# Twenty Third Annual
# Medical Student
# Research Symposium

## Pinn Hall
## University of Virginia School of Medicine
## November 8, 2024
## 12:00-2:30 PM

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**Poster #1**
**Utility of Preoperative Otolaryngology Evaluation in Anterior Cervical Discectomy and Fusion Revision Surgery**

Almario, Antonio

**Study Design:** This study utilized a prospectively maintained database of patients undergoing revision anterior cervical discectomy and fusion (ACDF) to evaluate the utility of preoperative otolaryngology evaluations in asymptomatic patients.

**Objective:** To assess whether preoperative ENT evaluations impact surgical decision-making for asymptomatic patients undergoing revision ACDF, particularly regarding recurrent laryngeal nerve (RLN) injury.

**Summary of Background Data:** ACDF is a frequently performed cervical spine surgery that carries a risk of RLN injury. However, the role of preoperative ENT evaluations for asymptomatic patients undergoing a second anterior neck surgery remains unclear.

**Methods:** Ninety-nine asymptomatic patients referred for preoperative ENT evaluations between 2012 and 2024 at the University of Virginia Health System were analyzed. Demographic data, surgical factors, ENT findings, and recommendations were documented. Statistical analyses were performed using R software, defining clinical significance as $P < 0.05$.

**Results:** In the cohort, 83.8% of patients exhibited normal vocal cord function during ENT laryngoscopy, while 16.2% presented with vocal fold pathologies. Among these, 3% had 10% vocal fold paresis. Only 1% had 20-30% vocal cord paresis, for which an ipsilateral approach was recommended. Notably, no patients experienced new symptomatic RLN injury postoperatively.

**Conclusion:** Only 1% asymptomatic patients exhibited clinically significant vocal cord abnormality while most patients (99%) demonstrated normal vocal cord function, or findings that did not significantly affect surgical decisions. Further research with a larger sample size is necessary to refine evaluation protocols.

**Poster #2**
**A Case Report of a Left Atrial Mass: Transthoracic, Transoesophageal Echocardiographic and Cardiac Magnetic Resonance Imaging Findings**

Arosemena Ott, Gerrett

**Background:** A 40-year-old female with a history of hyperlipidemia, anxiety, and GERD presented with four days of severe nausea, red emesis, diarrhea, abdominal and chest pain, and chills. Troponin levels were elevated. Physical exam revealed a diastolic murmur at the left lower sternal border and EKG showed dynamic changes. Point-of-care ultrasound identified a large serpiginous, mobile left atrial mass. The differential included neoplasm, thrombus, infective vs marantic endocarditis, or a combination (e.g. mass with adherent thrombus). The patient was admitted to acute cardiology for management and presumed coronary artery occlusion vs type 2 N-STEMI.

**Methods:** Further imaging diagnostics included a repeat transthoracic echocardiogram (TTE), cardiac magnetic resonance imaging (CMR), and transesophageal echocardiogram (TEE).

**Results:** Repeat TTE showed a large, serpiginous echogenic structure in the left atrium, dominant component measuring 4.55 cm x 2.54 cm, with areas suggestive of calcification. CMR findings indicated internal T2 hyperintensity with low gradient echo signal, and enhancing frond-like elements extending across the mitral valve. Patchy late gadolinium enhancement suggested embolic infarctions. Biventricular systolic function was at the lower limit of normal (LV EF 50%, RV EF 48%). TEE confirmed a large, mobile mass in the left atrium with attachment points at the pulmonary veins and interatrial septum. On the third day, the patient underwent successful excision of the intracardial tumor via median sternotomy on cardiopulmonary bypass, without complications.

**Discussion:** This case highlights the diagnostic challenge of differentiating between coronary artery occlusion and type 2 NSTEMI in the presence of a left atrial mass. The findings underscore the importance of comprehensive imaging and timely surgical intervention in managing cardiac masses to prevent embolic events and other complications. Further studies are needed to refine diagnostic and treatment protocols for similar cases.

**Poster #3**
**The Association between First Trimester Maternal Features, Placental Pathology, and Adverse Neonatal Outcomes**

Ayemere, Amenawon

**Background:** The placenta is crucial for fetal development, supplying oxygen and nutrients. Disruptions in placental blood flow can result in adverse perinatal outcomes such as low birth weight and preterm birth, especially in low and middle-income countries. Prior research has suggested that first trimester maternal markers, including inflammation and anemia, may contribute to these negative outcomes. However, the relationship between these maternal markers and placental pathology remains understudied. This study explores the association between placental pathology, specifically low placental weight and maternal/fetal vascular malperfusion (MVM/FVM), and adverse birth outcomes. Additionally, it investigates the link between first trimester inflammation and anemia with placental damage and subsequent birth outcomes.

**Methods:** Data was collected from 118 women enrolled in the Bangladesh site of the National Institute of Child Health Global Network Maternal Newborn Health Registry. Placental pathology was diagnosed using the Amsterdam Criteria, and inflammatory markers (CRP/AGP) and anemia were measured from serum samples.

**Results:** Among participants, 45 placentas were categorized as low weight, and 55 were diagnosed with MVM/FVM. There was a strong association between low placental weight and small for gestational age (SGA) birth weight ($p= 0.0176$), suggesting that low placental weight is a risk factor for SGA in this sample. Additionally, a strong correlation was found between low placental weight and MVM/FVM. However, no correlation was observed between inflammation, anemia, and placental pathology or birth outcomes.

**Discussion:** Low placental weight is linked to both MVM/FVM and SGA. Further studies with larger cohorts are needed to better understand this association.

**Poster # 4**
**Bioactive Glass 45S5 for Filling Bone Void in Orthopedic Trauma**

Ballenger, John

**Background:** Bioactive glass is a novel synthetic alternative to autologous and allogeneic bone grafting for bone void filling. Bioactive glass functions by filling bone void, inducing osteogenesis and neovascularization which stimulates bone growth, and confers an antimicrobial effect via its chemistry. Clinical data regarding this therapy is sparse, with satisfactory results reported in chronic osteomyelitis, spinal surgery, and pediatric tumor debridement. We report the use of bioactive glass in bone void resulting from orthopedic trauma.

**Methods:** A single institution, single surgeon retrospective case series was conducted to identify patients receiving the bioactive glass BAG 45S5 for filling of traumatic bone void from July 2020 to May 2023. The medical record was reviewed for patient demographics and comorbidities, preoperative injury characteristics and previous surgical treatments, clinical outcomes, and radiographic outcomes using mRUST scores (score of 11 indicates minimum acceptable fracture healing).

**Results:** 27 patients were identified. Preoperative diagnoses included 11 acute fractures, 14 non-unions, 7 cases of osteomyelitis, with 11 patients having multiple diagnoses. 20 patients had previous surgeries for their injuries. Mean follow-up time was 14 ± 9.9 months. Mean mRUST scores were 13.2 ± 2.2 at final follow-up. 7 patients required repeated surgeries. 2 patients had persistence of osteomyelitis and 1 patient developed new osteomyelitis.

**Discussion:** In this complex orthopedic population with high preoperative rates of non-union and osteomyelitis, satisfactory radiographic healing and low rates of reoperation and infection were achieved with bioactive glass. Bioactive glass for filling of bone void is a promising novel alternative to bone grafting.

**Poster #5**
**Associations between Rheumatic Diseases and Mental Health Disorders**

Bhatt, Sivam and Vu, Thoai T

**Background:** Rheumatic diseases have been linked to reduced quality of life (QoL) and increased rates of depression and anxiety, which can lead to decreased medication adherence. Suboptimal rheumatic medication adherence can allow disease progression, further exacerbating this cycle. However, associations between rheumatic diseases and mental health disorders only remain partially defined.

**Methods:** This retrospective case-control study examined the association between rheumatoid arthritis (RA), systemic lupus erythematosus (SLE), psoriatic arthritis (PsA), and ankylosing spondylitis (AS) and anxiety and depression in patients treated within the UVA health system. Patients over 18 years between September 28, 2010, and May 1, 2024 were identified using Epic's SlicerDicer. Rheumatic diseases and mental health disorders were identified using ICD-10 codes. Odds ratios (OR) and 95% confidence intervals were calculated via multivariable logistic regression, adjusting for sex and age using IBM SPSS Statistics 29.0.2.

**Results:** Of 1,095,893 patients screened, 1.0% had RA, 0.3% had SLE, 0.2% had PsA, and 0.1% had AS. In this cohort, 12.3% had anxiety and 11.9% had depression. Adjusting for age and sex, all four rheumatic diseases had increased OR ranges for anxiety (1.99-2.40), depression (2.07-2.67), and concomitant anxiety and depression (2.37-3.09). Subgroup analysis of our outpatient rheumatology clinic patients revealed lower ORs and fewer associations between diseases, possibly due to underreporting of mental health ICD-10 codes due to care received elsewhere.

**Discussion:** Patients with rheumatic disease face significantly increased odds for depression and anxiety, which can potentially negatively impact QoL and medication adherence. It is essential to screen and treat these patients for mental health conditions for comprehensive care.

**Poster #6**
**Association between Amyloidosis and Aortic Stenosis in a Major Health System**

Nehrbas, Jill and Vu, Thoai T

**Background:** Amyloidosis occurs when misfolded proteins deposit in tissues. Cardiac manifestations include heart failure, arrhythmias, and aortic stenosis (AS). AS prevalence in amyloid patients over 65 is reported as high as 15%. One hypothesis is that rates of diagnosis improve in subspecialty care.

**Methods:** This retrospective case-control study analyzed patients from the UVA Health System between 9/28/2010 and 5/1/2024 using ICD-10 codes for amyloidosis and AS. Odds ratios (OR) and 95% confidence intervals were calculated using adjusted multivariable logistic regression. Subgroup analysis examined cardiology specific encounters.

**Results:** Of 3,324,011 medical records, 1171 (0.04%) had amyloidosis and 13,304 (0.40%) had AS. Amyloid was associated with higher odds of AS relative to those without an ICD-10 code for amyloid (11.2 [8.9-14.0], $p<0.001$). Filtering medical records for direct patient-provider encounters only, out of 1,093,324 records, 1132 (0.10%) had amyloidosis and 12,276 (1.12%) had AS. Amyloid was again associated with a higher odds ratio of AS (3.1 [2.5-3.9], $p<0.001$). In the cardiology clinic subgroup analysis of 96,430 patients, no significant association was found (OR: 1.2 [0.9-1.6], $p=0.123$).

**Discussion:** In this study, amyloid was associated with increased odds for AS, though this lost significance in subgroup analysis. This is contrary to the hypothesis that diagnostic rates of amyloid would increase in subspecialty clinics. This study highlights the inherent limitations of ICD-10 datasets. Future directions might analyze the fidelity of ICD-10 coding in subspecialty clinics, and QI interventions could target improving detection of amyloid in patients with AS.

**Poster #7**
**The Association Between Epilepsy and Venous Thromboembolism**

Vu, Thoai

**Background:** Epilepsy has been associated with obesity, reduced mobility, and frequent hospitalizations. These are also predisposing risk factors for venous thromboembolism (VTE). Despite this similarity, the association between epilepsy and VTEs has not been well-established.

**Methods:** This retrospective cohort study investigated the relationship between epilepsy and VTE in patients seen at the UVA Health System using the TriNetX Live Network which provided access to de-identified, aggregated electronic medical records. All patients seen at a UVA Health facility over 18 years old between September 28, 2010 and March 14, 2024 were included. Exclusion criteria included any diagnosis for malignancy, hypercoagulability states, Dravet disease, or absence epilepsy.  as identified by International Classification of Disease, tenth revision codes. Odds ratios (OR) and 95% confidence intervals were calculated via multivariable logistic regression, adjusting for sex and age using IBM SPSS Statistics 28.

**Results:** A total of 1,306,060 patients were screened, of which 12,305 (0.94%) had an epilepsy diagnosis and 14,773 (1.14%) had a VTE diagnosis. Adjusting for both age and sex, patients with epilepsy had an increased OR for VTE at 2.9 (2.6-3.2) for VTE. Patients between 35 and 54 years had the highest ORs for VTE at 3.4 (2.9-4.2). Females had higher odds of VTE at 3.0 (2.6-3.5) than men at 2.8 (2.4-3.3).

**Discussion:** A diagnosis of epilepsy is associated with statistically significant increased odds for VTE regardless of age or sex. Further investigation into this relationship and the use of prophylactic anticoagulation in patients with epilepsy is warranted.

**Poster #8**
**Dysphagia Compared to Other Known Risk Factors for Mortality in the Hip Fracture Population**

Boyapati, Rohan

**Background:** Hip fractures in the elderly are increasing and pose a significant burden on the US healthcare system. Several risk scores aim to identify the high mortality risk in these patients. Dysphagia, a common issue among the elderly, is known to increase postoperative mortality. This study compares the impact of dysphagia with other risk factors on the mortality rates of hip fracture patients.

**Methods:** This retrospective cohort study included patients aged 65 and older who underwent surgical treatment for hip fractures from January 2015 to December 2020. The primary outcome measured was dysphagia and other mortality risk factors. The secondary outcome was comparing these factors to identify mortality risks.

**Results:** 56.2% (347/617) patients had dysphagia. Dysphagia was associated with postoperative mortality (p=0.001), dementia (p=0.001), abnormal coagulation labs (p=0.014), recent hospital admissions (p=0.018), myocardial infarction (p=0.026), congestive heart failure

(p=0.035), and COPD (p=0.046). Postoperative mortality was associated with elevated BUN (p=4.08e-6), congestive heart failure (p=3.15e-5), elevated troponins (p=0.0008), dysphagia (p=0.001), myocardial infarction (p=0.002), dementia (p=0.003), renal failure (p=0.022), signs of malnutrition (p=0.028), and COPD (p=0.036). Multivariate logistic regression showed dysphagia (4.06), elevated troponins (3.45), dementia (3.48), elevated BUN (3.14), renal failure (4.58), and myocardial infarction (3.92) had significant associations with postoperative mortality.

**Discussion:** Dysphagia, although not commonly included in risk scores, was highly correlated with mortality, second only to renal failure. Comprehensive risk assessment tools that account for dysphagia are needed to improve management of hip fracture patients. Further research should explore its interaction with other risk factors to enhance care.

**Poster #9**
**Quality Assessment of Published Orthopedic Randomized Controlled Trials**

Carpenter, Logan and Temple, James

**Background:** Randomized Controlled Trials (RCT) remain the gold standard for determining the efficacy and safety of medical interventions. Therefore, it is crucial to assess the strength and validity of these trials. The purpose of this study is to assess the quality of published RCT's in three major orthopedic journals.

**Methods:** 485 RCT's published from 2013-2023 were assessed from three primary orthopedic journals: The Journal of Bone and Joint Surgery (JBJS), The Journal of Arthroplasty (JOA), and Clinical Orthopedics and Related Research (CORR). A total of 55 trials were excluded leaving 430 trials for analysis. Data was collected by two independent researchers with a third acting as a secondary reviewer to ensure validity. The quality of each RCT was assessed using the JADAD system which provides a numerical score from 1-5 with a higher score indicating higher quality based on the randomization, blinding, and patient accountability of each trial. Data on power analysis, adequate sample size, and trial registration were also recorded.

**Results:** Out of the 430 articles analyzed, only 157 articles (36%) received a JADAD score of 4 or higher (p=0.021), 240 articles were properly registered (55%, p=1.7-10), 353 articles completed a power analysis (82%, p=0.008), and 262 articles retained a large enough sample size (61%, p=0.007).

**Discussion:** Our analysis shows that work is needed to improve the quality of orthopedic RCT's in published literature with proper randomization, double blinding of both patients and assessors, and adequate descriptions of participant withdrawal contributing most to the low quality of studies.

**Poster #10**
**Surrogate endpoints lead to favorable outcomes in arthroplasty RCT's**

Temple, James and Carpenter, Logan

**Background:** The use of surrogate endpoints in research trials has become increasingly common. A surrogate endpoint is any outcome measure that does not directly measure how the patient feels, functions, or survives. The purpose of this study was to investigate the relationship between surrogate endpoints and trial outcomes related to arthroplasty research.

**Methods:** Randomized controlled trials (RCTs) published from 2013-2023 were screened from four orthopedic journals: Bone and Joint Journal (BJJ), The Journal of Bone and Joint Surgery (JBJS), The Journal of Arthroplasty (JOA), and Clinical Orthopaedics and Related Research (CORR). All articles related to arthroplasty were included and analyzed by two independent researchers. Outcome measures related to radiographic parameters, biomarkers, lab values, and other indirect measures were considered surrogate endpoints (appendix A). The trial outcome was considered “favorable” if results supported the primary outcome, “unfavorable” when results did not support the primary outcome, and “spin” if discussed results were incongruent from measured results. Sample size, adequate power, funding source, secondary outcomes, and trial intervention category were also recorded.

