AUGUSTA UNIVERSITY

MEDICAL PARTNERSHIP

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15th Annual Medical Partnership Student Research Symposium

November 10, 2025

University of Georgia
Paul D. Coverdell Center
for Biomedical & Health Science

Welcome to the fifteenth annual AU/UGA Medical Partnership Research Symposium!

This event is an opportunity to showcase the activities of our students during the summer between the first and second years of their medical studies. Students were encouraged to engage in a scholarly activity which could include laboratory science, clinical, or other research. Students more interested in a participatory clinical experience were encouraged to also engage in "inquisitive observation and reflection" in order to derive a more complete understanding of the health problems within the context of the greater community.

The posters represent the results of the students' endeavors. We are grateful to all of the faculty members at AU, UGA, and other institutions, who have mentored the students, and to the community clinicians, both in Athens and elsewhere, who have shared their expertise and provided the clinical settings to learn both the art and science of doctoring.

Michelle A. Nuss, MD
Campus Dean

Symposium Events

1:00 – 1:30 PM *Keynote Address by Kent Nilsson, MD*

1:30 – 2:00 PM *Oral Presentations*

2:00 – 2:30 PM *Elevator Pitch Finalists*

2:30 – 4:30 PM *Poster Session & Awards*

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Dimensions of Preoperative Situational Anxiety in Patients Undergoing Awake and Asleep Surgery for Brain Tumors

Aafreen Azmi[1], Trong Hyunh, MD[1], Nikolas Evercherry MD[1], Sri Sai Akkineni B.S.[2,3,4], Christine Yohn, PhD.[1], Samantha G. Farris, PhD[1], Christopher Fjotland, MD[1], Jonathan H. Sherman, MD[1]

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INTRODUCTION: Anxiety before brain surgery is common and may impact intraoperative management and recovery. However, specific anxiety domains in brain tumor patients remain understudied, particularly regarding surgical approach differences (awake vs. asleep).

OBJECTIVE: This study characterizes preoperative anxiety in brain tumor surgery patients, examines variations by surgical approach, identifies anxiety correlates, and explores patient-valued preparation strategies.

METHODS: This ongoing cross-sectional study involves adult patients (18-70) scheduled for brain tumor surgery at an academic medical center. Participants complete: Preoperative Intrusive Thoughts Inventory (PITI) measuring six cognitive anxiety domains, Modified Body Sensations Questionnaire (BSQ) capturing fear responses, 14-item procedural concerns checklist, and assessment of perceived utility of preoperative supports.

RESULTS: Twenty-six patients (25 asleep, 1 awake) completed surveys. Key findings: PITI Domains (0-3 scale): Highest concerns: preoccupation (1.46), pain/discomfort (1.38), outcome (1.36). Also common: unconsciousness (1.09), dependence (1.09), loss of control (0.94). BSQ Results: Mean fear score: 39.7/115 (SD=15.0). Top fears: disorientation, nausea, headache. Procedural Concerns: Speech-related changes ranked highest (2.7/5). Most Valued Preoperative Supports (scale 1-5): Speaking with anesthesiologist (4.2), Receiving detailed surgical information (4.1), Orientation to pre-op area (3.8).

CONCLUSIONS: This study highlights the multidimensional nature of surgical anxiety in brain tumor patients and identifies practical, patient-valued interventions. Findings will inform development of targeted preoperative support strategies to reduce anxiety and enhance patient experience before neurosurgery.

Elevated Oxygen Extraction Fraction in Type 2 Diabetes Mellitus: Evidence for Early Cerebral Metabolic Changes in Cognitive-Associated Regions

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BACKGROUND: Type 2 Diabetes Mellitus (T2DM) is linked to accelerated cognitive aging and neurovascular dysfunction. Cerebral oxygen extraction fraction (OEF), measured by susceptibility-weighted MRI, serves as a noninvasive marker of brain oxygen metabolism. We hypothesized that individuals with T2DM (defined by HOMA-IR ≥ 3.0) show elevated OEF in cognition- and memory-related brain regions.

METHODS: We analyzed cross-sectional data from the Boston Puerto Rican Health Study, including 130 T2DM and 116 non-T2DM participants. Regional OEF was derived from susceptibility MRI. T2DM status was determined by average HOMA-IR. Linear regression assessed the association between T2DM and OEF, adjusting for age and sex, with FDR correction for multiple comparisons. For OEF comparisons between cognitive subgroups (executive, memory, global decline), Mann-Whitney U tests were used due to non-normal data and small subgroup sizes. Participants were stratified by presence or absence of cognitive decline to examine metabolic correlations.

RESULTS: T2DM participants had significantly higher OEF in bilateral hippocampi, thalamus, superior frontal, parietal, and temporal cortices (all FDR-adjusted $p < 0.05$). No significant OEF differences between those with and without cognitive decline in either group. Lack of significance may reflect limited power.

CONCLUSION: T2DM is associated with elevated OEF in cognition-related brain regions prior to measurable cognitive decline, suggesting cerebral metabolic dysfunction may precede clinical impairment. OEF shows promise as an early imaging biomarker of diabetes-related neurodegeneration, meriting further longitudinal study.

Unmasking Biologic Drivers of CAR T cell Persistence through Multi-centered Leukapheresis Profiling

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BACKGROUND: B-cell acute lymphoblastic leukemia (B-ALL) is the most common pediatric malignancy, with challenging refractory/relapsed cases despite advances in CD19-directed CAR T-cell therapy. Treatment durability is limited by poor CAR T-cell persistence and exhaustion. This study investigates baseline T-cell phenotypes and exhaustion markers in apheresis products to identify biomarkers predictive of long-term persistence and improved patient outcomes.

METHODS: Cryopreserved apheresis products with matched clinical outcomes from the Pediatric Real-World CAR Consortium will be analyzed to identify predictors of CAR T-cell persistence in pediatric B-ALL. Using CyTOF and single-cell RNA sequencing, we will characterize T-cell subsets, regulatory T cells, and exhaustion markers, and correlate these profiles with disease burden, survival, relapse patterns, and duration of B-cell aplasia. Findings will provide insight into T cell biology at time of apheresis and drivers that impact CAR T cell persistence, leading to a stronger understanding behind CAR T therapy, patients who may benefit, and guiding future CAR T cell engineering.

RESULTS: Expected results stem from hypothesizes that apheresis products enriched in naïve, non-exhausted T-cell subsets with fewer regulatory T cells will achieve durable CAR-mediated persistence, and consequently, clinical outcomes. Investigating central memory and stem cell memory populations may also prove predictive. Although, if exhaustion features do not directly correlate with outcomes, results will clarify characteristics of successful apheresis products and ideally, identify additional biomarkers, such as Treg or memory T-cell presence, in a diverse, multi-institutional, real-world setting.

CONCLUSIONS: The biologic features of T cells that determine persistence, immune memory, and exhaustion remain undefined–particularly in a setting outside of clinical trials. This study aims to identify T-cell properties that drive persistence or exhaustion in CD19-directed CAR T therapy for relapsed/refractory pediatric B-ALL, with the goal of guiding CAR designs tailored to potent, long-lived results. Despite strong initial responses, pediatric CAR recipients often experience relapse, leading some centers to turn to stem cell transplantation for consolidation approach. However, this is accompanied with morbidity and mortality risks. Defining biomarkers predictive of CAR persistence could guide decisions regarding transplant, hoping to improve patient outcomes. We also aim to examine how disease burden at apheresis influences these persistence outcomes.

The Relationship Between Human Motor Cortical Inhibition and Saccadic Eye Movements During Complex Reaching Tasks

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BACKGROUND: Inhibitory motor circuits are integral to eye-hand coordination and are altered in some neurological movement disorders. Prior work suggests inhibitory mechanisms are differentially engaged with increasing task complexity, but individual differences in inhibition and coordinated movement are unknown. Understanding this link could clarify how inhibitory processes shape eye-hand coordination and inform rehabilitation strategies.

METHODS: Eye and hand movements were recorded as participants performed right-arm obstacle-avoidance reaching tasks using a robotic manipulandum with integrated eye tracking. Movements were performed in either high (Non-Cued) or low (Cued) task complexity conditions. In a separate session, paired-pulse transcranial magnetic stimulation (TMS) was used to measure interhemispheric inhibition (IHI) and cortical silent period (CSP). Repeated-measures ANOVA assessed the effect of task complexity on saccadic reaction times and amplitude, and Pearson correlations examined relationships between IHI, CSP, and saccadic performance.

RESULTS: Participants with <50% of trials with identifiable saccades were excluded, leaving a final sample of 22 participants. Saccadic reaction times did not differ significantly between Cued and Non-Cued conditions ($F(1,21)=2.38$, $p=0.138$). Task complexity influenced the association between IHI and saccadic reaction times: more IHI was significantly correlated with shorter reaction times in the Non-Cued condition ($r=0.53$, $p=0.04$), but not in the Cued condition. Longer CSP durations were associated with smaller saccadic amplitudes in the Non-Cued ($r=-0.70$, $p<0.001$) but not the Cued ($r=-0.12$, $p=0.67$) condition.

CONCLUSION: Though overall saccadic reaction times were not significantly affected by task complexity, task complexity modulated the relationship between inhibition and saccadic performance. This suggests inhibitory influence on saccadic eye movements depends on task complexity. Future research prioritizing eye tracking as a primary variable may yield additional insights into oculomotor-inhibition relationships.

Leveraging AI for Systematic Meta-Analysis of Arachnoid Cysts: Incidence, Clinical Outcomes, and Retrospective Imaging Review

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BACKGROUND: Arachnoid cysts are cerebrospinal fluid–filled sacs frequently detected incidentally on neuroimaging. While generally considered benign, their true prevalence, natural history, and clinical relevance remain poorly defined. Prior studies have been limited by retrospective symptomatic cohorts, introducing selection bias and underestimating asymptomatic cases. This project combines a 20-year AI-assisted systematic meta-analysis of the literature with a 30-year institutional imaging review to provide a more accurate epidemiologic profile and identify factors influencing clinical outcomes.

METHODS: PubMed and Embase were searched (English, human subjects, excluding prior systematic reviews) with manual screening and LLaMA 3.3–assisted filtering, reducing > 2,000 citations to ~ 200 candidates for full-text review. Extracted variables include incidence, demographics, cyst location and size, symptom status, and treatment history. Retrospective review of NYU Langone imaging records (1995–2025) will identify patients with and without cysts, enabling estimation of true prevalence and evaluation of outcome patterns. Planned analyses will synthesize pooled estimates, assess between-study variability, and explore associations between cyst or patient characteristics and clinical endpoints.

RESULTS: Data extraction and quality assessment are ongoing. Final analyses will report pooled incidence and symptom prevalence, subgroup results by demographic and radiographic features, and factors associated with symptom development or surgical intervention.

