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Bench to Bedside and Beyond: Risk Factors and Intervention Strategies in Childhood Disease and Injury

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Rapid-Fire Presentations

Development of a High-Fidelity Acute Chest Syndrome Cohort Using Machine-Learning Assisted Radiographic Adjudication in the Largest Pediatric Sickle Cell Disease Population in the United States

Presenting Author: Ugochukwu Agbakwuru, Emory University School of Medicine

Poster Number: 1

Co-Authors: Agbakwuru, Ugochukwu; Kalmus, Grace, Yee, Marianne; Fasano, Ross

Background: Acute chest syndrome (ACS) is one of the most serious complications of sickle cell disease (SCD), representing the leading cause of death, and second most common cause of hospitalization. To develop a precision medicine model to predict ACS severity, accurate cohort identification is essential. However, reliance on diagnostic coding alone resulted in misclassification due to variability in clinical diagnosis, radiographic interpretation, and database abstraction. We developed a rigorously validated ACS cohort by integrating administrative data, machine-assisted radiographic review, and clinician adjudication.Methods:All admissions among patients aged 0–21 years with a discharge diagnosis of ACS from 2020–2025 were identified from our institutional SCD database. Associated chest imaging studies underwent machine-assisted keyword classification developed with pediatric radiologists using ACS guideline terminology. Imaging reports containing consolidation, opacity, or density were classified as radiographically consistent with ACS. Reports containing nonspecific findings (e.g., atelectasis, fibrosis, lucency, edema, or isolated descriptive modifiers) or lacking interpretable impressions underwent manual clinician adjudication. Admissions remained classified ACS if at least one imaging study met radiographic criteria.Results:The initial cohort included 2,625 ACS admissions among 1,114 unique patients with 5,115 chest imaging studies. Eighty-five admissions without imaging were excluded. Automated review identified 1,088 imaging studies requiring manual review. Clinician adjudication reclassified 180 studies as ACS-positive and reviewed an additional 20 studies lacking structured impression text. Overall, 915 imaging studies were determined not to support ACS and removed. Following radiographic validation, 67 admissions no longer met study criteria, yielding a final cohort of 2,473 ACS admissions among 1,101 unique patients.Conclusions:Meaningful misclassification persisted despite diagnostic coding, existing database usage, and automated review. Development of a high-fidelity ACS cohort required integration of machine-assisted radiographic classification and clinician adjudication to accurately identify radiographically supported ACS events. This work demonstrates how machine-assisted metadata analysis can strengthen large-scale cohort development across clinical disciplines while defining the limitations of automated approaches. This work highlights the continued necessity of physician adjudication for complex clinical interpretation. This validated cohort provides a robust foundation for future studies aimed at predicting ACS severity, improving risk stratification, and supporting precision medicine approaches in pediatric SCD.

Proteomic Remodeling Following Adolescent Bariatric Surgery: Three-Year Signatures of Weight Loss and Biological Adaptation

Presenting Author: Brittney Baumert, Emory University

Poster Number: 2

Co-Authors: BAUMERT, BRITTNEY O.; Li, Zhenjiang; Walker, Douglas; Ryder, Justin; Inge, Thomas; Jenkins, Todd; Sisley, Stephanie; Xanthakos, Stavra; Stratakis, Nikos; Valvi, Damaskini; Bartell, Scott; Rock, Sarah; Eckel, Sandrah; Aung, Max; McConnell, Rob; Conti, David; and Chatzi, Lida

Background: Bariatric surgery induces substantial and durable weight loss in adolescents with severe obesity, yet the long-term molecular adaptations accompanying these changes remain incompletely understood. We characterized longitudinal proteomic remodeling in adolescents following bariatric surgery for up to 3 years post-op.Methods: We analyzed 702 circulating proteins measured using Olink Inflammation and Cardiometabolic panels in participants from the Teen-LABS study at baseline (time of surgery, n=171) and 6- (n=129), 12- (n=124), and 36-month (n=109) follow-up visits. Longitudinal changes in normalized protein expression (NPX) were evaluated using protein-specific linear mixed-effects models with visit modeled categorically and baseline as the reference. Models adjusted for time-varying BMI and baseline age, sex, race, household income, and study site, with participant-specific random intercepts to account for repeated measures. False discovery rate (FDR) correction was applied across all proteins. Proteins with FDR q≤0.05 and a consistent direction of change across all postoperative visits were considered to exhibit sustained remodeling. Analyses focused on proteins demonstrating changes by 6 months that persisted through 36 months. Descriptive pathway annotation analyses were performed using Molecular Signatures Database (MSigDB) annotations.Results: Among 702 proteins evaluated, 297 (42.3%) demonstrated significant longitudinal changes and maintained a consistent direction of effect across all postoperative visits (FDR q≤0.05). Of these, 234 proteins (78.8%) were consistently increased and 63 (21.2%) were consistently decreased relative to baseline. Proteins exhibiting the largest sustained increases included NPPB (mean ΔNPX=1.70), IGFBP1 (1.24), NT-proBNP (0.96), IGFBP2 (0.86), and REG1B (0.73). Additional increases were observed in proteins involved in metabolic regulation, tissue repair, and extracellular matrix remodeling, including EPO, SPP1, REG1A, REG3A, and MMP1. The largest sustained decreases were observed for SSC4D (−1.37), COL9A1 (−1.23), IL1RN (−0.90), GSTA1 (−0.87), and ADH4 (−0.82). Pathway annotation analyses indicated that proteins increasing after surgery were primarily associated with extracellular matrix organization, cell adhesion, immune regulation, inflammatory responses, and growth factor signaling. Proteins decreasing after surgery were linked to inflammatory signaling, vesicle-mediated transport, cell-surface signaling, and hepatic metabolic processes.Conclusions: Adolescent bariatric surgery is associated with widespread and durable proteomic remodeling that persists for at least three years following surgery. Sustained increases in proteins involved in extracellular matrix remodeling, growth factor signaling, tissue repair, and immune regulation, alongside reductions in inflammatory and hepatic metabolic proteins, suggest long-term biological adaptation accompanying substantial weight loss and metabolic improvement. These findings provide novel insight into molecular pathways that may contribute to the durable cardiometabolic benefits of bariatric surgery during adolescence.