**Results:** A total of 440 articles were analyzed. 155 articles utilized a surrogate endpoint as their primary outcome measure (SUR) and 285 articles used a target outcome (TAR) as their primary outcome measure. Out of 155 SUR’s, 107 showed favorable outcomes (69%). Out of 285 TAR’s 155 showed favorable outcomes (54%). A chi-square test yielded a p-value of .04.

**Discussion:** Articles that utilize surrogate endpoints as their primary outcome measure are more likely to report a favorable outcome.

**Poster #11**
**Withdrew**

**Poster #12**
**Crisis in the ED: Shifting Demographics and Rising Mental Health Challenges Among Youth During the COVID-19 Pandemic**

Chipoletti, Ashley

**Background**: Prior to the COVID-19 pandemic, the United States witnessed a troubling rise in psychiatric illnesses among youth The pandemic exacerbated these mental health challenges due to many factors, including health anxiety, financial instability, social isolation, and disruptions in education. Concurrently, barriers to accessing psychiatric care intensified as traditional outpatient services were disrupted, leading many young individuals to seek help in hospital emergency departments (EDs). We investigated the impact of the COVID-19 pandemic on the attendance patterns for mental health issues among youth at UVA ED.

**Methods**: A cross-sectional study of patients aged 5-29 with a primary ED discharge diagnosis of a psychiatric illness from January 2017 to December 2023 was conducted. Chi-square

analyses compared diagnosis, race, ethnicity, age, gender, and payor before, during, and after the pandemic.

**Results:** Among 10,836 visits (50.1% female, 48.8% male), there was an increase in visits for substance use disorders (26.5% to 28.9%) and suicidal ideations (12.4% to 18.9%), with a decline in affective disorder visits (22.0% to 13.9%; $p<0.001$). Visits by white youth decreased while those of "other" races and Hispanic patients increased ($p=0.001$). The average patient age declined over time ($p<0.001$). Gender distribution remained stable. Medicaid coverage rose significantly during and after the pandemic ($p<0.001$).

**Discussion:** These findings highlight the critical need for targeted interventions and support mechanisms to address mental health issues among youth, particularly in the context of public health emergencies. By understanding these trends, healthcare systems can better allocate resources and develop strategies to support the mental well-being of young people.

**Poster # 13**
**Early Results of Optimized Nerve Management with Electrical Stimulation for Lower Extremity Neuroma**

Choi, Janice

**Background:** Nerve injury is the most common complication following foot and ankle surgery, with painful neuroma reported in up to 10% of procedures. Current treatment often yields varying degrees of pain relief. Electrical stimulation (ES) through peripheral neuromodulation is an emerging technology associated with improvement in nerve-related pain and acceleration of neural regeneration. This study assessed short-term outcomes of combining nerve reconstruction techniques with ES in providing early pain relief for patients with symptomatic lower extremity neuromas.

**Methods:** We describe a single-institution, prospective, cohort study including adult patients with lower extremity neuroma subjected to a nerve management procedure (neurolysis, targeted muscle reinnervation, or nerve allograft reconstruction) with concomitant peripheral nerve stimulator placement. Patients were treated postoperatively with ES for 4 hours daily. Patient demographics, surgical details, and outcomes data were evaluated.

**Results:** Eight female patients (mean age: 49±13 years) were included. Peripheral nerve injuries were identified at the following locations: sural nerve (n=5), medial plantar nerve (n=1), tibial nerve (n=1), superficial peroneal nerve (n=2), and saphenous nerve (n=1). Mean Brief Resilience Scale (BRS) was 3.11±0.61. At 3 months post-intervention, NRS Pain scores decreased from a mean of 8.5±1.2 to 1.5±1.2, PROMIS Pain Interference scores decreased from 61.5±3.4 to 53.7±4.9, and PROMIS Pain Behavior scores decreased from 65.8±3.5 to 56.1±4.2.

**Conclusion:** Early results of optimized neurotherapy with electrical stimulation demonstrates improved short-term pain relief for patients with symptomatic lower extremity neuromas

**Poster #14**
**Life-Altering Events with Successive Aortic Operations in Connective Tissue Disease Patients**

Choudhary, Fatima

**Background:** Connective tissue disease (CTD) patients are at high risk of morbidity and mortality from aortic disease. Despite frequent need for multiple aortic repairs over their lifetime, little is known about longitudinal patient outcomes with successive aortic operations. This study aimed to analyze freedom from life-altering events (LAE) and major adverse events (MAE) throughout the patients lifetime.

**Methods:** A retrospective cohort study was conducted using data from aortic database registry between 2012 and 2022 to identify patients with CTD. Patient demographics, operative details, and clinical outcomes were analyzed for each aortic repair performed throughout the patient's lifetime. Primary endpoints were lifetime thoracoabdominal aortic aneurysm-related LAE, MAE, and long-term survival.

**Results:** Nineteen patients underwent 58 aortic operations throughout their lifetime. There were 9 Marfan Syndrome (47.4%), 5 Loeys-Dietz Syndrome (26.3%), and 5 unknown CTD variants (26.3%) patients. Median age was 32 years at CTD diagnosis and 36 years at index aortic operation. Average number of lifetime aortic operations was 3.1. Median time to aortic re-intervention was 6.4 months. Indications were 30 (52%) aneurysms and 28 (48%) dissections, with 10 (17%) being urgent.

Across lifetime operations, there were 3 LAE (5.2%) occurring in 3 patients and 13 MAE (22.4%) in 8 patients (4 major bleeds, 2 limb ischemia, 2 SSI, 1 VTE, 1 HF, 1 hemodialysis, 1 paralysis, 1 paralysis with mortality). Aortic diameter was the only independent predictor of MAE ($p = 0.01$). MAE was not significantly different between open and endovascular repairs. At 1-,5-, and 10-years from index operation, freedom from LAE was 100%, 87%, 78% and survival estimates were 100%, 94%, and 76%.

**Discussion:** In CTD patients undergoing lifelong surveillance, successive aortic operations have favorable outcomes at tertiary referral centers. Aortic diameter is the only independent predictor of MAE in patients undergoing multiple aortic repairs. Despite frequent intervention, CTD patients have high survival and few life-altering complications.

**Poster #15**
**Experience with Nivolumab-Relatlimab in a Real-World Setting: An Institutional Case Series**

Dauby, Samuel

**Background:** Nivolumab-relatlimab (N/R) is an effective treatment for patients with previously untreated advanced melanoma [1], and it has been shown to provide an ORR of up to 12% and a mPFS of 2.1-3.2 months when used after prior anti-PD1 therapy in the clinical trial setting [2]. In our practice, we observed substantial clinical benefit from N/R for some patients after prior anti-PD1 exposure. We aimed to describe the outcomes of real-world patients treated with N/R with progression on prior anti-PD1 therapy.

**Methods:** We collected data of all patients treated with N/R in our melanoma practice between April 2022 and November 2023. A total of 30 patients were identified with a median age of 70.9 years. Tumors from nine patients had a BRAF mutation and 21 tumors were BRAF WT. Twenty-six subjects received N/R after prior anti-PD1 exposure and four were treatment-naïve. Most patients (21) had at least 2 lines of prior therapy (≥ 1 anti-PD1), and 8 had brain metastases.

**Results:** The ORR was 41.4% and the DCR was 51.7% for the entire cohort. Eighteen subjects progressed on therapy or during the assessment period and 11 had additional treatment. The overall mPFS was 8.8 months and mOS was not reached. The 2-year PFS was 37.8% and the 2-year OS was 53.8%. In the previously-treated cohort (n=26), the ORR was 38.4%, DCR was 50%, mPFS was 8.8 months and the mOS was not reached.

**Discussion:** There was an improvement in mPFS for subjects who stopped N/R due to toxicity. N/R led to clinically significant responses in a subgroup of real-world patients after prior exposure to anti-PD1, including heavily pre-treated subjects and those with brain metastases.

**Poster #16**
**Not Just a Number: A Medical Student's Guide to the Experience of Older Adults**

Dorsey, Mackenzie

**Background:** Ageism proliferates in society and particularly in the healthcare system. At the same time, there is a growing need for geriatricians and a dearth of interest in pursuing this field. As part of the Generalist Scholars Program and the Medical Student Summer Research Program, this is a podcast project aiming to increase positive attitudes toward caring for older adults, in hopes of combatting ageism and increasing interest in geriatrics.

**Methods:** After recruitment, older adults and those who care for them are interviewed in the Roberson media center in Clemons library surrounding the topic of aging. There are set questions for the interviews surrounding the topic of aging, including how their fears of getting older have and what they perceive as the best and worst parts of aging. In the coming months, these and further podcast interviews will be uploaded to a streaming platform. Later, these podcasts will be analyzed for themes.

**Results:** As of October 2024, 4 participants have been interviewed and their episodes are being edited. Recruitment is ongoing, in hopes of a broad and diverse pool of participants.

**Discussion:** Though the formal thematic analysis will not be done until a robust collection of interviews is completed, the overall attitude toward aging, broadly speaking, of the small group that has already been interviewed is one of lessened anxiety and general enjoyment, rather than negativity and despair. Moreover, multiple guests have commented on the importance of friendships, in addition to spousal relationships, as one gets older.

**Poster #17**
**Cost Based Analysis of Radiation Therapy**

Feldt, Zachary

**Background:** Numerous radiation therapy technology options are used to treat prostate and pancreatic cancers, including conventional and MRI-guided linear accelerators, and the direct cost to the department to deliver these therapies could be important in medical decision making. Direct costs can be calculated using a Time-Driven Activity-Based Costing (TDABC) analysis through the application of cost data for space, equipment, personnel, and material to process maps representative of the treatment plans.

**Methods:** Process maps for each appointment type of each treatment plan were created through information gathered in interviews with staff. Cost data was obtained from previous radiation oncology TDABC projects, departmental records, and reliable internet sources. This information was used to determine the overall cost of each treatment.

**Results:** Prostate treatment regimens with associated costs: TrueBeam SBRT, $7,748.68; ViewRay nonadaptive SBRT, $11,169.61; ViewRay adaptive SBRT, $14,813.26. Pancreas treatment regimens with associated costs: TrueBeam IMRT, $5,305.35; TrueBeam SBRT, $3,685.48; and ViewRay adaptive SBRT, $13,636.36.

**Discussion:** For both prostate and pancreas radiation therapy, the treatment cost using the ViewRay MRI-guided linear accelerator is significantly higher. This is due to the increased cost of the Linac machine, the vault, and maintenance service. Additionally, there is increased complexity in certain processes involving the ViewRay machine, particularly in personnel intensive steps which increase the personnel costs associated with these processes. Fewer treatment visits (SBRT vs IMRT) reduced cost of treatment, as did the use of nonadaptive vs adaptive ViewRay therapy. Additionally, material costs associated with a procedure contributed heavily to the cost of prostate treatment.

**Poster #18**
**Anatomic Medial Patellofemoral Ligament Reconstruction is Safe, Efficacious, and Durable in the Treatment of Patellar Instability in Patients with Open Physes**

Fontana, Joseph and Ham, Jack and Manley, Brock

**Background:** Patellar instability is common in skeletally immature patients, however, the presence of open physes presents unique challenges to surgical management. The primary purpose of this study was to 1) assess the safety and efficacy of anatomic medial patellofemoral ligament reconstruction (MPFL-R) in a skeletally immature patient population at short-, mid-, and long-term follow-up, and 2) to determine the influence of patient demographic factors and surgical and radiographic characteristics on the risk of recurrent instability and clinical outcomes following surgery.

**Methods:** A retrospective analysis was conducted on skeletally immature patients who underwent primary, anatomic MPFL-R at a single academic institution between 2010 and 2019. Patients with less than 2 years of follow-up were excluded. Demographic data, pre-operative radiographic parameters, and surgical details were collected through chart review. Recurrent instability, growth disturbance, and return- to-sports rates were documented. Final follow-up

included assessment of Kujala, Lysholm, and IKDC scores. Subgroup analysis focused on patients undergoing isolated MPFL-R.

**Results:** Fifty-four knees in 51 skeletally immature patients with mean age of 15.6 years (range 10-18) were available for analysis. At mean 8.15 years (range 55-152 months) follow-up, 4 of 54 (7.4%) knees experienced subsequent patellar subluxation events. There were no confirmed patellar dislocations, and no patients underwent re-operation for patellar stabilization or growth disturbance. At final follow-up Kujala, Lysholm, and IKDC scores were mean 85.7 (Range 11 - 100), 83.7 (Range 14 - 100), and 76.4 (Range 10 – 95.4), respectively. Patients with younger age at the time of surgery (Hazard Ratio (HR) - 0.83, CI -1.53 to -0.14; p = 0.018) and increased patellar tendon to lateral trochlear ridge (PT-LTR) distance (13.46 vs 8.59; p = 0.043) demonstrated an increased risk of recurrent patellar instability. Three of 23 (13.0%) knees undergoing isolated MPFL-R, experienced subsequent patellar subluxation events. In subgroup analysis, high-grade trochlear dysplasia (p = 0.002) and PT-LTR > 5.55 mm (p = 0.004) correlated with an increased risk of recurrent instability events.

**Discussion:** Anatomic MPFL-R is a safe, efficacious, and durable treatment option for lateral patellar instability in skeletally immature patients.

**Poster #19**
**Is Severity of Pre-operative Patient-Reported Pain Related to 90-day Post-operative Patient Reported Outcomes and Overall Complications?**

Gandhi, Shivam

**Background:** Considering how patients' perception of their pain impacts their recovery after total hip (THA) and total knee arthroplasty (TKA), this study aimed to evaluate whether pre-operative severity of patient-reported pain using the visual analog scale (VAS) associated with post-operative recovery as measured by patient-reported outcomes (PROs) and 90-day post-operative complications.

**Methods:** This retrospective study included THA and TKA patients with at least 6 months follow-up. Patients were grouped according to pre-operative clinic VAS scores (8-10 categorized "severe pain" and 0-7 "mild-moderate pain"). The primary outcome included post-operative PROs with secondary outcomes of 90-day complications. Statistical analyses were performed to identify differences between the groups.

**Results:** A cohort of 223 patients was identified (THA: 19 pre-operative "severe" pain and 63 "mild-moderate" pain; TKA: 20 "severe" pain and 121 "mild-moderate" pain). After controlling for multiple patient factors, multivariate analysis demonstrated age (p = 0.001) and race (p = 0.01) were significant with younger and non-white patients more likely to report "severe" preoperative pain. No significant univariate or multivariate differences were found for THA patients. The "severe" pain prior to TKA group demonstrated more improvement in PROs, especially at 6 weeks, than the "mild-moderate" pain group. The same was demonstrated for hips, but with a smaller difference that persisted out to 3 months.

**Discussion:** This work suggests those with "severe" pre-operative pain may show increased improvement in PROs for both THA and TKA compared to those reporting "mild-moderate" pre-operative pain. Further studies should analyze specific differences between THA and TKA PROs.

**Poster #20**
**Impact of Stent Diameter and Portosystemic Pressure Gradient on Transjugular Intrahepatic Shunt (TIPS) Mortality: A Single-Center 5-Year Experience**

Gong, Malinda

**Background:** Debate remains regarding the optimal stent diameter and target portosystemic pressure gradient (PPG) following portal decompression. The goal of the current study is to evaluate the impact of different technical specifications in the TIPS on patient mortality outcomes

**Methods:** A single-center retrospective review from January 2017 to July 2021 of all TIPS procedures done in adults was performed. Demographics, liver disease etiology, procedural indication, and pertinent technical values including stent diameter and portosystemic gradient achieved were collected. Survival and mortality data were also recorded. Univariate and multivariate logistic regression models were used to generate odds ratios with 95% confidence levels (CL), and a Fisher's Exact Test performed to evaluate for predictability of mortality. Univariate logistic regression analysis was performed to created survival hazard ratios.

**Results:** A total of 183 patients were included, of which, 70 were female. Mean age was 57.9 ±10.6 years. TIPS creation was classified as elective [127 (69.4%)], urgent (inpatient) [50 (27.3%)], or emergent [6 (3.3%)]. Median overall survival was 31.8 months (95% CL, 28.3-36.4). Inpatient mortality was 6.6% (N=12), and 3-month mortality was 15.3% (N=27).
A Viatorr stent was placed in 98% (N = 178) of patients, and a Wall Stent in 2% (N = 4). Diameter was based on stent size (8 or 10 mm) or in the use of a controlled expansion stent, final post-dilated diameter. Fisher's Exact Test showed no significant difference between stent diameter (8 mm vs >8mm) on inpatient or 3-month mortality outcomes. 3-month mortality association univariate and multivariate analyses of stent diameter showed p-values of 0.124 and 0.182, respectively.