CONCLUSION: This AI-driven approach addresses the inefficiency and subjectivity of manual reviews, producing a scalable, reproducible framework for neurosurgical epidemiology. The combination of large-scale literature synthesis and comprehensive institutional imaging data has the potential to refine prevalence estimates, guide diagnostic thresholds, and shape evidence-based management strategies for arachnoid cysts and other neurosurgical conditions.

Decoding Brain Tumors: Multimodal TabNet Integration for Classification, MGMT Status Prediction, and Cross-Institutional Validation

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BACKGROUND: Accurate brain tumor classification and molecular profiling, such as MGMT promoter methylation status, are essential for treatment planning and prognostication. While most AI models focus on single data modalities, clinical decision-making integrates diverse information sources. Multimodal AI systems capable of combining clinical, molecular, and imaging data may offer superior predictive performance and greater clinical utility.

METHODS: We retrospectively analyzed patients with histopathologically confirmed brain tumors treated at NYU Langone Health. Feature sets included: (1) clinical only, (2) molecular only, (3) imaging only (pretrained ConvNext-derived embeddings), and (4) multimodal combinations. Prediction tasks included tumor grade classification, MGMT promoter methylation status, and mortality at 6, 12, and 24 months. TabNet served as the primary model, leveraging attention-based feature selection for tabular integration, with a support vector machine (SVM) as baseline. Feature dimensionality was assessed for its impact on model performance.

RESULTS: Preliminary experiments using NYU data showed promising performance for MGMT methylation prediction and tumor grade classification, particularly with multimodal inputs. Planned validation will span 5–6 institutions and thousands of patients, with NYU data split 75:25 for training/validation and external institutional datasets reserved for independent testing.

CONCLUSIONS: Early findings suggest that multimodal integration with TabNet can provide clinically meaningful predictions in neuro-oncology. The planned multi-institutional validation will assess generalizability, clarify the role of feature dimensionality, and inform task-specific multimodal strategies. These results aim to guide development of accurate, interpretable, and scalable AI decision support tools for diverse clinical settings.

Retrospective Preliminary Analysis of Bimatoprost Implant Placement in Anterior Chamber Versus Ciliary Sulcus

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BACKGROUND: Open-angle glaucoma management relies on sustained IOP reduction through topical medications, but real-world effectiveness is limited by patient adherence. Intracameral bimatoprost implants offer continuous drug delivery while reducing patient burden, though long-term data remain limited. Previous studies reported corneal endothelial complications with anterior chamber placement, prompting investigation of alternative placement in the ciliary sulcus.

METHODS: Retrospective cohort study of 33 patients (76 eyes) with open-angle glaucoma or ocular hypertension receiving single bimatoprost implants (11 anterior chamber, 65 ciliary sulcus). Primary endpoint: time to additional topical IOP-lowering intervention. Secondary endpoints: mean medication reduction and proportion avoiding additional intervention at 3, 6, 12, 18, and 24 months. Kaplan-Meier survival analysis performed.

RESULTS: Patients averaged 74.5±8.9 years with heavily treated disease (baseline: 2.41±1.13 medications, IOP 18.7±5.0 mmHg). Ciliary sulcus eyes (n=65): medications decreased 20% from 2.42±1.12 to 1.93±1.21 at 24 months; the medication-free proportion increased from 6% to 27%. Anterior chamber eyes (n=11): medications decreased minimally from 2.36±1.29 to 2.33±0.84; the medication-free proportion was 17% at 24 months. IOP remained stable in both groups (CS: 18.6→19.5 mmHg; AC: 19.5→15.4 mmHg). No corneal complications occurred.

CONCLUSIONS: Both placement techniques provided sustained medication reduction and IOP control over 24 months. Ciliary sulcus placement achieved comparable efficacy to anterior chamber placement with a maintained safety profile.

Linking Perfusion Imaging and Tumor Biology: Histological Correlates of Arterial Spin Labeling in Recurrent Glioblastoma

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BACKGROUND: Glioblastoma (GBM) is the most common and recurrent malignancy of the central nervous system. Additionally, arterial spin labeling (ASL) is a new imaging modality that has been theorized to highlight regions of high vascularity, but the molecular features of ASL high regions (positive) and ASL low regions (negative) remain underexplored. If there is histological evidence that ASL+ regions highlight areas of recurrent tumor with greater vascularization or proliferation, physicians could use ASL to guide gross total resection (GTR) of GBM to potentially improve patient outcomes/survival.

METHODS: Four patients with recurrent GBM who underwent ASL imaging and re-resection (March 2024 to March 2025) were analyzed. ASL+ and ASL– tumor samples were stained for CD163, MIB-1, and ERG, and the resulting slides were analyzed in Qupath, an open-source software for digital pathology image analysis. The percent of positive cells for each slide was calculated. Finally, two-sample t-tests compared ASL+ vs. ASL– regions for each stain.

RESULTS: Across 24 samples, the mean MIB-1 index (tumor cell proliferation) was 28.83% in ASL+ regions compared to 20.07% in ASL– regions. The ERG staining (endothelial cell and vascularization marker) averaged 3.59% in ASL+ regions and 6.16% in ASL- regions. Finally, CD163 levels (macrophage infiltration) averaged 62.20% in ASL+ regions compared to 57.78% in ASL- regions. Although bivariate analysis determined no differences were statistically significant between the ASL positive and negative samples in these patients ($p>0.05$), trends emerged in this study that may reach significance with larger cohorts.

CONCLUSIONS: In this small series, ASL high regions of recurrent GBM showed more tumor cell proliferation (MIB-1) and macrophage infiltration (CD163), with inconsistent vascularization (ERG) trends. Therefore, ASL imaging may be utilized as a novel surgical planning tool to optimize GTR for GBM patients and improve patient outcomes.

Impact of PDSA Cycles in Decreasing False Penicillin Allergy Labels in Pediatric Populations Within a Health System Quality Improvement Project

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BACKGROUND: Up to 95% of pediatric penicillin allergy labels are inaccurate, leading to resistance, adverse drug reactions, and higher costs. This study evaluated provider-driven Plan Do Study Act (PDSA) cycles tailored to clinic workflows, comparing results within a health system quality improvement initiative to identify high-impact interventions and factors for successful quality improvement.

METHODS: Baseline data was collected retrospectively via EMR and monthly audits tracked prevalence and detail of allergy histories, with results plotted in run charts to assess trends after interventions. Participating providers from outpatient pediatric clinics developed 2 different individualized PDSA cycles guided by individualized key driver diagrams. PDSA details including challenges and successes were collected via survey. The primary outcome measure was penicillin allergy rate (PAR).

RESULTS: Baseline median PAR was 7.2%, detailed allergy rate 47%. By the end of the 5-month intervention period PAR was 4.6% and detailed allergy rate 85% of 7.2%, 44 patients were de-labeled by history alone and 197 patients were identified as eligible for oral challenge. Successful PDSA cycles fell into three categories: staff involvement in patient flagging, standardized history documentation and family education.

CONCLUSION: This project identified effective change ideas that lead to increased detailed allergy histories with subsequent drop in the PAR among outpatient pediatric patients within a health system quality improvement initiative. Sample PDSA cycles were created based on these themes for a future QI toolkit.

Addressing Psychological Burden in Patients Newly Diagnosed with Lymphoma or Myeloma: Patient Perspectives on Potential Interventions

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BACKGROUND: Over half of patients newly diagnosed with lymphoma or myeloma experience clinically significant anxiety or depression, impairing quality of life. Despite this fact, data on patient perspectives regarding psychological interventions are limited.

METHODS: We surveyed lymphoma or myeloma patients ≥18 years old and ≤ 6 months from their diagnosis at a tertiary cancer center (07/2021-09/2022) on the value of 5 emotional coping interventions: Peer support from other patients, Group support, Therapist, Self-directed online programs, and Meditation apps. We categorized responses of "moderately to extremely helpful" as high value. We used multivariable logistic regression models to assess associations of factors with perceived value for each intervention.

RESULTS: Of 267 patients approached, 200 responded (75%); 191 completed all items. Over half (59%) reported clinically significant anxiety and/or depression, with 54% meeting the cut-off for anxiety symptoms alone, and 28% for depression symptoms alone. Peer support had the highest perceived value for promoting emotional coping (75%), followed by self-directed online programs (68%), group support and therapists (both 62%), and meditation apps (41%). Having anxiety and/or depression symptoms, being single, and higher social support were associated with increased odds of valuing peer support. Anxiety/depression symptoms were also associated with valuing therapists while older age, single status, and higher self-stigma were associated with lower odds of valuing therapists. Higher self-stigma also reduced odds of valuing self-directed online programs and group support.

CONCLUSION: In this cohort of patients with newly diagnosed lymphoma or myeloma, we observed strong interest in interventions to promote emotional coping. Peer support was the most highly valued, supporting its integration into routine care. Self-stigma emerged as a consistent barrier, warranting targeted efforts to reduce stigma in this population.

How does place of residence affect stroke risk factors and outcomes? A single site retrospective analysis.

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BACKGROUND: Stroke is a leading cause of death in the southeastern United States, with Georgia in the heart of the "stroke belt." Modifiable and non-modifiable factors contribute to stroke incidence and outcomes. Residence may influence risk: high social vulnerability and greater distance from a hospital have been linked to worse outcomes, but their relative impact is unclear. We conducted a retrospective analysis of ischemic stroke patients at Piedmont Athens Regional (PAR) hospital, which serves communities with varying social vulnerability and distances from care.

METHODS: We reviewed charts of patients admitted to PAR from 2019–2022 with confirmed ischemic stroke and known residence (N = 200). Residence was used to calculate distance from PAR and Social Vulnerability Index (SVI). Patients were grouped by distance (Near/Far) and SVI (High/Low). Prevalence of risk factors (e.g., hypertension, diabetes) and outcomes (e.g., NIH Stroke Scale at discharge) were compared using chi-squared tests and one-way ANOVA.

RESULTS: Hypertension prevalence differed across groups with a suggestive trend, though not statistically significant ($\chi^2 = 6.4$, $p = 0.09$). Patients in high SVI areas showed higher rates, particularly those close to the hospital and, to a lesser extent, those farther away. Discharge NIHSS scores also showed a non-significant group difference ($F = 1.72$, $p = 0.168$), but patients from high SVI areas close to the hospital had lower scores, reflecting better outcomes, while low SVI/close patients had the highest scores. No other outcomes or risk factors showed meaningful trends.

CONCLUSION: Although discharge NIHSS differences were not significant, patients from high SVI areas near the hospital tended to have better scores, while low SVI/near patients had the highest scores. This may reflect earlier discharge or outpatient care of milder low-SVI cases, leaving a relatively higher-severity cohort.