Engineering Chemotherapy Resistant CAR T Cells for Acute Myeloid Leukemia

Presenting Author: Nabil Saleem, Children's Healthcare of Atlanta

Poster Number: 3

Co-Authors: Saleem, Nabil; Sullivan, Emily; Hashmi, Areeba; Knight, Kristopher; Bustamante, Austre; Fanelli, Brandon; and Raikar, Sunil

Background: Acute myeloid leukemia (AML) remains difficult to treat, with 5-year overall survival rates of ~30-50% depending on age group and risk factors. While chimeric antigen receptor (CAR) T therapy for AML is a promising strategy, it faces unique challenges, including tumor heterogeneity, antigen escape, and CAR T cell dysfunction within an immunosuppressive tumor microenvironment. To overcome these challenges, this immunotherapy can be combined with cytotoxic chemotherapy. CAR T cells can be rendered chemotherapy-resistant by knocking out deoxycytidine kinase (dCK), a key enzyme in the pyrimidine nucleoside salvage pathway that activates the commonly used AML chemotherapeutics cytarabine and fludarabine. Objective: To generate chemotherapy-resistant, AML-directed CAR T cells through dCK knockout, enabling the development of a combination immunotherapy-chemotherapy approach for AML.Methods: We will knock out dCK in primary T cells using CRISPR/Cas9 and study T cell function in edited and unedited cells using flow cytometry to assess cytokine production and markers of T cell activation and exhaustion. Following knockout, we will utilize a lentiviral vector-based approach to transduce primary T cells with anti-CD33 (αCD33) and/or anti-CD70 (αCD70) CAR constructs to create dCK-knockout, AML-directed CAR T products. These products will be incubated with AML target cells (Molm-13) with and without chemotherapy, following which flow cytometry-based cytotoxicity assays will be used to quantify cytotoxic potential.Results: Using six dCK-specific single guide RNAs (sgRNAs) in an immortalized T cell model (Jurkat), we found two sgRNAs that achieved >95% dCK knockout efficiency. dCK-edited cells demonstrated an 18-fold increase in chemotherapy resistance compared to unedited controls, based on IC25 values calculated from chemiluminescent ATP assays. We have successfully generated dCK-unedited, scFv-based and natural receptor-based AML-directed CAR T products which exhibit potent cytotoxicity against AML cell lines in flow cytometry-based assays and prolong survival in AML murine xenografts. Conclusions: dCK knockout is a feasible strategy to confer chemotherapy resistance in T cells, and dual-targeting αCD33/αCD70 CAR T products have potent cytotoxicity against AML in vitro and in vivo. Ongoing studies using luciferase-tagged AML murine xenografts will evaluate the efficacy of combining chemotherapy with dCK-knockout CAR T products targeting the AML antigens CD33 and CD70.

Conditional Deletion of SHMT2 Slows Down Medulloblastoma Growth and Prolongs Event-Free Survival, Indicating Potential for Therapeutic Exploitation

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Poster Number: 4

Co-Authors: BREITENFELD, NIM; Winham, Cynthia; Tikunov, Andrey; and Gershon, Timothy

Background: Brain cancer is the leading cause of childhood cancer deaths; a third of which is attributed to medulloblastoma (MB). We previously identified tumor-specific metabolic patterns in which

oncogenic signaling induces folate-metabolizing enzymes, including SHMT2, which loads methyl-groups on folate to support proliferation. We propose that disabling SHMT2 will impair MB folate metabolism, slow tumor growth, and improve survival outcomes. Methods To circumvent the embryonic lethality associated with whole body deletion of SHMT2, we bred mice with Cre-conditional Shmt2 deletion into the GFAP-Cre/SmoM2 (G-Smo) mouse line that is engineered to develop medulloblastomas. This breeding generated mice with MBs with Shmt2 homozygous deletion (SHMT2-KO), heterozygous deletion (SHMT2-het), or intact (SHMT2-WT). Mice were randomized into a survival study or euthanized on postnatal day 15 (P15) for tissue collection. We used Western Blot (WB) and immunohistochemistry (IHC) to confirm SHMT2 deletion and to investigate changes in tumor histology. Results WB showed that SHMT2 was essentially absent in SHMT2-KO mice, reduced in SHMT2-het mice, and un-affected in SHMT2-WT mice. Mice with SHMT2-KO tumors showed significantly improved survival times compared to SHMT2-het and SHMT2-WT tumors, with median survival of 26 days, 20 days, and 16 days, respectively. Neuropathology showed smaller tumors in P15 SHMT2-KO G-Smo mice with increased differentiation, indicating impaired tumor growth. Conclusion SHMT2-KO G-Smo mice not only survive longer, but exhibit greater ability to thrive, experiencing lessened tumor burden that enables them to survive weaning, in contrast to mice with SHMT2-WT tumors that rarely survive to weaning age and display increased frailty. While SHMT 2 deletion alone is not enough to halt tumor progression, these data show that SHMT2 plays a significant role in MB growth. These data also indicate a potential for therapeutically targeting SHMT2 in combination with existing folate-directed chemotherapies such as methotrexate or 5-fluorouracil.

CD8+ T Cells Contribute to Virus Suppression during Antiretroviral Treatment in SIV-infected Rhesus Macaque Infants

Presenting Author: Alora Colvin, Emory University

Poster Number: 5

Co-Authors: COLVIN, ALORA; Zaki Pour, Shahab; Hamid, Riri Rizkianty; Lifson, Jeffrey, Keele, Brandon; Silvestri, Guido; Chahroudi, Ann; and Mavigner, Maud

Background: There is no cure for HIV that persists in a latent reservoir during antiretroviral therapy (ART). While CD8+ T cells have been implicated in controlling HIV persistence during ART in adults, their activities on HIV reservoir in infants are still largely unknown. Given the distinct features of the developing immune system, we conducted a pediatric study to assess the impact of experimental CD8+ T cell depletion on the viral reservoir in ART-treated perinatally SIV-infected rhesus macaque (RM) infants. MethodsSixteen RM infants were infected i.v. with SIVmac239M and initiated on ART 4 weeks post-infection. After >3 months of viral suppression or >12 months on ART, 10 RMs received a dose of the anti-CD8α-depleting antibody MT807R1 at 50 mg/kg, including 5 RMs that additionally received 5 weekly doses of the latency reversing agent AZD5582 at 0.2 mg/kg. Six RMs were maintained on ART only and served as controls. A comprehensive monitoring of clinical and immunovirological parameters was performed including ultra-sensitive plasma viral load measurements and immunophenotyping to

evaluate latency reversal and CD8+ T cell depletion/reconstitution. ResultsAll experimental RMs experienced >99% of peripheral CD8+ T cells without adverse events resulting in virus reactivation evidenced by on-ART viremia. Viral reactivation defined as plasma viral load above median baseline levels was observed in 5/5 RMs treated with MT807R1 only and 5/5 RMs treated with MT807R1+AZD5582 with a frequency of viremic episodes of 72% and 100% respectively (P=0.0001). In the combined treatment group on-ART viremia was sustained for up to 4 weeks. Reconstitution of CD8+ T cells was driven by the memory cell population, accelerated by the addition of AZD5582 (p=0.0090) and followed by a return of the plasma viral load to undetectable levels. ConclusionsExperimental CD8+ T cell depletion was successful, well-tolerated and induced viral reactivation, when performed alone or in combination with the latency reversal agent AZD5582, in ART-suppressed SIV-infected RM infants. These results demonstrate that CD8+ T cells contribute to the maintenance of viral suppression on ART in the pediatric population. Further analyses are warranted to elucidate the mechanisms regulating the pro-latency activity of the CD8+ T cells during pediatric HIV/SIV infection.