At 3 months, the mortality association of PPG on univariate and multivariate analyses showed p-values of 0.340 and 0.880, respectively. Univariate survival analyses demonstrated the unadjusted hazard ratio of an increase in 1 mmHg of PPG was 0.92 (95% CL, 0.86-0.99, p=0.017).

**Discussion:** For both inpatient and 3-month mortality, there was no statistically significant association with stent size or PPG after TIPS creation. However, overall survival demonstrated a significant benefit with higher PPG, reiterating the potential negative outcomes of over shunting after TIPS.

**Poster #21**
**Physicians Are Unable to Consistently Predict Patient Health Literacy in a Breast Clinic**

Gooding, Jordan and Showwalter, Shayna

**Background:** Health literacy (HL) is a patient's capacity to understand health information. Low HL is associated with worse cancer outcomes and adherence to treatment regimens. This study aimed to test physicians' ability to predict their patients' HL after an initial consultation to determine if routine HL screening is valuable.

**Methods:** From February 2023 through June 2023, patients seen at an academic breast clinic completed a validated, self-reported HL assessment. Surgical and medical oncologists estimated their patients' HL by answering the same HL questionnaire based on their perception of the patient visit. Patient and physician scores were compared using an intraclass correlation coefficient. Linear regression was used to evaluate associations between physicians' ability to predict HL and other variables.

**Results:** The cohort included 210 patient HL scores with corresponding physician scores for each. Most patients (75.7%) had adequate HL. There was moderate agreement between the patient and physician HL scores (intraclass correlation coefficient = 0.677, $P < 0.01$), meaning physicians could somewhat predict their patient's HL. Physicians were worse at predicting HL when patients had low HL. There was no difference in physicians' ability to predict HL based on patient age ($P = 0.09$) or race ($P = 0.29$). Additionally, we found no difference in the ability to predict HL based on the physician's specialty ($P = 0.25$).

**Conclusions:** After an initial consultation, physicians cannot accurately predict patient HL, particularly in patients with lower HL. Given the impact of low HL on a patient's ability to make treatment decisions and adhere to treatment plans, using a validated tool to measure HL is necessary.

**Poster #22**
**Economic Analysis and Clinical Utility of Routine Versus Targeted Use Of Postoperative Computed Tomography Following Intracranial Tumor Resection: A Decade-Long Multi-Surgeon Institutional Study**

Gundlapalli, Rithvik

**Background:** The routine use of CT imaging after intracranial tumor resection remains controversial, with varying practices and a lack of studies on its clinical utility and cost-effectiveness.

**Methods:** A retrospective institutional review was conducted on patients who underwent intracranial tumor resection from 2014 to 2024, performed by 17 surgeons. Collected data included the incidence of postoperative CT imaging, whether routine or targeted indications, as well as resulting changes in clinical management. A cost analysis was performed using compensation and cost-transparency datasets. Chi-squared and ANOVA tests were performed to identify variables associated with clinically meaningful imaging.

**Results:** A total of 2,082 patients (2,177 resections) were analyzed. Of the 460 patients (22.1%) who underwent postoperative CT, 305 (63.2%) were routine, and 155 (37.5%) were targeted. No routine CTs (0%) resulted in a change in management, while 50 targeted CTs (32.5%) effected management change. The total cost for all CTs was $398,008, with only $40,184 attributed to scans that led to management changes. This resulted in $348,257 in excess costs, which could have been avoided with a targeted approach. Skull base and frontal tumors, intraoperative complications, and longer surgeries were associated with clinically meaningful CTs. No patients experienced delayed detection of deficits without routine imaging.

**Discussion**: A targeted approach to postoperative CT imaging based on neurological monitoring offers greater cost-effectiveness and clinical benefit compared to routine imaging.

Routine imaging may still be useful for patients with skull base or frontal resections, particularly after prolonged surgeries or intraoperative complications.

**Poster #23**
**Effect of Screw Size on Psuedoarthrosis in Anterior Cervical Discectomy and Fusion**

Hameed, Zuhaad and Marcum, Aaron

**Background:** Pseudoarthrosis is a common complication following anterior cervical discectomy and fusion (ACDF), potentially leading to chronic pain and revision surgery. This study compares the rates of pseudoarthrosis between 4.0 mm and 4.5 mm screws in ACDF and evaluates their impact based on the number of spinal levels fused.

**Methods:** A retrospective cohort study was conducted on 180 patients who underwent ACDF between 2017 and 2021. Of these, 135 patients received 4.0 mm screws and 45 patients received 4.5 mm screws. Pseudoarthrosis rates were confirmed through radiographic assessment. Secondary outcomes included differences in pseudoarthrosis rates by the number of levels fused (1, 2, or 3). Odds ratios (OR) and p-values were calculated to compare the screw sizes across levels.

**Results**: In single-level fusions, 4.5 mm screws significantly reduced the risk of pseudoarthrosis compared to 4.0 mm screws (OR = 7.88, p = 0.0338). In 2-level fusions, there was a trend toward lower pseudoarthrosis rates with 4.5 mm screws (OR = 2.74, p = 0.1489). No difference was found in 3-level fusions (OR = 1.11, p = 1.000). Overall, larger screws were associated with lower pseudoarthrosis rates (OR = 2.63, p = 0.0188).

**Discussion:** The use of 4.5 mm screws in ACDF, particularly in single-level fusions, significantly reduces pseudoarthrosis rates. Larger screw sizes may improve fusion outcomes and guide surgical decision-making.

**Poster #24**
**Hepatotoxicity Linked to Disulfiram Use**

He, Britney and Smith, Aaron

**Background:** Disulfiram, used to treat alcohol use disorder, can cause rare but severe drug-induced liver injury (DILI) though with the decreasing frequency of disulfiram use, awareness of this adverse effect is likely also decreasing. While the likelihood of DILI may not have changed, the absolute number of cases has likely decreased due to reduced overall use of disulfiram.

**Case Presentation:** A 72-year-old woman with active alcohol use disorder presented with two days of confusion four weeks after initiation of disulfiram therapy. She presented with elevated liver enzymes in a cholestatic pattern and hyperbilirubinemia, indicating hepatocellular injury or cholestasis. A thorough workup ruled out other common causes of liver injury, including autoimmune hepatitis, hepatitis B and C, and acetaminophen toxicity. A normal liver ultrasound excluded structural abnormalities. Given these negative findings and the timing of disulfiram initiation, acute hepatic injury due to disulfiram was diagnosed. Disulfiram was stopped and she

was treated with N-acetylcysteine (NAC). She was discharged on acamprosate for alcohol use disorder. At one month after hospitalization, her liver function normalized.

**Discussion:** This case underscores the importance of liver function monitoring, especially during the first 2-12 weeks after initiating disulfiram therapy, when the risk of DILI from disulfiram is highest. Clinicians should educate patients about the importance of reporting symptoms such as jaundice, nausea, vomiting, and abdominal pain. The combination of monitoring and education should enhance earlier recognition of DILI from disulfiram.

**Poster #25**
**Car seat testing in the NICU: Pass, fail, and opportunities for improvement**

Howard, Paige and He, Britney

**Background:** The American Academy of Pediatrics recommends a car seat test (CST) for infants born before 37 weeks or with risk factors, such as hypotonia, to assess breathing, oxygen saturation, and heart rate stability in a car seat. Protocols for CSTs vary, and understanding pass/fail rates and characteristics of infants who fail may improve practice.

**Methods**: We conducted a retrospective review of CSTs in a Level IV NICU from January 2018 to January 2024. The unit protocol required a 120-minute CST within two days of discharge. CST failure was defined by oxygen desaturation or heart rate decline. We compared demographic and clinical data between infants who passed and failed their first CST, using Pearson's Chi-square and Student's t-tests. Repeat CST outcomes were also reviewed.

**Results:** A total of 2861 CSTs were performed on 2523 infants (median gestational age 34 weeks). Of these, 117 (5%) failed their first CST due to oxygen desaturation (72%), bradycardia (8%), or both (10%). No significant demographic or clinical differences were found between groups. Of the 117 failures, 89 (75%) passed the second CST, and 6 were discharged in a car bed. Six infants who initially passed but had delayed discharge failed a repeat CST but passed a subsequent test.

**Discussion:** The CST failure rate was 5%, with no significant predictors for failure. This study emphasizes the importance of consistent CST protocols. Recent policy changes reduced test duration and adjusted timing prior to these findings.

**Poster #26**
**The Differentiating Effects of Co-Morbid Psoriasis and Atopic Dermatitis on Chronic Rhinosinusitis Immunopathology**

Smith, Aaron

**Background:** Psoriasis is a papulosquamous condition characterized by type 1 (T1) inflammation, while atopic dermatitis, the most common chronic inflammatory skin disease, involves a type 2 (T2) process. Since both psoriasis and atopic dermatitis are predictive of higher CRS rates, our objective was to determine whether CRS with concurrent psoriasis or atopic dermatitis would share its respective T1 or T2 signature. Compared to T1 CRS, a T2

process can be predicted by more extensive sinus disease (Lund-MacKay score), reduced sense of smell, and higher rates of purulent drainage and pain/pressure.

**Methods:** Subjective measurements of CRS included the Sino-Nasal-Outcome Test (SNOT-22), while objective measurements included Lund-MacKay Sinus CT and endoscopic scoring. Outcomes were compared with controls who had CRS with allergies, asthma, or aspirin-exacerbated respiratory disease (AERD).

**Results:** A total of 76 patients (12 CRS alone, 14 CRS/Psoriasis, 14 CRS/Atopic Dermatitis, 12 CRS/AERD, 12 CRS/allergic-asthmatic, 12 CRS/non-allergic asthmatic) were included. Comparative chi-square analysis revealed significant differences between CRS/psoriasis and CRS/atopic dermatitis patients versus other groups. These dermatologic patients had higher overall SNOT-22 scores and were more likely to wake up tired. Atopic dermatitis was further characterized by significantly higher levels of nasal polyps, poor sleep, and reduced productivity. However, neither group differed in smell, pain/pressure, or purulent drainage, with comparable disease extent on CT scans and blood eosinophilia.

**Discussion:** In addition to the increased prevalence of CRS in atopic dermatitis and psoriasis patients, our data suggests that these dermatologic diseases create differing presentations in the sinuses.

**Poster #27**
**A Case of Nevoid Basal Cell Carcinoma Syndrome with SUFU Mutation**

Lyons, Catherine and Smith, Aaron D

**Background**: Nevoid Basal Cell Carcinoma Syndrome (NBCCS), also known as Gorlin's syndrome, is commonly associated with mutations in the PTCH1 gene. Rarely, mutations in the suppressor of fused gene (SUFU), which lies downstream in the sonic hedgehog (SHH) pathway, can also cause NBCCS. SUFU mutations are associated with a unique clinical phenotype, including an increased risk of medulloblastoma and meningioma but a generally milder presentation of other NBCCS features.

**Case Report:** A 30-year-old female with a complex medical history, including medulloblastoma status post resection and chemotherapy, end-stage renal disease secondary to the chemotherapy treated with kidney transplant, ovarian fibrosis, meningioma complicated by seizure disorder, presented for routine dermatologic evaluation in the setting of immunosuppression following transplant. Examination revealed multiple small flesh-colored papules with sharp vessels around the eyes and nose, along with subtle palmar pits. Biopsies of lesions on the eyelid, scalp, and back confirmed basal cell carcinoma (BCC). Genetic testing identified a pathogenic SUFU mutation, leading to the diagnosis of NBCCS. Treatments included topical imiquimod, photodynamic therapy, Mohs surgery, and shave and curettage. Immunosuppressive therapy was adjusted to minimize further cancer risk. The patient is monitored with dermatologic follow-up every 4 months.

**Discussion:** This case highlights the importance of recognizing NBCCS associated with SUFU mutations, which often present without typical features such as jaw cysts, potentially delaying diagnosis. Management strategies differ from PTCH1-associated NBCCS, as SHH inhibitors like

Vismodegib may be ineffective due to the downstream mutation. Early identification of this rare genetic subtype is crucial for tailored management and surveillance.

**Poster #28**
**Evaluating the Impact of an Antibiotic Prophylaxis Bundle on Surgical Site Infections Following Cesarean Delivery in Women with Obesity: A Retrospective Cohort Study**

Houghton, Melissa

**Background:** Surgical site infections (SSI) are a major cause of morbidity following cesarean, and women with obesity are at a higher risk for this complication. The aim of this study was to investigate the impact of expanded antibiotic prophylaxis on the rate of SSI after cesarean in women with obesity. The expanded prophylaxis bundle included postoperative cephalexin and metronidazole for patients with BMI □30 as well as intraoperative azithromycin for patients in labor or with ruptured membranes.

**Methods:** We reviewed the records of patients with obesity who had a cesarean between 2015 and 2022 at a single academic medical center. We recorded demographics, prenatal and intrapartum factors impacting infection risk, antibiotic administration, and postoperative SSI.

**Results:** We analyzed 1219 cesareans including 454 before implementation of the prophylaxis bundle and 765 afterward. The overall rate of SSI before the protocol was 6.2% compared to 6.4% after the protocol (p = .90). There was no significant difference in SSI rates before and after the protocol when compared across BMI class [30-35, 35-40, 40-50, >50], preterm vs term gestation, and ruptured vs unruptured membranes.

**Discussion:** In women with obesity who underwent cesarean, antibiotic prophylaxis with postoperative cephalexin and metronidazole, in addition to intraoperative azithromycin for those who had labored or ruptured membranes, did not reduce rates of SSI. Our findings suggest that these regimens should be reconsidered, perhaps particularly at medical centers with low baseline rates of SSI, to reduce unnecessary peripartum antibiotic exposure and the risk of emergence of antimicrobial resistance.

**Poster #29**
**Neutrophil Extracellular Traps Promote Population Shifts of Macrophages and B-Cells During the Development of Metabolic Dysfunction-Associated Steatohepatitis**

Jain, Arad and Oh, Janice

**Background:** Metabolic dysfunction-associated steatohepatitis (MASH) is a severe form of metabolic dysfunction-associated steatotic liver disease (MASLD) characterized by inflammatory cell activation with potential progression to cirrhosis and hepatocellular carcinoma (HCC). Our studies have shown that neutrophil extracellular traps (NETs) regulate inflammatory microenvironment to drive MASH fibrosis, though the underlying mechanisms are unclear. Kupffer cells play key roles in liver inflammation and repair. MASH leads to depletion of resident Kupffer cells (ResKCs) and recruitment of monocyte derived Kupffer cells (moKCs), while B cell-derived cytokines and antibodies contribute to MASH progression. This study investigates how

NETs drive fibrosis through modulating macrophage and B-cell function, offering novel approaches to address fibrosis in MASH.

**Methods:** We induced MASH fibrosis in C57BL/6J mice with a Western diet (WD) for 28 weeks. A subset of mice received daily 10 mg/kg DNase I treatment to degrade NETs. Liver tissue was analyzed with single-cell RNA-sequencing and flow cytometry to verify changes in hepatic macrophage and CD45+ leukocyte populations in response to treatment.

**Results:** MASH fibrosis was confirmed in the WD model. Single-cell RNA-sequencing revealed a depletion of ResKC with significantly increased moKC population and a transcriptomic shift in B-cells. These population changes were further confirmed with flow cytometry. DNase I induced NET degradation significantly attenuated liver fibrosis, with B-cell population shift reversal and decreased moKC infiltration. However, ResKCs weren't significantly rescued.

**Discussion:** Our findings demonstrate the role of NETs in promoting fibrogenesis during MASH by regulating hepatic macrophages and B-cells, suggesting potential strategies for addressing MASH fibrosis progression.

**Poster #30**
**Preoperative exercise induces anti-tumor Kupffer cells to prevent surgical stress-induced colorectal cancer liver metastasis**

Oh, Janice and Jain, Arad

**Background:** Colorectal cancer (CRC) is the second leading cause of cancer death in the US, with surgical resection being the standard of care for hepatic metastasis of CRC. However, surgery-induced immunologic disturbances can evoke alterations in the host tumor environment to promote disease recurrence. Strategies to mitigate the negative outcomes of surgical stress have only been shown to be minimally effective. Preoperative exercise therapy (PEx) has emerged as a promising protective strategy against post-surgical inflammation and recurrence. Our recent findings demonstrated that PEx significantly attenuates hepatic surgery-induced local and systemic inflammation. We hypothesize that PEx ameliorates surgical stress-induced pro-tumorigenic inflammatory responses and sustains an anti-tumor immune microenvironment in the liver.