Regional Brain Oxygen Extraction Fraction in Female Late Midlife and Older Adults: Age-Adjusted Analyses in the Boston Puerto Rican Health Study

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BACKGROUND: Oxygen extraction fraction (OEF) reflects cerebral oxygen supply–demand balance. MRI methods (e.g., TRUST, qBOLD, hybrid QSM+qBOLD "QQ") show reasonable agreement with 15O-PET and detect vascular contributions to brain aging. Prior studies report modest age-related OEF increases and elevations with vascular risk..

METHODS: We analyzed voxel-wise OEF maps from 197 women (57.5–92.8 y) in the Boston Puerto Rican Health Study, summarizing 94 cortical/subcortical regions. Linear regressions related OEF to age and vascular/metabolic covariates. To test potential menopause-related thresholds, models included binary indicators and splines at ages 50, 52, 54, 56 y. P-values were FDR-adjusted (two-stage Benjamini–Krieger–Yekutieli, α=0.05). Because all participants were ≥56 and menopause age was unavailable, thresholds represent re-parameterized age effects. Analyses used Python (pandas, statsmodels).

RESULTS: Baseline models showed mostly negative age slopes (median −8.97 units/year; IQR −11.42 to −6.68), with 22/94 regions $p<0.05$ (uncorrected). Largest declines occurred in ventricular and white-matter-adjacent regions (e.g., left inferior lateral ventricle −20.39 units/year, $p\approx0.011$). R^2 values were small. In threshold models, all 94 regions were significant after FDR correction for both binary and spline terms at each cutoff. Binary effects averaged +1,503 units (range +288 to +2,193), largest in ventricular/choroid plexus, white matter, and temporal cortices; spline post-threshold slopes differed by −54 to −60 units/year.

CONCLUSION: Findings contrast with literature showing small positive age–OEF associations and vascular-risk-related increases. Strongest effects were in ventricular/choroid-plexus and white-matter-adjacent parcels, suggesting possible partial-volume/modeling influences. Given all participants were ≥56, results reflect female aging rather than menopause per se. OEF MRI remains a sensitive but method-dependent marker of cerebrovascular aging; studies spanning broader ages with physiologic controls and PET validation are needed.

Unmasking Hidden Concussion Deficits: Using Saccadic Eye Movements as Biomarkers for Concussion

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BACKGROUND: Concussions can cause lasting neurophysiological changes, even after clinical recovery, leading to impaired motor performance and increasing injury risk. Subtle deficits, such as impaired smooth pursuit and saccadic eye movements, may persist undetected. These oculomotor biomarkers, assessed in sport-like conditions, could improve diagnosis, track recovery, and guide targeted interventions for better outcomes post-concussion.

METHODS: Neurologically healthy adults without a history of concussion ($N = 27$) and adults who recently sustained a concussion ($N = 4$) (3–6 months post-injury) completed right-arm obstacle-avoidance reaching tasks on a robotic manipulandum with integrated eye tracking. Task complexity was varied across blocks by either providing a visual representation of the optimal path (Cued) or not (Non-Cued). Saccadic and arm reaction times were recorded and analyzed with between-subjects, repeated-measures ANOVA and correlation analyses.

RESULTS: Due to insufficient eye tracking data 14 participants (13 healthy, 1 concussion) were excluded. There were no group or condition differences in saccadic and hand reaction times (p's > 0.10). However, there was a trend such that the concussion group exhibited a greater eye–hand movement lag in the Non-Cued (N) than the Cued (C), while healthy controls showed no significant difference. Interestingly, in the concussion group, saccadic and hand reaction times were negatively correlated in the C condition ($r = -.247$, $p = 0.010$) and positively correlated in the N condition ($r = .259$, $p = 0.011$), with no significant correlations in the healthy group ($p's > 0.05$).

CONCLUSION: These findings suggest that subtle differences in eye–hand coordination may persist after clinical recovery from concussion, particularly under higher task complexity. Saccadic eye movement analysis, alongside arm reaction time measures, may provide a sensitive biomarker to detect lasting neurophysiological impairments post-mTBI.

Neuropsychiatric and Imaging Correlates to Impulse Control in Parkinson Disease (PD) Patients

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BACKGROUND: Although Parkinson Disease (PD) is traditionally considered a movement disorder, there are several non-motor symptoms that can be debilitating, one of which includes impulse control disorders (ICD). This project aims to investigate correlations between neuropsychiatric measures and imaging measures such as volumetric and thickness measures of the frontal lobe, which plays a key role in decision making in PD patients with ICD.

METHODS: Patients with documented PD-ICD were selected from the Emory Movement Disorder clinic database. MRI segmentation and analysis were conducted to obtain thickness and volumetric measures of different areas of the frontal lobe using CAT12 software. Neuropsychiatric measures, including Trail Making Test (TMT) part B errors and Wisconsin Card Sorting Test (WCST) perseveration error, were correlated with imaging measures using a Spearman two-tailed test.

RESULTS: 34 PD-ICD patients were selected. Higher WCST perseverative errors ($n=11$) correlated with lower superior frontal gyri (SFG) thickness ($p=0.008$), and middle frontal gyri (MFG) volume ($p<0.001$). Higher TMT errors ($n=22$) correlated with lower MFG ($p=0.046$) and orbitofrontal gyri (OFG) thickness ($p=0.005$), as well as lower MFG ($p=0.024$), OFG ($p=0.005$), and inferior frontal gyri volume ($p=0.004$).

CONCLUSIONS: Frontal lobe thickness and volumetric variations correlated with performance on neuropsychiatric measures. This sheds light on the importance of the frontal lobe in ICD behavior in PD patients.

Hospital Volume and Parathyroidectomy Outcomes in Patients with Renal Hyperparathyroidism

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BACKGROUND: Secondary hyperparathyroidism exists in nearly all patients at the time of dialysis initiation. Parathyroidectomy should be considered in those with CKD stages 3-5D who have persistently elevated PTH levels (>800 pg/ml for >6 months) despite medical management. The relationship between hospital volume and surgical outcomes is well-studied, but this idea has not been studied for parathyroidectomy outcomes in ESRD patients.

METHODS: Patients who underwent parathyroidectomy were selected from the 2020-2021 HCUP NIS. Hospital volume was estimated as the number of patients who underwent the specified procedure across years included. Thyroidectomy and parathyroidectomy hospital volume were grouped by quartile. Patient demographics, facility characteristics, and outcomes were summarized with N(%) for categorical variables and median/IQR for continuous variables. Groups were compared with chi-square/Fisher's exact tests for categorical variables and t-tests for continuous variables.

RESULTS: Following appropriate exclusion criteria, 1495 patients underwent parathyroidectomy from 2020-2021 (1034 non-renal, 461 renal). Renal patients experienced more post-operative hypocalcemia than non-renal patients. (31.2% vs 7%, $p<0.001$), whereas non-renal patients had more vocal cord paralysis than renal patients (1.5% vs 0.2%, $p<0.03$). When stratifying for thyroidectomy volume, no significant differences in postoperative complications were noted. When stratifying for parathyroidectomy volume, the 4th quartile had more wound infections than all other quartiles in non-renal patients (2.1% of patients, $p<0.001$). No significant differences were found for renal patients based on parathyroidectomy volume.

CONCLUSION: These data suggest that hospital volume is not a large contributor to parathyroidectomy outcomes for patients with renal hyperparathyroidism. Further work is needed to elucidate whether surgeon volume impacts parathyroidectomy outcomes in this population.

Evaluating The Clinical Utility of Thin Cut Axial Proton Density Fat-Saturated (PDFS) MRI for Diagnosis of Meniscal Tears

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BACKGROUND: Meniscal tears are common injuries, affecting patients ranging from young athletes to the elderly. MRI is the gold standard imaging modality in the diagnosis and pre-operative planning in the management of meniscal pathology. Standard MRI utilizes a 3 mm slice thickness in the knee MRI protocol. Our institution has implemented a novel MRI technique utilizing thin cut (1 mm) axial PDFS imaging, to potentially improve diagnosis and pre-surgical planning. Our aim is to provide a proof-of-concept study to introduce the technique for the diagnosis and pre-operative planning for meniscal tears.

METHODS: A retrospective review was conducted of 55 patients who underwent thin cut (1 mm) axial PDFS knee MRI and subsequent arthroscopy between Oct. 2023 and Jan. 2025. Only patients with meniscal pathology on MRI or during arthroscopy were included. All MR imaging interpretations were conducted by eight musculoskeletal fellowship trained radiologists. All knee arthroscopies were performed by the same surgeon. Intraoperative findings were compared to MRI reports to assess for intra-operative agreement.

RESULTS: Fifty-five patients (40 male, 15 female) met inclusion criteria. Mean years of age was 38.7 (SD 17.6). Medial meniscal compartment was the most involved, with 36 patients (65.5%) having medial meniscus tears. Other knee pathology was present in 52 patients (94.5%).The most common pathology found alongside meniscal tears was ACL tear which was noted in 14 patients (25.5%). Mean days to arthroscopy from the time of the scan was 46 days (SD 55.8) for all patients. Interoperative agreement was found to be 94.5% (52/55).

CONCLUSION: Thin cut imaging demonstrated high intraoperative agreement and may offer improved diagnostic interpretation in meniscal pathology. These findings suggest that thin-cut axial PDFS MRI may be a valuable adjunct in preoperative planning for meniscal pathology and may contribute to more precise, preservation-focused surgical decision making.

Impact of Myomectomy on Fertility & Pregnancy Outcomes

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BACKGROUND: Uterine leiomyomas, or fibroids, are known to be the most common solid neoplasm in women, exhibiting a cumulative incidence of 70% in women of reproductive age. Depending on fibroid characteristics, significant changes to the uterus can occur. It is estimated that fibroids are associated with 10% of infertility cases and are the only identifiable cause of infertility in 1-3% of cases. Guidelines currently suggest myomectomy as the preferred treatment for women with fibroids desiring future fertility. Recent data, however, suggests that there is limited evidence to support the use of myomectomy to treat infertility in women with fibroids.

METHODS: A total of 190 patients were included in this retrospective study at a single academic center. Inclusion criteria included surgical history of myomectomy between 2012-2024 and age of <51 years. Data pertaining to obstetrics history and fertility intent was analyzed. Clinical pregnancy rate was designated as the primary outcome, while pregnancy outcome and method of conception were designated as secondary outcomes.

RESULTS: Of the 190 patients analyzed, 33% had a chief concern of infertility. Eighteen patients (9.5%) became pregnant post-myomectomy. Twenty total pregnancies were reported: 55% resulted in live birth, 30% in abortion, and 15% in unknown outcomes. Of note, 61% of patients who became pregnant presented with a chief concern of infertility. Spontaneous conception accounted for 50% of cases, assisted reproductive technology (ART) for 30%, and intrauterine insemination (IUI) for 20%.