Human Cardiac Organoids Reveal Mechanisms Underlying Pediatric Left Ventricular Non-Compaction Cardiomyopathy

Presenting Author: Hananeh Fonoudi, Emory University

Poster Number: 6

Co-Authors: FONOUDI, HANANAEH; Neupane, Achal; Negahi Shirazi, Ali; Doody, Susan; Kotamarthi, Janavi; Sapkota, Yadav; Webster, Gregory; and Burridge, Paul

Background: Left ventricular non-compaction cardiomyopathy (LVNC) is a congenital cardiac disorder characterized by excessive trabeculation and impaired ventricular compaction, often progressing to arrhythmias, heart failure, and thromboembolic complications. Although pathogenic variants in MYH7 and other sarcomeric genes are strongly associated with LVNC, the cellular and molecular mechanisms underlying aberrant trabecular development in humans remain poorly understood.Methods: We developed a multicellular cardiac organoid platform composed of human induced pluripotent stem cell (hiPSC)–derived cardiomyocytes and endocardial cells. Through iterative optimization of media composition, cell number, seeding ratios, differentiation timing, and culture conditions, we established organoids that recapitulate key features of early human chamber morphogenesis, including cavitation and the formation of trabecular-like projections. To investigate the mechanisms driving trabecular abnormalities in LVNC, we generated patient-specific hiPSC lines from three individuals with MYH7-associated LVNC, three patients with hypertrophic cardiomyopathy (HCM), and three patients with dilated cardiomyopathy (DCM), all harboring pathogenic MYH7 variants, along with three matched healthy controls.Results: Single-cell RNA sequencing of healthy organoids identified four major cell populations: cardiomyocytes, endocardial cells, proliferating cardiomyocytes, and fibroblasts. Analysis of these datasets demonstrated that cardiomyocyte–endocardial interactions promote cardiomyocyte proliferation and endocardial-to-mesenchymal transition (EndoMT), two processes that are essential for trabecular maturation. MYH7 knockout organoids exhibited a profound loss of trabecular architecture,

functionally validating the developmental fidelity of the organoid model. We next analyzed organoids generated from patient-derived hiPSC lines and identified an LVNC-specific developmental phenotype. LVNC organoids displayed hyperproliferative cardiomyocytes that failed to undergo proper trabecular specification, whereas organoids derived from MYH7-associated HCM and DCM patients exhibited preserved trabecular development. Mechanistically, LVNC endocardial cells demonstrated elevated neuregulin signaling, metabolic dysregulation, impaired extracellular matrix production, and defective EndoMT, collectively disrupting the developmental cues required for normal trabecular maturation and ventricular compaction.Conclusions: These findings establish a human-relevant model of LVNC pathogenesis and identify dysregulated cardiomyocyte–endocardial crosstalk, metabolic remodeling, and extracellular matrix defects as key mechanisms driving disease. Our multicellular cardiac organoid platform provides a powerful system for investigating the developmental basis of congenital cardiomyopathies and offers a scalable platform for therapeutic discovery and precision medicine.

Target Trial Emulation in Practice: Reframing a Pediatric Fracture Sedation Study

Presenting Author: Zhulin He, Emory University School of Medicine, Department of Pediatrics

Poster Number: 7

Co-Authors: Gillespie, Scott; Sulton, Carmen; Fletcher, Nicholas; Murphy, Joshua; Burger, Rebecca; He, Zhulin

Background: Randomized trials are the cleanest way to answer causal questions, but in real-world clinical settings they are not always practical or ethically straightforward. Target trial emulation (TTE) brings trial-like structure to observational data by requiring investigators to define eligibility, treatment strategies, time zero, follow-up, outcomes, causal contrasts, and assumptions. We use our published study comparing regional anesthesia (RA) with pediatric procedural sedation (PPS) for pediatric forearm fracture reductions as a case example.Methods: The original retrospective cohort used CHOA ED data from January 1, 2016 through December 31, 2021. Eligible encounters included patients 2-18 years old with forearm fracture diagnoses who underwent ED reduction. The published analysis used multiple imputation (MI) for missing covariates, estimated propensity scores using eight baseline confounders, and performed 1:1 greedy matching. Here, we reframe the question as a target trial: among eligible children undergoing ED fracture reduction, what would be the effect of initiating RA versus PPS? Treatment strategy is defined at procedure initiation. Follow-up runs through the procedure and 30-minute post-procedure window for adverse events, and through disposition for treatment duration. The causal contrast is an intention-to-treat (ITT) average treatment effect (ATE). To emulate this trial, we retain all 4,206 eligible encounters and use MI with a doubly robust estimator combining augmented inverse probability weighting and targeted maximum likelihood estimation (AIPW-TMLE), adjusting for age, primary diagnosis, sex, race, payor, acuity, calendar time, and hospital site.Results: Results were consistent across approaches. In the matched analysis, RA was associated with fewer secondary medications (-40.1 percentage points), fewer adverse events (-11.6 percentage points), and shorter treatment duration (-31.0 minutes). In the full-cohort AIPW-TMLE analysis, estimated effects were nearly

identical: -39.7 percentage points, -11.8 percentage points, and -30.9 minutes, all p<0.001.Conclusions: This consistency is reassuring and part of the message. In other studies, matching alone may discard patients, shift the target population, and limit generalizability. TTE adds rigor by making the causal question and assumptions explicit, while full-cohort doubly robust estimation preserves the target population and strengthens interpretation, even when clinical findings do not change.

