a greater than 50% reduction in reported pain. Functional outcomes also improved: ASES scores increased from 42.2 to 76.8, SANE from 42.2 to 76.8, VR-12 PCS from 37.9 to 46.9, and VR-12 MCS from 46.9 to 52.6. Improvements were observed across tear sizes and in both primary and revision repairs, though subgroup analyses were not powered for statistical comparison.

Conclusions: Arthroscopic RCR with patch augmentation provides clinically meaningful pain relief, reducing average pain scores by more than half within one year while simultaneously improving functional and quality-of-life measures. These findings support patch augmentation as a valuable strategy not only for structural reinforcement of “at risk” repairs but also for achieving significant postoperative pain reduction.

169 - Antimicrobial stewardship evaluation of inappropriate treatment for infectious diarrhea based on clinical condition and rapid diagnostic pathogen identification

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Purpose: With increases in antimicrobial resistance, stewardship is essential in antibiotic decisions. Infectious diarrhea is a common reason for antibiotic usage. The Gastrointestinal PCR Panel (GPP) is a rapid multiplex molecular test detecting common pathogens causes of infectious diarrhea. Unfortunately, current medical literature contains limited guidance on incorporating GPP results into stewardship decisions. This study investigates the appropriateness of antimicrobial selection in patients with bacterial or parasitic causes of infectious diarrhea.

Methods: We retrospectively analyzed all positive bacterial or parasitic GPP results from adults (≥ 18 years) in the Prisma Health Medical System in 2023, excluding patients with concurrent diagnosed infections. We assessed each patient for appropriateness of antimicrobial selection, including antibiotic choices, doses, and durations before and after GPP results. Inappropriate was defined as receiving an

ineffective antibiotic, receiving more antibiotics than indicated, indicating but not prescribing treatment, and inappropriate duration of antimicrobial course based on the pathogen, patient's risk factors, and overall clinical condition.

Results: Of 283 patients, 111 (39.2%) had an inappropriate antimicrobial selection or duration, 29 of which never received an effective antimicrobial despite being warranted. Of the 111, 91 (82.0%) received an inappropriate duration of therapy. Sixty-three patients (63/111, 56.8%) had an inappropriate antibiotic selection with many receiving unneeded metronidazole. Inappropriate antimicrobial selection or duration occurred frequently in all medical settings: outpatient 7/21 (33.3%), emergency department not admitted 29/68 (42.6%), ED admitted 39/110 (35.5%), and inpatient 36/84 (42.8%). Nineteen of 54 immunocompromised patients (35.2%) received an insufficient duration of therapy. Immunocompromised individuals with *Campylobacter* (8/8, 100%) and Enteropathogenic *E. coli* EPEC (4/9, 44.4%) were frequently undertreated. Additionally, patients with *Shigella* and HIV frequently received an inappropriately short course (5/9, 55.5%). For mild infections in immunocompetent individuals in which no treatment is recommended (such as *Salmonella*, EPEC, EAEC, ETEC), 18/48 (37.5%) received an inappropriately long course of antibiotics.

Conclusion: Inappropriate antimicrobial therapy for infectious diarrhea was very common in all medical settings. Frequently immunocompromised patients were undertreated while mild infections in immunocompetent patients were overtreated. Many patients received multiple antibiotics when only one antibiotic was indicated.

Future studies: We plan to develop and implement a Prisma Health-specific GPP interpretation guideline to support stewardship via the Prisma Health Stewardship mobile application, with future studies evaluating its impact on prescribing patterns.

170 - The Effect of Concordant Plastic Surgeon and Surgical Technologist in Bilateral Breast Reduction

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Purpose Statement: Effective communication and collaboration in the operating room are vital to patient outcomes and healthcare efficiency. While the impact of

surgical team dynamics has been increasingly recognized, chiefly investigating operative time as the primary outcome, the influence of consistent collaboration between surgeons and surgical technologists on patient outcomes remains underexplored. Bilateral breast reductions are one of the most common plastic surgery procedures. This operation generally requires a team approach and the role of consistent operative teams may be particularly important for patient safety and outcomes. This study investigates whether concordance between surgeon and consistently paired surgical technologist is associated with reduced complication rates, procedure duration, and healthcare resource utilization.

Methods: A retrospective chart review of bilateral breast reductions by multiple surgeons at a single institution between March 2021 and August 2024 was performed. Procedure duration, complications, and number of trays and sutures opened were analyzed. One surgical technologist was considered “concordant” per surgeon based on their consistent paired assignments on the surgeon’s operative block time. All others were considered “discordant.” Thus, teams for each surgeon were considered “concordant” or “discordant.” Procedure duration and complications between groups were compared via logistical regression.

Results: A total of 232 patients were included. Demographics, comorbidities, smoking status, resident participation, volume of reduction, number of sutures opened, and procedure duration did not differ between groups. Regarding post-operative complications, the concordant surgeon and surgical technologist team was associated with a 70.5% reduction in post-operative complications (OR = 0.295, 95% CI [0.120,0.647]). The greatest difference was seen in rates of wound dehiscence, with only one patient suffering from dehiscence in the concordant group (1.6%) compared to 25 patients in the discordant group (16.13%) ($p < 0.001$). The rate of post operative complications did not differ between specific surgeons. Finally, there was a statistically significant difference in number of trays opened between groups with the concordant group having a median of 1 and interquartile range of (1,1) and the discordant group with a median of 1 and interquartile range of (1,2) $p = 0.043$.

Conclusion: The presence of concordant surgeon and surgical technologist team was significantly associated with reduced postoperative complications in bilateral breast reductions - most notably, the striking decrease in wound dehiscence. Less trays were also opened with concordant teams, and therefore, there was less waste of hospital resources. While future directions should include prospective studies to validate these findings, these findings highlight the potential importance of team familiarity and coordination in improving surgical outcomes and decreasing health care costs.

171 - Cost Effectiveness of Facial Fracture 3D Reconstructed Images

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Purpose:

Advancements in X-rays and CT scans have significantly improved diagnosis of facial fractures, particularly those previously difficult to detect clinically. Introduction of three-dimensional (3D) reconstructions of facial CT scans has further enhanced fracture visualization and surgical planning. However, cost-effectiveness of 3D reconstructions compared to traditional 2D CT scans in trauma patients remains unclear. This study aims to evaluate the cost-effectiveness of 3D facial reconstructions in the context of facial trauma and determine whether the added diagnostic value justifies the increased cost.

Methods:

Costs associated with 2D CT imaging and 3D reconstructions at our institution were assessed through review of standard gross charges obtained from the Prisma Health billing and coding department. Additional variables for each imaging modality were evaluated, including image slice width and radiation exposure to the patient. A literature review was conducted to examine the role of imaging in facial trauma evaluation. Practical utility of 3D reconstructions was further discussed with senior facial trauma surgeons at our institution.

Discussion:

The reported gross costs for 2D CT imaging were \$2,143 for maxillofacial imaging and \$2,210 for head imaging. The add-on cost for post-processing 3D reconstruction was \$1,210, bringing the total cost to \$3,354 for maxillofacial 3D imaging and \$3,420 for head 3D imaging. Slice width for 2D CT images ranged from 1-3 mm for maxillofacial imaging and 3-5 mm for head imaging. Average slice width for 3D reconstructions was 0.625 mm. Average radiation exposure for 2D CT imaging was 45 mGy for maxillofacial and 35 mGy for head scans. Notably, addition of 3D post-processing did not introduce additional radiation exposure. Complex facial fractures initially imaged with standard 2D CT scan required repeat imaging for 3D image reconstruction during surgical planning, resulting in a cost increase of more than two-fold.

Conclusion:

Although 3D facial CT reconstructions incur additional costs, the advantages they offer in improved fracture visualization and surgical planning justify the expense,

particularly for patients with complex fractures. While 2D imaging remains the standard first-line modality, utilizing 3D imaging as the initial evaluation is more cost-effective overall and does not result in additional radiation exposure to the patient.

172 - Collecting Blood Cultures in Obstetric Patients with Intraamniotic Infections: A Quality Improvement Project

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Purpose statements:

Sepsis and infections are the second leading cause of maternal death in the US, with the Southeastern US representing highest incidence¹. Blood cultures are the only way to detect bloodstream infections (BSI), however, the American College of Gynecology (ACOG) guidelines lack specific guidance on blood culture utilization in obstetric patients with intraamniotic infections (IAI) beyond empiric antimicrobials initiation; other resources such as California Maternal Quality Care Collaborative (CMQCC) do provide additional recommendations^{2,3}. This quality improvement project aimed to obtain blood cultures in obstetric patients diagnosed with IAI to determine if those pregnant patients would have a similar incidence of BSI to non-pregnant adults with sepsis syndromes.

Methods:

A multidisciplinary workgroup between obstetrics, infectious disease, nursing, and phlebotomy at two obstetric hospitals was convened to determine workflow for obtaining blood cultures in this population. A job aid was developed and placed in physician and nursing work areas. Within the EMR, a list was created for monitoring blood cultures and patient data was extrapolated to RedCap via manual chart review. Patients with blood cultures obtained due to sepsis syndromes not attributed to IAI were excluded from the population.

Results:

Between June 15 and September 10, 2025, 55 unique patients had blood cultures drawn. Their ages ranged from 16 to 40, with an average of 26. Patients were split

between Hispanic (n=18, 32.7%), Black (n=17, 30.9%), and Caucasian (n=16, 29.1%), with 4 unknown race/ethnicity.

Vaginal delivery (n=29, 52.7%) was most common, followed by caesarian section (n=22, 40%) and abortion (<20 week; n=4, 7.3%). Maternal temperature meeting ACOG criteria for IAI was the most common reason for patients to have blood cultures drawn, though maternal leukocytosis and fetal tachycardia were noted in a majority of patients.

Thirteen percent of patients had positive blood cultures (n=7). The most common organisms in the blood included *Streptococcus* species (n=2, 28.6%), *E. coli* (n=1, 14.3%) and *Citrobacter* species (n=1, 14.3%). Three patients had coagulase-negative *Staphylococcus*, which could represent true bacteremia or contamination. Blood cultures were drawn between -1.7 to 1.6 hours after antimicrobial initiation (mean=-0.06, SD=0.43).

Conclusion:

Approximately 10% of blood cultures are estimated to be positive in septic non-pregnant adults, with 5% attributable to true bacteremia and 5% considered contamination. In this data set, 13% of blood cultures are positive, indicating there is evidence BSIs have been underdiagnosed in obstetric patients. This can have significant implications with regards to outcomes on maternal health. A potential limitation is time of blood culture collection compared to antimicrobial initiation. It is a small population that can inflate the significance of positive blood cultures. More data are needed to reach robust statistically significant conclusions and determine if blood cultures should be routine in pregnant patients diagnosed with IAI.

201 - A Peer Recovery Coaching Intervention for Hospitalized Alcohol Use Disorder Patients (RC-Link)

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Purpose Statement

Alcohol Use Disorder (AUD) is a leading preventable cause of hospitalization in the U.S., with high recurrence and readmission rates. The RC-Link study is an ongoing five-year, two-arm randomized controlled trial testing the effectiveness of a peer recovery coaching intervention for hospitalized patients with AUD. This presentation

focuses on recruitment and retention strategies, progress, and baseline characteristics.

Methods

The trial will enroll 750 adults (ages 18-75) with moderate to severe AUD admitted Greenville Memorial Hospital (urban), Oconee Memorial Hospital (rural), and Baptist Easley Hospital (rural). Research coordinators conduct daily electronic health record screenings to identify alcohol-related admissions; eligible patients are approached at bedside, screened, and consented. On average, 8-16 patients are screened and 2-3 enrolled weekly.

Retention is supported through multiple strategies. Participants complete ecological momentary assessments (EMA) and four follow-up surveys at 1, 3, 6, and 12 months virtually post-discharge. Contact information is verified before randomization and updated regularly through bimonthly check-ins and panel surveys. Multiple communication modes are used (phone, email, mail), with paper surveys mailed if online completion lapses. To address unstable cellphone access—observed in ~38% of participants in prior pilot studies—participants without phone access are provided with a study smartphone and phone plan. For EMA adherence, coordinators proactively reach out if >3 consecutive surveys are missed. Informed by prior pilot studies, these methods, are designed to maximize retention across the 12-month study period.

Results

A total of 170 participants have been recruited (Greenville Memorial Hospital: 138, 81.2%; Oconee Memorial Hospital: 32, 18.8%). Mean age was 50 years (SD = 12.45). Most participants are male (116, 68.2%) and identified as White (80.5%) or Black/African American (16.6%), with minimal Asian (1.2%), Hispanic/Latino (1.8%), or American Indian/Alaska Native (1.2%) representation. Eight participants (4.7%) were lost to death, six (3.5%) withdrew, and 48 (28.2%) reached the one-year end-of-study mark. The majority of participants (63.5%) are still enrolled. 163 (95% of overall enrolled participants) have made it to the 1-month mark, 139 (81%) have made it to the 3-month mark, and 109 (64%) have made it to 6 months.

Conclusion

Early RC-Link trial results highlight the practicality of enrolling and maintaining engagement of hospitalized patients with AUD in a long-term peer recovery coaching intervention. Despite the high-risk population, baseline enrollment has been steady, and retention strategies—including proactive contact verification, provision of study smartphones, and tailored EMA support—have yielded encouraging early adherence rates. While challenges such as mortality, withdrawal, and unstable contact remain, ongoing results suggest that the combination of bedside recruitment and intensive follow-up methods can effectively engage this hard-to-reach clinical population. Continued monitoring of recruitment and retention trends will inform the scalability of long-term peer recovery coaching interventions initiated in the inpatient setting.

202 - Resilience, Meaningful Work, and Mental Health in Emergency Medicine Following a COVID-19 Surge

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Purpose Statement

Emergency medicine (EM) clinicians report some of the highest rates of burnout across medical specialties (Jachmann et al., 2025, McKenna, 2024). Identifying protective factors that buffer against mental health strain is critical for workforce well-being and patient care. This study examined whether perceived resilience predicted reduced mental health strain among EM clinicians following a COVID-19 surge and whether meaningful work mediated this relationship.

Methods

The study included 197 healthcare professionals within the Department of Emergency Medicine at Prisma Health (47.7% registered nurses, 36% physicians, 9.1% nurse practitioners/physician assistants, 7.1% residents). Participants completed monthly surveys during the COVID-19 pandemic. National Emergency Department Overcrowding Scores (NEDOCS) and national COVID-19 case data were used to identify surge periods. Measures included the Brief Resilience Scale (Smith et al., 2008), a 5-item meaningful work scale developed for this study, and an adapted version of the Well-Being Index (Dyrbye et al., 2018) to assess mental health strain. Resilience and meaningful work were assessed prior to the Omicron surge (Nov 2021-Jan 2022), while mental health strain was measured post-surge (Feb-Apr 2022).

Results

Resilience significantly predicted lower levels of post-surge mental health strain ($\beta = -.971$, $p < .001$), explaining 10% of the variance ($R^2 = .132$, $F(1,189) = 4.112$, $p < .001$). Higher pre-surge resilience was associated with lower post-surge strain. Additionally, meaningful work significantly mediated this relationship, accounting for 40% of the effect. Clinicians who perceived greater meaning in their work reported less strain, suggesting that resilience alone was not sufficient and the benefits were amplified when work was also experienced as meaningful.

Conclusion

Findings demonstrate that both individual resilience and meaningful work are protective factors against mental health strain among EM clinicians during public health crises. Resilience training programs remain valuable but may be insufficient in isolation. Organizational strategies that focus on building meaningful work through leadership support, recognition of patient impact, and opportunities for reflection may strengthen the buffering effects of resilience and improve clinician

well-being. Future research should examine additional protective factors (e.g., social support, autonomy) and expand to other specialties to inform comprehensive well-being initiatives across healthcare systems.

203 - An Atypical Presentation of Acalculous Cholecystitis As a Sequela of EBV-Induced Hepatitis

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Purpose Statement: Provide a case study on an atypical presentation of acalculous cholecystitis as a sequela of EBV-induced hepatitis and to discuss the sensitivity of monospot antibody test.

Methods: ZD is a 25 year old female who initially presented to the emergency department with 7 days of consistent midline lower back pain, as well as intermittent headaches and low-grade fevers. She had previously been evaluated at urgent care and a CT abdomen pelvis and L-spine without contrast did not show any abnormalities. Initial labs were remarkable for an AST of 259, ALT 348, Alk phos 491, negative urinalysis, and CRP of 43.5. Due to the elevated transaminases and concern for acute hepatitis, hepatitis serologies and an autoimmune panel were drawn and a right upper quadrant ultrasound was ordered. The autoimmune panel resulted in an elevated A1AT of 306, normal smooth muscle antibody, and normal ceruloplasmin. Hepatitis/HIV panel was negative, but ultrasound revealed thickened gallbladder and acalculous cholecystitis. A HIDA scan and MRI abdomen were negative for cholecystitis and no surgical intervention was warranted. Without evidence of obstructive stones, hypoperfusion, or bile stasis, a viral etiology was suspected. A monospot test was drawn and produced a positive result but an EBV antibody panel of VCA IgM and IgG revealed no quantifiable antibodies.

Results: Underwent liver biopsy that later showed Epstein-Barr virus hepatitis with mild-moderate inflammatory activity and no significant fibrosis. The patient returned to the emergency department later in the week with persistent pain despite the use of prescribed opioids and was given the results of her liver biopsy. After this visit, the patient's symptoms resolved and she did not follow up with outpatient gastroenterology.

Conclusion: Acalculous cholecystitis is a rare complication of infectious mononucleosis caused by the Epstein Barr virus. Early recognition of mononucleosis as a potential cause can limit unneeded diagnostic tests and surgical intervention. While the monospot test may detect heterophile antibodies, it can be negative in the early stages of infectious mononucleosis and is not always the best diagnostic

test. In this case, the patient had a positive monospot test and biopsy-proven EBV-hepatitis, but negative EBV antibodies. This case illustrates the importance of overall clinical presentation in diagnosing rare disease processes despite negative lab results.

*Permission to complete this case report was granted by the patient at the time of discharge

204 - Electronic After Visit Summary Decreases Emergency Department Length of Stay in Rural Hospital

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Purpose Statement: Overcrowding in emergency departments (EDs) leads to longer wait times, provider strain, and delayed patient care. A significant contributor is low-acuity patients who remain in the ED waiting for discharge paperwork. The electronic After Visit Summary (e-AVS) helps expedite discharges by delivery of after-visit summaries electronically, potentially reducing emergency department length of stay (ED-LOS) and improving overall efficiency, yet no research studies have examined the association between use of e-AVS and ED-LOS. This study assessed characteristics associated with the use of e-AVS and examined its association with ED-LOS in a rural community hospital.