CONCLUSIONS: These results demonstrate that while myomectomy may improve symptoms of infertility for some women, further research is needed to assess individual characteristics that predict greatest success. Furthermore, symptoms that affect quality of life rather than infertility seem to be more pertinent to patients with fibroids.

MRI vs. frozen section for parotid tumors: ability to predict high grade malignancy and need for neck dissection

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BACKGROUND: Parotid gland cancer is a rare subset of head and neck malignancies, comprising 23 distinct histopathological types, each with varying pathological grades. Treatment strategies differ significantly between high-grade and low-to-intermediate-grade tumors, making accurate classification essential for optimal management. Preoperative diagnosis typically relies on fine-needle aspiration cytology (FNA) and imaging, particularly MRI; however, distinguishing tumor grade remains challenging. This project aims to evaluate the accuracy of MRI in diagnosing high-grade parotid gland carcinoma without the need for FNA biopsy.

METHODS: A retrospective cohort of 315 patients who underwent parotidectomy at Emory University Hospital between 2015 and 2025 was analyzed. Only patients who had a preoperative MRI interpreted by Emory neuroradiologists were included. For each case, preoperative MRI interpretations, fine-needle aspiration (FNA) results (if available), and intraoperative frozen section biopsy (FSB) findings were collected.

RESULTS: After excluding patients with malignancy other than parotid cancer, those without a preoperative MRI reviewed by Emory, and those who underwent parotidectomy for reasons other than parotid cancer, the final cohort included 44 patients. Out of this cohort 83.3% had the correct diagnosis with high grade parotid gland cancer based on MRI. 52.9% had the correct diagnosis with high grade parotid gland cancer based on FNA. 72.7% had the correct diagnosis with high grade parotid gland cancer based on FSB.

CONCLUSION: These findings support the potential development of a diagnostic model for high-grade parotid gland cancer that may eliminate the need for FNA biopsy, with greater emphasis on MRI as the primary diagnostic tool.

Devils Syndesmosis Rules: New Criteria for Judging Surgical Necessity and Urgency in Syndesmotic Injury

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BACKGROUND: There is a gap in the literature on if and when high level athletes should get early surgery for a syndesmotic injury (SI). This study aims to combine established measures of SI severity and name the Devils Syndesmosis Rules (DSR) that can be applied to a workflow that judges surgical necessity and urgency.

METHODS: A previous systematic review of MRI findings of syndesmotic injury severity identified four signs: Proximal migration of distal tibial joint effusion (DTJE), Ring of Fire (ROF) sign, and joint space at 1cm and 2cm. ROC curve analysis was used to find the optimal cutoff values in a criteria involving DTJE, JS at 1cm, and ROF that would best predict if a patient needed surgery. Patients in the surgery group were then split into urgent cases and non-urgent cases. Another ROC curve analysis identified the ideal cutoffs for assessing surgical urgency.

RESULTS: After exclusion criteria were applied, the 4 measurements were made on 75 patients whose SI was surgically repaired and 79 patients who had SI noted on an MRI but successfully treated conservatively. ROC curve analysis found DTJE ≥17.0 mm OR JS at 1cm ≥3.60 mm OR +ROF had a sensitivity of 95% for identifying surgical cases. For those picked for surgery, a second ROC curve analysis found DTJE ≥19.4 mm AND +ROF had a sensitivity of 80% and a specificity of 89% (AUC=0.84) for identifying those that required urgent surgery.

CONCLUSION: This study outlines a new set of optimized criteria for identifying surgical necessity and urgency in SI. The high sensitivity of the DSR ensures few missed patients while most false positives can be filtered out with clinical judgement and patient goals. Similarly, the high sensitivity of the DSR's urgency assessment ensures athletes that need surgery quickly are identified and can return to play sooner with few false positives. This is a particularly important consideration in elite athletes who benefit from expedited treatment decisions.

First-Line Potential of AVEIR™ AR in Sinus Node Dysfunction: A Retrospective Comparison

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BACKGROUND: Sinus node dysfunction (SND) is rarely treated with single-chamber transvenous pacemakers (TVPM) due to potential progression to atrioventricular (AV) block, which could necessitate lead revision and increase procedural risks. AVEIR™ AR is a novel single-chamber leadless pacemaker (LP) that mitigates these risks and enables a stepwise approach, starting with atrial-only LP implantation and adding a subsequent ventricular LP only if needed. No studies have directly compared AVEIR™ AR with transvenous systems in patients with SND.

METHODS: This retrospective cohort study included patients with SND as the primary pacing indication who underwent first-time pacemaker implantation with AVEIR™ AR ($n = 17$, mean follow-up 248 days) or Assurity MRI™, a dual-chamber TVPM ($n = 18$, mean follow-up 60 days). Procedural metrics, fluoroscopy time, upgrade to a subsequent pacemaker, and baseline characteristics were recorded, along with total time spent in hospital for non-admitted outpatients. Categorical and continuous variables were compared between cohorts using 'N-1' Chi-squared test and Welch's t-test, respectively.

RESULTS: The AVEIR™ AR cohort was younger, with a mean age of 70 years compared to 76 years in the Assurity MRI™ cohort ($P = 0.043$). AVEIR™ AR implantation had significantly shorter procedure times (mean difference -9.1 minutes, $P < 0.001$) and fluoroscopy times (mean difference -2.4 minutes, $P = 0.007$). No significant difference was found in preparation or turnover time. Among outpatients, the total time in hospital for AVEIR™ AR patients was significantly shorter (mean difference -20.3 hours, $P < 0.001$). 1 of 17 patients (5.9%) with AVEIR™ AR required upgrade to a dual-chamber system.

CONCLUSION: AVEIR™ AR is procedurally quicker, involves less fluoroscopy time, and results in a shorter hospital stay compared to TVPM, with a low rate of subsequent upgrade. These findings support its feasibility as a first-line pacing strategy for patients with SND.

Pregnancy Outcomes After Myomectomy: Role of Fibroid Characteristics and Fertility Intent

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BACKGROUND: Uterine fibroids are the most common benign pelvic tumor in U.S. women, affecting >80% of Black women and ~70% of White women by age 50. They are found in up to 10% of infertile patients and are the sole cause in 1-3%, especially when submucosal lesions distort the uterine cavity. Myomectomy is a standard fertility-preserving treatment, but it is unclear which patient or fibroid characteristics predict pregnancy after surgery. Identifying these factors could improve counseling and guide individualized fertility planning.

METHODS: We retrospectively reviewed 193 patients <51 years old undergoing myomectomy at a single academic center. Data included demographics, fibroid number, location, maximum size, surgical route, and fertility intent. The primary outcome was postoperative pregnancy rates; secondary outcomes were live birth, abortion, and complication rates. Multivariable logistic regression assessed predictors.

RESULTS: Mean age was 37.1 years, mean BMI 31.7 kg/m²; 80% were Black. Mean fibroid number was 5.4, mean size 8.3 cm. Eighteen patients (9.3%) became pregnant, with 55.6% live births, 33.3% abortions, and 5.6% unknown outcomes. Greater fibroid number predicted higher pregnancy odds (OR 1.07, 95% CI 1.00–1.14, p=0.044). Age trended inversely (OR 0.89, 95% CI 0.79–1.00, p=0.059), infertility complaint trended positively (OR 2.54, 95% CI 0.78–8.25, p=0.122), and race was significant (OR 0.28, 95% CI 0.08–0.98, p=0.046). BMI, fibroid size, and surgical type were not predictive.

CONCLUSION: In this cohort, postoperative pregnancy was uncommon but more likely with greater fibroid burden. Age, fertility intent, and race showed notable associations, underscoring the need for larger, diverse studies to guide counseling. Additional data collection would improve the ability to characterize the patient population of this study.

Can Growth Hormone be used as a therapeutic agent to Mitigate the Clinical Manifestations of Mild Traumatic Brain Injury in the Eye?

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BACKGROUND: Mild Traumatic Brain Injury (mTBI) causes a range of effects on the brain and eye. After immediate mechanical destruction, long term injury develops over the course of weeks to years due to metabolic, cellular, and molecular cascades. These lead to brain cell death, tissue damage, and atrophy. Growth Hormone has shown promise in slowing the degeneration of neural tissue in neurodegenerative disease. The project aims to investigate the effects of Growth Hormone on the Eye in hopes that it will slow that degeneration post mTBI.

METHODS: Male mice are subjected to open skull TBI. A portion of the TBI mice are treated with daily subcutaneous injections of GHRH 7,14 days ,1, 3 months post-TBI, all mice and retinas are analyzed to measure intraocular pressure (IOP), retinal morphology, reactive) and oxidative stress.

RESULTS: We observed a significant increase in IOP seven days after TBI in comparison to sham and control mice. MR-409 treatment did not correct the increase in IOP after injury. Morphological analyses revealed modest changes in TBI mice retinas as compared to sham, TBI+MR-409 or control untreated mice. Immunohistochemistry and immunoblot showed a significant increase in glial fibrillary acidic protein (GFAP) in TBI mice retinas as compared to sham and control. In TBI+MR-409 group we found a significant decrease in GFAP as compared to the TBI group. Moreover, we observed a significant increase in immunoreactivity of the lipid peroxide 4-HNE in TBI-mice retinas that was decreased by the treatment with the MR-409.

CONCLUSIONS: Our data agree with previous work showing increased reactive gliosis (GFAP) and oxidative stress (4-HNE) characterizing the short-term effects of TBI on retina. Our results provide further new information on the potential protective effects of GHRH agonistic analogs to prevent retinal inflammation and oxidative stress post-TBI despite the elevated IOP.

Anti-Inflammatory Role of Lower-Dose Radiation Therapy for Refractory Erosive Pustular Dermatosis of the Scalp

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BACKGROUND: Erosive pustular dermatosis of the scalp (EPDS) is a rare inflammatory disorder of sun-damaged scalp in elderly patients, marked by recurrent erosions, crusting, and pustules that cause scarring alopecia and can mimic squamous cell carcinoma, Brunsting-Perry-type cicatricial pemphigoid, or folliculitis decalvans. While the exact pathogenesis is unknown, EPDS has been associated with trauma, actinic damage, immunosenescence, and autoimmune diseases. It is often preceded by an iatrogenic insult such as surgery, cryotherapy, radiation therapy, or falls. Although EPDS may result following radiation therapy, we report on the novel finding that lower-dose radiation therapy may reduce inflammation in refractory EPDS and serve as a potential therapeutic option.