Children's Metabolomic Response to Air Pollution Differs by the Length of the Exposure Window and is Sensitive to Lagged Effects

Presenting Author: Roby Greenwald, Georgia State University

Poster Number: 8

Co-Authors: Greenwald, Roby; Lin, Grace; Balogun, Adepeju; Alhadidi, Nadia

Background: The burden of disease attributable to air pollution is at a historical high, and epidemiologic evidence indicates that health effects begin at the earliest stages of life. However, our knowledge of the mechanistic response to early childhood exposures is challenged by the many practical and ethical difficulties in collecting health outcome data from young children.Methods: The Air Pollution Exposure in Child Care Settings study investigated the response of children aged 3-4 years to air pollution in metro-Atlanta using salivary metabolomics. We conducted multi-season monitoring campaigns (2023-2024) at three daycare centers representing the range of urban air pollution exposures. We measured indoor and outdoor pollutants at daycare sites including PM2.5, black carbon (BC), brown carbon, nitrogen dioxide (NO_2), ozone, and metals present in PM2.5. We also measured at-home and personal exposure using small kits containing PM2.5 and BC monitors. We collected weekly saliva samples (n=367) for untargeted metabolomics analysis, and we used generalized linear mixed models to assess the association between exposure and the change in metabolomic feature intensity. We independently characterized exposure using 1-, 2-, 3-, or 4-week exposure windows as well as 1- or 2-week lagged exposures. Finally, we performed pathway enrichment analysis using the Mummichog software package.Results: Metabolomics analyses identified associations between pollutant exposures and pathways involved in oxidative stress, energy metabolism, amino acid turnover, and lipid remodeling. Shorter exposure windows (1-2 weeks) were associated with catabolic and oxidative stress pathways, consistent with disassembly of damaged molecules and quenching reactive oxygen species. Longer windows (3-4 weeks) and lagged exposures were associated with anabolic and lipid remodeling pathways, consistent with replacing damaged proteins and repairing lipid membranes. Combustion-related pollutants and trace metals showed overlapping metabolomic signatures.Conclusions: These findings suggest that the metabolomic response to air pollution exposure is a multi-step continuously-ongoing process and is observable in children at least as young as 3-4 years.

Modulating Wnt/β-catenin Signaling Pathway Potentiate Latency Reversal in ART-suppressed SIV-infected Rhesus Macaques

Presenting Author: Riri Hamid, Emory University School of Medicine

Poster Number: 9

Co-Authors: HAMID, RIRI; Ruiz-Salinas, Inna; Zaki-Pour, Shahab; Schoof, Nils; Colvin, Alora; Keele, Brandon; Silvestri, Guido; Chahroudi, Ann; and Mavigner, Maud

Background: An estimated 1.4 million children live with HIV. The key obstacle to cure HIV infection is a reservoir of latently infected CD4+ T cells that persist on antiretroviral treatment (ART). The "shock and kill" approach aims to induce HIV expression from reservoir cells using latency reversal agents (LRAs) to facilitate their clearance. Within the heterogenous population of CD4+ T cells, cells displaying an effector memory phenotype are more responsive to LRAs ex vivo. We previously showed that induction of differentiation of long-lived memory CD4+ T cells can be achieved in vivo through pharmacological modulation of the Wnt/β-catenin signaling pathway. Here we evaluated whether the transient induction of long-lived memory CD4+ T cell differentiation in vivo potentiated latency reversal in absence or presence of CD8+ T cells in ART suppressed SIV-infected RMs. MethodsSixteen RMs were infected i.v. with 5,000IU of barcoded SIVmac239M and initiated on ART 4-weeks post-infection. After 76-weeks of ART all RMs were administered five weekly i.v. doses of the LRA AZD5582 at 100µg/kg. Eleven RMs also received the Wnt/β-catenin inhibitor PRI-724 administered subcutaneously daily at 10mg/kg starting 1-week before the first dose of AZD5582. Six of these RMs additionally received subcutaneously a single dose of the CD8α-depleting antibody MT807R1 at 50mg/kg 24-hour prior to AZD5582 treatment. On-ART plasma viral loads (PVL) were monitored to assess for latency reversal. ResultsSIV reactivation defined as on-ART viremia above baseline was observed at a higher frequency with combined treatments as compared to AZD5582-only with 90% for the triple intervention (P=0.0006), 88% for the dual intervention (P=0.005) versus 62% for AZD5582-only. These results suggest that PRI-724 enhanced the latency reversal activity of AZD5582. Furthermore, the area under the curve of the PVL was significantly higher in the triple intervention group as compared to the AZD5582+PRI-724 group, consistent with a role for CD8+ T cells in the maintenance of HIV/SIV latency on ART. ConclusionsThese studies support the latency reversal effect of AZD5582 that can be potentiated by CD8+ cell depletion and Wnt/β-catenin modulation.

Comparative Short-Term Outcomes in Large and Small Omphaloceles: A Single Center Cohort Study

Presenting Author: Supriya Jain, Emory University School of Medicine

Poster Number: 10

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Background: Omphalocele is a congenital abdominal wall defect characterized by herniation of abdominal viscera into the base of the umbilical cord. Its diagnosis is associated with significant morbidity and mortality. While pulmonary hypertension (PH) has been associated with adverse neonatal

outcomes, the relative contribution of defect size, specifically giant omphalocele, remains incompletely characterized. This study aimed to evaluate short-term outcomes in neonates with giant versus non-giant-omphaloceles. The secondary objective was to identify additional clinical risk factors associated with poor prognosis. MethodsWe conducted a retrospective cohort study of neonates born with diagnosis of omphalocele and admitted to the NICU at Children's Healthcare of Atlanta between January 2020 to March 2025. Patients were stratified by omphalocele size (giant versus non-giant). Data collection included demographics, comorbidities, respiratory outcomes, and pulmonary hypertension (PH) treatment. The primary outcome was in-hospital mortality. Secondary outcomes included respiratory support needs, NICU and hospital stay, and PH treatment. ResultsA total of 88 patients were included. Median age and weight on admission was 0 days (IQR 0, 1), and 2.7 kg (IQR (2.1, 3.2) respectively. Thirty-three patients (37.5%) had giant omphalocele. Baseline demographic and clinical characteristics were similar between groups. Compared to non-giant omphaloceles, patients with giant omphalocele had significant morbidity, including higher needs for mechanical ventilation (63.6% vs 34.5%, p=0.014), utilization of nitric oxide (31.2% vs 5.5%, p=0.003), oxygen requirement at discharge (34.6% vs 6.4%, p=0.003); and longer NICU (median 53.5 vs 16 days, p<0.001) and hospital stay (median 56 vs 16 days, p<0.001). There was no statistically significant difference in-hospital mortality between the groups (18.2% vs 14.5%, p =0.765). ConclusionGiant omphalocele is associated with significantly increased morbidity, including greater respiratory support requirements and prolonged hospitalization, despite no difference in mortality. Further studies are needed to better define long-term outcomes and clarify the interaction between defect size and short-term outcomes.