Methods: Eligible patients were those seen and discharged from an ED in the Southeastern U.S. between 1/1/2024 and 12/31/2024. Those admitted or who left against medical advice were excluded. Use of e-AVS was defined as an ED encounter which utilized e-AVS during discharge. ED-LOS was defined as the time from arrival at the ED to the time of discharge. Chi-square and T-tests assessed differences in the distribution of demographic and clinical variables by e-AVS use. Quantile regression determined differences in the median ED-LOS by e-AVS use. Adjusted quantile regression evaluated differences in the median ED-LOS after accounting for patient age, race, and acuity. Unadjusted and adjusted quantile regression also assessed the relationship between median ED-LOS and e-AVS stratified by pediatric encounters.

Results: Of 14,521 eligible patients the majority were female (56.9%) and White (56.2%) with an average age of 42.4 years (STD=23.8). The e-AVS was utilized by 175 (1.2%) patients, and most often occurred during patient encounters that were urgent, less urgent, or non-urgent (96.6%), and among those who were also enrolled in MyChart (62.9%). Median ED-LOS for the entire population was 169 minutes (IQR=155). Individuals utilizing e-AVS had a median ED-LOS of 108

minutes (IQR=99) compared to those who did not utilize e-AVS who had a median ED-LOS of 169 minutes (IQR=156). Unadjusted quantile regression showed that individuals who utilized e-AVS had a median ED-LOS that was 61 minutes shorter compared to individuals who did not use the e-AVS ($p < .0001$). After adjusting for age, race, and acuity, individuals who utilized e-AVS had a median ED-LOS that was 25.3 minutes shorter than individuals who did not utilize the e-AVS ($p=0.0003$).

Conclusion: Utilization of e-AVS was significantly associated with a shorter median ED-LOS in a rural community hospital. This suggests that e-AVS utilization may optimize ED efficiency and patient throughput in similar settings. Patients may be willing to utilize e-AVS if aware of the advantages, such as a potentially decreased wait time or a convenient work note via electronically. Emergency physicians should consider implementing e-AVS as a strategy to streamline discharge and reduce ED-LOS, ultimately improving patient experience and operational efficiency.

205 - Sex-Based Disparities and Missed Opportunities in Syphilis Screenings in the Emergency Department

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Purpose Statement: The emergency department (ED) is an optimal location for sexual transmitted infection (STI) testing. Despite this, some syphilis cases may go undiagnosed. The objective of this study assessed sex differences in not receiving a syphilis screening and missed opportunities for syphilis diagnosis in a Southeastern ED.

Methods: Eligible patients (13+ years) were those who received a screen for chlamydia, gonorrhea, or trichomoniasis at one of six EDs in a healthcare system between 1/1/2018 and 12/31/2024. A syphilis screen was defined as a screening with both a *T. pallidum* antibody screen and a rapid plasma reagin test. A syphilis diagnosis was defined as reactive results for both tests and with no documented history of syphilis. Missed opportunities (MO) for syphilis diagnosis occurred if a syphilis positive patient had a previous ED visit for STI testing without being tested for syphilis. Adjusted logistic regression examined sociodemographic and clinical characteristics associated with a MO for syphilis screening and MO for syphilis diagnosis stratified by sex.

Results: A total of 31,212 patients were screened for an STI during the study period, of whom 72.0% were female. Of the 237 syphilis screens performed, males (60.8%) were more likely to receive a syphilis screen compared to females

(39.2%), $p < 0.001$. Regardless of sex, those aged 13-24 years had triple the odds of experiencing an MO for a syphilis screening compared to those aged 30-34 (aOR=3.05, 95%CI=1.70-5.58 and aOR=2.99, 95%CI=1.55-5.78 for men and women, respectively). In contrast, while women aged 40-44 were 53.0% less likely to have a MO for syphilis screening compared to those aged 30-34 (aOR=0.474, 95%CI=0.237-0.946), men aged 45+ years were almost twice as likely to experience an MO for syphilis screening (aOR=1.99, 95%CI=1.19-3.34) compared to those aged 30-34 years. Having a history of an STI made both men (aOR=0.112, 95%CI=0.076-0.164) and women (aOR=0.218, 95%CI=0.138-0.345) significantly less likely to have a MO for syphilis screening compared to those who did not have a history of STI. Whereas females were 13.2% more likely to have experience a MO for syphilis screening at an ED with an opt-out program, males were 20.6% less likely to have a MO for syphilis screening at an ED with an opt-out program compared to ED without an opt-out program, though neither association reached statistical significance. Eleven (11.0%) of males experienced a MO for syphilis diagnosis, compared to 10 (21.7%) of females.

Conclusion: Males were significantly more likely to be screened for syphilis and reported a lower prevalence of MO for syphilis diagnosis compared to females. These findings highlight sex-based differences in syphilis that may help improve screening in the ED. Lower screening threshold for syphilis and other STIs should be considered in patients with undifferentiated complaints or STI risk factors.

206 - Social Determinants of Health Assessment Among SBIRT Participants in a Southern United States Hospital

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Purpose Statement: Screening, Brief Intervention and Referral to Treatment (SBIRT) is a public health initiative used in emergency departments (EDs) to connect patients with substance use disorders (SUDs) to care. While ED patients interact within SBIRT programs to identify potential SUDs, many barriers prevent treatment access. Identifying barriers to referrals and treatment access is crucial for successful linkage to treatment, yet few studies address these challenges. The objective of this analysis was to assess the social determinants of health (SDOH), and reasons for not receiving referrals for or attending outpatient medication assisted treatment (MAT) among individuals reporting opioid or alcohol misuse.

Methods: This is a retrospective cohort study (1/1/2023 and 12/31/2024) within a community level one trauma center in Greenville, South Carolina. All eligible adults

(18+) who were screened positive for opioid or alcohol misuse were used as part of the embedded SBIRT program within this ED and assessed by a certified peer support specialist (CPSS). Data on SDOH and services provided were documented by the CPSS into RedCAP. Opioid and alcohol misuse were defined as anyone who reported either opioid use without a prescription or problematic alcohol use in the last 30 days. Descriptive statistics calculated the frequency of sociodemographic and clinical variables, social medical history, and CPSS services provided.

Results: Of the 2,204 SBIRT recipients, 373 recipients (16.9%) endorsed opioid misuse and 1,041 recipients (47.2%) endorsed alcohol misuse. Those endorsing opioid misuse reported a higher prevalence of unemployment (63.7% vs 10.2%), unstable housing (37.5% vs 27.1%), and lack of transportation (43.5% vs 29.8%) compared to those endorsing alcohol misuse. Further, those endorsing opioid misuse were more likely to be in law enforcement custody during their visit (5.7% vs 1.7%). Three of every four individuals endorsing opioid misuse (77.9%) or alcohol misuse (77.1%) received a referral to treatment, with outpatient appointments scheduled for 79.3% of those reporting opioid misuse and 25% of those reporting alcohol misuse. Compared to individuals endorsing opioid misuse, those endorsing alcohol misuse were more likely to report a lack of interest (16.7% vs 10.5%) and lack of insurance (8.3% vs 0%) as a reason for not scheduling an outpatient appointment. Individuals endorsing opioid misuse reported a lack of transportation (10.5% vs 0%).

Conclusion: Despite reporting barriers with several SDOH, a significant percentage of individuals were successfully referred for treatment after SBIRT screening and were able to schedule an outpatient appointment to pursue care. Those who did not schedule appointments rarely cited SDOH as barriers and very few reported other reasons. While these results highlight the potential for successful linkage, further research should focus on better catered engagement strategies and comprehensive interventions that address SDOH barriers to enhance treatment and outcomes for individuals with SUDs.

207 - Time is Tissue: Point of Care Ultrasound Utilization to Identify Necrotizing Fasciitis in the Emergency Department

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Purpose Statement: Diagnosing necrotizing fasciitis (NF) requires a combination of high clinical suspicion, laboratory testing, and CT/MRI imaging. While prior studies have evaluated the sensitivity, specificity, accuracy, and overall utility of Point-of-Care Ultrasonography (POCUS) in detecting NF, none have evaluated its

impact on time to emergency department (ED) and subsequent surgical treatment. The objective of this case series was to present four cases where the use of POCUS may have decreased the time to identification of NF in the ED and expedited surgical debridement, in comparison to other cases of NF seen in the ED.

Methods: Data was extracted for adults (18+) who received a hospital diagnosis of NF with subsequent surgery for debridement from a Prisma Health ED between 1/1/2020 and 12/31/2024. Necrotizing fasciitis was defined as a hospital diagnosis with an ICD-10 code of M72.6. Individuals receiving a soft-tissue POCUS in the ED were highlighted in the case series. The outcome time-to-debridement was defined as the minutes elapsed between ED arrival and the time the patient was checked into the operating room. The independent variable POCUS was assigned to all individuals who received a soft-tissue POCUS prior to debridement surgery. Descriptive statistics were used to describe the demographic and clinical characteristics of the population and prevalence of soft tissue POCUS. Fisher's exact test and T-tests were used to assess differences in the distribution of demographic and clinical covariates by POCUS status. Q-Q plots were used to assess the distribution of all continuous variables, normally distributed variables were reported by mean and non-normally distributions reported by median. Quantile regression was utilized to assess differences in the median time to OR for those receiving a soft tissue POCUS and those not receiving a soft tissue POCUS.

Results: There were 158 ED patients with an NF diagnosis between 1/1/2020 and 12/31/2024. Most were predominantly male (57.0%), White (74.1%), English-speaking (97.5%), with an average age of 55 (STD=15.4). Of the 158 patients, 39 (25.0%) had an ED diagnosis of necrotizing fasciitis. Four (2.5%) patients had a soft-tissue POCUS performed in the ED. In the adjusted model, accounting for ED or origin, those receiving POCUS had a median ED LOS 13 minutes shorter than those who did not receive POCUS ($p=0.8142$). Patients receiving POCUS had a median OR arrival time that was four minutes sooner compared to patients not receiving POCUS ($p=0.9468$).

Conclusion: NF patients in the case series who received POCUS had a shorter ED LOS and sooner OR arrival time compared to NF patients who did not receive POCUS. The use of POCUS may have potential for expediting critical interventions and improve patient outcomes related to NF. Additional analysis at a larger scale should be performed to confirm these results.

208 - Patient-Reported Outcomes Following Transcutaneous Electrical Nerve Stimulation

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Purpose Statement: A three-year grant from the Substance Abuse and Mental Health Services Administration (SAMHSA), supported a program to deploy training and facilitated bedside utilization of various medications and procedures to address pain management without the use of opioids. This Emergency Department - Alternatives to Opioids (ED-ALTO) program, instituted within a busy level 1 trauma center emergency department (ED), provided electronic medical record (EMR) based order sets and enhanced training and bedside support for various procedures including acupuncture, trigger point injections, regional nerve blocks, and transcutaneous electrical nerve stimulation (TENS) to provide alternatives to opioids to treat pain. The objective of this study was to assess the patient-reported outcomes following treatment with TENS in the ED as part of the ED-ALTO program.

Methods: This is a single site prospective cohort study (8/1/2021- 11/30/2024) including all adult (18yrs or older) patients with reported pain within the only regional level 1 (~95K adult ED patients/year) trauma center in Greenville, SC. Patients were offered alternative pain relief treatments as per discretion of the treating physician. Patients were consented and enrolled in the ED and assessed for any and all treatment modalities utilized in the ED including MMEs if opioid were used. Pre- and post-pain scores were collected in the ED. Additionally, enrolled patients were contacted by a study team member by phone starting 48 hours after discharge to assess pain level, overall satisfaction, and if they would request/utilize any alternative treatment as utilized again.

Results: Of the 550 enrolled patients that received TENS treatments in the ED, 349 (63%) completed their follow-up survey. From these surveys, 88% of enrolled patients reported that they experienced pain relief with this treatment combination of TENS plus medication and 91% reported that they would want to use the TENS again as a future treatment. Participants reported an average pre-treatment score of 8 out of 10, followed by an average post-treatment pain score of 5 out of 10 both while in the ED and after discharge. They also reported an average satisfaction score of 8 out of 10 with TENS treatment.

Conclusion: Patient-reported outcomes following TENS treatment in the ED included decreases in overall pain that was sustained even after discharge with reported high overall satisfaction and willingness to use TENS again for future pain. Additionally, during follow-up surveys, several patients reported that purchasing a TENS unit for home use, though this was not a specific data point and was not quantified. This data highlights how TENS can be deployed even within a busy level 1 trauma center to aid in pain management.

210 - Sex Differences in Medication Dosing and Timing During Procedural Sedation in the Emergency Department

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Purpose Statement: Although the influence of sex on pharmacokinetics and pharmacodynamics is known, sparse evidence is available regarding sex and gender differences for procedural sedation (PS) in the emergency department (ED). Our purpose was to examine differences in dosing of propofol used for PS in the ED between sexes. A secondary objective assessed sex differences in adverse events during PS.

Methods: This retrospective cohort study extracted data from eight EDs at Prisma Health Upstate from 1/1/2023-11/30/2024. Eligible patients were ≥ 18 years and underwent PS in the ED with propofol. Outcome of interest was total weight-based dosing of propofol in milligrams per kilogram (mg/kg) and sedation duration. Sedation duration was defined as the physician-documented time of sedation start to sedation end in minutes. Chi-square tests assessed differences in distribution of demographic (age, race) and clinical characteristics (type of procedure, area of injury, type of sedation, receipt of analgesia, adverse events) by sex. Quantile regression assessed differences in the median weight-based dose of propofol and sedation duration. This analysis was repeated stratified by procedure type (fracture reduction vs dislocation reduction) and area of injury (lower limb vs upper limb).

Results: The majority of the 923 patients receiving propofol for PS in the ED were White (80.8%) and female (50.6%), with an average age of 54 years (STD=20.9). Propofol alone was used in 671 cases (72.7%), and propofol/ketamine combination was used in 241 cases (26.1%), with females less likely to receive this combination than males (21.0% vs. 31.4%, $p=0.0003$). The median dose of propofol alone was 1.34 mg/kg (IQR=1.2), with no difference by sex. The median sedation duration for propofol alone was 16 minutes (IQR=13) with no difference in median time by sex. The median dose of propofol given with ketamine was significantly lower for females compared to males (0.85 mg/kg vs. 1.16 mg/kg, $p=0.0253$), the median sedation time for propofol given with ketamine was 159.0 minutes (IQR=149) with no difference by sex. There were no differences by sex in the median dose of propofol with or without ketamine for individuals receiving a dislocation reduction. Females receiving a fracture reduction on a lower limb received a lower median dose of propofol given with ketamine compared males (0.86 mg/kg vs. 1.57 mg/kg, $p=0.0051$). Respiratory depression was the most commonly reported adverse event (17.7%), with no differences in any adverse events by sex.

Conclusion: These findings highlight instances of reduced dosing of propofol for females vs males during PS in the ED. Differences in female's age and comorbidities may play a role in physician's dosing for PS. Better understanding of sex differences may assist emergency physicians in performing sedations with greater precision in patient care.

212 - Fronto-Hippocampal Connectivity Patterns Predict Cognitive Resilience Against Alzheimer's Disease Pathology

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Purpose Statement: Alzheimer's Disease (AD) pathology (tau and amyloid- β protein accumulation, neurodegeneration) often results in cognitive deterioration; however, some patients show pathological indicators without this typical clinical symptomatology, a condition which can be considered cognitive resilience. To date, there has been limited research establishing neural predictors of AD-related cognitive resilience quantifying the likelihood of resilience at a single subject level. In this study, we explored whether functional magnetic resonance imaging (fMRI) and supervised machine learning could be combined to predict individual levels of cognitive resilience using patterns of resting state functional connectivity between the hippocampus and prefrontal cortex.

Methods: Alzheimer's Disease Neuroimaging Initiative (ADNI) participants (N=82) with full valid data from tau and amyloid positron emission tomography, structural MRI hippocampal volumetry, resting-state fMRI, APOE genotyping, and cognitive symptom assessment (Mini-mental state examination) were analyzed with relevance vector regression (RVR).

Results: Exploratory results demonstrated frontal pole-hippocampus resting state connectivity patterns could predict AD cognitive resilience of individual participants, based on a residual-based method. The RVR prediction of overall residuals was significantly better than chance based on permutation testing (MSE = 0.6, $p = .004$; 1000 permutations). Similarly, RVR analyses of only positive residuals ($n=42$), indicating positive pathology-based symptom prediction deviations, showed a similarly significant result (MSE = 0.11, $p = .003$; 1000 permutations).

Conclusion: These early results demonstrate that fronto-hippocampal functional connectivity patterns may be potentially clinically utilized to predict the resilience of individuals' cognitive health in the context of typical AD-related pathology. Future research will build on these findings through replication with larger sample sizes.

213 - Tooth Loss is Associated with Post-Stroke Cognitive Impairment

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Purpose Statement: Periodontal disease and dental caries are a leading cause of tooth loss which has been correlated with stroke in the REGARDS study. We

investigated the correlation between tooth loss and post-stroke cognitive impairment (PSCI) assessed by Montreal Cognitive Assessment (MoCA).

Methods: The MoCA was conducted in consecutive ischemic stroke and TIA patients (N=280) enrolled in PREMIERS trial ([ClinicalTrials.gov](https://clinicaltrials.gov/ct2/show/study/NCT02541032) NCT#02541032). It was categorized as normal/mild cognitive impairment (MoCA>19) or severe cognitive impairment (MoCA ≤19). Regarding tooth loss, patients were categorized into two separate groups based on the number of teeth lost as reported by the cohort at initial assessment. The groups were categorized into those reporting significant tooth loss (≥8) and non-significant tooth loss of <7. We tested the association between tooth loss to the MoCA assessment in post-stroke/TIA patients. In addition to the clinical cofounders' patients were assessed for periventricular and deep white matter hyperintensity using axial FLAIR images. They were graded on a 3-point Fazekas scale; none/mild disease = Fazekas grades 0-1 and moderate/severe disease = Fazekas grades 2-3. Univariate and multivariable binary logistic regression analysis were conducted to calculate crude and adjusted Odds Ratio (OR) respectively.

Results: We compared those with significant tooth loss (N=201) with non-significant tooth loss group (N=79). Those that scored severe on the MoCA assessment were only slightly older than those who scored normal/mild (age 61± 12 vs. 59 ± 12, respectively), slightly less likely to be male (63% vs. 64%, respectively), and more likely to be African American (83% vs. 68%, respectively). Significant tooth loss was associated with severe PSCI (Crude OR=3.25, 95% CI; 1.65-6.41). The association remained significant after adjustment for age, sex, race, level of education, hypertension, diabetes, small vessel disease assessed by Fazekas scale (Adjusted OR=2.60, 95% CI; 1.20-5.61). **Conclusion:** In summary, the results showed a significant independent association between significant tooth loss and PSCI in a patient population with moderate to severe periodontal disease. Further study is needed to see if modifying tooth loss by aggressive management of periodontal disease and dental caries could alleviate PSCI.