METHODS: Radiation therapy was initiated using CT-guided Volumetric Modulated Arc Therapy, combined with an en-face electron technique, at variable dosages for cases that were refractory to standard dermatologic management, such as potent topical corticosteroids and others. Clinical pictures and symptomatic data were taken at multiple time points for each dosage.

RESULTS: Treatment with 24Gy, 36Gy, and 55Gy over multiple sessions all resulted in notable symptomatic and clinical improvement in central scalp dermatosis within 1 month. No recurrence of scalp inflammation occurred across patient types.

CONCLUSION: While management of refractory cases includes solutions of vitamin A derivatives, calcipotriol, dapsone, and tacrolimus, our results suggest that lower-dose radiation therapy may have anti-inflammatory effects on dermatological conditions in addition to being clinically and symptomatically effective. This is consistent with lower-dose radiation therapy in our lab's previous use in COVID-19. We further compare variable clinical manifestations, pathophysiology, and management of EPDS and suggest lower-dose superficial radiation therapy as an alternative for refractory EPDS on a case-by-case basis.

A novel surgical technique outcome summary and radiographic identification of discoid lateral meniscus with severe posterolateral degenerative tearing

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BACKGROUND: Discoid lateral meniscus (DLM) is a rare, severe degenerative tearing of posterolateral tissue, often mistaken on MRI for a bucket-handle lateral meniscus tear. An alternative to subtotal meniscectomy is a novel technique of transferring the intact anteromedial tissue posterolaterally with meniscocapsular repair. The natural history and clinical outcomes of this 'meniscoplasty', have not been well investigated.

METHODS: This retrospective case series of patients <21 years-old who underwent 'meniscoplasty' for DLM with severe, degenerative posterolateral tears or meniscal deficiency at the study institution from 1/1/15 to 10/1/24, with minimum of 9 months of clinical follow-up.

RESULTS: 13 patients (mean age, 9.6 years) met study criteria. Concomitant surgeries were performed in 4 patients, including arthroscopic drilling of a lateral femoral condyle (LFC) osteochondritis dissecans (OCD) in 2 patients and implant-mediated guided-growth procedures (IM-GG) for ipsilateral genu valgum in 2 patients. Radiographic reads of MRI incorrectly identified the discoid meniscus as bucket-handle tears in 6 patients. Substantial radiographic healing was achieved LFC-OCD patients within 6 months. Malalignment correction was achieved for both IM-GG patients. Two patients underwent unexpected revision meniscectomies. All patients returned to their prior activity level and/or sports (RTS) at a mean of 6.4 months.

CONCLUSION: Posterolateral degeneration in DLM is a rare presentation in children, with higher associations with genu valgum and LFC OCD than seen in the larger DLM population. The incorrect MRI reading leaves the surgeon poorly prepared to handle the complex degeneration and tearing. Discoid meniscus reconstruction, a novel technique of meniscoplasty, transfer, and repair, showed favorable short-term results, with high rate of RTS low rates (2 patients) of revision meniscus surgery in the current series.

Antiplatelet Usage – Time to Brain Metastasis Development and Overall Brain Metastasis Progression in Breast Cancer Patients

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BACKGROUND: Breast cancer is the second leading cause of cancer death in American women. Approximately 30% of women diagnosed with early-stage breast cancer develop metastases. Previous studies have shown that longer term use of aspirin and other antiplatelet therapies (APT) is associated with decreased rates of distant metastasis and death. Correlating APT and time to brain metastasis development and overall brain metastasis progression in breast cancer patients may decrease mortality and morbidity in this patient population.

METHODS: We identified a cohort of 122 patients diagnosed with primary breast cancer from 1999-2024 and subsequent brain metastases from 2006-2024. Five patients were excluded due to diagnosis of brain metastases without known breast cancer diagnosis. Date of breast cancer diagnosis, date of brain metastasis diagnosis, number and size of brain metastases were recorded for all patients. The cohort of 117 patients had 23 patients on APT and 94 not on any APT. 15 of these 23 started APT after brain metastasis diagnosis and were excluded. For patients on APT, dose, indication for treatment, and date of medication initiation was recorded.

RESULTS: Univariate analysis compared APT and non-APT patients. Differences between time to brain metastasis (defined as the difference in months between dates of primary breast cancer diagnosis and brain metastasis diagnosis) was not significant ($p=0.40$). Differences between size and number of brain metastases were also not significant ($p=0.66$ and $p=0.25$, respectively). Additional data collection is underway by other researchers.

CONCLUSION: These data are not able to establish a relationship between APT use and time to brain metastasis development and progression in breast cancer patients. This may be attributed, in part, to the small sample size of patients on APT. With continued data collection, we expect to see this sample size increase, which may lead to significance between APT and non-APT groups.

Risk of Postpartum Venous Thromboembolism after Cesarean Delivery in the United States using Caprini Model

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BACKGROUND: Cesarean delivery increases the risk of postpartum venous thromboembolism (VTE) approximately fourfold compared to vaginal delivery. The postpartum period accounts for nearly half of VTE events in pregnancy, yet prophylaxis guidelines remain inconsistent. The Caprini Risk Assessment Model (RAM) is widely used in surgical populations but has not been extensively validated in obstetrics. We aimed to describe VTE risk following cesarean delivery and assess the potential utility of the Caprini RAM in identifying high-risk patients.

METHODS: We performed a retrospective cohort study of 200 cesarean section patients from January 2012 until December 2024. Baseline characteristics included demographics, comorbidities, and obstetric factors. Caprini scores were calculated using pre-, intra-, and postpartum risk factors. Prophylaxis administration varied before and after a protocol change in June 2023. The primary outcome was VTE within six weeks post-cesarean with or without prophylaxis prescribed upon discharge. Secondary outcomes included prophylaxis administration at discharge and VTE-related readmissions. Statistical analyses included descriptive summaries and stratification by Caprini score thresholds.

RESULTS: A total of 200 patients who underwent cesarean delivery between 2012 and 2022 were identified. Prior to June 2023, 1 patient received prophylaxis, with an average Caprini score of 7.0. After June 2023, 77 patients received prophylaxis, with an average Caprini score of 4.17. One patient (0.49%) experienced a postpartum VTE within six weeks of delivery. The mean Caprini score for the cohort was 5.49 (SD 3.30). The patient with VTE had a Caprini score of 5.0, while the mean score among patients without VTE was 5.52.

CONCLUSIONS: In this preliminary analysis of 200 cesarean deliveries, postpartum VTE within six weeks of delivery occurred in 0.49% of patients. The mean Caprini score for the cohort was 5.49 (SD 3.30). The patient with VTE had a Caprini score of 5.0, while the mean score among patients without VTE was 5.52.

Prophylaxis administration protocol changed in June 2023. These findings highlight the need for further evaluation of VTE risk assessment tools in obstetric populations and the impact of institutional prophylaxis protocols on practice patterns.

Associations Between Postpartum Venous Thromboembolism and Cesarean Delivery via the RCOG Model

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BACKGROUND: Cesarean sec on (CS) is an independent risk factor for venous thromboembolism (VTE), a leading cause of maternal morbidity and mortality. The Royal College of Obstetricians and Gynecologists (RCOG) risk tool identifies pa ents at increased risk of VTE. Updates in Augusta University Medical Center standards required prophylaxis for pa ents with the appropriate criteria a er June 2023. Data on RCOG risk distributions with VTE incidence, healthcare u liza on, and patient-level risk factors remain limited in literature. This study assesses retrospective patient data and the real-world impact of VTE using the RCOG risk categories.

METHODS: Chart reviews of CS pa ents between January 2012 and December 2024 at Augusta University Medical Center were conducted, identifying pa ents diagnosed with VTE. Baseline patient demographics and comorbidities were collected according to RCOG parameters. The study assessed outcome measures for healthcare burden using the incidence of infection, other complications, and postpartum follow-ups. Categorical variables were analyzed using Chi-square tests, and descriptive statistics characterized the study population, comparing VTE and non-VTE groups.

RESULTS: Among 207 participants, one VTE event occurred (RCOG=9, 2018). Before June 2023, only 5.6% of participants, exclusively high-risk (RCOG>3), received pharmacologic VTE prophylaxis. Post guideline change, prophylaxis rates increased to 76.2% overall. Significant associations between higher RCOG risk and postpartum hemorrhage ($p=0.014$) and other complications, not including infection ($p=0.018$).

CONCLUSIONS: Higher RCOG risk scores were linked to increased postpartum hemorrhage and other complications, but not infection rates or follow-up. The guideline changes markedly increased prophylaxis uses across all risk tiers. Additional data collection is still necessary to assess VTE correlations.

Visual outcome measure for rod-mediated vision

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BACKGROUND: The increase in IRD clinical trials has grown the need for clinical outcome measures that differentiate rod and cone mediated vision. This study explores the responsiveness, validity, and longitudinal sensitivity of the Medmont Dark-Adapted Chromatic (DAC) perimeter. We hypothesized that total volume (Vtot) of rod-mediated sensitivity correlates with scotopic disability in patients with RP and that scotopic perimetry will detect significant losses in rod visual field volume over time.

METHODS: Patients with IRD (n=37, 23 female) had one eye dilated and dark-adapted for 30 minutes. Sensitivity to 625nm and 505nm stimuli (spot size V) were tested at 69 points across the central and peripheral retina. Spectral sensitivity differences defined the rod-mediated points used to calculate Vtot, V30, and rod mean sensitivity. The average age of participants was 47.29 ± 13.01 years. 23 of the 25 patients completed long-term follow-up testing with the average time between visits being 3.58 ± 1.71 years.

RESULTS: AVtot (mean 25.25 dB ± 33.03 SD) and V30 (9.91 dB ± 10.82) were significantly associated with scotopic (r = -0.5154), central (r = -0.5753), and photopic peripheral (r = -0.7673) visual disability for patients with RP (n=23). Patients with cone disease (n=5) did not have significant correlation with DAC volume and MRDQ. Stargardt disease patients (n=9) had Vtot (93.6 dB ± 23.2) with significant correlation to scotopic, central, contrast, photopic peripheral, and mesopic peripheral vision. None were associated with V30. No volumetric changes were found, but rod-mediated mean sensitivity decreased by 0.84 dB per year.

CONCLUSION: Advanced disease in the RP cohort made volumetric changes unlikely, but convergent validity was established by correlation of DAC perimetry with scotopic disability. Cross-sectional sensitivity showed differences between rod dominant and macular disease groups. Longitudinal sensitivity of detecting changes in rod function were found.

Efficacy of pro-bono genetics and neurology clinics in an under-resourced Caribbean nation

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BACKGROUND: Due to geographic isolation, small population sizes, and socioeconomic disparities, many Caribbean nations lack services for managing people with genetic disorders. It is unclear how an annual medical genetics clinic might affect communities in Caribbean nations.