Investigating Pressure-Driven Vascular Remodeling in a 3D Bioengineered Model of Pulmonary Arterial Hypertension

Presenting Author: Kaveeta Kaw, Emory

Poster Number: 11

Co-Authors: KAW, KAVEETA; Do, Elaine; Narayanan, Vaahini Badre; Thompson, Izzie; Liu, Muyang; Peng, Ethan; Saadeh, Maher; DeBord, Wyatt; Serpooshan, Vahid; Bauser-Heaton, Holly; and Fonoudi, Hananeh.

Background: Pulmonary arterial hypertension (PAH), including pediatric PAH, is characterized by progressive vascular remodeling driven by smooth muscle cell (SMC) phenotypic modulation in response to hemodynamic stress. Although elevated pulmonary arterial pressure is central to disease progression, mechanistic insight is limited by the lack of human-relevant models capable of sustaining defined pressure states. We hypothesize that increasing pathologic pressure elicits graded SMC remodeling mediated by endoplasmic reticulum (ER) stress and that a bioengineered 3D vessel platform enables interrogation of pressure- and hypoxia-dependent mechanisms in PAH. Methods: We bioengineered a pulmonary artery construct composed of human pulmonary artery SMCs embedded within a hydrogel and maintained under long-term perfusion in a custom bioreactor. Pathologic pressure states were established using downstream resistance. Structural stability, stiffness, and cell viability were assessed. Constructs were perfused for two weeks under mildly elevated (>20 mmHg) or severely pathologic (>50

mmHg) mean pressures combined with normoxic (21% O_2) or hypoxic (5% O_2) conditions. Optimized protocols enabled recovery of SMCs from pressurized 3D constructs for transcriptomic analysis. Parallel 2D hypoxia studies were performed to define hypoxia-induced ER stress and remodeling pathways.Results: Engineered vessels demonstrated high structural fidelity (4-mm lumen: 91.3%, n=3), consistent stiffness (8–14 kPa, n=3), and preserved SMC viability before and after perfusion. Inlet pressure was linearly proportional to flow rate in both small (r^2=0.9978, n=3) and large (r^2=0.9948, n=2) constructs, enabling reproducible control of clinically relevant pulmonary arterial pressure states. Post-culture SMCs were successfully recovered from perfused 3D constructs and submitted for bulk RNA sequencing. Principal component analysis demonstrated distinct clustering between experimental groups, supporting unique transcriptional programs under different pressure conditions. In complementary 2D experiments, hypoxia robustly induced ER stress and remodeling-associated gene expression, establishing candidate pathways relevant to PAH-associated SMC dysfunction. Conclusion: We establish a human-relevant 3D pulmonary artery model capable of long-term perfusion under defined pressure and oxygen conditions, enabling interrogation of pressure-driven SMC remodeling. This platform provides a novel approach to study pulmonary vascular mechanobiology and supports future investigation of disease mechanisms relevant to pediatric PAH, including developmental vascular biology, hypoxia severity, and inflammatory cues.

Geometric and Hemodynamic Predictors of Post-operative Complications in Modified BTT Shunts – A Step Towards Surgical Planning

Presenting Author: Tanmay Khare, Georgia Institute of Technology

Poster Number: 12

Co-Authors: Khare, Tanmay M; Gonugunta, Shruti; Shah, Imran; John, Mohan M; Maher, Kevin O; Dasi, Lakshmi Prasad; and Shashidharan, Subhadra

Background: Congenital heart defects (CHDs) occur in nearly 1% of the live births, and roughly one-quarter of these cases are critical or cyanotic lesions. The modified Blalock-Taussig-Thomas (mBTT) shunt is a standard palliative measure in these patients to restore or supplement pulmonary circulation. Post-operative complications following modified Blalock–Taussig–Thomas (mBTT) shunt implantation, particularly stenosis and thrombosis, remain a significant clinical concern, affecting nearly one-third of patients. This retrospective study evaluated differences among patients with and without shunt-related post-operative complications by analyzing shunt attachment geometry and conducting patient-specific computational fluid dynamics (CFD) simulations to characterize hemodynamic variations associated with adverse outcomes. Methods: The anatomies of 43 patients who received a BTT shunt at Children's Healthcare of Atlanta were reconstructed from post-operative computed tomography (CT) images. Geometric parameters of shunt attachment were quantified and compared between patients with (n = 15) and without (n = 28) shunt-related post-operative complications. Transient, patient-specific computational fluid dynamics (CFD) simulations were performed to characterize the velocity field and evaluate hemodynamic metrics, including time-averaged wall shear stress (TAWSS), oscillatory shear

index (OSI), and relative residence time (RRT), to identify flow patterns associated with post-operative shunt complications. Results: Analysis of shunt attachment geometry demonstrated that, among the evaluated parameters, the normalized position of proximal end of the shunt on the systemic artery differed significantly between groups (p = 0.0182), while the proximal anastomosis angle showed a trend toward significance (p = 0.0681). Computational fluid dynamics revealed disturbed flow characterized by recirculation zones, lower TAWSS, and elevated OSI and RRT localized to regions where shunt complications developed. In contrast, patients without shunt complications exhibited no disturbed flow patterns within the shunt. Conclusions: This study highlights the critical role of shunt geometry and geometry-driven flow disturbances in contributing to shunt failure. Incorporating the geometric insights and patient-specific CFD analysis into surgical planning may help reduce the risk of post-operative complications.

Automated Detection of Abnormal General Movements: Evaluating Video and Pressure Mat Classification Methods for Early Cerebral Palsy Risk Screening

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Poster Number: 13

Co-Authors: KJELDSEN, CAITLIN P.; Letzkus, Lisa; Moran, Megan; Koh-Maitre, James L.; Annapareddy, Navya; Kempfert, Rachel; Jeanvoine, Arnaud; Kim, Ashley; and Maitre, Nathalie L.