214 - The Effect of Early Versus Delayed Rehabilitation on Clinical Outcomes Following Reverse Total Shoulder Arthroplasty: A Systematic Review

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Purpose

There is no consensus on the rehabilitation protocol following reverse total shoulder arthroplasty (rTSA). This systematic review aims to determine whether or

not there is a difference in clinical outcomes between an early rehabilitation versus a more traditional delayed rehabilitation.

Methods

A comprehensive search of Pubmed, Medline, Scopus, and Embase was performed on June 10, 2024 in accordance with the PRISMA guidelines to find studies that compared clinical outcomes between early and delayed rehabilitation protocols following reverse total shoulder arthroplasty.

Results

Six studies were found that met the inclusion criteria, which included a total of 1,654 patients with a mean age of 72.3 years. Of these six studies, five evaluated an early versus delayed rehabilitation protocol whereas one only examined the outcomes of an early rehabilitation protocol. Range of motion (ROM) was the most popular outcome score measured among the six included studies. The early rehabilitation protocol was found to have outperformed the delayed rehabilitation group in range of motion (ROM) measurements at early follow ups in some studies, but this relationship was not consistently reported. Functional outcome scores such as ASES and Constant Scores showed no significant difference. Complication rates were slightly lower in the early rehabilitation group (10.8%) compared to the delayed group (13.1%), but this relationship had no statistical significance ($p = 0.178$).

Conclusion

Early rehabilitation following reverse total shoulder arthroplasty appears to offer similar clinical outcomes to delayed rehabilitation and may be a good rehabilitation option for patient's seeking to return to activity faster. However due to the lack of quality evidence and inconsistent definition of what an early rehabilitation entails, further high-quality, long-term studies are needed to establish a definitive conclusion.

215 - Psychosocial Predictors of Accelerated Brain Aging: A Study of Depression and Social Engagement in Healthy Older Adults

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Purpose Statement: Accelerated brain aging can lead to cognitive decline due to morphological brain changes. We hypothesize that lower social engagement and higher geriatric depression in older adults increase the risk for accelerated brain aging, measured as brain age gap (BAG: neuroimaging-derived brain age minus chronological age).

Methods: Participants in the AGES study (aged 66-96) completed assessments of depression and social engagement at baseline and approximately five years later. The Geriatric Depression Scale and monthly leisure activity participation served as measures. Depression scores of 0-5 were categorized as normal/low risk, and 6-15 as moderate/severe risk. For social engagement, each leisure point corresponded to four activities per month, categorized as None (0), Low (0-2), Medium (2-5), or High (5+). Each measure was analyzed with BAG as the dependent variable.

Results: Depression predicted higher BAG at baseline ($P < 0.013$), follow-up ($P < 0.01$), and longitudinally ($P < 0.005$). Leisure was associated with higher BAG at baseline ($P < 0.002$), but not at follow-up. A post hoc Tukey test showed individuals in the "None" category differed significantly from other leisure groups ($P < 0.01$). No longitudinal association was found between leisure and BAG.

Conclusion: Depression significantly impacts BAG in healthy older adults. Social engagement influences brain aging at baseline, though this effect is not sustained over time, suggesting early intervention may be protective.

216 - EyeCLIP: A multimodal visual-language foundation model for computational ophthalmology

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1. Purpose: Existing ophthalmic Artificial Intelligence (AI) models are often limited to single modalities and perform poorly on rare diseases with long-tail data distributions. This study develops EyeCLIP, a multimodal visual-language foundation model for computational ophthalmology, to overcome these limitations.

2. Methods: EyeCLIP is trained on a large-scale dataset comprising 2.77 million ophthalmic images across 11 modalities, supplemented with partial clinical text. A novel training strategy is employed, combining self-supervised reconstruction, multimodal image contrastive learning, and image-text contrastive learning. This approach enables the model to learn shared feature representations across different examination types and imaging modalities. The model's performance is subsequently validated on 14 diverse, multi-country benchmark datasets.

3. Results: EyeCLIP demonstrates robust and superior performance across a wide range of downstream tasks in zero-shot, few-shot, and fully supervised settings. It significantly outperforms existing models in ocular and systemic disease classification, visual question answering (VQA), and cross-modal retrieval. The model shows exceptional data efficiency and strong generalization capabilities, particularly in data-scarce scenarios such as the diagnosis of rare diseases.

4. Conclusion: By effectively integrating multimodal visual data with clinical language, EyeCLIP provides a powerful and versatile tool for enhancing the diagnosis of both ocular and systemic diseases. Its high efficiency and

generalizability position it as a promising asset for real-world clinical applications. The work is published in npj Digital Medicine, 2025.

217 - Clinical Outcomes of Medial Patellofemoral Ligament Reconstruction Versus Repair in a Cohort with a Large Proportion of Competitive Athletes

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Purpose: We aimed to evaluate differences in clinical outcomes between patients undergoing MPFL reconstruction and MPFL repair. We hypothesized that individuals that underwent MPFL repair would demonstrate equivalent knee function and equivalent proportions of successful return to preinjury sport when compared with those that underwent MPFL reconstruction.

Methods: We utilized our institutions prospectively collected data repository to retrospectively-identify patients from 2013-2021 who underwent surgical treatment of an MPFL injury (reconstruction or repair), had no prior knee surgery, and were at least 2 years post-operative. We excluded patients with injuries to the cruciate ligaments or menisci. We collected electronic health record (EHR) data including demographics, concomitant injuries (e.g., chondral defects or trochlear dysplasia), surgical details, and concomitant procedures (e.g., lateral release, loose body removal, tibial tuberosity osteotomy). We further collected/calculated the following imaging measures from the EHR: 1) tibial tubercle to trochlear groove (TT-TG) distance; 2) patella alta/baja (Insall-Salvati ratio). Patient-reported outcomes data were collected and included the International Knee Documentation Committee subjective knee form (IKDC), information on surgical satisfaction, and information on return to preinjury sport (for athletes). Within athletes, we summarized return to preinjury sport and compared the proportions with successful return.

Results: Clinical and outcomes data were successfully collected for 230 eligible patients (age at surgery=18.6±6.1 years; 55% female; follow-up time=6.7 ± 2.4 years). Of the 230 included patients, 208 (90%) underwent MPFL reconstructions, and 22 (10%) underwent MPFL repairs. Overall, 140 (61%) of included patients were competitive athletes at the time of injury/surgery. There were no significant differences between groups in age, gender proportions, follow-up time, nor proportions of competitive athletes (Table 1). Additionally, there were no significant differences between groups in Insall-Salvati ratios nor in TT-TG distance (Table 1). The groups did not statistically-differ in IKDC scores (reconstruction group = 84.7 ± 13.8; repair group = 88.1 ± 10.3; p=0.25). The groups also did not statistically-differ in the proportions reporting that they were satisfied or very satisfied with their surgical procedure (reconstruction group = 92%; repair group = 100%;

$p=0.16$). Of the included cohort of competitive athletes ($n=140$), 124 were in the reconstruction group, and 16 were in the repair group. Of the 124 athletes in the reconstruction group, 104 attempted to return. 95 (91%) were able to return to their preinjury sport. Of the 16 athletes in the repair group, 15 that attempted to return, all (100%) were able to return (Table 2). The two groups did not statistically-differ in the proportions that returned to preinjury sport ($p=0.12$).

Conclusion: We did not find significant differences in outcomes between reconstruction and repair groups. While repair may be a viable alternative to reconstruction to treat MPFL injuries, further study is needed with a larger cohort of repairs.

218 - Interdisciplinary Approach to Address Gendered Narratives in Human Anatomy

Instruction: Cranio-Cervical Case Study

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Background: *Unwell Women by Elinor Cleghorn* summarizes discriminatory myths of gender difference and their persistence in modern medicine. Women remain underrepresented in anatomical learning materials, and instruction often does not address differences along gender and racial lines. As such, instruction fails to accurately represent the population. Most teaching resources rely on the white, male representative form only using females to distinguish reproductive differences, perpetuating incomplete knowledge and bias in the clinical setting. For instance, women's pain is more often attributed to emotional or psychological causes, a by-product of the historical and cultural understanding of women's bodies not rooted in an anatomical or physiological source.

Purpose statement: While there are calls to address representation in the curriculum, how to accomplish this remains elusive. We aim to create a companion toolkit that expands anatomical comparisons, corrects historical and gendered narratives, and demystifies the origins of anatomical biases, enabling instructors to address these sensitive topics. Since pain and headache have often been treated along gendered lines, this area was chosen as a test case. A study of cranio-cervical measurements is underway to examine whether cranium and cervical vertebrae anatomy explain gendered differences in pain presentation.

Methods: Deidentified adult (25-54 yrs) female ($n=15$) and male ($n=33$) CT and MRI cranio-cervical images were acquired from Furman University's BodyViz database. Scans used self-identified as "female" or "male", and did not indicate cranio-cervical complications. Transverse and sagittal sections capturing the foramen magnum and cervical vertebrae were selected following standard measurements for cranio-cervical junction compression. All images were

standardized for magnification, slice thickness, and distance between slices. Image J was used to measure internal and external perimeter and area of the foramen magnum, the McRae line marking medulla-spinal cord convergence, the β angle associated with medulla-spinal cord compression, and the clivus angle an indicator of dorsal brainstem herniation. Data were analyzed using R 4.5.0 (95% CI). A literature review of scientific and historic resources accompanies these measurements and will be used to create a case study.

Results: Although none of the measurements show statistical mean or median differences between genders ($p > 0.05$), violin plots show differences in variability. These differences are seen at the β and clivus angles where the female β angle is narrower and the clivus angle wider suggesting that the female nervous system is more susceptible to compression and herniation from the skeletal anatomy.

Conclusion: This study demonstrates that using MRI and CT scans is a noninvasive way to compare female and male skeletal structures. The present study was limited by the number of suitable scans in BodyViz and could only be analyzed by gender. Ongoing studies of gendered comparisons include musculoskeletal structures, and we are seeking access to additional scans enabling us to examine other categorical comparisons.

219 - From subtle signs to sudden death: Fatal Sinus of Valsalva aneurysm presenting with mild hypoxia and elevated lactate

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Purpose Statement

Sinus of Valsalva aneurysm (SVA) is a rare cardiac anomaly that may remain asymptomatic or present with life-threatening complications. This case highlights a fatal presentation of SVA causing complete obstruction of the pulmonary artery. This case urges clinicians to recognize the clinical signs and diagnostic challenges of Sinus of Valsalva Aneurysm in patients presenting with unexplained cardiopulmonary symptoms.

Methods

This project is a case study in which data was directly collected from the medical record of the patient and a literature review conducted in relationship to the underlying pathology.

Results

A middle-aged male with no prior cardiac history presented with acute dyspnea and chest discomfort. Despite aggressive resuscitative efforts, the patient suffered cardiac arrest and died within 24 hours of admission. Postmortem chart review revealed a previously undiagnosed SVA that had obstructed the pulmonary artery. The aneurysm was not identified in prior evaluations and was diagnosed during this admission. A comprehensive review of the patient's clinical course and relevant literature was conducted.

SVAs are rare, with an estimated prevalence of 0.09%, and can lead to catastrophic outcomes if undiagnosed. This case underscores the importance of considering structural cardiac anomalies in patients with unexplained cardiopulmonary symptoms. Early recognition through imaging and clinical suspicion is critical. The report contributes to the limited literature on fatal SVA presentations and emphasizes the need for heightened awareness in similar clinical scenarios.

Conclusion

Clinicians should maintain a high index of suspicion for SVA in atypical presentations of cardiac arrest. Timely diagnosis may prevent fatal outcomes and improve management strategies for rare cardiac anomalies.

220 - Hypertension-Induced Tissue-Resident Endothelial Progenitor Cell Dysfunction: A Role for Formyl Peptide Receptor Signaling

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Introduction: Hypertension is a leading cause of cardiovascular mortality and impairs vascular repair by compromising endothelial progenitor cell (EPC) regenerative function. Tissue-resident EPCs (tr-EPCs) are the key players of endothelial repair. Mechanical stretch (MS) is fundamental for vascular homeostasis; however, when accompanied by chronically increased tension, a hallmark of hypertension, it can lead to vascular injury. Formyl peptide receptors (FPRs) are pattern recognition receptors that detect danger signals, including bacterial, mitochondrial, and MS stimuli. While FPR1 activation generates a pro-inflammatory response, FPR2 drives resolution and regeneration via pro-resolving lipid mediators. **Purpose statement:** We hypothesized that hypertensive-like mechanical stretch reduces tr-EPC repair capacity by altering the signaling of the damage-sensor FPR-1 and/or FPR-2. **Methods:** Systolic blood pressure (SBP) was measured under anesthesia in male 6-month-old BPN/3J and BPH/2J mice treated with vehicle, FPR-2 antagonist (WRW4), or FPR-1 antagonist (CHIPS) both 1 mg/mL, sc, 14 days. *En face* immunofluorescence (IF) was done in aortic arches. Mouse aortic tr-EPCs were exposed to 0% or 19% mechanical stretch for 24 or 48

hours. Tr-EPC migration was analyzed by wound-healing assay; Sca-1, FPR-1/-2 expression by IF. Statistics: one- and two-way ANOVA. **Results:** FPR-2 antagonism increased SBP (BPH: WRW4, 133 ± 7 vs. vehicle, 112 ± 1 mmHg; $p < 0.05$), while FPR-1 antagonism lowered SBP (BPH: CHIPS 102 ± 7 vs. vehicle 112 ± 9 mmHg, $p < 0.05$). Hypertension reduced Sca-1⁺ tr-EPCs (IF AU: BPN, 379 ± 2 vs. BPH, 256 ± 3 ; $p < 0.05$), and CHIPS restored it (IF AU: 565 ± 67 ; $p < 0.05$ vs. BPH vehicle). *In vitro*, hypertensive-like stretch impaired tr-EPC migration and increased Sca-1 expression at 24 h (IF AU: $3,801 \pm 430$ vs. $7,067 \pm 1,171$; $p = 0.055$) but decreased it at 48 h (IF AU: $9,705 \pm 592$ vs. $4,704 \pm 456$; $p < 0.05$), indicating impaired repair. At 24 h, 19% stretch increased FPR-2 (IF AU: static, $5,743 \pm 727$ vs. $10,729 \pm 1,328$; $p < 0.05$) and decreased FPR-1 ($3,980 \pm 490$ vs. $2,132 \pm 283$; $p < 0.05$); these differences disappeared by 48 h. Both receptors were reduced in hypertensive endothelium compared to controls. **Conclusion:** Hypertensive-like mechanical stretch impaired tr-EPC reparative capacity by disrupting FPR-1/2 balance, contributing to tr-EPC depletion in hypertension.

221 - Effectiveness of Prehospital Blood Administration in Pediatric Populations: A Scoping Review

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Purpose Statement: Prehospital blood administration (PBA) is a life-saving intervention in emergency medical services (EMS) for trauma and medical resuscitations, yet inclusion of pediatric patients in PBA protocols and evidence supporting PBA effectiveness in this population remain unclear. The purpose of our scoping review was to map existing literature on PBA in pediatrics, identifying key characteristics of protocols and common outcomes assessed.

Methods: PubMed, CINAHL, MEDLINE, and Scopus were searched from database inception through June 1, 2025. We included any study design or media article written in English describing PBA provided by EMS via ground or air ambulance. Titles, abstracts, full-text selection and data extraction were performed independently by two authors and assessed by percent agreement (PA), a third author resolved disagreements. A standardized spreadsheet extracted location and operational characteristics from each source and identified sources discussing pediatric (≤ 16 years) populations by assessing: inclusion of pediatrics in eligibility/exclusion criteria, inclusion of pediatrics in population, specialized protocols for pediatric blood administration, outcomes assessed for pediatrics, and outcome results. Data were synthesized and qualitatively summarized. Methods

were performed following the Preferred Reporting Items for Systematic Reviews and Meta-Analyses extension for Scoping Reviews.

Results: Investigators reviewed 3,813 titles (PA=91.2%); 256 abstracts (PA=83.9%) and 128 full texts (PA=85.0%). Ninety-seven were chosen for data extraction (PA=86.0%). Of 57 studies reporting results from a PBA program, 7 (12.3%) excluded pediatrics, 19 (33.3%) did not exclude pediatrics in eligibility/exclusion criteria but did not include them in the analysis and 31 (54.4%) included pediatrics. Of those 31, less than one-third (10, 32.3%) assessed outcomes disaggregating pediatrics from adults; occurring primarily in the USA (60.0%) with sample sizes from 10-559. Five studies reported 30-day mortality or hospital/intensive care unit (ICU) length of stay, with two studies comparing pediatric PBA recipients to a control group. Our ability to synthesize findings was limited due to small sample sizes, heterogeneity in the population, PBA protocol, and EMS operations, and variability in outcome definitions.

Conclusion: Our findings show a significant paucity of pediatric-specific evidence supporting PBA. Pediatric populations must be included in robust studies of PBA to inform evidence-based guidelines for prehospital pediatric trauma and medical resuscitation.

222 - Effect of Early Life Stress on Mitochondrial Protein and Function in the Brain of Neonates

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Purpose statement: Pregnant mothers often undergo stressors that may negatively impact the health and behavior of their offspring. The effects of early life stress are long lasting and can be evident throughout the lifetime of individuals. Mitochondria, which are responsible for energy production in the cell, are adversely affected by chronic stress. It is hypothesized that stress will negatively impact function and protein expression in the neonate cortex.

Methods: A total of 41 adult time-mated and virgin female Wistar rats arrived at the laboratory on gestational day 4 from Charles River laboratories. After habituation to the vivarium and researchers, rats were pseudorandomly separated into stress and control groups. Primiparous rats and nulliparous rats in the stress group were subjected to chronic mild unpredictable stress in the second half of their gestational period (days 10-19). Primiparous and nulliparous rats in the control group were handled. The stress consisted of bed wetting, white noise, cage tilt, acute restraint stress, and overnight light exposure. Following birth, pups were tested for ultrasonic vocalization on postnatal day 10 and then euthanized 30 minutes later. The brains of the rats were then dissected. A BCA was used to determine protein concentrations and then western blots were run to observe mitochondrial proteins. Primary antibodies against mitochondrial oxidative

phosphorylation subunits (Rodent TOTAL OXPHOS, Abcam, 1:250) were used to examine mitochondrial complex protein levels. Bands were visualized using goat anti-mouse secondary fluorescent antibodies (Licor, 1:10000) on the Licor Odyssey system. Mitochondrial function was assessed using high-resolution respirometry (Oroboros) on neonate cortex homogenates. This procedure measured the oxygen flux through each of the complexes.