METHODS: Over 10 years, we organized pro-bono medical genetics and neurology clinics 1-2 times annually. More than 250 consultations for over 180 individuals were offered after referral by local physicians. Follow-up visits were encouraged. Consented clinical samples were shared with collaborating laboratories under protocols permitting result return. Pro-bono analyses included genome sequencing (GS), exome sequencing (ES), microarrays, repeat expansion panels (for ataxia, chorea, and FXS), epigenetic methylation profiling, metabolomic profiling, and karyotyping. Consultation notes were provided to referring physicians for each patient.

RESULTS: Completed ES of 60 individuals facilitated diagnosis for 25 patients at a rate of approximately 40%, similar to reported rates in well-resourced countries. Genes with causative variants identified by ES include COL5A1, ASPM, SYNJ1, PHF8, NIPBL, ALG13, NALCN, KMT2A, TUBG1, SATB2, PAH, MECP2, EFNB1, DMAP1, KAT6B, PKD1, RFX7, and RAF1. CNV analysis of ES allowed 3 additional diagnoses. Down syndrome was confirmed in 20 other individuals by karyotype, microarray, ES CNV analysis, or methylation profiling. Repeat expansion testing confirmed Huntington disease in two extended families and identified spinocerebellar ataxia 3 (SCA3) in two other families. An additional 62 probands that had clinical consultation await analysis by ES or GS.

CONCLUSION: Despite limited availability, the occasional visits and formal consultation notes from geneticists or neurologists benefitted local physicians, patients, families, and the community. Although non-systematically obtained, parents, patients, and consulting physicians unanimously expressed appreciation for our efforts.

Association between food insecurity and rheumatologic comorbidities in psoriasis patients: a secondary analysis of the All of Us Research Program database

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BACKGROUND: Psoriasis is a chronic autoimmune skin disorder that is estimated to impact over 125 million people globally. Extant literature suggests that food insecurity, defined as limited or uncertain access to food, impacts psoriasis outcomes, but its association with rheumatologic comorbidities remains unexplored.

METHODS: The National Institutes of Health All of Us database was queried on 06/17/2025 for psoriasis patients (L40.0-L40.9) ≥18-years 8/2016-9/2023, who did not skip food security questions. Food insecurity was assessed using the validated two-question "Hunger Vital Sign". Descriptive statistics explored associations between food insecurity and rheumatic comorbidities. Univariate and multivariate logistic regression models assessed associations between food insecurity and rheumatologic conditions controlling for covariates. Benjamini-Hochberg corrected for multiple hypothesis testing.

RESULTS: 4,336 psoriasis patients were included, with 681 (15.7%) reporting being food insecure. Patients reporting food insecurity had greater odds of any rheumatologic comorbidity (aOR:1.73, 95%CI: 1.38-2.18), psoriatic arthritis (PsA), osteoarthritis, fibromyalgia, systemic lupus erythematosus, rheumatoid arthritis, systemic sclerosis, and dermatomyositis in univariate analysis. In adjusted models, these associations only held for any rheumatologic condition (aOR: 1.73), PsA (aOR:1.43), osteoarthritis (aOR:1.53), fibromyalgia (aOR:3.03), and dermatomyositis (aOR:11.22).

CONCLUSION: We demonstrate that food insecurity in psoriasis patients is associated with any rheumatologic comorbidity, PsA, osteoarthritis, fibromyalgia, and dermatomyositis after controlling for covariates. Dermatologist probing for food insecurity and public health interventions such as food assistance programs may help decrease the burden of psoriasis on patients and healthcare systems.

Association of Optimism with Co-morbid Biopsychosocial and Spiritual Distress in Early Palliative Care

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BACKGROUND: Palliative care seeks to improve quality of life for patients with serious illness by addressing physical, psychosocial, and spiritual suffering. In our preliminary survey of outpatients receiving early palliative care, we found high rates of comorbid pain with marked hopelessness and helplessness, i.e., demoralization syndrome. Trait or dispositional optimism has been shown to buffer against hopelessness and promote coping. We examined whether optimism is associated with physical, psychosocial, and spiritual problems in this population, aiming to inform future studies on its causal role in patient suffering.

METHODS: We conducted a cross-sectional survey of 38 patients receiving ambulatory palliative care for serious medical illness in July 2025. Participants completed measures assessing optimism (dichotomized to low vs high), as well as self-reported concerns across physical, emotional, spiritual/existential, and social domains. Descriptive statistics characterized the sample and domain-specific distress. Fisher's test was used to examine associations between high vs low optimism and categorical measures of domain-specific concerns. We had no a priori hypotheses as this was an exploratory analysis.

RESULTS: 35.1% of patients reported low optimism and 64.9% reported high optimism, with one missing value. Low optimism was significantly associated with demoralization syndrome (69.2% vs 12.5%, $p<0.001$), pain catastrophizing (46.2% vs 8.3%, $p = 0.013$), depression (92.3% vs 54.2%, $p = 0.027$), PTSD (53.8% vs 4.2%, $p = 0.001$), and poor quality of life (61.5% vs 16.7%, $p = 0.010$). No significant associations were found with chronic pain, loneliness, death anxiety, maladaptive/adaptive coping, or perceived discrimination.

CONCLUSION: Low optimism is strongly associated with demoralization, depression, PTSD and pain catastrophizing in patients receiving ambulatory palliative care. Future directions include 1) longitudinal data collection to explore potential causal links between optimism and biopsychosocial/spiritual distress and 2) investigating interventions that target low optimism (e.g., cognitive behavioral therapy, positive psychology interventions) to assess their impact on co-morbid distress.

Comparing Persistent Atrial Fibrillation Ablation Strategies: Convergent Procedure vs Pulmonary Vein Isolation with Pulsed Field Ablation Substrate Modification

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BACKGROUND: Atrial fibrillation (AF) is the most common arrhythmia, carrying significant morbidity and mortality. Pulmonary vein isolation (PVI) is central to management, but outcomes in persistent AF remain poor despite adjunctive ablation. The convergent procedure, staged epicardial posterior wall isolation (PWI) plus endovascular PVI, shows reduced AF burden, whereas catheter-based radiofrequency PVI+PWI does not. In practice, the convergent procedure is used in refractory patients who failed endovascular ablation. Novel pulsed field ablation (PFA) enables rapid, permanent endovascular PWI in a single procedure. We evaluated outcomes in the convergent procedure after prior ablations and PFA-based PVI+PWI.

METHODS: Using the Piedmont Heart Institute AF and LAAO Registry, we identified patients who underwent PVI with PFA (77, 5/2024-4/2025) and convergent (22, 7/2022-4/2024). Retrospective chart review captured pre-/post-procedure AF burden, ablation sites, demographics, comorbidities, complications, and recurrence.

RESULTS: Of 24 patients undergoing PVI+PWI, 21 met inclusion criteria. The PFA cohort (n=21) had mean age of 69.6 years, CHA2DS2-VASc of 3.1, 0.4 prior ablations, and pre-procedure AF burden of 42.6%. The convergent cohort (n=22) had mean age of 67.8 years, CHA2DS2-VASc of 2.7, 2.1 prior ablations, and pre-procedure AF burden of 56.1%. Six-month recurrence rates were similar (HR: 1.092, 95% CI 0.3671 to 3.246, p=0.8746), with recurrence in 7 PFA patients and 6 convergent patients. PFA PVI+PWI achieved greater reduction in AF burden (-43.29 ± 13.96%, p=0.007) and resulted in fewer post-procedure complications compared to convergent (1.69% vs. 40%, p<0.001).

CONCLUSION: Convergent following prior ablations yielded comparable time to first recurrence to de novo PVI+PWI, but with lower overall reduction in AF burden and more post-procedure complications. Larger prospective studies and longer follow-up are needed to confirm these results and assess durability.

The Impact of Visual Reminders and Handouts on Penicillin Allergy De-labeling in Pediatric Populations Within a Health System Quality Improvement Project

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BACKGROUND: Penicillin allergy labels (PALs) affect ~10% of children, yet >95% can tolerate penicillin. In this health system QI project, outpatient pediatricians were offered visual reminders, EHR smart phrases, and educational handouts to support de-labeling. Aims were to assess (1) provider uptake of these tools, (2) which specific tools were employed, and (3) their impact on outcome and process measures.

METHODS: Team members conducted monthly audits of one-week sample of clinic encounters using site-specific surveys. The primary outcome measure was penicillin allergy rate (PAR); secondary outcomes included detailed documentation rate, identification of oral penicillin challenge candidates, and the use of optional visual aids. Data were reviewed monthly to assess uptake and guide refinements.

RESULTS: During the 5-month intervention period PAR dropped from 7.8 to 4.5%, 45 patients were de-labeled by history alone and 198 patients were identified as eligible for oral challenge. This was supported by an increase in detailed documentation, which rose from 40% (March) to 87% (July). By July, 100% of clinics had identified a point person for allergy history review, and over half had implemented visual reminders in workspaces or EMR note templates. A drop in PAR was seen in months 4 and 5 of the project correlating with the increased uptake of visual aids.

CONCLUSION: Participating clinics saw reductions in the overall prevalence of penicillin allergy labels, increased documentation of detailed allergy histories, and more patients appropriately identified for oral penicillin challenge. The project highlights the feasibility and safety of de-labeling efforts in primary care. Integration of visual aids has the potential to help sustain provider engagement and expanded capacity for oral challenges achieving long-term improvements in antibiotic stewardship.

Impact of Left Atrial Appendage Occlusion on Left Atrial Volume and Cardiac Hemodynamics: A Longitudinal Study

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BACKGROUND: The left atrial appendage (LAA) accounts for up to 40% of the volume of the left atrium (LA) and accounts for over 90% of embolic ischemic strokes in patients with atrial fibrillation (AF). In AF, left atrial appendage occlusion (LAAO) reduces stroke risk, but its long-term effects on LA function and cardiac hemodynamics remain incompletely characterized. This study evaluated changes in left atrial structure and function before and after LAAO.

METHODS: An original cohort of 71 patients with history of AF, who underwent LAAO were assessed on four factors: LA volume, LA volume index (LAVi), early-to-late diastolic velocity ratio (E/A), and right ventricular systolic pressure (RVSP) pre- and post-LAAO. For descriptive analysis, patients with available pre- and post-procedure measures for a given parameter were included, regardless of availability of other variables. Overall pre- and post-procedure means and standard deviations were then calculated. For inferential analysis, Wilcoxon signed-rank tests were performed using only patients who had paired measurements for the parameter of interest and a post-procedure echocardiogram obtained at least 3 months after LAAO.