Background: Early identification of infants at risk for cerebral palsy (CP) remains a critical challenge in neonatal care. General Movement Assessment (GMA) addresses this by evaluating infants' spontaneous movement patterns; a cramped synchronized (CS) pattern near term age is a highly specific early predictor of spastic CP. However, barriers to GMA implementation — time, cost, access, and intensive training requirements – limit its implementation. Automated detection could support more scalable screening; two different methods leveraging machine learning have been developed for this purpose. Here we evaluated the metrics of the two methods in their initial iteration (pose estimation from video and pressure sensor mat data) as compared to gold-standard human video coding.Methods: Recordings were obtained from hospitalized infants at two metro-Atlanta NICUs and coded by two blinded advanced-trained readers; discrepancies were resolved by additional readers (1-3, as needed). We evaluated two probability-based methods: UV (video-based) and GMAT (pressure-mat-based) for identifying CS class (positive) versus Other (negative). Sensitivity and specificity were calculated at a prespecified threshold (>0.55) and across thresholds (0.25–0.90). A subset (n=330) was used to compare single-method performance, simple combination, and formal combination using logistic regression. Discrimination was assessed via 5-fold cross-validated ROC analysis.Results: Of 411 recordings, 37 were CS (9%). At >0.55, UV (n=391) had 5.9% sensitivity, 93.6% specificity; GMAT (n=352) had 67.7% sensitivity, 42.7% specificity. UV remained consistently specific but poorly sensitive across all thresholds (range: 0.0–11.8% sensitivity). GMAT showed the expected tradeoff; 0.75 offered the most balanced performance (54.8% sensitivity, 61.7% specificity), while 0.25 maximized sensitivity (83.9%). In the matched subset, combining methods did not improve classification: AUCs were 0.492 (UV), 0.547

(GMAT), and 0.450 (combined). Conclusions: Automated GMA detection is promising as a scalable newborn CP risk screening tool. Because CS is rare even among high-risk infants and missed cases have significant consequences, sensitivity is the primary performance target. GMAT's higher sensitivity — particularly at lower thresholds — makes it the stronger candidate for screening, where the goal is to identify every potential CS case for follow-up, not confirm diagnosis. Future work will prioritize algorithm optimization for rare-class detection, dataset expansion, and integration into newborn surveillance workflows.

From Mouse to Child: A Cross-Species Social-Isolation Polygenic Score, Childhood Psychotic-Like Experiences, and the Buffering Role of School Environment

Presenting Author: Benson Ku, Emory University School of Medicine

Poster Number: 14

Co-Authors: Ku, Benson S.; Xu, Ying; Kawatake-Kuno, Ayako; Huels, Anke; and Morishita, Hirofumi

Background: Childhood is a critical window for preventing psychosis, yet risk research has largely studied genetic liability apart from children's social environments. Standard polygenic scores estimate overall liability and cannot capture genetic risk tied to a specific exposure such as social isolation. We built an expression-based polygenic score (ePGS) reflecting how sensitive a child's brain-circuit genes are to social isolation, translating a mouse social-isolation circuit into a human genetic index. We tested whether it relates to distressing psychotic-like experiences (PLEs) in children, and whether the school environment buffers or amplifies that risk.Methods: Cross-sectional analysis of 8,441 children of European ancestry (mean age, 9.9 years; 47.3% female) from the Adolescent Brain Cognitive Development (ABCD) Study. A juvenile social isolation (JSI)-derived ePGS was built from human versions of genes differentially expressed in a mouse medial prefrontal cortex-paraventricular thalamus social circuit, restricted to genes expressed in the human prefrontal cortex and weighted by gene-expression (eQTL) effects. A control score from socially housed mice tested specificity. Distressing PLEs were assessed with the Prodromal Questionnaire-Brief Child Version. Mixed-effects logistic regression tested score effects and score-by-school-environment interactions, adjusting for age, sex, race/ethnicity, financial adversity, parental education, and genetic ancestry.Results: Overall, 2,000 children (23.7%) had distressing PLEs. Higher JSI-derived ePGS was associated with greater odds of distressing PLEs (OR, 1.08; 95% CI, 1.02-1.14; P = .01); the control was not (OR, 0.99; P = .73). School environment moderated this: the score was associated with distressing PLEs in less supportive (OR, 1.13; P < .001) and average (OR, 1.07; P = .03) but not more supportive (OR, 1.01; P = .87) schools. Associations held after adjusting for the genome-wide schizophrenia polygenic score; the gene set was enriched for synaptic and glutamatergic pathways, with schizophrenia the top disease term.Conclusions: Genetic sensitivity to social isolation was associated with distressing psychotic-like experiences in children, but only in unsupportive schools, identifying school climate as a modifiable buffer of genetic risk. By translating a mouse social circuit into a child-relevant genetic index, this work advances psychosis-risk research from bench to bedside and beyond, identifying a population-level target for early prevention.

Innovative Pediatric Strep Throat Diagnosis: Advancing Saliva-Based Point-of-Care Testing

Presenting Author: Samantha Mascuch, Georgia Institute of Technology

Poster Number: 15

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Background: Strep throat, caused by Group A Streptococcus (Streptococcus pyogenes), is one of the most common bacterial infections among school-aged children, with greater than 50,000 Strep A tests performed yearly within the Children's Healthcare of Atlanta network of facilities. Throat swabs, used to collect the bacterial specimen utilized in diagnostic testing, are poorly tolerated by pediatric patients and in turn present challenges and risks to the clinicians who collect them. There is therefore a need for an enhanced diagnostic standard of care that provides swift, reliable diagnosis at the clinical point of care and is noninvasive for pediatric patients. To meet this need, our research team investigated the feasibility of using saliva to diagnose Strep throat in pediatric patients. Absorbent collection devices (Oasis Diagnostics) were used as a noninvasive means of gathering saliva from study participants aged 3 to 18 years. Saliva was then analyzed using the Cepheid GeneXpert Xpress platform, a “lab in a cartridge” that automates nucleic acid extraction, PCR amplification, and Strep A target sequence detection. Results were compared to those obtained from throat swabs on the same testing platform. In an initial trial of 50 participants, contingency analysis yielded 93.5 Percent Positive Agreement (PPA) and a 100.0 Percent Negative Agreement (PNA) between saliva and throat swabs. These initial results indicate that saliva is an appropriate specimen type for diagnosis of Strep throat. Our group’s focus will now be on expanding this trial to a greater number of study participants to gather enough data to justify the implementation of saliva-based testing at CHOA, offering clinicians more options for obtaining an accurate Strep throat diagnosis. Doing so could improve the experience for the thousands of children who present with pharyngitis at Children’s Healthcare of Atlanta every year.