Results: Females from stressed dams exhibited a trend for low complex I protein levels ($p=.062$), compared to their control female counterparts, with lower complex I proteins than males from stressed groups. The other complexes showed no statistically significant results. We performed correlations to identify potential relationships between protein concentration and mitochondrial function. We observed a significant protein correlation between complex III protein and maximal capacity of the electron transport system ($p=.02$, $R^2=.14$). When samples were separated into control and stress groups, we observed significant correlations between complexes 1, 2, 3, and 5 and respiratory measures in control groups that were disrupted in stressed groups.

Conclusion: Here we identified effects of early life stress on neonate mitochondrial function and protein expression that was specific to females. This shows prenatal stress may have more of an effect on brain metabolism in female neonates than male neonates. Furthermore, stress may impact mitochondrial protein utilization, as we identified correlations between protein and function in controls that were not present in stressed offspring.

223 - The Happiness Advantage: The Impact of Positive Psychology Interventions to Improve Healthcare Workers' Subjective Happiness

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Purpose

The purpose of this study was to evaluate the effect of positive psychology interventions (PPI) on subjective happiness among healthcare workers using the validated Subjective Happiness Scale (SHS).

Methods

A quasi-experimental design was employed. Participants provided demographic data, baseline SHS scores, and information regarding engagement in 10 evidence-based behaviors associated with increased happiness. Subsequently, participants read *The Happiness Advantage* by Shawn Achor and completed a 21-day challenge to initiate or maintain one or more of the 10 behaviors. Participants were

encouraged to document their chosen behaviors through daily online journaling. Following the intervention, SHS scores and engagement in the 10 behaviors were reassessed.

Results

A total of 42 participants completed the study. Participants were mostly female (97.62%) and mostly nurses (71.43%) who worked greater than 25 hours per week (95.24%). The overall subjective happiness score significantly increased from a mean score of 5.34 for all four questions pre-intervention to 5.95 post-intervention ($p < 0.001$). In addition, all four individual questions on the SHS scale demonstrated statistically significant improvements ($p < 0.001$ to $p = 0.041$). The interventions that were most likely to be used at the end of the study were: perform a conscious act of kindness (57.14%), infuse positivity into your physical environment (64.29%), focus on something you are looking forward to (73.81%), do something that you feel you are really good at (59.52%), and make a meaningful social connection (69.05%). The interventions that showed the greatest percent change in likelihood to use regularly were: write down things you are grateful for (33.33%), journal/reflect on meaningful experiences (35.71%), focus on something you are looking forward to (19.05%), do something that you feel you are really good at (19.05%), and make a meaningful social connection (26.19%).

Conclusion

Participation in positive psychology interventions was associated with a significant increase in healthcare workers' subjective happiness. A follow-up survey at six months will assess the sustainability of these effects. Previous research has identified a close inverse relationship between happiness and burnout. This study adds to the body of knowledge on the importance of promoting and participating in positive psychology interventions to improve healthcare worker happiness.

224 - Interferon-Induced protein 35 in *A. baumannii*-induced cell death of respiratory epithelial cells

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Purpose. Common viral infections, like Respiratory Syncytial Virus (RSV) and COVID-19, lead to numerous hospitalizations every year. These patients are often highly susceptible to developing secondary bacterial infections which can lead to further complications. One infectious agent of particular concern, *A. baumannii*, has a proclivity for infecting ventilator-assisted patients. Interferon-induced protein 35

(IFI35) is highly expressed in the immune response to viral infections with unknown links to bacterial infections. We sought to investigate the effect of IFI35 on the cellular response to bacterial infections to better understand patient susceptibility to secondary infections.

Methods. To study the effects of IFI35 on cell viability, IFI35 knockout cells were generated using CRISPR-Cas9 in a human lung epithelial cell line (A549). IFI35 KO and wild-type control cells were infected with *A. baumannii* and compared to mock infected cells. Fluorescence viability assays were performed at 8- and 24-hours post infection, then analyzed using flow cytometry.

Results. IFI35KO was confirmed at the DNA and protein level in two independent cell lines for application in infection studies. Following infection, IFI35KO A549 cells showed less cell death compared to control cell lines.

Conclusions. These findings suggest that the expression of IFI35 contributes to cell death in the context of bacterial infection, potentially resulting from or contributing to an increased inflammatory response which is detrimental to the lung environment. Further study of IFI35 may reveal changes in the expression of key components of the host immune response as a result of the IFI35's activity in the cell. Insight into the molecular mechanisms by which IFI35 drives cell death may assist in the development of new interventions and strategies to improve patient outcomes for those with ubiquitous, sometimes fatal, respiratory infections.

225 - Autonomic Nervous System Dysfunction and Sensory Sensitivity in Infants with the FMR1 Premutation

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Purpose Statement: The focus of this current study is to further advance investigation of ANS function with the use of IBI and RSA biomarkers as predictors for sensory sensitivity development via analysis with a non-biased sample of FXpm infants compared to neurotypical (NT) infants.

Methods: This cross-sectional study included 90 twelve-month-old infants (FXpm: n = 35; NT: n = 55) that were recruited through the Institute for Basic Research Specialty Clinical Laboratories (IBR SCL), social media and through referrals from colleagues. The Sensory Experiences Questionnaire (SEQ) (Version 2.1) is a 43-item parent-reported evaluation of the behavioral responses a child has to sensory

stimuli in day-to-day life. It is used for children 6 months to 6 years in age. The baseline ANS function was found using heart activity that was measured through a telemetry-based monitor that received the ECG signal at 1024 Hz through two electrodes. The IBI was obtained from the data and further analyzed to edit arrhythmias and artifacts with CardioEdit V7 software. RSA was obtained through the transformed variance into its natural logarithm from the edited IBI data using CardioBatchPlus V7 software. The mean IBI and RSA values were computed and used as dependent variables in this study.

Results: The correlation analyses performed for baseline RSA and baseline IBI with hypo- and hyper-responsive SEQ scores for both FXpm and NT infants found no significant association between baseline RSA, nor baseline IBI, and hypo-responsive (RSA in FXpm: $p = 0.822$; RSA in NT: $p = 0.788$; IBI in FXpm: $p = 0.376$; IBI in NT: $p = 0.981$) and hyper-responsive (RSA in FXpm: $p = 0.236$; RSA in NT: $p = 0.689$; IBI in FXpm: $p = 0.163$; IBI in NT: $p = 0.430$) SEQ scores. The overall linear and quadratic effects of CGG repeats on SEQ hypo-responsive scores in infants with FXpm were not statistically significant ($R^2 = .104$, $F(2, 24) = 1.397$, $p = 0.267$). The overall linear and quadratic effects of CGG repeats on SEQ hyper-responsive scores in infants with FXpm was found to be statistically significant ($R^2 = .557$, $F(2, 24) = 5.395$, $p = 0.012$).

Conclusion: This study expands the limited amount of literature surrounding the connection between ANS processing and sensory sensitivity in FXpm infants and provides more information to healthcare providers regarding CGG expansion and early sensory development to further establish the FXpm early developmental phenotype.

227 - Teaching the Evaluation of High-Risk Headache Etiologies Through Team-Based Learning

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Purpose Statement: High-risk headache etiologies require prompt recognition and management to prevent significant morbidity and mortality. Whereas online resources outline the etiologies and acute evaluation of adult patients with headaches, we found no established educational curriculum for resident physicians on this topic. Our purpose was to develop a team-based learning (TBL) module for residents to address this topic, emphasizing diagnostic frameworks, pattern recognition, and management strategies.

Methods: Team-based learning (TBL) is a method of teaching that includes preparation work so learners may come prepared for deeper conversations and solidification of knowledge having already reviewed the basics of the material ahead

of the session. Team-based learning is structured to include pre-class preparation with assigned readings, a knowledge check via an individual readiness assurance test (iRAT) followed by a group readiness assurance test (gRAT), immediate feedback and clarification, a collaborative group application activity, and a concluding group discussion. The TBL module was delivered during the neurology block of the emergency medicine residency didactic curriculum at two institutions. Preparatory materials were provided three weeks in advance, followed by an asynchronous individual readiness assurance test (iRAT). In-class activities included a group readiness assurance test (gRAT), immediate feedback, and a group application exercise (GAE). The GAE included cases that addressed essential history-taking, differential diagnosis formation, management of seven high-risk headache pathologies, and high-yield radiology cases. A voluntary anonymous survey was provided to all participants following the session. Descriptive statistics (frequency, %) were used to describe the population and provide average scores for each survey item. Themes from narrative feedback were summarized qualitatively.

Results: A total of 18 residents completed the post-session survey. Most (83%) strongly agreed the content was highly relevant (mean relevance score 4.83/5) and rated enjoyment at 4.5/5. The mean self-reported knowledge improvement score was 3.94/5. Narrative feedback indicated improved confidence in treating patients with acute headaches and intent to apply structured diagnostic reasoning. These results also reflected a movement towards a Level 3 Kirkpatrick's model, signifying a behavior change as learners felt more confident in approaching high-risk headache patient presentations. Qualitative feedback from the participants about this study also highlighted the value of active case-based discussion and peer collaboration.

Conclusion: This TBL module offered a structured, replicable framework for teaching resident physicians the evaluation and management of high-risk headache presentations. It effectively reinforced core knowledge while fostering higher-order clinical reasoning and decision-making skills.

228 - Influence of Internal and External Resources and Class Attendance on Medical Student's Pre-Clerkship Performance

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Purpose: Asynchronous and synchronous learning and study strategies are used by medical students in the pre-clerkship curriculum. However, it is unclear if there are differences between female and male students and pre-clerkship performance based on the different learning and study strategies.

Methods: Students complete end-of-course (EOC) evaluations asking the percent of time attending class and whether they use internal or external resources for studying for a course. Learning session are recorded and student time spent reviewing the recorded learning session was analyzed along with EOC evaluation responses. Differences between females and males on course performance, video-capture viewing time, and EOC evaluation questions were analyzed with an independent t-test. A Pearson product moment correlation or Spearman rank-order correlation was used to determine correlation between pre-clerkship weighted average and video-capture viewing time, and EOC evaluation questions.

Results: There was a significant difference in course attendance, video-capture viewing time, internal resource utilization, and external resource utilization in 3, 3, 1, and 2 out of 12 courses, respectively, between males and females; however, there was no difference in overall course grades between females and males. There was no correlation between pre-clerkship weighted average and pre-clerkship averages for class attendance, video-capture viewing time, internal resource utilization, and external resource utilization between males and females.

Conclusion: There are some differences in synchronous and asynchronous learning differences between female and male students within some individual courses. There are not differences between female and male students across the pre-clerkship curriculum.

230 - Evidence-Based Insights on Assistive Robotics for Supporting Independent Living in Older Adults with Cognitive Impairment

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Purpose statement: Alzheimer's disease and related dementias (ADRD) are the fifth leading cause of death among adults aged 65 and older in the United States, which often leads to loss of the ability to live independently. Assistive and socially assistive robots offer a promising approach to extend independence and reduce caregiver burden. This project aimed to synthesize current evidence on how older adults with ADRD, their caregivers, and healthcare providers perceive and experience interactions with robots, to inform evidence-based practice and future program development.

Methods: The Population, Phenomenon of Interest, and Context (PICO) framework was utilized to formulate the research question, define inclusion criteria, and guide data collection. We systematically searched five databases (PubMed, Web of Science (all collections), CINAHL (Ebsco), MEDLINE (Ebsco), and Scopus) and conducted a

convergent synthesis of qualitative and quantitative studies. Sixteen studies met the inclusion criteria. Findings were analyzed using content analysis and integrated across study designs.

Results: Qualitative findings fell into three domains: user perceptions and experiences, including perceived usefulness (e.g., emergency call systems, reminders, and companion functions were valued for safety, social engagement, and reduced agitation), acceptance influenced by design realism, and emotional benefits such as reduced anxiety and loneliness; 2) barriers to adoption, including ethical and privacy concerns, technical limitations, usability challenges, and high cost, 3) suggestions for improvement, emphasizing personalization, culturally sensitive interaction, reliable movement, and advanced features (e.g., voice commands, step-by-step task guidance). Quantitative results showed high satisfaction ($\geq 80\%$ in some studies), moderate perceived usefulness (62-77% among users and caregivers), and notable differences between stakeholders: caregivers were consistently more accepting than individuals with dementia. Preferences favored familiar designs, task-specific prompts, and safety-related features (e.g., medication reminders, emergency calls), while tolerance for technical errors was low. Overall, assistive and socially assistive robots were perceived as promising tools for supporting independence and caregiver relief, though acceptance depended on usability, timing of introduction, and alignment with user needs.

Conclusion: This review provides evidence-based insights to guide practice and innovation in assistive robotics for dementia care. Priorities for developers and healthcare professionals include personalization, ethical safeguards, and caregiver integration. Findings indicate the applicability of robot-assisted support in promoting independence and improving care for older adults with cognitive impairment; however, there is a lack of clear ethical guidelines for utilizing this technology while respecting the privacy and integrity of people with dementia. These insights provide valuable guidance for developers and enable them to design and develop robots that better align with this vulnerable population's needs, preferences, and abilities. By addressing the specific challenges of cognitive decline and enhancing user experiences with assistive robots, these results can inform the development of adaptable and user-friendly robots and improve their adoption and effectiveness in promoting aging-in-place.

231 - Quantification of Diabetic Foot Ulcer (DFU) Healing Metrics to Evaluate Treatment

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Purpose statement

The purpose of this pilot study is to correlate wound images and inflammatory biomarker concentrations over the course of the healing of the wound. It is known that specific biomarkers are present during the process of wound healing, but little evidence is available on the change of these measurements over the wound healing progression. This study aims to observe these relationships and quantify wound healing metrics to move towards accessible and decentralized point-of-care wound diagnostics. It is hypothesized that biomarkers related to inflammation will reveal progression or lack thereof of wound healing through decreased TGF-beta concentration as the pro-inflammatory phase wanes, decreased TNF-alpha concentration as the wound moves away from inflammatory state, and increased VEGF concentration as granulation tissue is formed.

Methods

To quantify the biomarkers during the wound healing stages, the group developed a single-use and real-time biosensor. Patients (n=15) presenting with DFUs were followed over a 5-week span, and impedance microbiology (IM) was carried out for 3 chronic wound biomarkers and a control. The study was separated into three phases. Phase 1 (n=5) consisted of measurements before debridement of DFUs, while Phase 2 (n=5) and Phase 3 (n=5) measurements occurred after debridement. IM measurements using the biosensor were collected using an LCR meter from 10 Hz to 2 kHz at 10 mV. Impedance results were specifically analyzed at 230 Hz for each measurement taken.

Results

The developed biosensor shows a higher impedance correlates to a higher biomarker concentration. Results have shown that an increase occurred between initial and final visits for all biomarkers. For TNF-alpha, it is expected from the literature to see a decrease during wound healing. For the results collected at visits 2,3, & 4, the percentage change in concentration between visits was patient-specific with either negative or positive changes.

Conclusion

More benchtop testing must be done to draw significant statistical conclusions from the results collected in this pilot study. The lack of supporting evidence in the literature on the correlation of inflammatory biomarkers and wound healing progression can be explained by the complexity of how wounds present. To address the intricacy of the samples being studied, the group looks to work with more clinician scientists currently studying the wound microenvironment. With the aim of enhancing this study, a large quantitative data set of collected biomarker concentrations through gold-standard diagnostic techniques from Wagner's classified wounds was collected. This large data set will allow the group to determine corresponding biomarker ratios, which will give healthcare providers standardized insight into the wound healing progression. The disposable biosensor developed is expected to reduce infection risk, amputations, and hospitalizations while enabling cost-effective scalability for low-resource settings.

232 - Using Lateral Flow Assays in Detection of Autoimmune Conditions such as Sjögren's Syndrome

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Introduction:

Since the SARS-CoV-2 pandemic, there has been a demand for cheap, precise, over-the-counter rapid diagnostic testing. Rapid tests commonly use Lateral Flow Assays (LFAs) which utilize immunochromatography to report the presence of a target. Back then and still today, most tests require a nasopharyngeal swab which is a highly uncomfortable collection method. Previous work by this group successfully created LFAs using saliva samples for the detection of COVID-19 infection. This project aims to expand saliva-based LFA diagnostics to autoimmune conditions. Sjögren's Syndrome (SS) is a chronic autoimmune disorder that affects millions of Americans, yet it remains notoriously underdiagnosed due to its complex biological causes. Current diagnostic standard involves an invasive lip biopsy to screen for two autoantibodies known as Anti-SSB/La and Anti-SSA/Ro. A significant number of patients fit the symptomatic criteria for SS, but are seronegative for these markers, denying them the option to seek treatment. Using LFAs to test for a broader range of biomarkers present in saliva that are indicative of SS would increase accessibility for diagnostics and treatment.

Purpose Statement:

Developing a saliva-based LFA to detect standard biomarkers of Sjögren's Syndrome, then expanding to other biomarkers to include those who are seronegative.

Methods:

A commercially available Universal LFA kit is used as it allows customization of target antigens, which is beneficial for establishing proof-of-concept and reducing unnecessary waste generated. Components are conjugated with target antigens or antibodies to create an antibody sandwich that makes up the reporting lines. If the control line is absent, the test is considered invalid. A positive result is visualized as two red lines (the control and the test line) within 15 minutes, a negative result shows only the control line.

During development of the positive controls, collaboration is established with clinicians around South Carolina to recruit patients who have been positively diagnosed with SS via lip biopsy. Next, patient recruitment will expand to those with suspected-SS or seronegative-SS. Statistical analysis will be done to understand which combination of biomarkers most accurately captures the SS patient population.

Results:

Expected results include the development of positive control tests, optimized for use with saliva. The initial biomarkers used are Anti-SSB/La and Anti-SSA/Ro, which are standard for diagnosis of SS, as this would validate that SS can be detected and diagnosed with saliva.

Conclusions:

Part of this study requires compilation of research into the top candidate salivary biomarkers that are indicative of SS. From that, we aim to conjugate and test an LFA that successfully detects those biomarkers within patient-derived saliva, with results altogether expected to improve the notoriously low rates of SS diagnosis.

233 - Spring Plates as a Marker of Injury Complexity in Posterior Wall Acetabular Fractures: Trends in Conversion to Total Hip Arthroplasty

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Purpose Statement

Posterior wall acetabular fractures are complex injuries with high risk of post-traumatic arthritis and conversion to total hip arthroplasty (THA). Spring plates are commonly used to buttress comminuted marginal fragments, but their effect on outcomes is unclear. This study evaluated whether spring plate utilization is associated with higher rates of conversion to THA. Secondary aims included assessing relationships with patient demographics, comorbidities, fracture pattern, operative factors, postoperative complications, and reoperations. Outcomes were further stratified by injury subtype (isolated posterior wall vs. posterior wall with transverse).