RESULTS: In the descriptive cohort, LA volume, LAVi, and RVSP showed slight increases, while E/A demonstrated a moderate decrease. In the paired cohort, there was no statistically significant change in LA volume ($p=0.58$, $n=23$), LAVi ($p=0.41$, $n=17$), or RVSP ($p=0.71$, $n=16$). The E/A ratio showed a mean difference of –0.86 but was not statistically significant ($n=5$).

CONCLUSION: In this cohort, LAAO was not associated with statistically significant changes in LA volume, LAVi, E/A ratio, or RVSP at ≥3 months post-LAAO. These findings suggest that LAAO does not acutely alter LA function or cardiac hemodynamics, though further investigation with larger datasets is warranted.

Impact of Research Gap Year(s) on Orthopedic Surgery Residency Applications

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BACKGROUND: There has been increased interest in research gap years (RGY) among medical students to strengthen their residency applications. However, the impact of these RGY on match outcomes remains poorly understood. We wanted to further study the reason why students decide to take a gap year and hypothesized that research gap years would be associated with improved match outcomes into orthopedic surgery residency programs.

METHODS: A 31-question electronically administered survey was created and emailed to 50 randomly selected Accreditation Council for Graduate Medical Education (ACGME) orthopedic surgery residency program directors (PD) and coordinators to get connected with orthopedic surgery residents. PDs were emailed directly if active contact information was identifiable. The survey contained questions regarding background information about residents, research gap year experiences, and questions about their current residency. Statistical analysis for each question was performed.

RESULTS: At initial analysis, there were 48 responses; the cohort included 13 applicants who took a gap year and 35 applicants who did not take a gap year. There was no statistical difference in Step 2 scores ($p=0.44$) between the RGY and no RGY groups. A higher proportion of RGY applicants whose medical schools were ranked outside the Top 50 compared to applicants who did not take a RGY (70% vs. 38%). AOA and GHHS status were both higher among applicants who took a RGY compared to their non-RGY counterparts. Lack of research experience and mentorship were the most popular reasons when asked about motive for taking their RGY.

CONCLUSIONS: The preliminary data rejects our hypothesis that a RGY significantly impacted match outcomes into orthopedic surgery residency programs. We are hoping to receive more survey responses to complete a more robust analysis.

Point of Care Ultrasound (POCUS) in a Cardiology Inpatient Setting to Enhance Patient Throughput

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BACKGROUND: Cardiac ultrasound evaluates both cardiac structure and function in patients with chest pain. At Piedmont Hospital, staffing challenges in the form of trained echocardiography staff can create significant throughput concerns, potentially affecting overall Length of Stay. POCUS allows for faster evaluation but has traditionally required extensive training. GE's Caption Guidance uses AI to provide real-time feedback to users, enabling novices to obtain diagnostic images with minimal training.

METHODS: The study uses the Vscan Air SL with Caption Guidance and AutoEF to enable PAs and NPs to perform POCUS on cardiac inpatients. Prior to the study, all PAs and NPs will receive both video-based and in-person training on device use. The results of each imaging study will be reviewed and scored for overall image quality by board-certified cardiologists.

RESULTS: While results have not yet been collected, prior research has shown promising outcomes regarding the ability of untrained healthcare professionals to use AI-guided POCUS to obtain diagnostic images. We expect more than 80% of images taken to score a 3, 4, or 5 based on the American College of Emergency Physicians guidelines for image quality. We also plan to measure the time to completion of both the POCUS exam and the Gold Standard Echocardiography with the difference being a time to decision. We anticipate a potential reduction in the average length of stay for enrolled cardiac inpatients by 0.5 days compared with current practice.

CONCLUSION: Assuming our hypothesis is supported, the data would provide strong evidence for the continued integration of AI into medical imaging, specifically promoting bedside AI-guided POCUS as common practice. In addition, the results would support allowing PAs and NPs to perform these POCUS exams to potentially increase patient throughput and decrease length of stay for cardiac inpatients at Piedmont Hospital and at other hospitals with similar resource limitations.

Leptomeningeal Failure in Pediatric Parameningeal Rhabdomyosarcoma: Predictive Factors and Opportunities for Prevention

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BACKGROUND: Rhabdomyosarcoma (RMS) is the most common soft tissue sarcoma in children. Parameningeal RMS (PM RMS), a high-risk head-and-neck subtype, has poor outcomes due to limited surgical options, frequent intracranial extension (ICE) and an increased risk of leptomeningeal dissemination (LMD). This study investigates the incidence, risk factors, and outcomes associated with LMD in pediatric PM RMS.

METHODS: Clinical data from 48 children with PM RMS treated at Emory University (2000-present) were reviewed. Data included baseline tumor features, treatment details, and recurrence patterns. Statistical analyses included Kaplan-Meier survival estimates and Cox regression analysis.

RESULTS: Among the 48 patients (23 female), median age was 7 years (range 1-19), 18 had alveolar histology, 39 were stage II/III, and 9 were Stage IV. The most frequent tumor site was the infratemporal fossa (n = 14) and the nasopharynx (n = 14); 35 (73%) presented with ICE. Most received HD-VAC (n=24) or VDC/IE (n=12) chemotherapy. Radiation treatment included proton therapy (n=22) or photon therapy (n=26) to a median dose of 50.4 Gy. After a median follow-up of 2.67 years, 18 patients progressed with local regional failure (n=4), LMD (n=10), or distant systemic failure (n=4). LMD occurred in 10/35 (n=29%) patients with ICE at a median time of 8 months from diagnosis. Median OS for the whole cohort was 12.3 years (95% CI) with a 5-year OS of 61.6% (44.9%, 74.6%). On univariate analysis, LMD failure was significantly associated with shorter OS (HR = 17.5, 1.2-255.4, p=0.036), and absence of metastasis (HR = 0.05, p<0.001) and receipt of photon therapy (HR 0.32, p = 0.027) were associated with longer survival.

CONCLUSIONS: LMD is the most common pattern of failure among patients with PM RMS with intracranial extension of disease. Novel treatment strategies for this patient population are needed to reduce the risk of LMD failure and improve clinical outcomes.

Revisiting Recovery: Language Decline in Aphasia during the Subacute Phase Post-Stroke and the Role of Subcortical Infarcts

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BACKGROUND: Investigating post-stroke language recovery in persons with aphasia (PWA) has been an important topic of discussion considering the vast amount of vascular remodeling that occurs. This study aims to shed light on the behavioral and neural changes occurring during the subacute phase of recovery in post-stroke PWA.

METHODS: This pilot study recruited 7 English-speaking PWA (~64y.o) who underwent task-fMRI sessions during the early and late subacute phase. Participants conducted in-scanner auditory lexical decision-making tasks involving word/nonword recognition. The %accuracy and reaction time (RT) were calculated. Participants also underwent a WAB-AQ subtest, outside the scanner. Statistical significance was assessed using a one-tailed t-test.

RESULTS: Results showed a decrease in average word recognition accuracy (early=92%,late=84%;p-value<0.01) and an increase in average RT (early=1870 ms,late =2101ms;p-value<0.05) when correctly identifying nonwords. Additionally, participants on average scored worse (Δ-1;p-value<0.05) on the auditory word comprehension subtest over time.

CONCLUSIONS: Collectively, the results suggest that recovery of auditory comprehension may worsen during the subacute phase in PWA undergoing standard care. This pattern of recovery may be explained by diaschisis. Lesion profiles in our study involved subcortical infarcts, particularly in the basal ganglia (5/7 participants). Given the behavioral findings, regions beyond the immediate area of injury may be compromised due to disruptions in language-related white matter tracts traversing the basal ganglia, including the left inferior fronto-occipital fasciculus and extreme capsule. Current clinical practices do not account for diaschisis; therefore, strategies such as lesion-specific neuromodulation may be needed to elevate current standard care procedures for PWA. Future work will involve analyzing and sensitizing task-fMRI neuroimages to account for vascular changes.

The Impact of Individual Key Driver Diagrams in Decreasing Penicillin Allergy Labels in Pediatrics Populations Within a Health System Quality Improvement Project

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BACKGROUND: Key Driver Diagrams (KDDs) provide a structured approach for team-based quality improvement interventions. This project explores KDDs within a quality improvement (QI) initiative to reduce inaccurate penicillin allergy labels (PALs) in pediatric patients associated with Piedmont Healthcare. The primary goal of this project was to evaluate the impact of individualized KDDs on decreasing the penicillin allergy rate (PAR) in pediatric outpatient settings.

METHODS: Individualized KDDs and PDSA cycles were submitted via surveys identifying site-specific drivers and tailored interventions. Prospective monthly physician surveys were used to evaluate primary outcome measure of PAR along with several process measures including PAL detail rate, delabeling by history, eligibility for oral challenge, and identified allergist for referral. Baseline data was manually extracted retrospectively from the EMR.

RESULTS: 7 months of baseline data established a median PAR of 7.2%. In the time of survey 1 (S1) to survey 5 (S5), PAR dropped from 7.7 to 4.6%. During the 5-month intervention period, 44 patients were delabeled by history alone and 197 patients were identified as eligible for oral challenge. Significant process measures from S1 to S5 include the following: detailed allergy rate (36.22% increase), identified allergist for referral (100%). Qualitative data included a general positive outlook on KDDs based on physician surveys. Individualized KDDs were collated into a comprehensive KDD for future PCN delabeling QI toolkits.

CONCLUSIONS: Using KDDs within a structured QI framework supported meaningful improvements in pediatric outpatient PAR. Individualized KDDs enabled providers to align change ideas with site specific workflows which likely contributed to team-based ownership of the de-labeling process. These findings support the potential for future initiatives, including piloting in-clinic oral challenges and evaluating standardized toolkits with KDDs as a forefront.

Variation of Stigmatizing Language Use in Electronic Health Records Among Different BMI Categories

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BACKGROUND: BMI is used as a medical assessment tool in a clinical context. Recent studies have shown that stigmatizing language, which may negatively harm patient-doctor relationships, has been pervasive in electronic health records (EHR). We are seeking to determine whether such language is used more frequently in the records of patients with higher BMIs.

METHODS: A cohort of 403 admitted emergency department patients who were seen by residents were analyzed. We extracted patient notes by the physician, BMI, height, weight, admission diagnosis and discharge diagnosis. After de-identification, we searched for frequency of stigmatizing language using a list of words that we curated from peer reviewed papers on this topic. A pipeline AI tool was used to identify the frequency and type of use of stigmatizing language in these patient charts. Five patients with missing data were omitted from analysis.

RESULTS: The project was able to gather data on stigmatizing language patterns in research and data analysis. We compiled a list of over 400 potentially stigmatizing terms from previous analyses of EHR data. The patient notes that had BMI data extracted had a total of 15 underweight, 119 normal weight, 109 overweight, 74 class I obesity, 44 class II obesity, and 35 class III obesity patients in each category.