The Enduring Effects of Childhood Trauma: Exploring How Childhood Trauma Shapes the Lived Experience of Adult Homelessness

Presenting Author: Anya Karande, Emory University

Poster Number: 16

Co-Authors: BOHL, CARSON; Ravichander, Aanya; Karande, Anya; Piper, Kailtin

Background: Approximately 90% of adults experiencing homelessness have experienced at least one adverse childhood experience (ACE) and 54% have experienced four or more. ACEs among adults experiencing homelessness are associated with elevated risks of suicidal ideation and attempt, depression, substance use, and victimization. Although prior research documents the prevalence and

consequences of ACEs among adults experiencing homelessness, few studies have explored how childhood trauma shapes the lived experience of adult homelessness. This study examines the link between childhood trauma and adult homelessness to inform the development of trauma-informed interventions to prevent homelessness and improve quality of life among adults experiencing homelessness. Methods: In-depth qualitative interviews (n=31) were conducted with adults experiencing homelessness (90% ethnoracial minority; 50% LGBTQ) at a street outreach site in Atlanta, Georgia. Interview domains included early childhood experiences, journeys toward homelessness, conditions of homelessness, and mental health perceptions and needs. Interviews were analyzed using interpretative phenomenological analysis, a method that prioritizes the exploration of how participants construct meaning out of their experiences. Results: ACEs included emotional, physical, and sexual abuse, poverty, community violence, youth homelessness, caregiver addiction and mental illness, caregiver incarceration, early drug use, discrimination, bullying, and involvement in foster care and the juvenile justice system. Participants described how childhood trauma shaped their trajectories toward homelessness and conveyed how the conditions of homelessness often replicate early childhood experiences of trauma, victimization, and abandonment. Additionally, some participants reported unmet mental health needs in childhood that escalated into recurrent cycles of criminal-legal involvement, mental illness, substance use, and homelessness. Many participants perceived mental health care systems as untrustworthy, pathologizing, and inaccessible. Lastly, several participants described a persistent desire to “be better” both during childhood and adult homelessness, highlighting the complex intersection between interpersonal and structural trauma and individual agency in the fight for survival among adults experiencing homelessness. Conclusions:These findings suggest that homelessness interventions must be designed with an understanding of the cumulative and enduring effects of childhood trauma. Integrating culturally responsive, trauma-informed practices into housing, healthcare, and behavioral health services may improve engagement and support recovery. Implications for practice, service delivery, and policy will be discussed.

Unexpectedly high burden of liver disease in young Latino children

Presenting Author: Cristian Sanchez-Torres, Emory University

Poster Number: 17

Co-Authors: SANCHEZ-TORRES, CRISTIAN; Ramirez Tovar, Ana; Gillespie, Scott; Huneault, Helaina; Yaranga, Claudia; DeSantos, Karla; Carapio-Chaparro, Christina; James, Brittany; Refugjati, Ermena; Kang, Gloria; Khanna, Geetika; Knight-Scott, Jack; Alazraki, Adina; Aguayo, Liliana; Santoro, Nicola; Bai, Shasha; Welsh, Jean; and Vos, Miriam B.

Background Metabolic dysfunction–associated steatotic liver disease (MASLD) is the most common liver disease worldwide and is strongly associated with future hepatic and cardiometabolic morbidity and mortality. Current US screening guidelines recommend screening beginning at age 10 years, with little data to support this age cutoff. Hispanic youth are known to be at increased risk and severity of MASLD, but few studies have included children under the age of 10 years, despite this increased risk. The aim of

this study was to test for MASLD and risk factors in prepubertal Hispanic children. Methods We prospectively recruited 170 Latino children aged ≥6–9 years who were presumed healthy by their parents. The children underwent MRI and biomarker screening for hepatic steatosis and liver disease as part of a clinical trial pre-screening visit (NCT05292352). MASLD was defined as hepatic steatosis ≥5% plus 1+ cardiometabolic-criteria. Genotyping for PNPLA3 rs738409:G was performed (G allele is associated with MASLD). Results Of 170 participants (mean age 7.9 years SD 1.1, 57% male), 27% were categorized as normal weight, 18% overweight, and 55% obese using established sex and age-adjusted BMI percentile cutoffs. The frequency of the PNPLA3 risk allele was 83.3% (51.4% CG, 31.9% GG). Overall, 33% of children had MASLD. When stratified by BMI, 53% of children with obesity had MASLD. Notably, 44% of six-year-old children with obesity already had hepatic steatosis ≥ 5%, and 22% had elevated ALT. Controlling for age and sex, children with obesity were 11 times more likely to have MASLD (OR 11.31, CI 4.0–40.7). Those with PNPLA3 GG were 9.2 times more likely to have MASLD compared to CC (OR 9.24, CI 2.42–42.8). Conclusion MASLD onset may occur earlier than previously thought and delays in screening until age 10 years may miss important opportunities to interrupt the progression. The presence of obesity is the best predictor for MASLD, even in Hispanic/Latino children as young as 6 years old. This evidence supports lowering the age of screening in Hispanic/Latino children and particularly for those who are obese.

Hypothiocyanous acid activates multiple modes of the pentose phosphate pathway via reversible oxidation of glyceraldehyde 3-phosphate dehydrogenase in lung epithelial cells

Presenting Author: Joseph Shapiro, Emory University

Poster Number: 18

Co-Authors: Lyles, James T. ; and Roberts, Anne; and Roberts, Blaine; and Chandler, Joshua D.

Background: Chronic neutrophilic inflammation is a component of multiple pediatric lung diseases including cystic fibrosis (CF), bronchiectasis, and asthma. In CF, neutrophils actively secrete myeloperoxidase (MPO), a potent risk factor of structural lung disease later in life. MPO produces the oxidants hypochlorous acid (HOCl) or hypothiocyanous acid (HOSCN) from chloride or thiocyanate, respectively. We previously observed that 24 h of continuous HOSCN exposure is well tolerated in bronchial epithelial cells, unlike H2O2 or HOCl. HOSCN is detoxified by thioredoxin reductase, but lung cell adaptation to this oxidant is not well understood. Here, we investigated the impact of HOSCN on glycolysis and the pentose phosphate pathway (PPP), which are critical for bioenergetics, antioxidant defense, and cellular adaptation.MethodsImmortalized human bronchial epithelial cells (BEAS-2B) were exposed to 100 µM HOSCN, H_2O_2, or HOCl. Differential isotopic cysteine labeling coupled with shotgun DIA-PASEF proteomics was used to quantify reversible cysteine oxidation of glycolytic and PPP enzymes. Glyceraldehyde 3-phosphate dehydrogenase (GAPDH) activity was measured by colorimetric assay, and 1,2-13C2-glucose isotope tracing was performed to assess changes in glycolytic and PPP metabolic flux.ResultsAcross 28 detected glycolytic and PPP cysteines, HOSCN increased median oxidation to 40.2% (versus 12.6% for control), including GAPDH at its catalytic cysteine C152 and allosteric C156 sites. H2O2

increased median cysteine oxidation state to 13.3%, but potently targeted GAPDH at its catalytic cysteine C152. HOCl did not significantly change the global redox state of PPP and glycolytic enzymes, consistent with its promiscuous reactivity with other cellular and media components. Both 100 µM H2O2 and HOSCN significantly inhibited GAPDH while 100 µM HOCl did not, although inhibition by HOSCN was reversible. Via isotope tracing, we observed that HOSCN activated multiple pro-anabolic PPP pathways with minimal disruption of glycolysis, while H_2O_2 inhibited glycolysis and promoted pentose cycling to maximize NADPH production. Consistent with other assays, HOCl did not significantly alter PPP activity. ConclusionHOSCN oxidizes a range of enzymes in glycolysis and the PPP in intact BEAS-2B cells, and in the case of GAPDH we observed the resulting oxidative inhibition is reversible. This promoted multimodal PPP responses that were unique to HOSCN among oxidant exposures. These metabolic adaptations may help to explain how lung epithelial cells adapt to HOSCN exposure during periods of prolonged inflammation.