Methods

We retrospectively reviewed adult patients who underwent operative fixation for posterior wall acetabular fractures at a Level 1 trauma center between 2018 and 2022. Patients were stratified into spring plate (SP) and no spring plate (NSP) cohorts. Collected data included demographics (age, sex, BMI, race, smoking, diabetes), injury characteristics (fracture subtype, dislocation, pelvic ring involvement), operative variables, and postoperative complications. The primary outcome was conversion to THA. Secondary outcomes included time to THA, time to decision for THA, complication and reoperation rates, and outcomes stratified by fracture subtype. Comparisons used chi-squared or Fisher's exact tests for categorical variables and t-tests for continuous variables, with significance set at $\alpha = 0.05$.

Results

Of 225 fractures, 102 patients met inclusion (34 SP, 68 NSP). Groups were comparable across baseline characteristics. THA conversion occurred in 14.7% (5/34) of SP vs. 7.4% (5/68) of NSP ($p = 0.24$). Mean time to THA was shorter for SP (206 vs. 331 days, $p = 0.42$), with time to decision also earlier (157 vs. 280 days). Subgroup analysis showed higher THA rates in SP patients for isolated posterior wall (11.1% vs. 0%) and posterior wall + transverse fractures (25.0% vs. 7.4%). Older age at surgery was the only significant predictor of THA (45.9 vs. 35.6 years, $p = 0.02$). Patients requiring THA also trended toward higher BMI (32.6 vs. 28.8, $p = 0.13$). Non-THA reoperations included infection, heterotopic ossification, intra-articular screw exchange, and chondrolabral pathology, without clear association to spring plate use.

Conclusion

Although not statistically significant, spring plate use was associated with higher and earlier THA conversion, with arthroplasty decisions occurring more than 120 days sooner in the SP group. This likely reflects their use in more complex, failure-prone fracture patterns rather than a direct causal effect. The only independent predictor of THA was older age at surgery. These findings suggest spring plates may serve as both a technical solution and an intraoperative prognostic marker. Integration of implant choice, fracture morphology, and patient factors such as age should inform surgical planning, patient counseling, and follow-up. Larger multicenter studies are warranted to clarify prognostic value and refine treatment algorithms.

234 - Carotid Artery Calcifications in Patients 30-60 years of age: important indicator for radiologists to report?

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Purpose Statement

Intracranial carotid artery calcification (ICAC) is a prevalent marker of atherosclerosis that can be readily identified on routine head CT scans. Although ICAC correlates with systemic atherosclerotic cardiovascular disease (ASCVD) and stroke risk, it is inconsistently documented in clinical practice. The purpose of this study was to evaluate the prevalence of ICAC, its associations with comorbidities and cardiovascular risk factors, and the frequency of its reporting in a middle-aged patient population.

Methods

We retrospectively reviewed 132 non-contrast head CT scans performed between

June 2020 and June 2021 at a single academic medical center for patients aged 30-59 years. Two blinded radiologists independently assessed the presence of ICAC. Demographic and clinical data, including comorbidities and cardiovascular risk factors, were abstracted from medical records. Radiology reports were reviewed to determine whether ICAC was documented. Associations between ICAC and comorbidities were analyzed using chi-square tests, with statistical significance defined as $p < 0.05$.

Results

ICAC was identified in 28.8% of patients overall, with prevalence rising from 10% in the 30-39 age group to 45.1% in the 50-59 age group. Males had a higher prevalence than females (37.3% vs. 21.9%). Statistically significant associations were observed between ICAC and chronic obstructive pulmonary disease ($p = 0.0007$), coronary artery disease ($p = 0.0061$), known cardiovascular disease ($p = 0.0312$), and kidney disease ($p = 0.0198$). Other risk factors, including hypertension, diabetes, hyperlipidemia, smoking, and alcohol use, trended higher in patients with ICAC but did not reach statistical significance. Despite its relatively high prevalence, ICAC was explicitly documented in only 13% of radiology reports for patients with positive findings.

Conclusion

ICAC is a common finding in middle-aged adults and demonstrates significant associations with systemic comorbidities, underscoring its clinical relevance. However, its underreporting in radiology practice represents a missed opportunity for opportunistic ASCVD risk stratification. Incorporating systematic ICAC reporting into routine head CT interpretation could serve as a practical and underutilized tool to support earlier cardiovascular risk detection and preventive care.

235 - Radiation Exposure and Safety in Minimally Invasive Foot and Ankle Surgery: A Comparative Analysis Between Minimally Invasive and Open Bunion Correction

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Purpose Statement

Fluoroscopy has become essential in orthopedic surgery, particularly with the rise of minimally invasive surgery (MIS) techniques. Despite its advantages, it raises concerns about radiation exposure to both patients and surgical staff. This study evaluated fluoroscopy time and radiation dose associated with open versus MIS bunion correction, comparing the modified Lapidus procedure (open) and the MIS

distal transverse osteotomy. Additionally, we compared these procedures to historical controls of common orthopedic surgeries to understand relative exposure risk. It was hypothesized that MIS procedures would be associated with increased radiation exposure and fluoroscopy time; however, compared to historical controls, both procedures would be significantly less.

Methods

A retrospective review was conducted for patients who underwent a bunion correction between January 2021 and June 2025 by one of two fellowship-trained foot and ankle surgeons at a single academic institution. A total of 294 patients met inclusion criteria. Of these, 258 patients underwent a MIS distal transverse osteotomy and 36 underwent a modified Lapidus procedure. Fluoroscopy time (minutes) and radiation dose (mGy) were compared between groups. Historical controls utilized were intramedullary tibial nailing and distal radius plating.

Results

A mean fluoroscopy time of 2.13 ± 1.27 (range, 0.06-7.05) minutes and radiation dose of 2.02 ± 1.30 (range, 0.05-7.52) mGy was observed in the MIS distal transverse osteotomy cohort. An average fluoroscopy time of 1.63 ± 1.83 (range, 0.08-7.70) minutes and a radiation dose of 1.31 ± 1.43 (range, 0.07-5.98) mGy was observed in the modified Lapidus cohort. There was no significant difference in fluoroscopy time ($p=0.123$), but the MIS group demonstrated a higher radiation dose ($p=0.007$). Compared to other orthopedic procedures, the MIS cohort showed significantly lower radiation doses than intramedullary tibial nailing, which requires an average dose of 137.00 ± 111.00 (range, 41.00-378.00) mGy ($p<0.001$) and distal radius plating, which requires an average dose of 17.00 ± 10.00 (range, 3.30-26.00) mGy ($p=0.007$).

Conclusion

MIS distal transverse osteotomies result in higher radiation exposure than open modified Lapidus procedures, though both remain substantially below levels seen in other orthopedic surgeries. Despite MIS distal transverse osteotomies generating an average radiation dose of 2.02 mGy per case, surgeons receive only 0.50% of the dose; thus, nearly 1,980 procedures would be required to exceed the 20.00 mGy annual occupational limit. Over a 30-year career, performing 50 such cases annually would increase lifetime cancer risk by 0.075%. These findings suggest that concerns about radiation exposure should not deter providers from performing MIS distal transverse osteotomies for bunion correction.

237 - A Comparison of Spatiotemporal Gait Analysis in Open Haglund's Resection vs. Percutaneous Zadek Osteotomy for Insertional Achilles Tendinopathy

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***This is an ongoing study. 31/40 patients have completed the protocol are included in this preliminary data.

PURPOSE STATEMENT: The gold standard for surgical treatment of Insertional Achilles Tendinopathy (IAT) is the open midline Achilles tendon splitting Haglund's resection (OH). However, the percutaneous Zadek osteotomy (ZO) is a safe and effective alternative intervention. Retrospective studies have compared patient-reported outcomes and radiographic findings between ZO and OH; however, data comparing gait mechanics remain limited. Accordingly, the current prospective study evaluated the postoperative gait mechanics ≥ 1 year following OH vs. ZO.

METHODS: Patients ≥ 18 years of age who underwent unilateral OH or ZO for IAT with ≥ 1 -year follow-up met the inclusion criteria; patients with prior midfoot/hindfoot surgery, recent lower extremity surgery, neuromuscular conditions were excluded. A 3D motion-capture system was utilized to measure spatiotemporal gait metrics. Gait metrics included: cadence, walking speed, stride-length, stride-time, step-length, step-width, step-time, and single and double support time. For each measurement, the mean difference between operative/non-operative limbs was calculated. All study personnel were blinded to patients' operative side and procedure.

RESULTS: Thirty-one patients met the inclusion criteria for the current prospective study (17 OH, 14 ZO). In patients who underwent OH, a statistically significant increase in stride length between the operative vs. nonoperative limb was observed (0.01 ± 0.01 meters, $p=0.007$). Meanwhile, in patients who underwent ZO, no difference in gait was observed between the operative and non-operative limb.

CONCLUSIONS: A statistically significant increase in operative leg stride-length (compared to non-operative leg) was observed following OH. Meanwhile, no differences were observed in patients who underwent the ZO. Both procedures have previously been demonstrated to offer safe and effective treatment of IAT; however, these preliminary findings indicate that ZO may better preserve patients' gait metrics. Completion of this study's protocol and additional investigation is required to expand upon these findings.

238 - Longitudinal Observation of a Novel Technique for Excision and Reconstruction of a Nasal Mass in Pai Syndrome

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Purpose Statement: Pai Syndrome is a rare frontonasal dysplasia characterized by midline central nervous system lipomas, medial facial clefts, and facial cutaneous polyps. Cutaneous polyps of the nose can disrupt normal anatomy and lead to nasal asymmetry. This presents a challenging problem for plastic surgeons to excise the excess tissue and re-establish the aesthetic nasal subunits. There is a paucity in the literature regarding Pai Syndrome, reconstructive techniques, and long-term follow-up.

Methods: The patient presented after birth with an occlusive nasal mass and a small intra-oral polyp fused to the frenulum. At 10 weeks of age, the intra-oral mass was completely excised, and the nasal mass was debulked to open the airway. During the follow-up period, the nasal mass grew disproportionately to the surrounding tissue, further distorting the nasal ala and sill. At 2.5 years of age, the patient underwent repeat nasal mass debulking with the remaining skin designed into a tri-lobed flap. Inset into a back cut between the nasal ala and tip, the superior lobe of the flap re-established alar height. The middle lobe of the flap lined the septal wall mucosal defect from the polyp. The lower flap, along with local tissue, formed a new nasal sill. Pin cushioning of the superior lobe of the tri-lobed flap was noted at follow-up appointments but resolved in the first postoperative year.

Results: At 3.5 years old, the nasal polyp dermis continues to outgrow and distort the surrounding nasal tissue.

Conclusion: Future reconstruction efforts will be aimed at thinning and refining the flap closure.

239 - Psychosocial Assessment of Newly Diagnosed Children with Cancer

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Purpose Statement: The proportion and characteristics of children with cancer facing psychosocial vulnerabilities in Prisma Midlands are unknown. All children diagnosed with cancer at Richland's Prisma Health Children's Hospital complete social work and psychological screenings at cancer diagnosis. We aimed to determine the percentage of patients who utilized/were enrolled in public benefits, requested disease-dependent resources, and had a psychiatric history at the time of cancer diagnosis.

Methods: This retrospective cohort study included children with cancer: age 0-21 years at diagnosis, diagnosis of cancer in accordance with the International Classification of Childhood Cancer, received systemic treatment at Richland Prisma Children's Hospital, and diagnosed between September 2022-May 2025. The use of public benefits and disease-dependent resources were extracted from social workers' epic notes. Public benefits were grouped into 5 categories: Housing, Transportation, Food, Financial, and Other. Patients become eligible for disease dependent resources upon cancer diagnosis. The resources were categorized into 4 groups: Gift programs, Transportation and/or lodging, Support groups, and Financial resources. Psychological intake was extracted by a psychologist's epic note and included history of exhibiting psychiatric symptoms or having a formal diagnosis and treatment related details.

Results: Among 53 eligible patients, half (50.9%) reported a public benefit need within a month of diagnosis which included need for financial aid (39.6%), transportation assistance (13.2%), food assistance (13.2%), housing assistance (7.5%), or another need (7.5%). The majority (86.8%) reported a disease-dependent resource need within a month of diagnosis including financial assistance in the form of secondary Medicaid (TEFRA) or Supplemental Security/Social Security Disability Insurance (SSI/SSDI) (71.7%), transportation and/or lodging assistance (50.9%), gift programs (18.9%), and support groups (15.1%). Fifty-two eligible patients completed psychiatric intake. Among those, 45 patients had information on their prior psychiatric history with 24% having a psychiatric history at cancer diagnosis (8.9% reported a history of exhibiting psychiatric symptoms, while 15.6% had a formal diagnosis). In this sub-cohort, 17.8% had a history of anxiety, 11.1% had ADHD, and < 5% had depression or behavior disorder history. All patients (N= 7) with a formal psychiatric diagnosis had previously received psychiatric treatment, with 57% reporting use of medication and 71% reporting use of psychotherapy.

Conclusion: At cancer diagnosis, over half of families reported a public benefit need, the vast majority reported a disease-dependent resource need, while about a quarter had prior psychiatric history. These findings suggest the need for prospective longitudinal psychosocial screenings across the cancer care continuum.

242 - Analyzing the Effect of Public Policy Change on Pediatric Firearm Injuries in South Carolina

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Purpose Statement:

The purpose of this study is to assess the impact of recent firearm policy changes in South Carolina on pediatric firearm injuries. By analyzing trauma registry data before and after the enactment of the "Open Carry with Training Act" in 2021, we seek to understand the correlation between increased firearm access and the incidence of pediatric trauma outcomes, and how it may disproportionately affect children compared to adult populations within the state.

Methods:

This retrospective cohort study utilizes trauma registry data from our Level 1 Trauma Center spanning 2015-2025. The study examines pediatric firearm injuries (both self-inflicted and non-self-inflicted) before and after the "Open Carry with Training Act" and "Constitutional Carry Act," enacted in 2021 and 2024 respectively, which expanded both public access and exposure to firearms. Preliminary analysis shows a significant increase in pediatric firearm injuries post-policy enactment in 2021 ($p < 0.0001$). We aim to further analyze demographic data and outcome measures in pediatric populations, comparing them to adult trends, to better understand the broader effects of these legislative changes.

Results:

Between January 2015 and March 2025, 420 pediatric patients (ages 0-17) with gunshot wounds (GSWs) were recorded, representing 7.7% of all pediatric trauma cases. Notably, the number of pediatric GSWs increased following the 2021 "Open Carry with Training Act." In that year, 37 pediatric firearm injuries were recorded (6.7%), rising sharply to 60 in 2022 (10.6%), with similarly high numbers in 2023 (61 cases, 9.1%) and 2024 (60 cases, 10.2%). As of March 2025, 15 pediatric GSWs have already been reported, placing the year on pace for approximately 60 cases. This increase from 37 to 60+ annual pediatric GSWs represents a statistically significant change ($p < 0.0001$).

In contrast, adult GSW rates (ages 18+) remained relatively stable. Rates ranged from 5.8% in 2025 (through March) to a peak of 11.4% in 2019, with no consistent upward trend after the policy changes. For example, adult GSWs accounted for 11.2% of all adult trauma cases in 2021, then decreased annually to 5.8% in 2025. These findings suggest that firearm policy shifts may have had a disproportionate impact on pediatric populations.

Conclusion:

This study highlights the significant impact of expanded firearm access and exposure on pediatric injury rates in South Carolina. The notable increase in pediatric firearm injuries following the 2021 policy change underscores the urgent need for further investigation into the public health consequences of such legislation. While several other factors may contribute to these trends, the findings emphasize the importance of protective policy measures to mitigate firearm-related trauma among children. Implementing effective policies to reduce firearm-related

trauma in children and adolescents is essential as our data may suggest these policies disproportionately affect pediatric populations.

243 - Good Vibes, Healthy Lives: A Community-Based Lifestyle Medicine Curriculum for School-Aged Children

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Purpose Statement:

Chronic diseases, such as type 2 diabetes, cardiovascular disease, mental health disorders, and obesity, are increasingly prevalent among children and are significantly influenced by modifiable lifestyle factors. However, most lifestyle medicine education resources are targeted towards adults. To address this gap, we developed *Good Vibes, Healthy Lives*, a comprehensive, adaptable lifestyle medicine curriculum designed for health professionals to deliver to school-aged children, in community settings.

Methods:

We designed a 6-module curriculum rooted in the pillars of lifestyle medicine. Each module takes approximately 30 minutes to present and includes a facilitator training guide, slide deck, student handout, and caregiver resources. We partnered with schools and community organizations to pilot this curriculum. IRB approval was obtained, and student and facilitator feedback was collected through post-lesson surveys to assess engagement, usability, and impact.

Results:

The curriculum was piloted at 3 summer school programs from June 2025 to August 2025 reaching a total of 38 students, ages 7-18 years old. Students were surveyed after each lesson, and survey data shows widespread student interest, enjoyment of activity-based learning, and increased awareness of healthy choices. Facilitators found the curriculum to be easy to implement, age-appropriate and effective in promoting conversation about health choices.

Conclusion:

Good Vibes, Healthy Lives is an engaging and effective educational tool that empowers health professionals to promote healthy behaviors and target chronic disease at a young age. This curriculum has been successfully piloted in school-based programs and will be expanding to the local Children's Museum. Designed to be adaptive for different age groups and settings, this curriculum fills the need for an interactive community-based comprehensive pediatric lifestyle medicine curriculum, in addition to serving as a training opportunity for health professionals interested in lifestyle medicine.

244 - Identifying the most effective components of a physical activity intervention for adults with knee replacement: The MOST Energized! study protocol

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Purpose: The MOST Energized trial aims to identify which supplemental, non-automated intervention components, when added to a fully automated online physical activity program, contribute to the greatest increases in physical activity at 6 and 12 months for adults with total knee replacement (TKR).

Methods: This randomized controlled trial with a factorial design uses the multiphase optimization strategy (MOST) framework. Eligible participants will be recruited nationwide through research volunteer registries as well as locally in South Carolina through Prisma Health Midlands and Upstate. Adults (N=336) who had undergone a TKR ≥ 12 months ago will receive a 6-month fully automated exercise program (Energize!) which includes video lessons on promoting physical activity and 'apply your knowledge' activities to reinforce the information covered in the lessons. Participants will also be randomized to receive 0-4 non-automated supplemental intervention components (coaching calls, progress reports to healthcare providers, videos highlighting stories from others with TKR ('Hear From Others'), and/or individualized human email feedback). Remote assessments occur at baseline, 3-months (mid-intervention), 6 months (post-intervention), and 12 months (following a 6-month no intervention period). Primary outcomes include change in accelerometer-assessed moderate to vigorous physical activity (MVPA) and the percentage of participants meeting the 2018 Physical Activity Guidelines for Americans recommendation of 150 minutes/week of MVPA. Secondary outcomes to be assessed will include change in pain intensity and self-reported physical function. Additionally, cost-effectiveness and intervention engagement will be evaluated.