CONCLUSIONS: Stigmatizing language can alter patient-doctor relationships and patient health outcomes whenever there is misguided communication in the clinical setting. Our findings will be used to train Natural Language processing models, which will eventually be used to analyze large patient datasets. Clinician demographics will be included in future analyses. Our findings can be used to inform clinician training and promote anti-bias in documentation practice and EHR-embedded AI documentation tools. The ultimate goal is to reduce health disparities to allow physicians to work more collaboratively with their patients.

Addressing Georgia's Healthcare Workforce Shortage: Does Participation in a Mini-Medical Camp Inspire Youth to Pursue Healthcare Careers?

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BACKGROUND: There is a shortage of physicians, both nationally and in Georgia, inspiring the creation of a weeklong curriculum for middle and high schoolers in hopes of educating and inspiring them about the healthcare field. There is currently little evidence of the benefits a week-long curriculum can have among adolescent participants (11-17 years old).

METHODS: Participants were asked to fill out an anonymous, electronic 13-question survey aimed at assessing satisfaction in the Mini Med camp curriculum and how it influenced their interest in pursuing a job as a physician and/or continuing higher-level medical education in the future. A Likert scale grading of 1 through 5 was used, with 1 indicating a participant strongly disagrees and 5 indicating a participant strongly agrees.

RESULTS: With 115 participants, 95.2% of participants "agreed or strongly agreed" that the camp increased their interest in pursuing medicine, 96.3% "agreed or strongly agreed" that they want to learn more about the medical field, and 73.3% "agreed or strongly agreed" that they are more interested in becoming a physician.

CONCLUSIONS: Mini-Medical School's success stemmed from its interactive curriculum combined with mentorship from medical students, creating an engaging experience that made healthcare exciting for participants. Our findings demonstrated that participants of the Mini Medical School Camp expressed that the camp increased their interest in both healthcare careers and, specifically, in becoming a physician; this aligns with our goal of increasing the number of future physicians in Georgia. After completing camp, participants also desired to continue learning about medicine. Opportunities for further research, including analyzing the effect of intentional team building and group activities on participant career aspirations, are needed to further understand the impacts early professional healthcare exposure can have.

Clearing the Air: A Retrospective Analysis of Tobacco Use, Cessation Clinic Outcomes, and Referral Gaps in the Clay Community Care Clinic

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BACKGROUND: Tobacco is Georgia's leading cause of preventable death and disease and a risk factor for cardiovascular and lung disease, lung and bladder cancer, stroke, and diabetes. This retrospective study assessed the prevalence of patients with tobacco use disorder diagnosed by the Piedmont Athens Regional Medical Center (PARMC), the cessation outcomes at its Clay Community Care Clinic (CCCC), the efficacy of the CCCC cessation programs, and how to improve referral rates and cessation outcomes. Successful cessation programs decrease tobacco use prevalence, reducing onset of tobacco-related diseases and healthcare costs.

METHODS: Data collected by PARMC between January 2022 and December 2023, was analyzed to assess tobacco use prevalence, referral practices, and smoking cessation outcomes at the Clay Community Care Clinic. All statistical analyses were performed using Microsoft Excel with a significance threshold of $p < 0.05$.

RESULTS: Results indicated that referral rates by Piedmont Athens Regional Medical Center to the CCCC were significantly lower than the national rates ($p < .01$). However, the difference between clinic and national cessation rates was not statistically significant ($p > .05$). Limitations influencing lower referral rates include low motivation for quitting and language barriers. The social determinants of health (SDOH) affecting the low cessation rate or program completion include poverty, mental health illness, homelessness, being uninsured, and being undocumented.

CONCLUSIONS: This data reveals that more patients need to be referred to the CCCC in order to match or exceed national referral rates. Reducing the prevalence of tobacco use and increasing cessation rates via referrals would improve health outcomes in Clarke County and mitigate complications associated with tobacco use.

Whoop, There It Is: Trends in Pertussis Prevalence Across District 2 (2015–2024)

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BACKGROUND: Respiratory infection prevalence showed notable changes before, during, and after COVID-19 peak years (2020-2022). Pertussis, also known as Whooping Cough, is a highly contagious respiratory infection. Those at significant risk include infants, elderly, immunocompromised, and unvaccinated individuals. The most effective method of prevention is through vaccination (DTaP, Tdap).

METHODS: Retrospective dataset of reported (confirmed and probable) pertussis cases from 2015-2024 among 13 counties in northeast Georgia (GA DPH- District 2). Data retrieved from State Electronic Notifiable Disease Surveillance System (SENDSS) of GA DPH; US Census; and Online Analytical Statistical Information System (OASIS).

RESULTS: Pertussis cases in District 2 decreased during the COVID-19 pandemic, revealing a bimodal pattern in the case distribution. Of the 13 counties in District 2, Hall, Forsyth, Lumpkin, and Dawson reported the highest number of cases in 2024. Almost 1/3 of the cases reported during the study time frame were children aged 0-4. Racial and ethnic data showed that White individuals accounted for the majority of cases each year. Females had more reported cases than males with a notable spike in 2024.

CONCLUSIONS: The decrease in pertussis prevalence in District 2 from 2020 to 2022 could be attributed to the combination of reduced respiratory illness transmission due to COVID-19-related public health measures, varying vaccine culture, and healthcare access. Further research should examine gender implications and socioeconomic status to better understand the increasing trends. Proactive efforts by Public Health such as targeted outreach and awareness could help to prevent future outbreaks.

Crisis Across County Lines: Evaluating Recent Completed Suicides and Self-Harm Related Emergency Department (ED) Visits in Rural versus Urban Counties of Northeast Georgia

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BACKGROUND: It is estimated that 9% of the population will experience suicidal ideation in their lives, 30% of whom will go on to attempt suicide. The purpose of this study is to evaluate potential trends in self-harm/suicide attempts and suicide mortality in Georgia Department of Public Health District 2 in northeastern Georgia to provide more information on ways to tailor suicidal prevention practices for this specific area.

METHODS: This study contains a retrospective review of data from OASIS on ED visit rates and mortality related to self-harm and suicide from 2019-2023, stratified by socioeconomic status, age, and gender. Analysis and visualization were accomplished through R and Microsoft Excel.

RESULTS: Over the five-year period, there was an overall decreasing trend in suicide rates per 100,000 people. Suicide attempts and deaths continue to be higher in rural versus urban counties throughout 2019-2023. Data also showed high proportions of adolescent self-harm and suicide attempts, while older populations had higher mortality. Despite the greater ED visit rate among females, males died by suicide at nearly four times greater rate over the five-year period. Socioeconomic trends are unique for district 2 as they oppose national trends.

CONCLUSIONS: Increased rates of suicide and suicide attempts in varying sociodemographic groups could be due to increased firearm rates, mental health risks, and other societal factors. Future research should investigate methods of suicide, disparities in mental health resources, and other underlying factors.

Comparable Procedural Metrics Between AVEIR™ DR Dual-Chamber Leadless Pacemaker and Assurity MRI™ Transvenous Pacemaker

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BACKGROUND: AVEIR™ DR is the first commercially available dual-chamber leadless pacemaker. This study compares its procedural metrics to those of a traditional dual-chamber transvenous pacemaker (TVPM) to evaluate efficiency.

METHODS: This retrospective cohort study included patients at a single community hospital who received either an AVEIR™ DR leadless pacemaker ($n = 21$) or an Assurity MRI™ TVPM ($n = 35$). All procedures were performed by two experienced electrophysiologists over a 5-month period. Preparation, procedure, turnover, and fluoroscopy times were calculated via procedure logs and compared between both cohorts using Welch's t-test.

RESULTS: Procedural metrics did not differ significantly between the AVEIR™ DR and Assurity MRI™ cohorts. Mean procedure time was 1.7 minutes longer for AVEIR™ DR (95% CI [-1.8, 5.2]; P = 0.326), and mean fluoroscopy time was 1.39 minutes longer (95% CI [-0.05, 2.82]; P = 0.058). Conversely, mean preparation time was 2.8 minutes shorter for AVEIR™ DR (95% CI [-7.9, 2.1]; P = 0.254), and turnover time was nearly identical (0.1 minutes shorter; 95% CI [-4.9, 4.7]; P = 0.971).

CONCLUSIONS: With experienced operators, procedural metrics for AVEIR™ DR were comparable to those for a traditional TVPM. The observed procedure times for AVEIR™ DR are lower than previously reported in the literature, suggesting that with proficiency, it can be an equally efficient alterative to transvenous systems.

Incidence of Pacemaker-Induced Cardiomyopathy Among Patients Implanted with AVEIR™ VR and AVEIR™ DR Leadless Pacemakers

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BACKGROUND: Pacemaker-induced cardiomyopathy (PICM) is a known complication of high right ventricular (RV) pacing with transvenous systems, but its incidence with modern AVEIR™ dual-chamber (DR) and single-chamber (VR) leadless pacemakers (LPs) is unknown.

METHODS: This multi-center retrospective cohort study includes patients implanted with AVEIR™ LPs between 2021 and 2025. LVEF measurements were obtained pre- and post-implant. Inclusion criteria were: de novo pacemaker implant, ≥20% RV pacing burden, baseline LVEF of >50%, and >30 days of follow-up. PICM was defined as a ≥10% reduction in LVEF from baseline to a value <50%, with no other identifiable causes for left ventricular dysfunction. Patient demographics, comorbidities, procedural history, and baseline pacemaker, electro- and echocardiographic data were compared between the PICM and non-PICM cohorts. Categorical variables were analyzed using 'N-1' Chi-squared test or Fisher's exact test and continuous variables were analyzed using Welch's t-test.

RESULTS: 115 patients were implanted with AVEIR™ LPs, with 40 patients (34.8%) meeting inclusion criteria (mean age 80 ± 8). Four patients (10%) developed PICM during a mean follow-up of 12.7 ± 11.3 months, with a mean time to onset of 6.6 ± 2.3 months. Compared to the non-PICM cohort, those with PICM had a greater LVEF reduction (-21.5% vs -3.45%, P = 0.007) and had higher rates of both AVEIR™ VR implantation (100% vs 44.4%, P = 0.037) and VVIR programming (75% vs 25%, P = 0.041). All patients in the PICM cohort had a history of atrial fibrillation (AF) and significantly higher rates of AF-related procedures, including prior left atrial appendage occlusion (50% vs 5.6%, P = 0.043) and atrioventricular (AV) node ablation within 30 days post-implant (50% vs 5.6%, P = 0.043).

CONCLUSIONS: PICM occurred in 10% of patients receiving AVEIR™ LPs, with exploratory analysis suggesting an association with single-chamber ventricular pacing and procedures for AF.

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