**Methods:** 8-week-old male wild-type mice were randomly divided into PEx and sedentary groups, in which the PEx mice ran on a motorized treadmill one hour per day for four weeks. MC38 CRC cells were injected through the portal vein, followed by a hepatic ischemia-reperfusion model to simulate surgical stress. After three weeks, the mice were sacrificed for further experimentation.

**Results**: We found that 4 weeks PEx significantly reduces hepatic metastases compared to the sedentary controls. Transcriptomic analysis using scRNA-seq demonstrated substantial changes in the immune profiles, particularly that PEx shifts pro-tumor Kupffer cells (KC) towards an anti-tumor immunity phenotype.

**Discussion:** These results demonstrate PEx therapy as a favorable method of preventing post-surgical inflammation and recurrence. Understanding the mechanisms behind this can elucidate potential targets for improving post-surgical outcomes and greatly improve cancer survival rates in the future.

**Poster #31**
**Ablation of the Stim1 and Stim2 subunits from the CRAC channel decreases microglial calcium signaling but worsens the outcome of ischemic stroke**

Jannatifar, Nina

**Background:** Enhanced calcium activity in microglia during acute ischemic stroke has been identified as a potential target for intervention. Here, we have studied the effects of genetic ablation of microglial Stim1 and Stim2 subunits from the Ca2+-release-activated-Ca2+ (CRAC) channels on calcium dynamics and stroke outcomes.

**Methods:** The Stim1 and Stim2 genes were deleted in aged brain microglia with the tamoxifen-induced Cx3cr1-CreER allele. Calcium transients evoked by cortical spreading depolarizations (CSD) were visualized with intravital 2-photon microscopy and GCaMP5 calcium indicators. The transients were consistently recorded following KCl microinjections. Microglial cell bodies were segmented using Imaris, and GCaMP5 signal traces were analyzed using custom Python code.

Next, distal middle cerebral artery occlusion (dMCAo) was performed in male and female mice (n = 26). The ischemic injury was imaged 48 hours after dMCAo with a 9.4T Bruker BioSpec scanner and an optimized T2-RARE sequence. The infarction volumes were quantified by segmentation analysis with ITK-SNAP.

**Results:** Over 100 traces were analyzed in the mutant (n=4) and control (n=3) mice, revealing a significant 34% decrease of the area under the curve value in the mutants. Infarction volume segmentation analysis revealed a significant two-fold increase of the infarct size in the mutant male cohort. The mutant female cohort showed a similar trend, but it was not significant.

**Discussion**: Contrary to our initial hypothesis, the ablation of the Stim subunits did not confer protective effects. These unexpected findings suggest that microglial calcium activity may have multiple roles during acute ischemic stroke, potentially including a beneficial function in combating ischemic injury.

**Poster #32**
**Sex-specific differences in patients with aortic stenosis undergoing transcatheter aortic valve replacement**

Karra, Hakinya

**Background:** Women with aortic stenosis (AS) exhibit more aortic valve fibrotic remodeling, while men have greater aortic valve calcification. Understanding these sex-specific differences is crucial for diagnosis and outcomes. This study aims to compare fibrotic and calcific changes between sexes.

**Methods:** 232 patients who underwent a transcatheter aortic valve replacement (TAVR) with prior echocardiography and contrast-enhanced CT were analyzed. Calcific and fibrotic volumes were measured on CT using the SliceOmatic software. Calcification was quantified using the Agatson score. The fibrocalcific volume was the sum of valvular fibrosis and calcification, and the fibrocalcific ratio was derived by dividing fibrotic by calcific volume.

**Results**: Results showed that men had significantly higher Agatson scores, indicating more severe calcification (2732 men vs. 1492 women, $p < 0.001$). Men had higher indexed calcium volume (151 mm3/cm2 men vs 85 mm3/cm2 women, $p < 0.001$). Women had a higher fibrocalcific ratio, indicating more valvular fibrosis (0.9 women vs 0.45 men, $p < 0.001$). Women had a stronger correlation between aortic valve peak velocity and fibrocalcific indices compared to Agatson scores ($r = 0.5077$, $p < 0.001$ for indexed calcific volume; $r = 0.475$, $p < 0.001$ for indexed fibrocalcific volume).

**Discussion:** Women with aortic stenosis undergoing TAVR display greater fibrotic remodeling and lower calcification scores when compared to men. These differences highlight the need for tailored diagnostic strategies in AS, especially in women. Potential strategies include increased screening with contrast-enhanced CT to accurately determine the extent of fibrosis vs. calcification in the valves.

**Poster #33**
**Coexisting True and Pseudoexfoliation Syndromes In a Glassblower with Cataracts and Glaucoma**

Karri, Vishnusai

**Background:** Pseudoexfoliation Syndrome (PXF) is a common age-related disorder identified as the leading cause of secondary open-angle glaucoma worldwide. It is characterized by fibrillary deposits in ocular structures, leading to glaucoma, cataracts, and zonular instability. True Exfoliation Syndrome (TEX), although less common, results from lamellar separation of the anterior lens capsule, typically associated with chronic heat exposure, such as in glassblowers. The coexistence of PXF and TEX is rare, with few cases reported.

**Methods**: Following a comprehensive eye examination, the patient underwent phacoemulsification with intraocular lens implantation, goniotomy, and endoscopic cyclophotocoagulation in the right eye. An aqueous sample and the capsulotomy button were examined by light and transmission electron microscopy (TEM).

**Results:** Slit lamp examination revealed fluffy PEX material in the anterior chamber with a pseudoexfoliative rosette on the anterior lens capsule (ALC), alongside subtle ALC wrinkling. Histopathology revealed eosinophilic proteinaceous deposits, diagnostic of PEX. Alongside the deposits, early lamellar splitting of the anterior capsular layers was seen, consistent with TEX. This case is notable for the rare coexistence of PEX and TEX in the same eye, demonstrated by light microscopy, endoscopic visualization, histopathology, and TEM.

**Discussion:** This case demonstrates the coexistence of PXF and early TEX in a 79-year-old male glassblower. Chronic exposure to heat may have contributed to the development of TEX. Early capsular delamination was identified through histology and TEM, offering insight into its progression. Additionally, endoscopic visualization of the ciliary processes showed atrophy and deposition of material, possibly linked to PXF.

**Poster #34**
**Achieving Textbook Outcomes in Bilateral DIEP Flap Breast Reconstruction: Does a Co-Surgeon Matter?**

Ke, Benjamin

**Background**: It is essential to examine predictors of ideal outcomes in surgery. Ideal or "textbook outcomes" are optimal surgical results based on multiple quality measures.

**Methods**: A retrospective review of all bilateral DIEP flap breast reconstructions at our institution from 2017 to 2022 was performed. Criteria for "textbook outcome" were OR time within one standard deviation of institutional average or less, length of stay </= 4 days, no intraoperative complications, no operative complications, no readmission within 30 days, no infection requiring IV antibiotics, no systemic complications, and no mortality. Propensity score matching was used to control for common comorbidities, reconstruction timing, and oncologic factors. This resulted in 47 matched pairs of bilateral DIEP flap reconstructions for comparison between a single-surgeon cohort and a co-surgeon cohort.

**Results:** Textbook outcomes occurred at a significantly higher rate in the co-surgeon cohort compared to the single surgeon cohort (79% vs. 57%, $p = 0.025$). The average OR time was significantly shorter in the co-surgeon cohort compared to the single surgeon cohort (403 minutes vs. 572 minutes, $p < 0.0001$), and elevated OR time was the most common reason for not achieving a textbook outcome. There were no differences in length of stay, intraoperative complications, complications requiring reoperation, readmission within 30 days, infection requiring IV antibiotics, systemic complications, and mortality.

**Discussion:** Textbook outcomes in bilateral DIEP flap breast reconstruction are achieved at significantly higher rates with a co-surgeon. This is primarily due significantly shorter OR times. Further research into factors associated with textbook outcomes is needed.

**Poster # 35**
**Hummingbird-HOPE Pilot Study**

Khan, Areesheh

**Background:** The American Psychological Association defines resilience as the process of successfully adapting to challenging life experiences, through mental, emotional, and behavioral flexibility. Living with a progressive neuromuscular disease comes with significant medical burden but may also present an opportunity for learning and adaptability that may be under-recognized. This pilot study aims to analyze ways to document the positive attributes patients gain while navigating medical complexity.

**Methods:** The Turbocharged Living Scale was created by Drs. Jim and Peggy Plews-Ogan after finding that while certain capabilities may be lost with ALS disease progression, new skills such as hope, adaptability, and resilience may be gained. This pilot study adapted this scale into three versions for different respondent groups: 1) Adults/Adolescents and 2) Youth/Children living with neuromuscular diseases, and 3) Caregivers. Post-survey questions were implemented to evaluate patient perceptions of the scale.

**Results:** While data collection continues, preliminary results were analyzed for 33 respondents. One-third reported they were never asked about their strengths prior to this survey, and 61% wished there was a way to document the skills they have gained. The scales found a variety of responses about resiliency, hope, and adaptive skills, and patients reported gaining insight into their own journeys through the scale.

**Discussion:** The majority of respondents reported that they do not have conversations with their health care providers about their strengths, new adaptive skills, or other resiliency factors throughout their disease course. This scale allowed for conversation around these new skills and discussion about perspective that may come with living with a progressive neurological condition.

**Poster #36**
**Comparison of Short-Term Outcomes Between Coil Embolization and Flow Diversion in the Treatment of Cerebrovascular Aneurysms: A Retrospective Study at the University of Virginia Health System**

Kirkham, Hannah and Gundlapalli, Rithvik

**Background**: Cerebral aneurysm ruptures have high mortality and require early intervention. Coil embolization (CE) is a primary endovascular intervention, but flow diversion (FD) is becoming increasingly used. This study compares the outcomes of CE and FD in cerebral aneurysm treatment at the University of Virginia Health System (UVA HS).

**Methods**: Chart review of 139 patients who underwent aneurysm treatment at the UVA HS from 2017-2022 was performed, of which 72 patients received CE and 67 received FD. Presenting and perioperative variables were compared between patients receiving CE and FD. Analysis included Chi-Squared, Mann-Whitney, and t-tests.

**Results:** The CE group had a significantly higher mRS than the FD group at both presentation ($P=0.028$) and discharge ($P=0.003$). The average length of stay (LOS) was longer in the CE group ($P<0.001$). With regards to aneurysm location, CE was used more often for bifurcation aneurysms and FD for sidewalls ($P=0.009$). CE was more likely to be used when a patient presented with a ruptured aneurysm ($P<0.001$). There was no statistically significant differences between the CE and FD groups with respect to aneurysm status (new versus recurrent, $P=0.849$), hydrocephalus at presentation ($P=0.077$), vasospasm ($P=0.197$), or retreatment requirement ($P=0.899$).

**Discussion:** This study provides initial evidence that FD has better short-term outcomes than CE, specifically discharge mRS and LOS, although discharge mRS may be biased by the worse pre-admission mRS in the CE group. These preliminary findings support future research involving a larger patient population and multiple centers.

**Poster # 37**
**Assessment of Vision Related Quality of Life at Complementary Remote Area Medical Clinics in the Eastern US**

Kobelski, Margaret

**Background:** Disparities in vision care across the US exist due to a shortage of vision providers, the high cost of care, and lack of insurance coverage. Remote Area Medical (RAM) is an organization that provides free vision clinics across the United States.

**Methods:** An NIH-validated survey to assess the Vision Related Quality of Life (VRQOL) was distributed to patients accessing vision care at RAM clinics in Scranton, PA and Lusby, MD.

**Results:** Of the 53 patients surveyed across all 4 clinic days, 47% answered at least one question indicating at least a little bit of limitation to VRQOL. This percentage was greatest on the first clinic day in Lusby, MD, during which 57% of patients expressed at least some level of limitation to their VRQOL. The majority (53%) of patients across the four clinic days reported no limitation of VRQOL. Only one patient out of 53 total patients surveyed responded “A lot limited” to any of the survey questions. Most patients who reported VRQOL limitation reported it at the “a little” and “somewhat” levels.

**Discussion:** These surveys show that many patients accessing RAM care experience some limitation to VRQOL. These numbers may exclude patients who have recently lost access to care and still have adequate prescription lenses due to previous access. Further, access to up-to-date prescription lenses is only a portion of the need being addressed by RAM, as exam elements such as retinoscopy assess aspects of patient eye health that may not be subjectively recognized. Future studies will assess these elements in the population of patients experiencing no limitation in VRQOL.

**Poster #38**
**Expanding Access to Specialist Physician Services in a Free Medical Clinic Patient Population**

Kokuuslu, Derin

**Background**: Free medical clinics play a crucial role in providing healthcare to uninsured and underserved populations, often relying on donations and volunteers. While these clinics typically focus on primary care, patients with more complex conditions frequently experience delays in accessing specialist care. This project aimed to address gaps in specialist access at the Culmore Clinic in northern Virginia by developing strategies to reduce referral delays and improve patient outcomes.

**Methods:** We assessed the clinic’s referral system through consultations with staff and a review of medical records. High-demand specialties were identified, and we reached out to local specialist practices and graduate health programs to expand volunteer services. Patients were also enrolled in financial assistance programs to help them receive care at participating hospitals.

**Results:** The most in-demand specialties included musculoskeletal care, dermatology, and physical therapy. Early efforts led to partnerships with one dermatology practice, two orthopedic practices, and a potential collaboration with a doctor of physical therapy program. Thirty patients were referred for financial assistance, with 12 successfully completing applications. Six patients have undergone or are scheduled for surgeries. Several patients lost to follow up were recontacted to address potential health risks.

**Discussion:** This project highlights the value of partnerships with local providers and academic institutions to improve specialist access for free clinic patients. Although progress has been made, challenges like transportation, financial assistance complexities, and socioeconomic barriers remain. Securing grant funding will be key to sustaining and expanding these efforts, ensuring long-term specialist care access for underserved patients.

**Poster #39**
**Preoperative Vaginal Estrogen and Outcomes in Gender-Affirming Hysterectomies**

Lamb, Avery and Leonard, Maddie

**Background:** Hysterectomy is a commonly performed surgery, with an estimated 600,000 performed yearly in the US. Estrogen has been shown to improve the strength and healing capacity of vaginal tissue. There is little research on the impact of preoperative vaginal estrogen in transgender patients receiving gender-affirming hysterectomies.

**Methods:** A retrospective chart review was performed during the last 20 years for hysterectomies with diagnosis codes of gender dysphoria. Two reviewers recorded patient characteristics, testosterone and/or estrogen usage, and information from postoperative course. Analysis performed using t-test and chi-squared analysis

**Results:** A total of 61 patients were identified. 56 (92%) patients had been on testosterone prior to their surgery. Preemptive use of vaginal estrogen was discussed with 24 (39%) patients preoperatively, with 15 (25%) using the medication.

There was no statistically significant difference in the following categories of estrogen group vs. control group, respectively: average operating-time (170.4 min(SD 67.3) vs 185.5 min(SD 103.1), p= 0.60), quantitative blood loss (64.3 cc(SD 24.4) vs 60.6cc(SD 66.3), p=0.83), endorsement of pain (0v2, x2 =0.67, p=0.42), and vaginal cuff dehiscence (2v1, x2 =3.01, p=0.08)

There was a significant difference of incomplete healing: 2 in the estrogen versus 0 in the control (x2 =0.634, p=0.02).

**Discussion:** Patients undergoing gender-affirming hysterectomies have great outcomes. The only significant difference was the incidence of incomplete healing at the 6-week postoperative visit. A limitation of this study is the small sample size. Also, the search criteria may not encompass all gender-affirming hysterectomies due to patients lacking a diagnosis of gender dysphoria.

**Poster #40**
**Exploring CDI and PT-LTR: Pathological elevations in patellar height are associated with a more lateralized pull of the patella**

Le, Royce

**Background:** Patellar instability is a multifactorial condition in which several anatomic risk factors can play a role. Patellar height and a lateralized vector of pull have been described with a Caton-Deschamps Index (CDI) and patellar tendon-lateral trochlear ridge measurement (PT-LTR), respectively. We postulate that patella alta can contribute to a lateralized vector of pull by allowing the extensor mechanism to drape over the lateral trochlea more proximally where there is less bony restraint.

**Methods:** 309 patients undergoing MPFL reconstruction were identified who had a documented CDI measurement by MRI. The preoperative MRI was utilized to obtain a PT-LTR. A two-tailed student's T test with a 95% confidence interval was used to compare the mean PT-LTR values for the elevated-CDI cohort defined as a value > 1.4 and a control CDI cohort defined as a value ≤ 1.4. A correlation coefficient was calculated between CDI and PT-LTR.