Results: A total of (N=42) participants have been recruited to date (90.5% white, 85.7% female, 69.7 ± 8.9 years, BMI: 29.9 ± 5.8 kg/m², Time since TKR: 4.6 ± 3.7 years). At baseline, participants averaged 67.6 ± 142.1 minutes of MVPA/ week and 4455.0 ± 2942.8 steps/day. Program adherence towards the intervention include: 81.2% for video lessons, 64.3% for 'apply your knowledge' activities, 61.8% for 'Hear From Others' videos, and 77.6% for coaching calls.

Conclusion: Utilizing a factorial design will provide directions on the most effective components towards increasing physical activity in adults with TKR. Following the conclusion of the study an optimized, remotely delivered physical activity program can be developed for this highly inactive population.

245 - Barriers and facilitators for cervical and breast cancer screenings among survivors of gender-based violence

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Purpose statement

Survivors of gender-based violence (GBV) have heightened cancer risks and are less likely to be up to date with cervical cancer screenings (CCS) and breast cancer screenings (BCS). Trauma-informed clinical practices are well-positioned to make CCS and BCS more accessible to GBV survivors, but survivors' hesitance to disclose trauma history to health care providers often prevents effective delivery of trauma-informed care. The current study analyzed qualitative survey and interview data from GBV survivors ($N=110$) to learn more about barriers to and facilitators of CCS and BCS, as well as to disclosing trauma history to health care providers.

Methods

The current study used two sources of data collection: (1) open-ended qualitative surveys, distributed within online support communities for GBV survivors ($n=103$), and (2) in-depth interviews ($n=7$), conducted with GBV survivors who were recruited in partnership with two local non-profit organizations. The study protocol, survey questions, and interview guide were developed by the first author with guidance from two clinical psychologists and a sexual assault nurse examiner. Data were analyzed using a collaboratively-developed codebook and a consensus-based approach to coding between two coders.

Results

GBV survivors face intense challenges to CCS/BCS. Fear, anxiety, flashbacks to trauma memories, feelings of shame and powerlessness, and other trauma-related responses were significant barriers to CCS/BCS and disclosing trauma history to health care providers. Many of these barriers are consistent with post-traumatic stress disorder symptoms.

Consistent with communication and clinical psychology theories (Uncertainty Reduction Theory, Shattered Assumptions theory), feelings of uncertainty played a notable role in preventing GBV survivors from disclosing trauma history to health care providers. Survivors were uncertain about many aspects of these conversations, especially potential reactions from health care providers, their own trauma responses to these conversations, and confidentiality of disclosures.

A range of facilitators have great potential to increase GBV survivors' uptake of BCS and CCS and to encourage disclosures of trauma history. Effective health care provider communication strategies that align with trauma-informed practices—such

as asking for consent before each step of screenings, balancing compassion with not being overly emotional, and using active listening—can greatly improve survivors’ experiences with screenings and discussing trauma history. Modifying elements of clinical environments and procedures, such as keeping rooms at a warm temperature and allowing patients to modify the way they wear robes, can help GBV survivors feel more comfortable.

Conclusions

Our results can be used to inform the design of future interventions to improve GBV survivors’ access to and utilization of CCS and BCS. Intervention components could include education for health care providers in effective communication strategies, choices for patients to modify aspects of clinical environments or procedures, and communication messages designed to reduce feelings of uncertainty in advance of appointments.

246 - Examining the Psychological Toll of the 2024 Columbus Tornadoes on Vulnerable Communities

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Purpose:

This study investigated the mental health impacts of the 2024 tornadoes in Franklin County, Ohio, with a specific focus on socioeconomically disadvantaged populations. The goal was to understand how these extreme weather events intensified psychological distress—particularly anxiety, depression, and post-traumatic stress disorder (PTSD)—and to identify the coping mechanisms and resilience strategies these communities employed in response.

Methods:

A mixed-methods approach was used to capture both the measurable and lived experiences of residents in two low-income zip codes (43223 and 43204). Quantitative data were collected via surveys (N=521) using validated tools to assess mental health indicators (anxiety, depression, PTSD), risk perception, and disaster impact levels. Logistic regression and variance analysis were performed to identify statistically significant relationships. Qualitative data were collected through in-depth interviews (N=20) with a subsample of survey participants. Interviews explored personal experiences, mental health responses, coping strategies, and perceptions of local support systems. Thematic analysis was used to identify key patterns across interviews.

Results:

The survey revealed a strong association between high levels of tornado-related impact and poor mental health outcomes. Participants with high impact scores reported significantly elevated levels of anxiety, depression, and PTSD compared to

those with low impact scores. High-impact participants also perceived greater risk severity and likelihood of future extreme weather events. Logistic regression confirmed that high disaster impact significantly increased the odds of experiencing severe psychological symptoms.

Thematic findings from interviews reinforced these results and added depth. Participants described heightened fear during storms, ongoing stress from financial insecurity, and mistrust of emergency alerts. While many leaned on family and community for support, others turned to maladaptive coping strategies such as substance use. Participants cited rising utility costs, unstable housing, and lack of mental health services as compounding stressors. However, structured routines, mindfulness techniques, and social connections also emerged as key resilience factors.

Conclusion:

This study underscores the need for integrated, trauma-informed public health strategies in disaster-prone areas. Mental health services must be accessible, culturally sensitive, and embedded within communities to effectively support at-risk populations. Improved emergency communication, investment in disaster preparedness, and expansion of community-based support networks can strengthen individual and collective resilience. These findings have direct implications for healthcare providers, emergency planners, and policymakers seeking to reduce health disparities and promote well-being in the face of increasing climate-related disasters.

248 - Understanding Fertility Care Decision Making Among Sexual and Gender Minority Adults

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Purpose: Sexual and gender minorities (SGM) are more likely than cisgender and heterosexual individuals to experience social infertility, or the inability to become pregnant due to a lack of reproductive capacity in their chosen relationship, rather than because of a medical diagnosis. SGM individuals may choose to use fertility treatment, such as intracervical insemination (ICI), intrauterine insemination (IUI), or invitro fertilization (IVF) if they want to become pregnant. However, little is known about how SGM individuals make decisions about and experience fertility treatment. This study examines the decision-making process of SGM currently seeking or considering undergoing fertility treatment.

Methods: From May to August 2025, we conducted 15 in-depth interviews with SGM identified individuals assigned female at birth between the ages of 23 and 38 living in the United States. All participants were either single or in a relationship with

someone assigned female at birth. Interviews focused on family building and fertility treatment decision-making, as well as barriers related to seeking fertility treatment.

Result: Participants had a strong desire to become parents with the assistance of fertility treatment, but many waited, or planned to wait, until they felt financially and emotionally ready to become parents. In terms of financial readiness, some participants described that their health insurance would not cover fertility treatment without a medical diagnosis, and that out of pocket costs were substantial. Participants were aware that fertility treatment came with both known and unknown costs that they were unsure if they could afford. Participants felt emotional readiness was important because of negative experiences in their own childhoods and concerns about them or their children facing discrimination due to their sexual or gender identity. Although financial and emotional readiness were considerations, participants also felt that they could take their time preparing to have children because they were not susceptible to experiencing unintended pregnancy in their current relationship. Finally, participants expressed concerns that changes in the political environment might impact both their ability to seek fertility treatment, as well as to raise children in safe and supportive environments.

Conclusion: Findings show that SGM individuals want to use fertility treatment, but face barriers to doing so, including those related to costs and emotional readiness. Findings reveal an opportunity to clarify and improve insurance coverage to provide equal access to fertility treatment for SGM individuals. The findings also indicate that the changing political environment may create additional barriers to parenthood for SGM individuals.

249 - Using Peer Education to Overcome Injury Reporting Barriers in Reserve Officers' Training Corps Freshmen

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Purpose Statement: Reserve Officers' Training Corps (ROTC) programs prepare students for military service as commissioned officers upon graduation. Commissioning requirements include passing various physical and medical examinations, stressing the importance of appearing injury-free. Previous studies have identified a variety of reasons for the nonreporting of injuries; the presence of these barriers indicates a need to discern strategies for improving reporting rates, and thus, the overall health of members. Recent research has indicated that freshmen ROTC cadets suffer from a lack of education on healthcare resources and

are more likely to conceal injuries due to shortcomings in knowledge. Through shared experiences, peer education can connect individuals and support behavior changes. This study aimed to investigate the effect of peer education on attitude changes regarding injury-reporting barriers and habits among ROTC freshmen.

Methods: This study used a cohort design with a peer education intervention. Baseline data of ROTC freshmen, including initial knowledge of healthcare resources and current understanding of reporting barriers, was collected upon entrance to the ROTC program, immediately followed by peer education on access to resources and the importance of injury reporting and care. A second survey collected data at the end of the semester; participants' perceptions of injury reporting barriers, available healthcare resources, and reasons for non-reporting were collected. Data collection occurred during the fall semester of the 2024-2025 academic year.

Results: Sixty-one participants completed the pre-survey (42 male, 19 female; age: 17-21 years old), representing cadets from Army, Navy, and Air Force ROTC programs. Following peer education and ROTC participation throughout the semester, 34 participants completed the post-survey. A significant increase in awareness of available healthcare resources ($p < 0.001$) and the ROTC athletic trainer (AT) ($p = 0.004$) occurred. In addition, the ROTC AT was the most used healthcare resource (72%). There was an increase in theoretical failures to report injuries due to elevated concerns about limits on participation and jeopardization of future opportunities. A baseline standard for peer encouragement was established as motivation for using healthcare resources.

Conclusion: Peer education was determined to be successful at achieving its primary goals of educating ROTC freshmen about available healthcare resources and increasing awareness and use of the ROTC AT. The success of the ROTC AT in lowering injury reporting barriers and providing high-quality healthcare demonstrated the benefits of direct, specialized access to care and supports the implementation of this program at other ROTC and active military organizations. Peer encouragement was listed as a motive for using available healthcare resources, indicating initial success in implementing the program and laying the groundwork for future use. By carrying habits forward, officers can influence those they lead to report injuries earlier and at higher frequency, improving the overall health of military members and increasing mission readiness.

250 - Neighborhood Socioeconomic Context Mediates Racial Disparities in ADRD Diagnosis Among Older Breast Cancer Survivors

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Purpose Statement

Racial disparities in Alzheimer's disease and related dementias (ADRD) are well-documented. This study aims to assess whether neighborhood-level socioeconomic conditions, measured by the Index of Concentration at the Extremes (ICE), mediate racial disparities in ADRD diagnosis among older female breast cancer survivors.

Methods

We analyzed SEER-Medicare linked data from 17,741 women aged 65 and older diagnosed with breast cancer (2007-2009) with up to 10 years of follow-up. ADRD diagnosis was identified through diagnostic codes. We conducted causal mediation analysis to estimate the average causal mediation effect (ACME), total effect, and proportion mediated by ICE on the association between race (Black vs. White) and ADRD diagnosis, adjusting for age, comorbidities using the Charlson Comorbidity Index (CCI), treatment type, and neighborhood-level poverty indicator.

Results

Race was significantly associated with ADRD diagnosis (total effect estimate = 0.052, 95% CI 0.028-0.077, $p < 0.001$). ICE significantly mediated this association, with an ACME of 0.049 (95% CI 0.035-0.063, $p < 0.001$), explaining approximately 93% of the total effect. This strongly suggests that neighborhood-level deprivation/advantage (ICE) explains most of the racial disparity in ADRD diagnoses in the dataset, after adjusting for age, neighborhood-level poverty indicator, treatment type, and CCI. The mediation findings remained robust in sensitivity analyses adjusting for additional covariates.

Conclusion

Neighborhood-level deprivation, as captured by ICE, substantially mediates racial disparities in ADRD diagnosis among breast cancer survivors, highlighting the critical role of social determinants and structural inequities on cognitive health outcomes. These findings suggest that beyond biological factors, such as hormone-modulating therapy-related cognitive effects, social context profoundly shapes racial disparities in cognitive health outcomes. This study shows the importance of neighborhood socioeconomic context in understanding racial disparities in ADRD diagnosis among breast cancer survivors. Further analyses incorporating additional covariates and stratified mediation will clarify the pathways influencing these disparities. Targeted interventions addressing neighborhood disadvantage may be essential for advancing equity in dementia prevention and care.

251 - Identifying Key Respiratory Pathogens in Wastewater Samples

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Purpose Statement

This project aims to develop and optimize numerous panels capable of detecting prevalent and emergent pathogens in wastewater.

Background

Early identification of infectious diseases is critical to prevent large-scale outbreaks, particularly in high-risk environments. Wastewater-based epidemiology has proven to be a cost-effective and non-invasive tool for monitoring community-wide infections. Our testing focuses in high-concern pathogens such as SARS-CoV-2 (CoV SC2), avian influenza (H5N1), monkeypox virus (MPOX), Influenza A and B (InfA, InfB), Respiratory Syncytial Virus A-B (RSV A-B), and Pepper Mild Mottle Virus (PMMV). South Carolina samples were used for this study, highlighting the potential of regional surveillance systems. This research aligns with public health goals for early detection, surveillance, and the reduction of disease transmission through informed decision-making and intervention.

Methods

The primary technique utilized for this study was droplet digital PCR (ddPCR), as it has high sensitivity and quantitative precision in detecting low-abundance viral RNA in complex wastewater samples. The ddPCR workflow involved three main stages. First, prepared reaction mixtures were partitioned into nanoliter-sized oil droplets using a droplet generator. Each droplet functioned as a PCR microreactor, containing target nucleic acids. The second step involved thermal cycling on a PCR instrument to amplify target sequences within the droplets. In the final step, a droplet reader analyzed fluorescence signals, with positive droplets indicating the presence of viral targets. Fluorescence amplitude data were used to calculate absolute quantification of viral copies per microliter.

Wastewater samples were stored in RNA-preserving conditions, and processed promptly to minimize degradation. Each sample was run in replicates and included both positive and negative controls to ensure accuracy and specificity.

Results

The multiplexed ddPCR panels successfully detected several target pathogens in sewage water samples. SARS-CoV-2 remained prevalent across most collection sites, confirming continued community transmission. Influenza A and B were also intermittently detected, correlating with known seasonal patterns. The detection of PMMV, commonly used as a fecal indicator, served to validate sample integrity and viral RNA presence. Notably, RSV A-B and MPOX were identified in select samples, suggesting localized circulation of these viruses. H5N1 was not detected in any sample, aligning with current low human incidence in the region.

Conclusion

This study demonstrates the effectiveness of combined ddPCR sections in detecting and quantifying a range of viral respiratory pathogens in wastewater, strengthening the value of wastewater-based epidemiology for public health surveillance. Our findings highlight the potential of this approach to monitor both widespread and

arising infectious diseases in real time, providing actionable insights for early intervention and disease prevention efforts.

252 - A multicomponent mobile health intervention to reduce sedentary time after knee replacement: randomized controlled trial.

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Purpose

This study examined the effects of a 2-month multicomponent mHealth sedentary reduction intervention on sedentary time in adults with total knee replacement (TKR).

Methods

Adults (65.3 ± 9.4 years, 32.7±6.9 kg/m², 74.7% female, 77.1% white) with a TKR ≤1 year ago were identified by Prisma Health and randomized by the University of South Carolina into *NEAT!2* (n=42) or an attention-matched control group (n=41). The *NEAT!2* intervention focused on reducing sedentary time via a smartphone app designed to interrupt prolonged bouts (≥30 min) of sedentary behavior and 5 coaching calls emphasizing goal setting and problem solving. The control group focused on surgery recovery via an app/website and 5 educational calls. Multiple linear regression models with generalized estimating equation (GEE) examined intervention effects and differences between groups at each time.

Results

Retention was 96% and 95% at 2 and 5 months, with no differences between groups. *NEAT!2* participants completed 4.95±0.2 calls, used the app on 40.3±13.8 days (out of 56 days), and received an average of 9.6±6.0 notifications/day. The *NEAT!2* intervention did not result in significant effects on any of the study's outcomes at 2 or 5 months and no differences were observed between groups. However, more days of using the app was associated with greater increases in moderate-to-vigorous intensity physical activity ($r = 0.335$, 95% CI 0.017, 0.585, $p = 0.037$).

Conclusion

This study highlights the challenges of reducing sitting time in adults with TKR. Future studies should explore alternative behavior change techniques across different levels of influence (e.g., environmental, social) in future interventions within the first year after TKR.

253 - Weight loss and physical activity after total knee replacement: Protocol and progress to date for the Healthy Living randomized controlled trial.

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Background

Total knee replacement (TKR) utilization is rising considerably in both older and younger adults. Most people who receive a TKR are physically inactive and meet criteria for overweight/obesity, putting them at increased risk of poor functional outcomes and chronic diseases.

Purpose

The purpose of the Healthy Living Study is to examine the effectiveness of a telephone-based weight loss program on short- and long-term weight loss, physical function, physical activity, and pain as compared to a control group.

Methods

This study aims to recruit 212 adults (≥ 18 years of age) from Prisma Health (Midlands and Upstate) who are less than 6 months post-TKR, with overweight/obesity (body mass index [BMI] 25-45 kg/m²), and have no contraindications to diet, exercise, or weight loss. Participants are randomized to either a) PACE, a 12-month telephone-based program focused on reducing calories and increasing physical activity to facilitate a 7% weight loss or b) a Chronic Disease Self-Management (CDSM) control group which provides education on how to manage chronic diseases while avoiding content related to physical activity or diet. Assessments occur at either the University of South Carolina (Columbia, SC) or Prisma Health-Upstate (Greenville, SC). Assessments conducted at baseline, 6, 12 (post-intervention) and 18 months (following a 6-month no intervention period) assess change in weight (primary outcome), physical activity, pain, and physical function. The cost-effectiveness of PACE will be determined, as well as potential behavioral and psychosocial mediators of weight loss and secondary outcomes.

Result

As of August 2025, 175 participants (n=112 from Midlands and n=63 from Upstate) have been enrolled out of the planned 212. Participants are 65.61 ± 8.34 years, 68.4 % female, 60.3% White, with an average BMI of 33.95 ± 4.54 kg/m². Call completion rates are 85.9% across all participants. Retention rates were 88.3% at 6 months, 82.7 % at 12 months, and 79% at 18 months. Final analyses will be conducted once recruitment is complete.

Conclusion

This abstract describes the ongoing Healthy Living randomized controlled trial which will target an important clinical population and provide evidence of the effectiveness, long-term sustainability of PACE, and a refined patient-centered weight loss program tailored specifically for adults after TKR.