**Results:** Patients with high CDI values (>1.4) had a statistically significant elevated mean PT-LTR (15.3) when compared to the mean control CDI values (≤1.4) (mean:12.4) (p= 0.003). A weak but significant positive correlation was identified between CDI and PT-LTR (CC: 0.185, p = 0.001).

**Discussion:** The results demonstrated a correlation between patella alta (CDI> 1.4) and an excessive lateral vector of pull of the extensor mechanism as represented by PT-LTR. This supports the theory that in more significant cases of patella alta, the propensity for the extensor mechanism to drape laterally over the femur and predispose a patient to patellar instability is increased.

**Poster #41**
**Comparison of Patient-Reported and Objective Functional Measures during the Early Rehabilitative Phase in Patients with Primary Versus Revision ACL Reconstruction**

Lee, David and Ambrose, Michael

**Background:** Up to 30% of young active patients with a previous anterior cruciate ligament reconstruction (ACLR) suffer a second ACL rupture within the first two years after surgery. Few studies have characterized thigh strength and patient-reported outcomes in the early rehabilitation period in revision ACLR patients compared to primary ACLR patients.

**Methods:** Data were obtained via retrospective chart review of patients from a single university-based orthopaedic practice. 143 patients (121 primary and 22 revision ACLR patients) completed isokinetic knee extension and flexion strength testing at 60°/s and 180°/s and patient-reported outcomes including IKDC, KOOS, and ACL-RSI 4.2 ± 0.7 months after ACLR. Outcomes were compared using ANCOVA while controlling for age and ACLR graft source.

**Results:** Patients in the primary ACLR group were younger (p=0.020), and the groups also differed based on graft source (p<0.001) and medial meniscus (p=0.003) treatment at the time of ACLR. There were no significant group differences for ACL-RSI (p=0.796), IKDC (p=0.916), and KOOS subscale scores (p=0.323 – 0.838). Similarly, there were no significant group differences in isokinetic knee extension peak torque at 60°/s and 180°/s (p=0.122 and p=0.132) and knee flexion peak torque 60°/s and 180°/s (p=0.278 and p=0.348).

**Discussion:** Three to five months postoperatively, revision ACLR patients performed similarly in terms of thigh strength, limb symmetry, and patient-reported function compared to primary ACLR patients. In the event of reinjury, previous experience of post-ACLR rehabilitation may aid with patient expectations and facilitate comfort immediately following surgery. Increased familiarization with post-ACLR rehab may bolster outcomes for revision ACLR patients despite increased structural damage following second injury.

**Poster #42**
**A Pilot Investigation of Novel Chatbot Technology for Family Results Sharing of Genetic Testing Results**

Lefbom, Lucie

**Background:** Cascade testing of family members (FM) following identification of pathogenic variants in cancer genes is a priority in cancer prevention, but barriers to informing FMs of the genetic variant, such as guilt and informational complexity, result in cascade testing rates of 17%. This study aims to evaluate efficacy and acceptability of a novel chatbot, Genetics Information Assistant (Gia), in sharing results following high risk variant identification.

**Methods:** In this prospective cohort study, 20 subjects over age 18, who tested positive for cancer gene variants, were recruited. Following informed consent, the patient was sent a personalized Gia link for family sharing. A follow up survey was administered to assess acceptability.

**Results:** This sample was 85% (17/20) white, 65% (13/20) privately insured, with an average age of 47 years. Twelve patients shared their results using Gia, with an average of 4.2 FMs. All FMs who received the family sharing tool engaged with Gia, and 25.8% completed the full chat. All nine patients who completed the follow up survey reported that Gia was helpful in communicating results and easy to understand. Five of these patients had not yet shared the link with FMs.

**Discussion:** Engagement with GIA was high in this pilot study, with most patients using Gia and all FMs contacted at least initiating a conversation with Gia about their FM's result. Reported acceptability was also high among respondents. The use of chatbots is a promising avenue in increasing rates of cascade testing, but further investigation is needed to improve chatbot completion.

**Poster #43**
**Assessing predictive performance of pulse oximetry warning system (POWS) in Very Low Birth Weight Infants**

Leung, Annabelle

**Background:** Late-onset sepsis is a life-threatening condition that affects 15% of neonates with Very Low Birth Weight (VLBW, <1500g) and is correlated with significant cardiorespiratory deterioration. A prior study had developed and externally validated a pulse oximetry warning system (POWS), which uses blood oxygen saturation and heart rate data to predict risk of sepsis and other clinically significant events.

**Objective:** We aim to expand on the evaluation of the predictive performance of the Pulse Oximetry Warning System (POWS) by determining sensitivity, specificity, positive predictive value and negative predictive value at different thresholds.

**Methods:** We prospectively monitored 20 VLBW infants with POWS and recorded events in near-real time for every day of one month, tracking changes to the clinical picture: significant events, the lack of events, and any interventions the infants received. We defined POWS alerts as times when POWS rose above 2 or by at least 2-fold above a 5-day baseline. We labeled each alarm group as a true positive if an event occurred during or within 24 hours of an alarm group, false positive if no event occurred within 24 hrs, true negative for days with no POWS alarm and no events within 24 hrs, and false negative if there was an event but no POWS alarm.

**Results:** We counted 58 true positive alarms, 32 false positive alarms, 328 true negative days, and 87 false negative event days. Using this data we calculated sensitivity, specificity, positive predictive value, and negative predictive value to be 66.7%, 90.2%, 64.4%, and 91.1%, respectively.

**Conclusions:** Using near-real-time review of patient events over a one-month period, we found POWS to have good predictive performance for cardiorespiratory deterioration in VLBW NICU patients.

**Poster #44**
**Characterization of a novel SEL1L ERAD mutation that causes neurological and developmental disorders in humans**

Li, Jason

The Endoplasmic Reticulum (ER) is a critical cellular compartment where around one third of total proteins undergo folding and maturation in eukaryotes. Maintaining protein homeostasis in the ER therefore plays an important role in cellular physiology, and failure to do so has been implicated in the pathogenesis and progression of several diseases, including cystic fibrosis and diabetes insipidus. The mammalian SEL1L-HRD1 mediated ER-associated degradation (ERAD) machinery is one principal protein quality control system that monitors the protein folding process in the ER and targets misfolded proteins for cytosolic proteasomal degradation, thereby generating a conducive protein folding environment. Despite recent advances in mouse models, its role in human health and disease remains largely unknown. Collaborating with clinicians at

the Imagine Institute in France, our group has recently identified a bi-allelic SEL1L variant (p.M528R) to be a disease-causing variant in four patients from a consanguineous family in Morocco. All four patients exhibit progressive ataxia, intellectual disability, developmental delay, and microcephaly. Using a CRISPR-based knock-in approach, our preliminary data suggest that this variant may impair ERAD function by destabilizing the SEL1L-HRD1 complex. In addition, mice carrying homozygous SEL1L M528R mutation exhibit growth retardation and neurological defects, recapitulating the patients' manifestations. Therefore, we conclude that the SEL1L M528R is a novel disease-causing variant by disrupting ERAD complex stability and impairing ERAD function towards misfolded proteins in the ER. This study not only established a novel role and pathological importance of SEL1L-HRD1 ERAD in human diseases, but also provided new insights into the pathogenesis of human neurological and developmental disorders. While it is currently rare, we expect that more patients with SEL1L variants will surface as evidence for its importance in humans grows. Hence, this study may provide the framework for future effort to target this process for disease treatment.

**Poster #45**
**Identifying Clinical Predictors and Outcomes of Gestational Hyperglycemia Using Phenome-Wide Association Studies**

Lin, Ashley

**Background**: Gestational diabetes mellitus (GDM) is associated with adverse health outcomes, but the risk factors associated with glucose levels during pregnancy and their connection to negative outcomes are not well-defined. Disease heterogeneity in GDM remains unclear. Leveraging a large electronic health record (EHR) database, we conducted phenome-wide association study (PheWAS) analyses to investigate whether individuals with sub-diagnostic glucose levels are still at higher risk for adverse health outcomes.

**Methods:** We performed temporal PheWAS analyses to examine pre-pregnancy phecodes as potential risk factors for glucose levels during a 50-gram glucose challenge test (50-g GCT) and to evaluate associations between glucose levels and post-pregnancy phecodes. We selected data from pregnant adults who delivered at Vanderbilt University Medical Center, excluding those with pre-existing type 1 or type 2 diabetes. Analyses were adjusted for self-reported race, maternal age, gestational age at 50-g GCT, years of EHR data available, singleton/multiple status, and parity. We further analyzed subsets of our sample based on GDM diagnosis and outcome of the follow-up 100-gram oral glucose tolerance test.

**Results:** Higher glucose levels from the GCT were associated with post-pregnancy phecodes related to glucose metabolism dysfunction, hypertension, substance use disorders, and cholelithiasis/cholecystitis. Additionally, higher glucose levels in those not diagnosed with GDM based on the initial non-fasting test were linked to adverse outcomes such as type 2 diabetes, dysglycemia, and obesity after pregnancy.

**Discussion:** Our findings suggest that current diagnostic criteria for GDM may miss individuals at risk for adverse outcomes, indicating a potential need to revise these guidelines.

**Poster #46**
**Protective Role of GluA1 Knockout in Status Epilepticus**

Mahajan, Vikrant

**Background:** Generalized convulsive status epilepticus (SE), characterized by prolonged or sequential seizures, is a life-threatening neurological condition linked to significant morbidity and mortality, including sudden unexpected death in epilepsy (SUDEP). The α-amino-3-hydroxy-5-methyl-4-isoxazolepropionic acid (AMPA) receptor, specifically its GluA1 subunit, has been implicated in the pathogenesis of SE. This study aimed to assess whether knocking out the GluA1 subunit in mice would confer protection against SE.

**Methods:** GluA1-floxed mice were subjected to stereotaxic injections to induce hippocampal knockout (KO) using a Cre virus. Afterwards, subdural bilateral EEG electrodes targeting the hippocampus and a cerebellar reference electrode were implanted. After recovery, the mice were placed in plethysmography chambers for continuous EEG and respiratory monitoring. SE was induced using electrical stimulation. Wild-type (WT) and GluA1-KO mice were compared based on their responses to SE induction and apneic respiratory changes.

**Results:** GluA1-KO mice exhibited a marked resistance to SE, with 5 out of 6 animals avoiding SE, while all WT mice developed SE and subsequently died. Additionally, a pre-apneic spike in breathing pattern was observed in a GluA1-KO mouse, suggesting a potential biomarker for predicting apnea during SE, a critical factor in SUDEP.

**Discussion:** This pilot study suggests that GluA1 knockout confers protection against SE. In addition, this study also identifies a potential respiratory biomarker for predicting SE-induced apnea. These findings provide a foundation for future studies to explore the clinical relevance of GluA1 in SE and SUDEP prevention.

**Poster #47**
**Venous Thromboembolism Risk Stratification in Patients with WHO Grades 3 & 4 Diffuse Gliomas**

Menon, Adarsh and Ng, Nicole

**Background:** Patients with high-grade gliomas, particularly WHO grades 3 and 4 diffuse gliomas, are at increased risk of venous thromboembolism (VTE), including deep vein thrombosis (DVT) and pulmonary embolism (PE). VTE incidence is approximately 20-30% in patients with WHO grade 4 gliomas and 9.2% in WHO grade 3 gliomas. This study aims to identify risk factors for VTE in patients with high-grade gliomas and develop a predictive model to guide clinical interventions.

**Methods:** This retrospective case-control study analyzed 907 patients aged 18 and older with newly diagnosed WHO grade 3 or 4 gliomas treated at UVA between January 1, 2010, and February 28, 2023. Data on demographics, clinical characteristics, treatment modalities, and tumor histologic/molecular features were collected. Patients with a history of unrelated hypercoagulable states or requiring long-term anticoagulation were excluded. VTE was confirmed via duplex ultrasound and CT angiography.

**Results:** Of the 907 patients, 255 (28.1%) developed a VTE. Significant risk factors for VTE included limb weakness at diagnosis (32.9% vs. 21.2%, P=0.0011), WHO grade 4 tumor (91.8% vs. 80.7%, P=0.0003), and bevacizumab use (52.2% vs. 44.0%, P=0.0372). These factors were associated with increased VTE risk, confirming prior findings.

**Discussion:** Preliminary findings indicate that clinical factors such as limb weakness, tumor grade, and bevacizumab use significantly increase the risk of VTE in patients with high-grade gliomas. Ongoing statistical analysis aims to integrate these risk factors into a predictive model to improve VTE prevention and patient outcomes in this population.

**Poster #48**
**Epiglottal Involvement of Mycosis Fungoides**

Mercante, Margaret and Tocco, Emily

**Background:** A 68-year-old female with longstanding Stage IVA2 (T3, N3, M0, B1) cutaneous T-cell lymphoma (CTCL), mycosis fungoides (MF) type, presented with acute dysphagia. Her initial disease presentation was Stage IB (T2b, N0, M0, B01) with approximately 15% BSA involved with patches and thin plaques. She experienced a rapid progression to bulky nodal disease including a 9cm inguinal nodal tumor. Her course was complicated by hypersensitivity to brentuximab and general intolerance to doxorubicin and gemcitabine. Ultimately, she was treated with pembrolizumab and local electron beam radiation with excellent drug tolerance and control of nodal disease and focal tumors.

**Methods**: The patient experienced sudden onset dysphagia 5 months after beginning pembrolizumab. She received two courses of antibiotics without symptomatic improvement.

**Results:** Her CT scan revealed a supraglottic mass with complete effacement of the airway, confirmed as ulcerating with scope. Initial biopsy of the epiglottic mass revealed nondiagnostic inflamed squamous atypia, and a repeat biopsy of the mass revealed a dense lymphocytic infiltrate composed of atypical CD4+ lymphocytes with loss of CD7 and T-cell gene rearrangement with clonal sequence identical to nodal and skin clones, consistent with epiglottic involvement of MF.

**Discussion:** The patient required 60mg oral prednisone for airway protection and control of epiglottic edema. She was simultaneously treated with 30 Gy of targeted radiation therapy over 15 fractions, with rapid resolution of dysphagia. Although patients with MF typically present with cutaneous involvement, clinicians should be aware of the potential to spread to viscera given the risk of airway compromise.

**Poster # 49**
**Dupilumab-Induced Leukemoid Reaction in Atopic Dermatitis**

Tocco, Emily and Mercante, Margaret

**Background:** Dupilumab, a monoclonal antibody targeting interleukin-4, is widely used for treating severe atopic dermatitis but has been associated with an increased risk of cutaneous T-cell lymphoma (CTCL) and leukemoid reactions.

**Case Presentation:** We report a 21-year-old African American male with a long-standing history of atopic dermatitis and allergic rhinitis. His dermatitis, resistant to multiple treatments, worsened during a two-year course of dupilumab. Upon cessation of the drug, biopsy of a new lesion revealed an atypical epidermal lymphoid infiltrate, raising suspicion for Mycosis Fungoides (MF). Staging investigations, including peripheral blood flow cytometry, identified an atypical T-cell population fulfilling criteria for blood involvement in CTCL.

**Diagnosis:** Flow cytometry three months post-dupilumab showed 11% lymphocytes, with a notable CD4/CD8 ratio of 3. Clonal peaks were detected in T-cell receptor gene rearrangement studies. A follow-up biopsy indicated a polyclonal pattern, leading to a diagnosis of drug-induced acute leukocytosis, which resolved following dupilumab washout. The patient was subsequently treated with topical ruxolitinib.

**Discussion:** This case highlights the potential for dupilumab to induce leukemoid reactions that may mimic CTCL. While literature suggests a link between dupilumab and CTCL exacerbation, this patient's clinical and pathological findings support the diagnosis of drug-induced leukocytosis rather than progression of underlying lymphoma. As dupilumab usage increases, clinicians must remain vigilant for drug-induced hematological changes and distinguish them from true malignancies to ensure appropriate patient management.

**Poster # 50**
**2D U-NET Deep Learning Architecture for Pancreatic Islet Segmentation and Quantification**

Meyer, Claudia and Cortez, Anthony

**Background:** The correlation between atherosclerotic plaque buildup and blood glucose levels has prompted further investigation into the genetic factors of diabetes and their contribution to atherosclerosis. Using mouse pancreatic tissue, we measured the islets of Langerhans masses. Since islets contain insulin-secreting beta cells, mice with smaller islet masses may produce less insulin and be more susceptible to type 2 diabetes. We measured islet masses using immunohistochemical staining (IHC) to better distinguish islets compared to hematoxylin and eosin (H&E) staining. However, IHC is more time intensive and costly than H&E. This project aims to automate the labor-intensive process of measuring pancreatic islet mass by developing a deep learning model for islet segmentation of H&E stained tissue.