254 - Impact of Polysubstance Use on Major Depression, Serious Psychological Distress and Mental Illness among US Adults

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Purpose statement: To assess the association between common polysubstance use patterns and their incremental odds for health outcomes: i) major depressive episode (MDE), ii) serious psychological distress (SPD), and iii) any mental illness (AMI).

Methods: This study used data from 47,100 US adults participating in the 2022 National Survey on Drug Use and Health. Four target substance use groups: i) tobacco use only (T), ii) tobacco and alcohol (TA), iii) tobacco, alcohol, and marijuana (TAM), and iv) tobacco, alcohol, marijuana, and at least one other substance use (TAMO), were defined based on thirteen major substances to compare with no substance use. Covariate-adjusted logistic regression models were performed to assess the association with health outcomes.

Results: Tobacco use was significantly associated with a higher odds of MDE (adjusted odds ratio (aOR) = 1.32, CI = 1.04-1.66), SPD (aOR = 1.66, CI = 1.39-1.97), and AMI (aOR = 1.41, CI = 1.22-1.63). Although alcohol with tobacco does not increase the odds further, consuming marijuana as the third substance (TAM) increases the odds significantly (aORs, CIs: MDE: 2.25, 1.98-2.56, SPD: 2.28, 2.05-2.52, AMI: 2.41, 2.20-2.65). The worst outcome was observed for TAMO (aORs, CIs: MDE: 3.89, 3.40-4.46, SPD: 3.95, 3.52-4.44, AMI: 4.46, 4.00-4.99).

Conclusions: This study showed the increased odds of MDE, SPD, and AMI for people using tobacco (T) and polysubstance, with the highest odds for the TAMO group. These findings underscore the need for targeted interventions to address tobacco and polysubstance use, as well as ongoing mental health conditions.

255 - Correlates of Postpartum Care Visit Non-Attendance Among South Carolina Low-Income

Women: An Andersen Behavioral Model of Health Services Use Approach

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Purpose statement. Timely postpartum care is critical for the detection and treatment of conditions and complications, thereby reducing maternal morbidity and mortality. A 2022 systematic review of postpartum visit (PPV) attendance rates in the U.S found attendance rates varying from 24.9% to 96.5% with an average attendance rate of 72.1% between 1995 and 2020. Attaining optimal postpartum care is challenging and even more difficult for low-income individuals. Yet, limited studies have examined the correlates of PPV non-attendance among low-income women. **Methods.** This study analyzed data from 671 pregnant women enrolled in the South Carolina Midlands Healthy Start Program (2019-2024), which aims to improve maternal and infant health outcomes through enhanced care coordination and support services, using the Andersen Behavioral Model. PPV non-attendance was defined as not attending a PPV within 12 weeks of childbirth, as recommended by the American College of Obstetricians and Gynecologists. Multiple logistic regression models were used to identify significant predictors of PPV non-attendance. **Results.** Participants were predominantly low-income, with 90.9% receiving Medicaid. Overall, 27.0% did not attend a PPV within 12 weeks after delivery. Significant predictors of PPV non-attendance included maternal race, education level, partner involvement, and experiences of discrimination. Compared to non-Hispanic White participants, non-Hispanic Black (AOR: 0.48; 95% CI: 0.25, 0.94) and Hispanic participants (AOR: 0.12; 95% CI: 0.02, 0.66) had lower odds of non-attendance. This unexpected pattern may reflect the targeted support provided by the Healthy Start program, which prioritizes outreach to historically underserved populations. Participants with high school education or less had higher odds of non-attendance (AOR: 1.83; 95% CI: 1.23, 2.71). Lack of partner involvement (AOR: 1.95; 95% CI: 1.14, 3.32) and frequent experiences of discrimination (AOR: 2.79; 95% CI: 1.22, 6.38) were also associated with increased odds of PPV non-attendance. **Conclusion.** This study identified key factors influencing PPV non-attendance among low-income women, including race, education level, partner involvement, and experiences of discrimination. These findings highlight the need to address both individual and contextual barriers to improve postpartum care engagement. **Implications for Practice.** To improve PPV attendance, care systems should tailor strategies to address identified barriers by simplifying health communication for women with lower educational attainment, offering personalized care navigation, and providing on-site childcare to support those lacking partner support. Creating inclusive and affirming care environments may also help mitigate broader social stressors, such as discrimination, that influence health behaviors.

256 - The Associations between Inflammation and Cognition among Older Adults: The Moderating Role of Daily Psychological Experiences

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Purpose Statement. Research consistently finds that inflammation and psychological factors (e.g., stress, depressive symptoms) are significant correlates of cognitive health among older adults. However, the combined effects of these two factors on cognition remain less explored. The biopsychosocial model of health highlights the interplay of biological and psychological factors, where psychological factors buffer or augment the negative effects of biological risk factors on cognition. It is particularly important to assess how psychological factors unfold in daily life, as this would ensure a more ecologically valid measure of older adults' psychological experiences compared to traditional methods that rely on retrospective reports. Therefore, this study examines how older adults' daily psychological experiences shape the associations between inflammation and cognition.

Methods. This study used baseline data from the Elucidating the Necessary Active Components of Training (ENACT; NCT05366023), which is a randomized clinical trial that examined the mechanisms and moderators of cognitive training among community-dwelling older adults. ENACT participants completed smartphone-based daily assessments of everyday experiences throughout the study period (i.e., from study enrollment to follow-up), and a subsample also completed blood draws. This study's analytic sample consisted of participants who provided blood samples and completed two weeks of baseline daily assessments prior to the intervention ($N=47$; Mean age=64.34 years; 75.47% female). Inflammation was measured using C-Reactive Protein (CRP) and cognition was measured using Test My Brain (TMB) subtasks. Daily psychosocial experiences were assessed by creating two person-level variables of negative affect and perceived stress-mean level and fluctuations (i.e., standard deviations)-across the two-week period.

Results. Daily experiences of negative affect and perceived stress moderate the associations between inflammation and cognition, specifically matrix reasoning. For negative affect, higher levels of CRP were significantly associated with worse matrix reasoning scores among older adults who had overall higher mean levels of daily negative affect. The association was not significant among those who experienced on average lower levels of daily negative affect. For perceived stress, results showed that higher levels of CRP were significantly associated with worse matrix reasoning scores among older adults who experienced greater fluctuations in perceived stress levels in their daily life. The association was not significant for older adults who reported more stable levels of daily perceived stress.

Conclusion. The findings from this study suggest that older adults' daily psychological experiences may exacerbate the negative cognitive health

implications of inflammation. The ways in which these experiences matter differ between affect and stress; while mean levels bore meaning for negative affect, day-to-day fluctuations were more relevant for perceived stress. This highlights the importance of developing interventions or programs that promote psychological coping skills around emotion regulation and stress management in everyday life, particularly for older adults with greater biological risk of cognitive decline.

257 - Survey of Breastfeeding Infants While Receiving Painful Procedures During Well Child Visits

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Purpose Statement

The purpose of this project was to assess the effectiveness of the use of breastfeeding, providing breastmilk and parent-reported other comfort measures for infants encountering painful procedures.

Methods

Upon entering the examination room parents were given a recruitment flyer by the registered nurse (RN) or nurse manager. If they chose to participate a questionnaire was provided. Participation was voluntary and no identifying data was collected. The Neonatal Infant Pain Scales (NIPS) was used for data collection. The NIPS consists of 11 questions related to the parent's perception of their infant's experience (facial expression, cry, breathing pattern, arms [relaxed, flexed or extended], legs [relaxed, flexed or extended], and state of arousal).

Results

All but two of the infants received vaccinations on this visit. Eight of the vaccinated and two of the unvaccinated infants also had labs done. Three infants had vaccines, labs and another procedure. Breastfeeding infants during painful procedures results in lower amounts of time to achieve comfort for the vast majority. This was followed by infants who received breastmilk. Thus, breastfeeding or providing breastmilk to infants during painful procedures helps infants recover quicker thus experience less overall pain. The data demonstrates that both

Conclusion

There are several studies noting that infants being breastfed and/or fed breastmilk is an effective nonpharmacologic pain management intervention recover from painful procedures much quicker. This project supports that notion. The results of this project will be used to develop and attempt to initiate a policy for breastfeeding or providing breastmilk during painful procedures.

258 - Evaluating HIV Linkage to Care Times Across Inpatient, Outpatient, and Emergency Department Settings

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Purpose Statement: The screening and diagnosis of the Human Immunodeficiency Virus (HIV) receives much attention; however, it is only a part of ending the epidemic. Linking patients to care within 72 hours of diagnosis and starting active antiviral medication is a crucial step. There are numerous challenges for community health workers, linkage to care coordinators, and medical personnel. This study examines the average linkage to care times for patients tested in various healthcare settings in a large hospital setting in the Southeastern United States, where universal opt-out screening is being performed in the emergency department.

Methods: This retrospective cohort study identifies 259 HIV patients who were successfully linked to care between January 2022 and June 2025. Linkage to care was defined as the patients attending either a first medical appointment or reestablishing care with an infectious disease physician.

Results: During the study period, 72,723 HIV tests were recorded with a 0.48% market positivity rate (0.31% New HIV and 0.17% Known HIV Out of Care). There were 228 new diagnoses, with the highest positivity rate for new HIV diagnosis was found in the Emergency department (0.51%), followed by the outpatient setting (0.34%) and inpatient setting (0.24%). There were 122 known patients out of care identified during the study period. Similarly, ED was noted to have the highest positivity of known patients who were out of care (0.26%), followed by the inpatient (0.22%) and outpatient (0.16%) settings. Eighty-four percent of new HIV patients and 64% of known HIV positives out of care were linked during the study period. The average time to link to care for those tested in the inpatient setting averaged 38.61 days for newly diagnosed patients and 33.91 days for known patients out of care. In the outpatient setting, new patients were linked within 9.8 days, while known patients were linked in an average of 51.91 days. The ED averaged 37.87 days for linking new HIV patients and 45.03 days for known patients out of care. Only 72 (28%) were linked to care within 72 hours of a positive result. Thirty-eight of the 72 were diagnosed and linked to care on the same day by the outpatient immunology and infectious disease department.

Conclusion: While overall linkage to care percentages is important, emphasis should be placed on how quickly patients are linked. Linking patients to care quickly reduces the risk of the disease spreading in the community and results in better patient outcomes. Linkage to care was significantly delayed in all settings, with 73% of patients waiting for longer than 72 hours. This study highlights that, despite

linkage to care percentages for new HIV patients being at the national average, delays in linkage are still a challenge.

260 - Serendipitous Postoperative CT After Acetabular and Pelvic Fractures: Incidence, Risk Factors and Clinical Impact

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Purpose statement: Routine postoperative CT following fixation of acetabular and pelvic fractures remains controversial. Some orthopaedic trauma centers routinely get them to evaluate reduction quality, hardware placement, and/or residual intra-articular fragments. Yet, many CT scans are obtained postoperatively anyhow by a multidisciplinary team, offering an opportunity to evaluate the aforementioned parameters on these “serendipitous” studies. The primary objective of this study was to evaluate the precise incidence of CT scans from the multidisciplinary trauma team at an ACS level I trauma center that does not routinely obtain postoperative CT for acetabular or pelvic ring fractures for orthopaedic reasons.

Methods: A retrospective review of operatively treated acetabular and pelvic ring fractures from January 2017 to April 2023 was conducted. Data collected included demographics, CT utilization, surgical details, ICU and hospital length of stay, injury patterns, and revision surgeries. A calculation of the incidence of postoperative CT scans, revision rates, and relative risk associated with injury patterns and ICU admission was performed.

Results: A total of **354 patients** met inclusion criteria. Of these, 25.7% had at least one postoperative pelvic CT scan during hospitalization. General surgery and its subspecialties ordered the majority of these scans (73.6%), while orthopaedic surgery ordered 23.2%. Four patients (1.1%) underwent revision surgery, all prompted by CT scans ordered by orthopaedics. Risk factors for postoperative CT included ICU admission (RR = 4.2), sacral fractures (RR = 1.41), and pubic rami fractures (RR = 1.51); acetabular fractures were less associated (RR = 0.89).

Conclusion: Serendipitous CT scans, or those not ordered by orthopaedics, offer an opportunity to identify the reduction and fixation of acetabular and pelvic fractures without additional radiation or cost to the patient. At the least, they can serve as a valuable educational tool. Moreover, the utilization of postoperative CT scans on a multidisciplinary team emphasizes the overall radiation and cost burden to the patient, with a higher likelihood of CT utilization with ICU admission for injuries including sacral and pubic rami fractures.

261 - Clinical Outcomes Following Novel Subpectoral Biceps Tenodesis Using an All-Suture Knotless Anchor

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Purpose Statement: Biceps tenodesis (BT) is a common surgical procedure for managing biceps tendon pathology, often performed in conjunction with treatment for rotator cuff tears (RCT) and labral tears. The purpose of the study was to evaluate postoperative patient-reported outcome measures (PROMs) in patients undergoing a novel subpectoral biceps tenodesis using an all-suture knotless anchor and sub-analyze outcomes among those with isolated RCT, labral tears, and combined pathology.

Methods: A retrospective review with a prospective follow-up >1 year after surgery was conducted on 100 patients at least 18 years of age who underwent subpectoral biceps tenodesis using an all-suture knotless anchor by a single surgeon. Patients were categorized into subgroups: isolated BT, BT + rotator cuff repair (RCR), BT + labral repair, BT + RCR + labral repair, BT + rotator cuff debridement. Patient-reported outcome measures (PROMs), including the Numerical Rating Scale (NRS) pain score, Shoulder Pain and Disability Index (SPADI), and Single Assessment Numeric Evaluation (SANE) for both ipsilateral and contralateral shoulders, were collected at a mean follow-up of 23.4 months.

Results: The mean NRS pain score for all 100 patients was 1.6 (± 2.4), indicating low pain levels postoperatively. The mean SPADI score was 17.4 (± 21.4), suggesting mild shoulder pain and disability. The ipsilateral SANE score averaged 83.5 (± 20.1), reflecting high shoulder function. Additionally, the average contralateral SANE score was 88.2 (± 20.0), indicating similar subjective pain and function levels between the ipsilateral and contralateral shoulders. Three patients (3.0%) required reoperation.

Conclusion: A novel subpectoral biceps tenodesis technique using an all-suture knotless anchor results in excellent pain relief and functional outcomes. The PROM results from this study are consistent with previously published literature with other BT techniques, providing evidence that this novel subpectoral BT technique is non-inferior to others and can be utilized in patients with biceps tendon pathology requiring BT. Additionally, the low reoperation rate suggests durability of the procedure and is similar to prior studies. Further studies with larger cohorts and longer follow-up may help refine patient selection and optimize surgical outcomes.

262 - The utility of artificial intelligence for patient education in clinical practice

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Purpose Statement: Panniculectomy and abdominoplasty are two common, yet distinctly different procedures. However, many patients are not aware of their different indications and surgical techniques. A significant amount of time is dedicated to discussing these procedures and their differences during consultation. With the rapid development of artificial intelligence (AI), there are many opportunities for improving patient education and clinical efficiency. This blinded, survey-based study aimed to evaluate the effectiveness and quality of information provided by physicians compared to AI for patient education.

Methods: Two different educational flyers, one created by AI (Flyer A) and the second by plastic surgery residents (Flyer B), were voluntarily assessed by first year medical students at the University of South Carolina School of Medicine - Columbia (N = 30).

Results: Over half of the responses demonstrated that both flyers utilized “very appropriate” language. Overall, 87% of readers reported that Flyer B, written by residents, was more patient friendly. Interestingly, only 73% of respondents correctly identified Flyer A as being written by AI ($p = 0.06$). Most readers indicated that they would prefer educational information that was written by physicians.

Conclusion: Although there were no statistically significant differences observed among the survey responses, this is likely due to the low power of the study. Participants demonstrated that despite recent advancements in the development of AI, they preferred educational materials that physicians spent time creating. While AI can serve as a valuable tool for clinicians, it is more effective when integrated with human oversight to ensure clarity and patient confidence. Future directions for this study include implementation of these educational flyers in our plastic surgery clinics and making improvements based on patient feedback.

263 - Efficacy of Helicopter Emergency Medical Services for Out-of-Hospital Cardiac Arrests in a Rural Population

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Purpose: Out-of-hospital cardiac arrests account for a significant number of deaths in the United States. Few studies have investigated the association between helicopter transport, survival, and neurological outcomes at discharge following cardiac arrest, particularly in the rural Southern United States. Our study investigates the efficacy of helicopter EMS (HEMS) transport compared to traditional ground transport methods by analyzing survival rates and neurological outcome at discharge, measured by Cerebral Performance Category (CPC) score. We hypothesized HEMS transport would be associated with increased survival rates and improved neurological outcomes.

Methods: We retrospectively reviewed out-of-hospital cardiac arrest cases transported by multiple emergency medical services (EMS) agencies to a large hospital system in the Southern United States. Out-of-hospital cardiac arrests included any cardiac event in which resuscitation was attempted and transport to a tertiary care facility was completed. Pediatric cases and those of traumatic etiology were excluded from the study, per the Utstein Out-of-Hospital Cardiac Arrest Resuscitation Registry Template. Cases were classified by transport mode (HEMS vs. ground). We reported survival rates by transport type as frequencies and percentages, Fisher's exact test to compare survival proportions with $\alpha < 0.05$ indicating statistical significance, and Firth logistic regression models to estimate the association between transport type and survival, adjusting for age and sex a priori. CPC scores at discharge were analyzed both as ordinal outcomes and dichotomized into good (CPC 1-2) versus poor (CPC 3-5) neurological status.

Results: Of 222 out-of-hospital cardiac arrest cases meeting inclusion criteria, 26 (11.7%) were transported by HEMS. The survival-to-discharge rate was 34.6% for HEMS transports and 15.3% for ground transports (Fisher's exact test, $p=0.025$). In unadjusted Firth logistic regression, the odds ratio for in-hospital mortality comparing HEMS to ground transport was 0.34 (95% CI=0.14-0.84, $p=0.020$). After adjustment for age and sex, the odds ratio was 0.35 (95% CI=0.15-0.86, $p=0.024$). Good neurological outcome (CPC score 1-2) occurred in 34.6% of HEMS patients and 14.3% of ground transport patients (Fisher's exact test, $p=0.021$). After adjustment for age and sex, the odds ratio for good CPC outcome was 3.12 (95% CI=1.25-7.49, $p=0.016$).

Conclusion: Helicopter EMS was associated with increased survival to hospital discharge and improved neurological status following out-of-hospital cardiac arrest. HEMS transport was associated with a 66% reduction in the odds of mortality in-hospital and with three times higher odds of good neurological outcome (CPC 1-2) compared to ground transport. The findings are limited by the small sample size, single-system setting, and potential selection bias. Further study is warranted to confirm these results and explore the factors resulting in improved outcomes with HEMS transport.