**Methods:** We obtained pancreatic tissue from mice fed a Western diet, and followed H&E and IHC staining procedures to isolate islets. We manually segmented islets from 200 H&E stained images while referencing the IHC staining as ground truth. Using the segmented H&E images, we trained a UNet-based model to segment islets automatically.

**Results:** The UNet model had low precision and predictive value across multiple trainings. However, the UNet's performance improved when trained on more data.

**Discussion:** The UNet model should not replace manual segmentation based on current results, but it shows promise. To improve accuracy, we aim to expand the dataset to 2500 images. With more data, this pipeline could help significantly reduce the time required for measuring pancreatic islets, aiding in future investigations into the pathophysiology of diabetes.

**Poster #51**
**Best in Class: A Multi-modal Approach to Cardiac Monitoring Stewardship**

Moncada, Elena

**Background:** Cardiac telemetry monitoring is often unindicated and overused in inpatient non-ICU settings. This unnecessary use of telemetry is resource intensive, contributing to alarm fatigue, increased care burden, and cost. At UVA, this overutilization of telemetry on acute care general medicine units often exceeded unit capacity, negatively impacting patient care and provider efficiency. Orders were also often not in alignment with the 2017 American Heart Association Practice Standards.

**Methods:** A two-phase quality improvement initiative was implemented on a single unit to align orders with AHA Practice Standards and reduce days where monitoring capacity was exceeded. Phase 1 (July 2021 to October 2022) involved an educational infographic emphasizing AHA Practice Standards and discussions during interdisciplinary rounds. **Phase 2 (July 2023 to** April 2024) involved a Best Practice Advisory (BPA) alert in the electronic medical record to prompt discontinuation of telemetry orders exceeding indicated durations.

**Results:** Phase 1 reduced average unit telemetry hours per month by 48.4%, however days exceeding unit capacity remained, prompting initiation of Phase 2. During Phase 2, BPA alerts achieved an average discontinuation rate of 65% and resulted in no days exceeding unit capacity. No significant change in ICU transfer rates was observed during either phase, indicating interventions did not compromise patient safety.

**Discussion:** Both educational interventions and BPA alerts prove effective in reducing unnecessary telemetry monitoring in acute care general medicine settings. The BPA has since been expanded to all acute care general medicine units at UVA with similar discontinuation rates, with plans for broader hospital-wide implementation.

**Poster #52**
**Evaluation of Battle Building Pediatric Food Bank: Addressing Food Insecurity and Food Pantry Utilization in an Academic Outpatient Clinic**

Moore, Kendra

**Background:** In July of 2021, the UVA Children's Hospital opened an emergency food pantry in the Battle Building to address increasing food insecurity in the Charlottesville, VA area. According to data from Feeding America, 11.8% of the Charlottesville City area is experiencing food insecurity and only 46% of the Albemarle County population experiencing food insecurity is eligible for SNAP or other nutrition programs. As such, many families rely on other sources of nutrition, such as the food pantry in the Battle Building to supplement their diets. This project aims to determine 1) What non-perishable food items patients would most like to see become available in the food pantry and 2) How much of all food consumed by patients in the last 6 months was from this or another food shelf in Charlottesville if any what other food pantries they utilize, and from what zip codes are the patients who utilize these pantries.

**Methods:** A cross-sectional survey of five Likert-type and open-ended questions in English and Spanish was added to the end of the food list that patients receive when working with the social worker in the Battle Building.

**Results and Discussion:** To date, 22 patients from 10 Virginia zip codes have completed the survey. have recorded high levels of satisfaction, low levels of utilization of both the Battle Building and other food pantries and have few requests for updating item availability on the food list. Responses will continue to be collected to enable UVA Children's Hospital to address the needs of the patients utilizing this pantry more specifically and to better understand what resources may be useful to them in navigating health and food security in Charlottesville.

**Poster #53**
**Adverse Events of Immune Checkpoint Inhibitor Therapy in Gastric and Esophageal Cancer: A single-center, retrospective observational study**

Mullapudi, Abhishek and Patel, Reema

**Background**: Immune checkpoint inhibitors (ICIs) have become a promising treatment for gastric and esophageal cancers, especially in advanced or metastatic settings. However, ICIs are commonly associated with immune-related adverse events (irAEs) such as endocrinopathies, pneumonitis, and colitis, likely due to immune system hyperactivation. While irAEs can lead to treatment interruptions and increased morbidity, prior studies suggest improved outcomes in patients who experience irAEs, compared to those who do not.

**Methods:** We conducted a retrospective study at a single institution to assess the incidence of irAEs and their association with treatment outcomes in advanced gastroesophageal cancer patients. The co-primary endpoints, progression-free survival (PFS) and overall survival (OS), were analyzed using Kaplan-Meier curves and Cox proportional hazards regression.

**Results:** Seventy patients with gastric or esophageal cancer who received ICIs for unresectable, locally advanced, or metastatic disease were identified. Twenty patients (29%) developed irAEs, with colitis (35%), hypothyroidism (25%), and pneumonitis (20%) being the most common. There was no significant association between baseline characteristics or treatment regimen and irAE occurrence. Additionally, no significant difference was observed in median PFS (10.4 months vs. 11.3 months, p=0.6) or median OS (11.0 months vs. 12.9 months, p=1.0) between patients with and without irAEs.

**Discussion:** Our study found no significant link between irAE development and improved survival outcomes in advanced gastroesophageal cancer patients, contrary to findings in other cancers. Larger, multi-institutional studies are needed to further understand the impact of irAEs on treatment response and survival in these malignancies.

**Poster #54**
**The Nutrition Security of Breast Cancer Survivors Treated at the University of Virginia Comprehensive Cancer Center (UVACCC) and their Caregivers**

Namey, Elia

**Background:** Nutrition security (NS) reflects one's consistent access to foods that promote well-being and prevent disease. It is crucial for positive cancer survivorship outcomes; however, little is known about the NS of cancer survivors and caregivers.

**Methods:** This secondary analysis used survey and interview data from a longitudinal study examining financial toxicity experiences of breast cancer survivors treated at UVACCC and their caregivers. Validated measures assessed NS, healthfulness of food choice (HC) and dietary choice (DC). Interviews explored personal NS experience. Quantitative data were summarized descriptively. Interview transcripts were content coded and quantitated.

**Results:** Participants were predominantly female (76%) and non-Hispanic White (91%) and had an average age of 57.9 (SD=12.2). All reported some degree of cancer-related financial stress at enrollment. Challenges were reported among survivors (n=24) and caregivers (n=16) in NS (23% survivors, 0% caregivers), HC (27% survivors, 43% caregivers), and DC (14% survivors, 7% caregivers). Overall, 36% of survivors and 43% of caregivers reported facing challenges in ≥1 area. Interviews highlighted that food decisions were influenced by financial and non-financial (e.g., time, fatigue, stress) factors for 40% and 28% of participants, respectively. Additionally, 68% of participants tried to maintain/adopt a healthy diet and 33% used strategies that reduced cost (e.g., eating out less, bulk purchasing, buying more processed foods).

**Discussion:** A significant portion of breast cancer survivors treated at UVACCC and their caregivers experience challenges related to NS, with survivors and caregivers experiences appearing to vary. These findings underscore the need for targeted interventions to support individuals' NS.

**Poster #55**
**Catch-up growth following early life stunting in a low-resource area in rural Tanzania: Insights into The MAL-ED Metabolic study**

Nemati, Kiya

**Background:** Stunting, defined as a height-for-age z-score (HAZ) below -2 standard deviations from the World Health Organization growth standards, remains a significant public health issue in low-resource settings. Catch-up growth, or accelerated growth after a period of stunting, is essential to mitigate long-term consequences of early growth deficits. This study aimed to identify key predictors of ongoing stunting and catch-up growth among children in rural Tanzania.

**Methods**: We evaluated 182 children from the MAL-ED cohort, collecting anthropometric data at six time points between birth and 11 years. Mixed-model linear and logistic regressions were used to assess the impact of maternal education, household income, the WAMI index (Water/sanitation, Assets, Maternal education, and Income), IGF-1, thyroid hormones, and stool pathogens on HAZ, weight-for-age z-scores (WAZ), and BMI z-scores (BMIZ).

**Results:** Catch-up growth was observed, with stunting prevalence dropping from 72.6% at 2 years to 39.0% at 11 years. Maternal education, household income, WAMI, and IGF-1 were positively associated with HAZ and WAZ, while TSH was inversely associated with HAZ. Logistic regression revealed that maternal education ($p = 0.001$), household income ($p < 0.001$), and WAMI ($p < 0.0001$) were significant predictors of reduced odds of stunting by 11 years.

**Discussion:** These findings highlight the importance of addressing socio-economic, hormonal, and biological factors to promote catch-up growth and reduce stunting in resource-limited settings. The results provide valuable insights for policies aimed at improving child health outcomes in similar contexts.

**Poster #56**
**Assessing Mother-Child Interaction and Early Childhood Development in Rural Tanzania: A Pilot Study Using the Observation of Maternal Child Interaction (OMCI) Assessment**

Nguyen, Daniel

**Background:** Parent-child interactions play a critical role in child development, influencing cognitive, social, and emotional outcomes. The Observation of Maternal-Child Interaction (OMCI) is an assessment tool developed to evaluate these interactions in low-resource settings. This study serves as a pilot for using the OMCI in rural Haydom, Tanzania, to explore its use in a sub-Saharan context.

**Methods:** This study is a subset of the ELICIT study, a large study aimed to evaluate the impact of early life nutritional and health interventions on childhood growth and development. 250 children were selected to undergo the OMCI assessment at 12 months of age. In this task, mothers were given 5 picture board-books and instructed to play with their child for 5 minutes. The time was scored for items such as pointing to pictures, naming objects, praising the child, and mutual enjoyment.

**Results:** Our findings showed a wide range of values for both the child and mother component of the OMCI. The variety of results from this pilot study show that the employment of the OMCI in Haydom, Tanzania showed a wide range of caregiver-child interactions in this setting. A significant relationship was observed between child OMCI score and a 24-month total child development score ($p<0.01$), as well as a specific language score ($p<0.01$).

**Conclusion:** This project contributes to the limited body of knowledge on very early childhood development in sub-Saharan Africa on caregiver-child interactions.

**Poster #57**
**Factors Modulating Strength of Correlation Between Synthetic and Conventional Extracellular Volume in Cardiac Amyloidosis**

Nguyen, Joseph

**Background:** Extracellular volume fraction (ECV) has an important role in diagnosis and prognosis in cardiac amyloidosis (CA). ECV is derived from T1-values of the myocardium and blood on cardiac magnetic resonance (CMR) after correcting for hematocrit (HCT). Recently, a linear relationship between longitudinal relaxivity of blood and conventional (conv) blood HCT was identified, allowing for calculation of synthetic (syn) HCT. We investigate the impact of clinical factors on the strength of correlation between synECV and convECV.

**Methods:** 87 subjects with CA underwent CMR. The Modified Look-Locker technique was used to perform T1 mapping. To calculate ECV, contours were drawn on the mid-ventricular short-axis and the left ventricular cavity blood pool. convECV was calculated using the blood sample HCT, while synECV was measured using the formula by Fontana et al. in which HCT is derived from T1 mapping of the blood pool.

**Results:** Correlation between convHCT and synHCT was moderate ($\rho=0.38$) and correlation between convECV and synECV was very strong ($\rho=0.91$). There was no difference in the

strength of correlation between convECV and synECV in patients with ATTR-CA vs AL-CA (p=0.56) or males vs females (p=0.70). There was a numerically stronger correlation between convECV and synECV in patients imaged with a 1.5T magnetic field compared to 3T (p=0.13), and in patients without anemia (p=0.07).

**Discussion:** We observed a strong correlation between convECV and synECV, which was numerically weaker in patients imaged with a 3T magnetic field and patients with anemia. Future directions include further investigation of this trend to determine the factors driving these differences.

**Poster #58**
**Backcountry Menstrual Education for Backpacking Guides**

Oster, Mary

**Background:** Menstruation and the needs of menstruating individuals are understudied in wilderness medicine but pose challenges to inclusivity in outdoor recreation. Philmont Scout Ranch (PSR) is the world's largest summer camp for youth and focuses on a backpacking-oriented program. PSR's guides historically received no formal training in teaching menstruation or gynecological first aid topics. This study sought to provide menstrual education to examine its impact on participant experience in PSR's backpacking program.

**Methods:** Menstrual education was delivered to PSR backpacking guides (n = 78) through classroom lectures. Pre- and post-education surveys assessed guides' knowledge and understanding. Qualitative interviews about menstruation in outdoor recreation were conducted with the guides. Surveys assessing participant experiences were distributed to groups following departure from PSR.

**Results:** The study revealed knowledge gaps among guides regarding menstruation and how to teach this topic, particularly along self-identified gender lines. Knowledge of Toxic Shock Syndrome was found to be particularly lacking. The intervention improved general knowledge and confidence in teaching, particularly among male guides. The study did not demonstrate an impact on participant completion.

**Discussion:** Menstrual education has the potential to increase inclusivity in outdoor recreation. This study used short-form lectures to provide education to backpacking guides working with youth. Improvements in knowledge and comfort teaching were seen in male identifying guides. Analysis of qualitative data and data collection for participant experience is ongoing, ensuring the study's findings continue to inform the field of wilderness medicine.

**Poster #59**
**Quantitative Analysis of Ventricular and Brain Volumes in Shunted and Non-Shunted Children with Spina Bifida**

Parker, Maya and Kumar, Abhishek

**Background**: Hydrocephalus is commonly associated with spina bifida (SB) in children and is often treated with a ventriculoperitoneal shunt (VPS). While VPS placement is successful in

reducing head circumference, its effect on brain and ventricular volumes in SB has not been well characterized.

This study aims to quantify ventricular and brain volumes to determine whether they differ significantly in shunted versus non-shunted SB patients.

**Methods:** A retrospective sample of MRIs from SB patients, ages 0-3, from 2010 to 2023, was identified through an EMR-based search. Patients with significant comorbidities causing brain malformation unrelated to SB were excluded. MRIs were manually segmented to obtain ventricular and brain volumes. These values were compared to normative brain and ventricle volumes from published data. Data was analyzed in age groups of 0-6 months, 6-12 months, and > 12 months using a 3-way ANOVA followed by Tukey's post-hoc-test.

**Results:** 109 MRIs from 20 patients were analyzed. 14 patients were shunted (70%), 6 (30%) underwent fetal repair, and 11 (55%) were female. Except for shunted patients 0-6 months ($p=0.03$), there was no significant difference between ventricular and brain volumes between shunted and non-shunted patients. Ventricle volumes in shunted patients were significantly larger than predicted volumes in all age groups ($p < .01$). Actual and predicted brain volumes were not significantly different for the shunted and non-shunted groups. Gender differences were not found to be significant.

**Discussion:** Brain volumes and ventricle volumes did not differ significantly between SB patients compared to normative values and between non-shunt versus shunted SB patients, respectively.

**Poster #60**
**Investigating the Impact of Near-Peer Mentoring via Learning Communities on Medical Specialty Interest and Choice**

Patel, Bhavik and Rinaldi, Danielle and Tran, Davis

**Background:** Selecting a specific specialty for medical students in their final year of undergraduate medical education is an exciting, yet daunting task. Aside from intrinsic specialty factors that align with the candidate's personal interests, greater than 89% of students on the annual AAMC Medical School Graduation Questionnaire consistently cited "advising and mentoring" as the most useful resource in learning more about their specific specialty for five consecutive years between 2019-2023. Although mentoring is traditionally viewed as between faculty and students focused on professional and career development, peer-support services between classmates (peer-to-peer) as well as across training years and levels (near-peer) also exist. Learning communities (LC), through vertical integration, offer a unique structural framework to enhance near-peer mentoring as compared to traditional career exploration offered via specialty-specific interest groups. While there is growing evidence to support peer-support services as an invaluable mental health resource, little is known about the impact of LC-structured near-peer supports on medical specialty interest and choice.

**Program Description:** Using previously established LCs and peer-mentoring programs as a structural framework for vertical integration across two campuses, we introduced a 60-minute block intended for third-year medical students approaching post-clerkship elective selection. The hour-long event was facilitated by fourth-year medical students who have recently

completed their residency applications to include (1) a large-group panel session and (2) small-group breakout sessions by specialty.

**Proposed Evaluation:** To compare the potential need and importance of LC-mediated near-pear support on specialty selection, we administered surveys to attendees pre-session, immediate post-session, and 1 year post-session for longitudinal data collection.

**Discussion:** Results from the pre- and immediate post-sessions were discussed at the LCI Annual Meeting. Feedback from students was presented on how to optimize future LC-facilitated near-peer supports.

**Conclusion:** The proposed near-peer mentoring is a proactive step toward improving the career development and satisfaction of medical students. By providing an opportunity for guidance when selecting elective rotations, we anticipate to shed light on the impact of LC-mediated near-peer mentorship on specialty interest and selection, when compared to faculty-based mentorship through specialty interest groups and other related advising, specifically at UVA School of Medicine.

**Poster #61**
**Look+See: Seeding the Arts and Humanities Into the Groundwater of Medical Education**

Post-Zwicker, Louisa and Liu, Laura

**Background:** In 2020, the AAMC released The Fundamental Role of the Arts and Humanities in Medical Education (FRAHME) report, asserting the arts and humanities as essential components of physician education. We noted a lack of such opportunities at UVA SOM that are both integrated with the pre-clerkship period and accessible to the general student body. In response, we developed “Look+See: Bites of the Arts and Humanities,” which are weekly “bites” of art or writing.

**Methods:** With the SMD28 class as the target audience, we pulled keywords from weekly curricular outlines. We then parsed through online and physical collections of art and writing to select appropriate and diverse pieces that correlated with each week. We added background information and commentary, workshopped completed bites and repeated the process for all weeks of the M1 year.

**Results:** In total, we created 38 bites - 15 writing and 23 art, which included poetry, prose, graphic medicine, paintings, and other mediums. At the beginning of the school year, we posted QR codes around the Medical Education building with links to bites and created a group chat for distribution.

**Discussion:** The incorporation of the arts and humanities into medical education is essential for fostering empathy and combating burnout in physicians. One of the most important times to do so is early on in medical school, when students are developing their sense of identity as future physicians. We acknowledged the need for more accessible humanities offerings during this period through the creation of Look+See.

**Poster #62**
**Revaluating Imaging Predictors of TIPS Malfunction: The Association Between Doppler Velocities, Shunt Diameter, and Clinical Outcomes**

Powell, Megan

**Background:** Transjugular Intrahepatic Portosystemic Shunt (TIPS) is an intervention used to manage complications of portal hypertension. Advances in controlled-expansion stents offer better control of shunt diameter, but there is a need to reassess established imaging guidelines for predicting TIPS malfunction. This study explores the impact of shunt diameter on clinical outcomes and evaluates the predictive accuracy of Doppler ultrasound measurements.

**Methods:** This single-center retrospective study included 187 patients (78 females, mean age 57.5 years) who underwent TIPS placement between January 2018 and December 2022. Data were collected on patient demographics, pre- and post-procedural clinical status, and imaging findings. Outcomes were analyzed at 1, 3, 6, 12, 24, 36, and 48 months post-TIPS. Imaging predictors, including Doppler velocities and portal vein flow direction, were evaluated for their ability to predict clinical TIPS malfunction.

**Results**: Using currently accepted imaging guidelines, post-TIPS duplex demonstrated a sensitivity of 88.0% and a specificity of 33.6% in diagnosing clinical TIPS malfunction. Mid- and distal-TIPS velocities (elevated and decreased) were strongly associated with clinical abnormality ($P < 0.05$), while portal vein velocities showed poor predictive value ($P > 0.3$). Portal vein flow direction (antegrade vs. retrograde) was associated with clinical TIPS malfunction for both left ($P = 0.003$) and right ($P = 0.009$) portal veins.

**Discussion:** Current imaging guidelines, while highly sensitive, demonstrate low specificity in predicting TIPS malfunction in patients with controlled-expansion stents. These findings suggest a need to reevaluate Doppler thresholds and consider portal vein flow direction as a more reliable indicator of clinical status.

**Poster #63**
**Developing a Novel Artificial Intelligence Framework to Measure the Balance of Clinical Versus Non-Clinical Influences on Post-Hepatectomy Length of Stay**

Putman, Kristin

**Background**: Length of stay (LOS) is a key indicator of post-hepatectomy care quality. While clinical factors influencing LOS are identified, the balance between clinical and non-clinical influences remains unquantified. We developed an artificial intelligence (AI) framework to quantify clinical influences on LOS and infer the impact of hard-to-measure non-clinical factors.

**Methods:** Patients from the 2017-2021 ACS NSQIP Hepatectomy-Targeted database were stratified into major and minor hepatectomy groups. A three-tiered model— multivariable linear regression (MLR), random forest (RF), and extreme gradient boosting (XGBoost)—was developed to evaluate the effect of 52 clinical variables on LOS. Models were fine-tuned to maximize clinical variables' explanatory power, with residual unexplained variability attributed to non-clinical factors. Model performance was measured using R2 and mean absolute error (MAE).

**Results:** 21,039 patients (mean age: 60 years; 51% male) were included: 70% underwent minor resection (mean LOS: 5.0 days), and 30% underwent major resection (mean LOS: 6.9 days). RF had the best performance, explaining 75% of LOS variability for both groups (R2: 0.75). The significant improvement in R2 from MLR to RF suggests significant non-linear interactions of clinical factors' impact on LOS. MAEs were 1.15 and 1.38 days for minor and major resections, indicating that clinical factors could not explain 1.15-1.38 days of LOS.

**Discussion:** This study is the first to measure the true influence of clinical factors on post-hepatectomy LOS, showing they explain 75% of the variability. Furthermore, it indirectly evaluated the overall impact of hard-to-measure non-clinical factors, revealing that they account for 25% of LOS.

**Poster #64**
**A Single Institution's Real World Experience with Trimodal Therapy for Bladder Cancer**

Quezada, John

**Background:** Emerging evidence has suggested that trimodal therapy (TMT) with radiation therapy after transurethral resection (TURBT) is a viable alternative to radical cystectomy. However, the treatment regimens that define TMT remain heterogeneous. Thus, this study aimed to determine if our patient population and treatment regimens replicate those of previous studies.

**Methods:** This is a retrospective cohort analysis of patients at the University of Virginia who were seen for their bladder cancer treatment between January 28, 2013, and December 23, 2023. We identified 51 patients who were recommended bladder preservation therapy (BPT). Five were excluded due to distant metastasis on initial evaluation, two were excluded due to histologic squamous cell carcinoma, one due to a change in therapy, and one due to incomplete data on treatment regimen.

**Results:** We included 42 patients of varying tumor stages, 31 (73.8%) with cT2 disease being the most prevalent. Thirty (71.4%) patients received TMT as their BPT and 12 (28.6%) patients received radiation alone as part of their BPT. Radiation schedules included conventional fractionation (61.9%), and hypofractionation (38.1%). The most common treatment combination was mitomycin with 5-fluorouracil (5-FU) with hypofractionation (20%) followed by cisplatin with conventional fractionation (16.7%).

**Discussion:** In our cohort, mitomycin with 5-FU with hypofractionation was the most common chemotherapy regimen used, and conventional fractionation was the most common radiation schedule overall. Our study highlights the diversity of TMT treatment regimens utilized at a rural academic center and the need for further standardization of TMT.

**Poster #65**
Primary Care Provider Perspectives on Gender-Affirming Care

Raad, Zoe

**Background:** Primary care providers (PCPs) play an essential role in identifying gender diversity and in providing gender-affirming care (GAC) to transgender and gender-diverse (TGD) youth. Prior studies suggest deficits in PCPs' comfort levels in treating TGD youth as a potential barrier to GAC but have not yet analyzed the perspectives of Virginian PCPs. In light of a volatile sociopolitical climate surrounding TGD youth, Virginia is bordered by four states banning certain forms of medical gender transition and serves as a unique site for analyzing PCP perspectives.

**Methods:** Virginian PCPs contacted will include those previously identified in a chart review on referral patterns to the UVA Teen & Young Adult Health Center. A cross-sectional survey will be used to explore descriptive statistics and frequencies. Semi-structured individual interview sessions will be offered to allow for detailed narrative responses. Ground theory-open coding will be applied to the interview sessions, and data will be analyzed in an iterative process identifying emerging themes and relationships.
**Results:** Data collection and analysis is pending IRB approval (HSR#231630). We aim to collect 100 responses from the cross-sectional survey and 30 responses from the interview sessions.

**Discussion:** The cross-sectional survey and interview sessions outlined in this report will serve as a pilot study to provide descriptive statistics and common themes that elucidate clinician perspectives on GAC. These data will be provided back to community members to support development of additional resources that will support the care of TGD youth in the primary care office.

**Poster #66**
**Methods in the Evaluation of Tissue Perfusion Effects of Exercise, Beet Juice, and Cocoa in Patients with Peripheral Artery Disease**

Raza, Nabeel

**Background:** Peripheral arterial disease (PAD) is the manifestation of atherosclerosis in the periphery (most commonly the leg) leading to reduced tissue perfusion and is a major cause of morbidity, including loss of functionality, pain, and amputation, in the United States.

**Methods:** Arterial Spin Labelling (ASL) is a validated, non-contrast measure of muscle perfusion and can serve as a measurement of the efficacy of interventions. ASL works by magnetically labeling water molecules in blood and using them as a tracer to measure flow and perfusion via MRI. Three randomized controlled trials compared therapies for PAD including exercise, cocoa, and beet juice with ASL measured perfusion improvement as an endpoint. ASL images of patient calves were analyzed using matched, motion corrected MR images to trace territories of major muscle groups. These muscle groups were then each measured for perfusion rates using the ASL signals.

**Results:** Results are still pending and investigators are still blinded. ASL perfusion measurements will be combined with symptom improvement to determine if these therapies are potentially useful in the treatment of PAD.

**Discussion:** PAD is a major and growing disease in the US. Ongoing analysis will help us determine if exercise, cocoa, and beet juice are potentially helpful in improving blood flow in PAD. Therapies for PAD have the potential to save limbs and improve quality of life for patients effected by this extremely common disease. ASL continues to be a valuable, non-contrast, and non-invasive method for measuring perfusion in PAD.

**Poster #67**
**Comparison of 4 Implants Regarding Screw Cut-Out, Femoral Neck Shortening, and Lateral Thigh Pain in the Treatment of Intertrochanteric Femur Fractures**

Riggs, Kathryn

**Background**: Multiple fixation options are available to stabilize intertrochanteric femurfractures, including cephalomedullary nails and sliding hip screw implants. The primary objective of this study was to compare outcomes of three cephalomedullary nails (Synthes TFN, Synthes TFNA, AOS Galileo) and a sliding hip screw (Synthes DHS) for the treatment of intertrochanteric femur fractures. The outcomes of interest include postoperative lateral hip pain, femoral neck shortening, nail protrusion, and screw cut-out/revision surgery.

**Methods:** A single institutional retrospective chart review was performed from January 1st 2015 to June 30th 2023 for all patients 65 and older who underwent surgical fixation of intertrochanteric femur fracture with at least 2 office visits within 1 year post operation. Demographics, radiographic measurements (femoral neck shortening, screw protrusion), and postoperative outcomes and complications were recorded. Patients were grouped into cohorts based on implant received.

**Results:** 200 patients comprised the study population with 50 patients in each implant cohort. The study population was 65% female with an average age of 77 years. The TFN cohort had a postoperative incidence of 42% hip pain, 18% corticosteroid injection, 7.1% femoral neck shortening, and 11.05 mm screw protrusion. TFNA cohort had slightly better results than TFN. AOS and DHS cohorts both had a 24% incidence of post operative hip pain. The AOS cohort had the highest incidence of implant failure at 10%.

**Conclusions:** The TFN cohort had the highest rates of post operative hip pain, cortisone injection, femoral neck shortening, and screw protrusion. Similar to AOS, the DHS cohort had the lowest rates of postoperative hip pain, cortisone injection, and screw protrusion, but with a substantially lower rate of implant failure. This data would suggest a DHS implant has the best postoperative outcomes of these four options in a 3 month postoperative window.

**Poster #68**
**Impact of Ventilation on TB Transmission Risk in South India: Implications for Climate Change**

Sack, Brady

**Background:** As climate change intensifies, individuals are predicted to spend more time indoors to cope with rising temperatures. Poor ventilation and crowding increase the risk of tuberculosis (TB) transmission. We studied the impact of ventilation on TB transmission risk in the homes of people with TB (PWTB) and in healthcare facilities in Puducherry, India.

**Methods:** We measured ventilation in air changes per hour (ACH) in homes and healthcare offices using a carbon dioxide decay method. We then applied the Wells-Riley equation to estimate TB transmission risk under different ventilation conditions.

**Results:** 45 ventilation measurements were taken in 13 homes and 7 offices. In the closed condition (doors and windows closed; fans off), the ACH were low with a mean of 2.23 (SD 2.27) and TB transmission risk was high at 62% (SD 31%). There was significant improvement when doors and windows were open and fans were on, with mean ACH of 9.46 (SD 3.90) and TB transmission risk of 20% (SD 14). With doors and windows closed and air conditioning (AC) on, the ACH dropped below that of the closed condition, with a mean of 0.75 (SD 0.51) and TB transmission at 76% (SD 13).

**Conclusions:** The risk of TB transmission in the homes of PWTB and healthcare spaces where PWTB are treated is high. Increased indoor time in the setting of climate change increases risk of TB transmission. Increasing ventilation may decrease TB transmission in household settings and could enhance TB control efforts in the context of climate change.

**Poster #69**
**Prevalence and Provider Awareness of Cognitive Impairment in a Benign Urology Population**

Senthilkumar, Rithika

**Background:** Cognitive impairment (CI) is prevalent in older adults, who make up a large portion of the urologic patient population. Even though CI can impact multiple aspects of urologic care, prior study of cognitive screening or impairment in urology is limited. We aimed to determine the prevalence of CI in the older benign urologic population, whether urologists accurately detect CI, and whether cognitive screening results change their treatment approach.

**Methods:** Patients aged ≥60 years presenting to a single academic urology clinic were recruited. Consenting patients underwent the Montreal Cognitive Assessment (MoCA), with scores <26 considered CI. Their urologist was queried at point-of-care about whether they suspected CI. The MoCA score was revealed, and urologists were surveyed about whether the result would change their treatment or counseling approach.

**Results:** Fifty patients seen by 8 urologists were included. Median age was 74 years. Seventeen patients scored <26 (all in mild CI range). The treating urologist correctly suspected CI in 8/17 patients (47% sensitivity) and no CI in 29/32 (91% specificity). There was moderate

agreement between urologists and MoCA assessment (Cohen's κ=0.411, p=0.003). MoCA scores were lower among patients whose provider changed their counseling plans (p=0.003), but no different for those who changed treatment plan (p=0.80).

**Discussion:** Mild CI is prevalent in the older benign urologic population, but urologists have poor sensitivity identifying CI. Knowledge of mild CI did not impact treatment plan, but it changed counseling approach. Further study is needed to assess whether cognitive screening can improve communication and treatment outcomes.

**Poster # 70**
**Prevalence of Stroke and Cerebrovascular Risk Factors in Insomniacs Treated at a Sleep Clinic: A Tertiary Center Perspective**

Sheth, Saagar

**Background:** Sleep quality and quantity play a crucial role in the maintenance of a wide range of bodily systems, including neuronal, hormonal, immune, and metabolic functions[3,4]. Due to the essential nature of sleep, sleep deprivation has negative consequences on cardiovascular health, which increases the risk for stroke[6]. Previous studies have shown that sleep disorders including insomnia may have a bi-directional relationship with stroke[1,2,7,8]. With 20-30% of ischemic strokes being identified as cryptogenic, this retrospective study aims to look at the prevalence of stroke and stroke subtypes in insomniacs[5]. Another aim is to evaluate differences in insomniacs with stroke against insomniacs without stroke to identify potential stroke risk factors in insomnia patients. Comparing insomniacs seen in sleep clinic to those who have not may also determine the relationship between insomnia awareness and the risk factors for and prevalence of stroke. The overall imperative is to aid in the prevention of primary and secondary stroke in insomniacs.

**Methods:** This study utilized the EPIC Electronic Health Record System at University of Virginia to identify patients diagnosed with or treated for insomnia at University of Virginia Medical Center between January 1st, 2018 and April 30th, 2024. Patients of all ages above 18 were included with no restrictions based on gender, race, or ethnicity. Data collected includes insomnia type, other potential sleep disorders, potential insomnia treatments, history and type of stroke, relationship of stroke to insomnia, stroke risk factors, and a multitude of potential neurological, psychological, and cardiovascular comorbidities.

**Poster #71**
**Impact of Khorana Score, Tumor Histology, and Treatment Regimen on VTE Incidence in Lung Cancer**

Singh, Aditya

**Background:** Lung cancer patients have increased risk of Venous thromboembolism (VTE) as high as 30%. The Khorana score (KRS) estimates risk of VTE in patients with cancer and prevents VTEs through anticoagulation recommendations. It is unknown how histology, presence of actionable genomic alterations (AGAs), and treatment type impact the performance of KRS in lung cancer patients.