266 - Evaluating the Consistency of Pediatric Hypertension Diagnosis in Community Clinics: A Quality Improvement Program Guided by Reach, Effectiveness, Adoption, Implementation, Maintenance (RE-AIM) Framework

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Purpose Statement: Despite the substantial prevalence and consequences of pediatric hypertension, children remain underdiagnosed. Through preliminary data analysis, community clinics within a large hospital system were found to have suboptimal adherence to the 2017 American Academy of Pediatrics (AAP) guidelines for diagnosing hypertension in children. A quality improvement (QI) intervention was conducted from June 2024 to January 2025 to enhance adherence to the guidelines for children aged 3-18 years, and subsequently evaluated using the Reach, Effectiveness, Adoption, Implementation, and Maintenance (RE-AIM) framework.

Methods: The QI project was designed using the Institute for Healthcare Improvement model and evaluated using the RE-AIM framework at 11 clinics, three categorized as caring for both adults and children (family medicine or medicine-pediatrics) and eight pediatric. The electronic health record system (EHR) flags children's blood pressure (BP) above the 90th percentile. The project was designed to provide a two-hour education session in June 2024, which included reviewing the clinical guidelines and standardized pediatric BP measurement techniques. Two- and four-month check-ins, along with a final meeting, were scheduled for clinics to review the plan-do-study-act cycles based on a provided key driver diagram. Practices conducted baseline and monthly random chart audits over six months, recording well-child BP measurements with correct measurement technique,

elevated and repeated BPs, and follow-up plans. Data collection was conducted at pre-intervention (May 2024), midpoint (September 2024), post-intervention (December 2024), and 6-month follow-up periods (May 2025).

Results: Overall, we reached 9,781 patients across 11 clinics, representing approximately 25.3% of the pediatric population systemwide. Of this sample, the majority (57.2%) were non-Hispanic White and had public health insurance (58.3%). The most commonly used intervention strategies were staff education (100%) and displaying pediatric HTN algorithms (87.5%). The average percentage of BP screening at well-child visits remained stable over time with no significant change ($p>0.05$). However, clinics serving both adults and children showed an increase from 93.79% to 98.39% at post-intervention, decreasing to 96.49% at the six-month follow-up maintenance mark ($p < .0001$). Overall, repeat BP measurement improved from 5.58% at pre-intervention to 11.22% at follow-up, peaking at 17.29% in the post-intervention period across all clinics, representing the effectiveness of the program.

Conclusion: Overall, our project suggests improved adherence to best practices for pediatric BP screening and repeat BP measurements for elevated BP, mainly through staff education; however, it did show a decline in average repeat BP readings at the 6-month mark. This could be due to issues with retention of educational interventions and/or modifications in the workforce. Future work should explore opportunities to enhance long-term adherence to guidelines, such as the adoption of EHR decision support tools to facilitate clinicians' adherence to management guidelines.

267 - Improving preoperative assessment by gynecology residents: a Quality Improvement Project

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Purpose statement:

The purpose of this project is to streamline pre-operative appointments for residents working in a clinic with a shared patient population, standardizing the workflow to prompt completion of all the necessary tasks to safely and efficiently schedule patient surgeries.

Limited preoperative assessments may lack standardized protocols and provide insufficient multidisciplinary collaboration. This may compromise patient safety, increase delays and cancellations, and reduce educational opportunities for residents.¹⁻⁴ Early identification and optimization of risk factors are associated with

reduced perioperative morbidity and improved surgical outcomes.^{2,3,5,6} Technological innovation such as structured preoperative questionnaires streamline evaluation, reduce unnecessary clinic visits have been shown to improve patient satisfaction.^{5,6}

Methods:

Two templates, a History and Physical (H&P) and an Assessment and Plan (A/P), were created on Epic EMR and distributed to residents for use during clinic. A complete H&P note within the past 30 days is required the morning of surgery. The use of the standardized note template ensures that an up-to-date note meeting all stipulations will be present at the time of surgery. The A/P template is designed to be used within the problem list and includes a checklist of items required to schedule surgery within the Prisma Health Richland system and OBGYN Residency system. The template also contains more generalizable information regarding medication recommendations⁶, Caprini score⁷ for VTE prophylaxis, ERAS protocol⁸ counseling reminders, and key lab values such as recent A1C for patients with diabetes. Including pertinent information in the template will prompt residents to consider key elements to safely and effectively prepare patients for surgery.

The two templates were introduced to the residents during a lecture concerning optimal pre-operative planning. They summarized the evidence-based lecture, which improved buy in from residents. There was also a demonstration using Epic, which showed how the templates might be easily integrated into clinical use. The templates were then immediately available.

Results:

This is an ongoing project currently in an iterative phase. There has been positive verbal feedback from residents, as well as widespread reported use in more recent patient operations. We plan to collect both resident and faculty self-reported usage rates and feedback on the new preoperative assessments after 2 months of use.

Conclusion:

New templates are being used by residents as of 3 weeks following the original lecture, and users are providing positive feedback in terms of ease of use. Formal evaluation will be necessary to prove widespread adoption of the quality and improvement initiative planned at 2 and 12 months. Further evaluation could be considered for metrics such as: time between decision for surgery and day of surgery, patient satisfaction regarding counseling and expectations, delays day of surgery, and percentage of patients who arrive with complete H&P on their scheduled day of surgery.

268 - Identification, Redesign, and Evaluation of the RN Patient Arrival Process in a Large Hospital Emergency Department

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Purpose Statement

Increasing rates of patient crowding, higher patient acuity, and safety concerns are among several factors that are associated with staff burnout and attrition in clinical settings. The “quick look” process that takes place as each patient checks into the ED may contribute to increased stress for RNs as they navigate the several tasks associated with the process. This study evaluates the current state of the ED patient check-in process; identifies elements of the process that inhibit RN workflows, staff satisfaction, and ED throughput; and provides recommendations for redesigning the check-in process to improve workflows, satisfaction, and throughput.

Methods

This study was conducted at an 864-bed tertiary referral hospital in an ED that treats over 106,000 patients annually. Data were collected both pre- and post-redesign via observations by the research team. Nurse workflows were evaluated using task analysis. Researchers observed 90 patient arrivals equally distributed across mornings, afternoons, and evenings in the ED to map nurses’ check-in workflows. The researcher documented each step of the RN’s process, documenting any interruptions and decision points. Process throughput was measured using a time study. Researchers observed 90 patient arrivals, with the same time distribution, but recorded the duration of each process element. Nurse perceptions of job satisfaction and safety were measured using a survey including elements of the Kuopio University Hospital Job Satisfaction Scale (KUJSS) (Sapountzi-Krepia et al., 2017) to gain a better understanding of nurse perceptions surrounding their role in checking in patients and sense of safety managing the ED. Observations of workflows, measures of throughput and nurse satisfaction were collected both pre- and post- process redesign.

The redesign of the check-in process was facilitated by a combination of interviews with ED staff and focus groups. Semi-structured interviews were conducted with nurses, ED leadership, and other ED staff. Interviews collected data regarding the check-in process, pain points and challenges of the process and the physical environment, sources of inefficiencies, and perceptions surrounding safety and security. Interview transcripts were analyzed to identify needs (Ulrich et al., 2020). Analysis of needs statements were then used to highlight recurring issues and inform creation of design elements presented to facilitate co-design in the focus groups.

Results

Results of this study are ongoing as qualitative analysis of participant interviews is underway. Data collection and analysis are anticipated to be completed by December 2025.

Conclusion

This research provides specific workflow and physical workspace interventions to a frontline ED check-in process which serves as a basis for future analyses of nursing

workflows. Given increasing concerns surrounding nurse burnout, staff attrition, perceptions of job satisfaction and safety, and throughput, this study provides a template for redesigning processes to accommodate staff concerns and promote patient safety and process efficiency.

269 - Association of ASES Score with Surgical Arm Steering After Shoulder Surgery: A Driving Simulation Study

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Purpose: The primary objective of this pilot study is to determine the timeline for resumption of steering with the surgical arm following rotator cuff repair or shoulder arthroplasty and to explore the relationship between American Shoulder and Elbow Surgeons (ASES) scores and this key functional milestone.

Intro: The increasing number of rotator cuff repairs and shoulder arthroplasties has raised a critical clinical question: When is it safe for patients to resume driving postoperatively? Currently, there are no formal guidelines to inform this decision, leaving providers to rely on subjective clinical judgment. The ASES Score, a validated 100-point scale that measures pain and shoulder function, offers a standardized way to evaluate recovery, with a score of 100 reflecting less pain and better function. This study examines when patients begin to re-engage their surgical arm in steering tasks using the DriveSafety Clinical Driving Simulator's Steering Static: Level 1.

Methods: Patients scheduled for rotator cuff repair or shoulder arthroplasty were enrolled and completed a standardized steering exercise preoperatively, 3 weeks postoperatively (+/- 7 days), and every two weeks through 9 weeks postoperatively. The exercise tested steering, stabilization, pedal pressure, and reaction time, while recording the extent of surgical and non-surgical arm use. ASES scores were collected at each session. The ASES score was recorded at each time point.

Results: Individual trajectories were analyzed in detail for Patient 5 and Patient 8 to illustrate contrasting recovery patterns. Patient 5, who maintained a relatively high ASES score (>70), relied exclusively on the non-surgical arm to steer between weeks 3-5, began using the surgical arm by week 7, and demonstrated consistent surgical arm use by week 9. This improvement paralleled a marked rise in ASES score. In contrast, Patient 8 exhibited persistently low ASES scores (<30) and never resumed surgical arm use during steering across all postoperative sessions. Aggregated data from the four patients demonstrated an initial decline in surgical arm steering usage, reaching its lowest average (37.5) at week 5, followed by a

progressive increase through week 9. Non-surgical arm reliance mirrored this trend, gradually declining as surgical arm use improved.

Conclusion: Preliminary findings suggest that higher ASES scores are associated with earlier and more predictable resumption of surgical arm use during steering tasks. Patients with persistently low ASES scores, by contrast, may experience prolonged or incomplete return of driving-related function. This seems to suggest that patients with higher ASES scores can be expected to follow a more predictable return to safe driving practices than those with poor ASES scores. Recruitment is ongoing with a target of 25 patients to confirm these trends and to inform future, larger-scale studies aimed at establishing evidence-based driving clearance guidelines after shoulder surgery.

270 - Risk of Infective Endocarditis in Monomicrobial and Polymicrobial Enterococcus Species Bloodstream Infection

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Purpose Statement: Timely diagnosis of infective endocarditis (IE) is critical, as delays can lead to severe complications. *Enterococcus faecalis* is recognized as a typical IE pathogen according to the 2023 Duke-International Society for Cardiovascular Infectious Diseases Criteria for Infective Endocarditis. However, it remains unclear whether the risk of IE differs between monomicrobial and polymicrobial bloodstream infections (BSI) caused by *Enterococcus* species. This retrospective cohort study aimed to (1) compare the risk of IE in patients with *E. faecalis* versus *E. faecium* BSI, and (2) determine whether monomicrobial *E. faecalis* BSI is associated with a higher risk of IE compared to polymicrobial *E. faecalis* BSI.

Methods: Patients admitted to eleven Prisma Health hospitals in South Carolina from January 2021 to June 2023 with *Enterococcus* BSI were screened. Patients under 18 years old and those with blood cultures positive for *Enterococcus* species other than *E. faecalis* and *E. faecium* were excluded. Chi-square or Fisher's exact tests were used to compare the proportion of IE diagnoses between *E. faecalis* vs. *E. faecium* BSI as well as monomicrobial vs. polymicrobial BSI.

Results: Of 476 patients screened, 450 were included: 401 with *E. faecalis* BSI and 49 with *E. faecium* BSI. The median age was 70 years; 63% were men and 67% were white. IE was diagnosed in 14% of patients with *E. faecalis* BSI (55 of 401) compared to 2% of those with *E. faecium* BSI (1 of 49; $p = 0.02$). Among patients with *E. faecalis* BSI, 257 cases were monomicrobial and 144 cases were polymicrobial infections. The risk of IE was significantly higher in monomicrobial *E. faecalis* BSI compared to polymicrobial cases (18% vs. 4%; $p < 0.001$). There were

no significant differences in the rates of echocardiograms use between *E. faecalis* and *E. faecium* BSI (76% vs. 90%; $p=0.15$) or between monomicrobial and polymicrobial *E. faecalis* BSI (79% vs. 71%; $p=0.43$).

Conclusion: This study demonstrates that the risk of IE in enterococcal BSI is both species- and context-specific. Results of this study are consistent with previous literature and support recognition of *E. faecalis*, but not *E. faecium*, as a typical pathogen of IE. The current study adds that risk of IE is significantly higher in monomicrobial than polymicrobial *E. faecalis* BSI. In clinical practice, echocardiograms should be encouraged in patients with high risk of IE (monomicrobial *E. faecalis* BSI) and their routine use may be reconsidered in low-risk populations (*E. faecium* and polymicrobial BSI). This risk-based approach may improve diagnostic efficiency and optimize resource utilization. Further large-scale studies are needed to validate these findings and inform evidence-based diagnostic guidelines.

271 - Evaluating Fall Prevention Strategies: Clinician insights on effectiveness, use, and education

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Purpose statement: Patient falls in hospitals continue to rise despite multiple prevention interventions. This trend is linked to patient characteristics such as age, illness severity, and sedation, as well as reduced nurse-patient contact due to staffing demands. Studies show that multi-factorial fall prevention interventions lead to better outcomes than singular approaches. To identify opportunities for improvement, it is important to understand providers' views on current strategies and barriers. These include organizational policies, unit-specific practices, and individual strategies. In this context, we interviewed and evaluated clinicians' self-perceptions of current fall prevention practices, areas for enhancement, and opportunities for cross-disciplinary education.

Methods: We conducted a qualitative study at Prisma Health Baptist Hospital in Columbia, SC consisting of online surveys and interviews evaluating perceptions of fall interventions within the hospital. For this qualitative analysis, we targeted four clinician groups: nurses, patient support technicians, rehabilitation therapists (physical therapists and occupational therapists), and Prisma Health leadership from the intermediate intensive care unit (IICU) and 8th floor medical telemetry (MedTele) departments. Survey questions addressed the perceived effectiveness of fall prevention interventions, barriers to implementation, and areas of interdisciplinary collaboration. In parallel, we conducted semi-structured interviews

(~20 minutes each). Interview guides focused on personal experiences with falls, effectiveness and usability of current interventions (e.g., bed alarms, gait belts, telesitters), communication across disciplines, and recommendations for Prisma leadership. Descriptive analysis was used to present the results.

Results: A total of 29 clinicians completed the survey of 10 registered nurses (RNs), 7 physical therapists (PTs), 3 occupational therapists (OTs), 4 patient safety technicians (PSTs), and 5 Prisma Leadership (PL) from these departments. 12 of these participants were from the MedTele unit, 5 were from the IICU, and 12 were from rehabilitation services (Rehab). Preliminary survey results demonstrated that the three interventions most used across MedTele, IICU, and Rehab were bed alarm, patient education, and caregiver education. Interestingly, the interventions rated most effective across units included bed alarms, medication, and bed restraints. Furthermore, helpfulness of fall prevention education was rated as extremely helpful (median = 5/5), and participants also stated that they interacted with other professions very frequently (median = 5/5).

Conclusion: Care providers from two units within Prisma Health Baptist Hospital participated in a qualitative study evaluating current perceptions of fall prevention interventions. Survey results highlighted fall prevention interventions that are most used and those determined to be most effective. Furthermore, in line with previous research, patient education related to fall prevention was seen as helpful among care providers and there appears to be regular interprofessional collaboration. Ongoing thematic analysis of interview data will further explore differences across professions, unit barriers, and opportunities for improvement in fall prevention practices.

272 - A human-systems approach for implementing a safe and effective 'early mobility program' for inpatient care

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Purpose statement: Hospitalized patients are at high risk of immobility, leading to muscle weakness, falls, pressure injuries, and extended hospitalization. Evidence indicates that systematic approaches to promote patient mobility are critical for reducing these adverse outcomes. The Johns Hopkins Activity and Mobility Promotion (JH-AMP)[™] program, incorporating the "6-Clicks" mobility tool, provides an evidence-based framework for early mobility in daily care. However, widespread implementation is often hindered by workflow and system-level barriers. This study

evaluated early implementation of JH-AMP at Prisma Health, initiated in November 2023, using a multi-stage, human-systems approach.

Methods: Initially, six pilot observational sessions and interviews were conducted across medical/surgical, orthopedics, cardiology, and neurology units at Prisma Health Baptist Columbia and Greenville Memorial Hospital. Observations focused on mobility routines, equipment use, documentation, 6-Clicks integration, and clinician-patient communication. Findings were discussed with the nursing leadership and incorporated into the design of a survey, distributed to nurses/nurse technicians from medical/surgical units (June 2024–April 2025). The survey covered three domains: knowledge and education about early mobility, implementation considerations, and current mobilization and communication practices. Responses were analyzed descriptively, following which a shadowing tool was developed for workflow analysis in the next study phase.

Results: Forty-six participants (39 nurses, 7 nursing technicians) completed at least one survey domain. Overall, 61% reported receiving JH-AMP training. In the first domain on early mobility knowledge, all agreed that mobilizing patients ≥ 3 times daily improves outcomes; 80% reported having received training on safe mobilization, and 82–87% understood when to refer patients to physical/occupational therapy. While 82–100% recognized benefits of early mobilization, 28% were uncertain about safety and 26% reported low confidence in performing mobilization. In the second domain of implementation considerations, 23–51% perceived their typical patients as generally eligible for mobilization, and 60%–71% considered it safe for patients/staff. Only 34% perceived staffing as adequate, 48% cited insufficient time, and 43% expressed therapists to be primary mobility providers. Barriers varied by activity level: inadequate time for bed-level (66–69%), need for assistance for short-range off-bed (74–77%), and fall risk/contraindications for extended ambulation (77%) were the most common factors hindering patient mobilization. In the third domain on current mobility practices, 82% documented performing mobility-related patient activities during their shifts, 58% reported receiving appropriate physician orders targeting patient mobility, 36% noted family involvement in mobilization, 67% mobilized patients $\geq$ once daily, 73% educated their patients on mobility, and 48% believed patients had adequate time for mobilization three times daily.

Conclusion: Findings indicate that nurses/nursing technicians recognize clinical importance of early mobilization and possess foundational knowledge about mobility benefits. However, major implementation barriers include staffing constraints, limited time, inconsistent clinical confidence, and patient safety concerns during higher-level mobility tasks. Successful JH-AMP™ adoption at Prisma Health will require addressing these system-level barriers while reinforcing training and workflow integration.

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