**Methods:** We conducted a retrospective review of patients seen at our center for late-stage lung cancer, diagnosed between March 2015 - April 2023. The primary endpoint was VTE incidence by histology and initial systemic therapy. Chi square analysis assessed correlation between KRS and VTE incidence. Secondary endpoints included VTE incidence in patients on antiplatelet or anticoagulation prior to treatment.

**Results:** Chi square analysis of VTE incidence in low (0-1) KRS patients is 23.4% and 21.6% in high KRS (score > 2), with a Pearson correlation coefficient of 0.118. The highest VTE incidence was in those with TKI monotherapy (30.6%, p=0.169 ), then CTX (24.5%), then CTX + IO (21.5%) and lastly in IO only (16.8%). VTE incidence among patients on anticoagulation prior to treatment was 7% versus 25.6% for those not on anticoagulation (p=0.001) while anti-platelets were statistically insignificant.

**Discussion:** The KRS did not predict development of VTE in our population of advanced lung cancer.

Presence of AGA correlates with higher rates of VTE incidence. Anticoagulant use prior to lung cancer treatment significantly reduced VTE incidence. Our results show that the KRS inadequately predicts VTE incidence highlighting need for better future risk assessment models.

**Poster #72**
**A Content Analysis of the Informed Consent Process in Clinical Guidelines for the Care of Transgender Youth**

Singh, Shivani

**Background**: Informed consent is an important part of decision-making for transgender youth seeking gender-affirming care. It entails shared decision-making between the provider, youth, and parents. To do so, providers often reference clinical guidelines. This content analysis aims to compare descriptors of the roles of providers, youth, and parents in the informed consent process across clinical guidelines.

**Methods:** Through a non-systematic review, 14 guidelines were included in analyses. A preliminary set of codes was developed. The three main codes (“parent roles”, “child roles,” and “provider roles”) and various sub-codes were applied by two coders to each guideline. Through an iterative process and discussion, any disagreements regarding coding was resolved.

**Results:** So far, preliminary analyses including 11 guidelines resulted in 1191 total codes. Of the three main codes, “provider roles” were most applied (269/1191). The top sub-codes under “provider roles” were “Mental health assessment” (70/1191) and “risks/harms” (72/1191). Under “child roles”, “Age” (69/1191) was most frequently coded. Additionally, there were important variations between international guidelines accounting for differences in approaches to informed consent for minors.

**Discussion:** Providers’ role, specifically assessment of mental health and discussion of risks/harms, are well represented in most guidelines. The role of parents and minors in the informed consent process are less prominent. Guidelines that describe informed consent incompletely may impact the information that providers share with patients and how they provide care. Results from this study will highlight if and how guidelines can be better changed to help providers understand how to best care for transgender youth.

**Poster #73**
**Deficiency of Mitochondrial Disulfide Relay Carrier CHCHD4 Leads to Heart Failure**

Son, Annie

Innate immune activation is critical for cardiac hypertrophy; however, upstream regulation is poorly understood. Coiled-coil-helix-coiled-coil-helix domain 4 (CHCHD4) is an essential carrier for the import of various mitochondrial proteins including TP53 regulated inhibitor of apoptosis 1 (TRIAP1), which was recently found to mediate innate immune signaling. Therefore, we hypothesized that CHCHD4 may play a role in preventing the development of hypertrophic cardiomyopathy by regulating innate immunity. C57BL/6 mice were genetically modified to overexpress CHCHD4 (CHCHD4 Tg) or to be haploinsufficient in CHCHD4 (CHCHD4 +/-). The mice were injected either with low dose (2mg/kg) or high dose (30 mg/kg) isoproterenol (ISO) daily for up to 3 wks to induce hypertrophy. In a low dose ISO experiment, CHCHD4+/- mice displayed impaired ejection fraction (EF) at 2 wks compared to wild-type and CHCHD4Tg mice. In addition, CHCHD4+/- mice developed cardiac hypertrophy when allowed to age to 28 wks and impaired EF at 1 year when compared with wild-type and CHCHD4tg mice. Following high dose ISO stimulation, wild-type mice developed cardiac hypertrophy by 1 wk and impaired EF by 3 wks while CHCHD4Tg mice remained normal. Stimulation with isoproterenol caused reduced levels of CHCHD4 in both the acute (24hrs) and chronic (1wk) state. This reduction was associated with decreased TRIAP1 and activation of the cGAS-STING-NFkB pathway in Wt but not Tg mice. mtDNA in the plasma of Wt mice receiving high dose ISO was 2.3 times higher than wt controls after 1 wk, while Tg mice had no significant increase in mtdna copy number. Our findings suggest that CHCHD4 may be a key upstream regulator of innate immune activation in hypertrophic cardiomyopathy and cell free mtdna could be a potential biomarker for heart failure development.

**Poster #74**
**Nationwide Evaluation of Readability, Quality, and Cultural Sensitivity of Online Brain Cancer Education Materials**

Spadt, Lauren and Nilak, Joelle

**Background:** Patients with primary brain tumors navigate a devastating diagnosis and cognitive and physical decline. Available educational materials should be easily comprehensible, informative, reliable, culturally sensitive, and patient oriented.

**Methods:** We assessed websites of major brain tumor centers and patient organizations for readability using multiple calculators, quality and reliability using DISCERN and JAMA tools, and cultural sensitivity using the CSAT scale. We determined whether sites addressed practical, emotional, social, and spiritual needs of a patient. Brain tumor centers were categorized based on NCI-designation and fulfillment of Guiding Principles developed by the American Brain Tumor Association.

**Results**: Websites of 91 brain tumor centers and 8 patient organizations were examined. Fewer than 10% of brain tumor centers' websites were readable at an eighth-grade level. There was no significant difference in readability between brain tumor centers and patient organizations. Patient organizations scored significantly better than brain tumor centers on both quality measures, with no differences seen based on the category of brain tumor centers. Only

48% of brain tumor centers and 63% of patient organizations scored at acceptable levels on all cultural sensitivity scales. Most patient organizations, but few brain tumor centers, addressed practical, social, emotional, and spiritual needs.

**Discussion:** Publicly available brain tumor education materials need to be written at a lower reading level. Quality and cultural sensitivity can be improved by citing sources, describing treatment risks, describing outcomes without treatment, addressing quality of life during treatment, addressing myths, and visually representing more patients. Patient organizations can provide models for addressing patient needs.

**Poster #75**
**Musculoskeletal, Airway, and Vascular Injuries in the Patient with Non-judicial Hanging**

Spirek, Benton

**Introduction:** Non-judicial hanging events, often resulting from suicide attempts, present with varying severity, from cardiac arrest to minor neck injuries. Emergency providers must anticipate potential musculoskeletal, neurologic, airway, and vascular injuries. This review examines the frequency of these injuries in such cases.

**Methods:** A review of the PubMed database was conducted, selecting articles based on the following pre-set criteria: non-judicial hanging, ED evaluation, and focus on one of four injury types (musculoskeletal, neurologic, airway, or vascular). Data were analyzed to address the aggregate frequency of injuries across these categories.

**Results:** A total of thirty articles were included in the final analysis. Among 3809 total patients presenting to the ED after non-judicial hanging, 3.0% sustained musculoskeletal injuries, predominantly cervical spine fractures. Neurologic injury, including spinal cord or nerve root involvement, occurred in 0.5% of cases. Airway injuries occurred at a rate of 5.2%, primarily affecting the thyroid cartilage and hyoid bone. Vascular injuries, most commonly carotid and vertebral artery dissections, were reported in 2.5% of cases. Pediatric patients experienced lower injury rates across all categories, with no spinal cord or vascular injuries reported.

**Discussion:** Among patients who survived to ED arrival after experiencing a non-judicial hanging event, injury rates were notably low, particularly among pediatric patients. Given these findings, routine imaging for all patients may not be necessary. This suggests that imaging decisions should be based on clinical presentation and patient-specific concerns. Further research is necessary to fully characterize the variety of injuries associated with non-judicial hanging.

**Poster #76**
**Efficacy and Safety of Microwave Ablation in Solitary Kidney Patients with T1a Small Renal Masses**

Stempel, Max and Justo-Jaume, Carlos

**Background:** Patients with renal cell carcinoma (RCC) on a solitary kidney (SK) are vulnerable when undergoing surgical nephrectomy. Microwave ablation (MWA) is a less invasive alternative to partial nephrectomy, potentially preserving more renal tissue while effectively

treating RCC. This study aimed to evaluate the safety and efficacy of MWA in treating SK patients with T1a RCC.

**Methods:** Retrospective analysis of a prospectively maintained database identified patients with T1a RCC with either congenital or acquired SK. Estimated glomerular filtration rate (eGFR) was calculated from serum creatinine before MWA and after at 6- and 12-months post-procedure. The local recurrence-free survival (LRFS), metastatic-recurrence free survival (MRFS), cancer-specific survival (CSS), and overall survival (OS) were analyzed with the Kaplan–Meier method.

**Results:** Of 26 patients (3 congenital SK, 23 acquired SK), eGFR decreased at both 6 and 12 months post-MWA. Median follow-up time was 28.6 months (IQR 12.4-55.4). Local recurrence occurred in 4 patients with a mean LRFS of 69.4 months. Metastatic recurrence was seen in 5 patients, with median and mean survival of 101.1 and 82.0 months, respectively. The mean CSS time was 94.7 months, while median and mean OS were 43.1 and 61.7 months, respectively.

**Discussion:** With a moderate reduction in renal function and a comparable rate of local recurrence compared to prior literature, this work demonstrates that MWA remains a viable alternative to more invasive techniques, particularly for high-risk SK patients with RCC. Further research is needed on MWA's effectiveness on renal function and cancer control in larger SK cohorts over longer follow-up periods.

**Poster #77**
**HERO: Helping Eating disorders Resources and Opinions Survey**

Suresh, Sriyaa

Barriers to care or inequity can prevent patients from getting their eating disorder (ED) adequately addressed. The overall goal of this community-engaged project is to collect information from patients and their caregivers to help inform the development of equitable and inclusive eating disorder care for pediatric and adolescent patients and their families. Patients over 18 years of age with a history of an eating disorder and their caregivers will be surveyed about their views and experiences relating to seeking treatment for the eating disorder. The project was recently IRB approved and participants will be identified using MyChart messages and fliers posted around the UVA clinics and shared with the greater Charlottesville community. Based on the survey responses from patients so far, the average length of delay between onset of ED symptoms and seeking treatment was 31.7 months while the average time between seeking and receiving treatment was 1.6 months. When asked to rank the impact of barriers to ED treatment, 46.7% of participants ranked the barrier of "the stigma associated with EDs" as "extremely impactful". 40% of participants also ranked "social/work barriers" as "extremely impactful". When similarly asked to rate a list of potential supports for individuals recovering from an ED, the greatest percent (64%) of participants rated "more frequent visits with ED providers" as "extremely helpful" compared to the other supports mentioned. This information and other data points extruded from the survey responses are essential to addressing equity and inclusion concerns in eating disorder treatment.

**Poster # 78**
**Trans-epidermal water loss in patients with eosinophilic esophagitis (EoE)**

Talasani, Nidhi

**Background:** Eosinophilic esophagitis (EoE) is an allergen-induced type 2 inflammatory disease characterized by epithelial barrier dysfunction and eosinophilic inflammation of the esophagus. We hypothesized that EoE would also be associated with skin barrier dysfunction and that patients with active EoE would have more water loss from their skin than patients with EoE in remission or controls.

**Methods:** We recruited consecutive pediatric patients presenting for an upper endoscopy at the University of Virginia from May to June 2024. We measured trans-epidermal water loss (TEWL) along the volar palm and forearm of the patients using a TEWL measurement device. Differences in mean values were compared among patients with active EoE, inactive EoE, and non-EoE controls using Mann-Whitney U tests.

**Results:** A total of 26 patients were recruited for this study (10 active EoE, 7 inactive EoE, 9 non-EoE controls; 65% males; ages 2-22). There was no statistically significant difference in TEWL measurements on either the volar palm or forearm of patients with active EoE compared to controls. TEWL measurements on the forearm was significantly lower in active EoE patients (mean 8.87 g/m2/h) than in inactive EoE patients (12.63 g/m2/h; p=0.033), but there was no difference in palmar readings.

**Discussion:** Contrary to our hypothesis, patients with active EoE did not have higher TEWL measurements than those in remission or non-EoE controls. Our results suggest that the barrier dysfunction in patients with EoE is localized to the esophagus and does not extend to the skin barrier.

**Poster #79**
**Olfactory Training: Recommendation Frequency Amongst Rhinologists**

Thomas, Sherina

**Background:** Olfactory dysfunction (OD) affects approximately 22% of adults and can significantly impact a patient's quality of life. (1,2) Despite its prevalence, treatment options are limited. (3) Olfactory training (OT), a regimen involving daily odor exposure, (4) has emerged as a potential therapy, but its effectiveness and clinical adoption remain unclear. (2,3) We investigated how often and under what conditions otolaryngologists recommend OT for patients with OD.

**Methods:** We distributed an anonymous, 13-item online survey assessing provider demographics, OD diagnostic practices, and OT recommendation habits to 844 members of the American Rhinologic Society (ARS). Ninety-five responses were collected from July 1st-29th, 2024.

**Conclusion:** OT is widely recommended by otolaryngologists. Recommendation habits likely reflect that the majority of OT research studies to date have focused on post-viral and idiopathic

anosmia and hyposmia.2 Further research is needed to determine if OT recommendation patterns are similar with different medical specialties or in other countries.

**Results:** Most survey respondents (93.3%, n=89) reported recommending OT, with over half (56.2%, n=50) recommending it to >75% of their OD patients. The most cited reason for not recommending OT (4 of 6 respondents) was a lack of convincing evidence supporting efficacy. OT was most frequently recommended for quantitative OD (anosmia, hyposmia) and for post-viral or idiopathic etiologies. Frequency of OT recommendation did not significantly differ based on subspecialty or practice setting.

**Poster #80**
**Examining the Relationship between Heart Rate Variability and Stress in Emergency Medical Services Providers**

Wu, Daniel

Emergency medical services (EMS) inherently encompasses physical and emotional stressors that can quickly lead to burnout. Thus, the need for a physiologic measure of burnout is required. Previous literature shows that a lower heart rate variability (HRV) can be a predictor of high stress. Thus, the purpose of this study is to investigate the correlation between EMS provider stress levels and HRV as a way to acutely identify burnout. The population of interest for this study is all adults working as EMS providers in the U.S. The participants were recruited through an online survey, which resulted in a sample size of 35 people. An initial HRV was recorded of participants prior to starting the study. An initial psychiatric baseline was also determined through the use of several common psychological assessment tools, such as the PHQ-9 and GAD-7. After four weeks, a repeat HRV was recorded and a repeat psychiatric assessment was conducted for comparison. Results showed an average decrease in HRV over the course of the month at -16.37 (P=0.05, CI 95% (-37.37, 5.50)) that was not statistically significant. Additional changes in the scoring for each psychiatric assessment were also not statistically significant. However, trends were noted such as providers with low baseline HRV having more drastic changes in their scores for their psychiatric evaluations over the course of the month. Despite the results, the study highlights the importance of physiologic measures of burnout in EMS providers and the need for future research.

**Poster #81**
**Impact of GINA-Guided Educational Programs on Asthma Medication Adherence in Honduras, Roatan**

Zulfiqar, Muhammad

**Background:** Asthma remains a significant public health concern in low- and middle-income countries like Honduras, where access to healthcare and medications is often limited. Medication adherence is critical for asthma management, yet adherence remains low. This study aims to assess the impact of a Global Initiative for Asthma (GINA)-guided educational intervention on medication adherence among asthma patients at Clinica Esperanza in Roatan, Honduras.

**Methods:** A cohort of asthma patients attending Clinica Esperanza was followed over multiple visits. Adherence to asthma medications such as short-acting beta-agonists (SABA), inhaled corticosteroids (ICS), and leukotriene receptor antagonists (LTRA) was monitored before and after implementing an educational program based on GINA guidelines. The program included educational materials in Spanish and one-on-one consultations. Medication adherence was assessed through self-reporting and follow-up visits, while exacerbation rates were compared between adherent and non-adherent patients.

**Results:** Adherence rates varied across different medications, with montelukast showing the highest adherence (44.4%), followed by salbutamol (27.8%) and albuterol (5.6%). Adherence to medications did not significantly reduce the frequency of exacerbations. Patients who adhered to their prescribed regimen experienced an average of 2 exacerbations per year, compared to 1.29 in non-adherent patients.

**Discussion:** The educational quality improvement based intervention modestly improved medication adherence; however, adherence alone did not correlate with reduced exacerbation rates. This suggests that other factors, such as environmental triggers, financial constraints, and access to care, may significantly impact asthma control and require further investigation.