Dexmedetomidine vs Propofol Induction for Sedated Radiologic Procedures in Patients with Trisomy 21

Presenting Author: Carmen Sulton, Emory University School of Medicine

Poster Number: 19

Co-Authors: CARMEN D. SULTON, MD; Carlos Delgado, MD; David Fagin, MD; Rebecca K. Burger, MD; Jaimee S. Holbrook, MD; Hwanseok Winston Choi, PhD, Austin Chan, MD4

Background: Patients with Trisomy 21 (T21) are more susceptible to sedation-related adverse events (AEs) due to their hypotonia and macroglossia. Despite literature focused on the airway risks associated with general anesthesia, there is a paucity of literature addressing natural airway sedation. Additionally, very few studies address the risk of propofol, which has increased risk of apnea and airway obstruction, or which compare sedation regimens in this high-risk population. Studies have indicated that dexmedetomidine (DEX) is less likely than propofol to result in AEs as it promotes a more natural sleep and less airway muscle relaxation than propofol.Methods: This study is a secondary analysis of prospectively collected data. We queried the Pediatric Sedation Research Consortium (PSRC) Database from the years 2020-2025. The demographic characteristics were summarized using descriptive statistics. The incidence of sedation-related AEs and sedation failures were described by induction drug (DEX vs propofol) using frequencies and percentages. Any medication used other than DEX or Propofol were excluded. We performed a propensity score analysis comparing the DEX cohort to the propofol cohort. The covariates of interest include obesity, snoring, upper airway abnormality, and upper respiratory infection. All the statistical work was performed using SAS 9.4Results: A total of 337 patients met the inclusion criteria. 62% were male and the average age was 7 years. 44% of AEs were partial airway obstruction. There were no serious AEs reported. For the bivariate analyses, the AE outcome variable is statistically significant with the medication variable ($\chi 2df = 1 = 33.249$, $p < .001$). Induction with propofol had a 5 times higher odds of an AE (OR = 5.069, 95%: 2.829 – 9.082). After propensity score matching, there are a total of 216 matched observations. We found that the odds of an AEs were 4.4 times higher with propofol induction compared to DEX.Conclusion: In patients with T21 undergoing

radiologic procedures, partial airway obstruction is the most common AE, and the odds of having any AE are higher with induction using propofol compared to DEX. Greater consideration should be given for use of DEX induction for patients with T21 undergoing sedated radiologic procedures.

Changes in Pediatric Palliative Care Visit Content Following Addition of Mental Health Clinicians

Presenting Author: Shubha Verma, Emory University School of Medicine

Poster Number: 20

Co-Authors: VERMA, SHUBHA; Lee, Katherine; Feifer, Deborah; Radbill, Linda; Korsah, Karyn; and Brock, Katharine

Background: Pediatric palliative care (PPC) focuses on managing physical, emotional, and spiritual symptoms in children with life-threatening conditions. Previous research indicates that children with cancer experience a range of psychological symptoms, including distress, worry, fear of being alone, loss of independence, and sadness. However, most PPC teams do not include mental health clinicians (MHCs) such as psychiatrists and psychologists. Therefore, the effect of adding MHCs on PPC visit content is unknown.MethodsThis single-center retrospective study included PPC visits for children with cancer from 1/1/2023 - 6/30/2025. We assessed domains of care (Goals of Care, Symptom Management, Care Coordination) addressed by PPC clinicians during these visits. Visits were divided into 1-year pre- and post-addition of three MHCs, separated by a six-month washout period during MHC onboarding. Descriptive statistics summarized visit and patient characteristics, and frequencies of domains were compared using Pearson's Chi-Squared or Kruskal-Wallis tests.ResultsThere were 4120 PPC visits with 332 patients (55% White, 46% female, 20% Hispanic/Latino). Patients had central nervous system (CNS) tumors (117, 35%), solid tumors (118, 36%), or leukemia/lymphoma (97, 29%). The median number of domains addressed per visit was higher post-MHC (9.0 vs. 8.0; $p<0.001$). Specific topics discussed more frequently after the introduction of MHCs included symptom management subdomains like pain (78% vs 69%, $p<0.001$) and sleep difficulties (11% vs. 5.3%, $p<0.001$), as well as complex topics like advance care planning (12% vs. 7.9%, $p<0.001$) and hospice coordination (12% vs 6.9%, $p<0.001$). While PPC-led discussions about anxiety increased in the post-MHC cohort (21% vs. 18%, $p=0.007$), discussions about depression decreased in the post-MHC group (8.7% vs 11%, $p<0.021$).DiscussionAfter MHC integration, PPC visits addressed one additional subdomain of care per visit. While discussions about certain PPC topics increased in frequency, in some visits, depression assessment and complex medication management may have transitioned to MHCs. These shifts may reflect increased recognition and education about mental health challenges, MHC participation in interdisciplinary PPC visits, and redistribution of aspects of clinical care based on area of expertise, allowing PPC clinicians to focus on other complex PPC topics.

Poster Competition Abstracts

The Mitochondrial Citrate Carrier SLC25A1 Drives Neonatal Cardiac Maturation: A Computational and In Vivo Study

Presenting Author: Nahum Arefeayne, Emory University

Poster Number: 21

Co-Authors: AREFEAYNE, NAHUM; Ohanele, Chiemela; Ghazal, Nasab; Duldul, Aisha; and Kwong, Jennifer

Background: Disruption of postnatal cardiac maturation contributes to pediatric heart disease, yet the specific metabolic reactions required to establish mature ATP production remain poorly defined. During the early postnatal period (4 weeks in mice), cardiomyocytes shift toward mitochondrial oxidative metabolism. We used computational metabolic modeling to identify the reactions driving this maturation, then validated them with an in vivo knockout.MethodsProteomics data from Talman et al. 2018 was reanalyzed to characterize normal postnatal cardiac metabolic maturation (P1–P23). These data were then integrated into MitoMAMMAL, a genome-scale model of mammalian mitochondrial metabolism, using flux balance analysis to estimate ATP-producing flux at each timepoint. In silico single-reaction knockouts were performed to identify reactions critical for ATP production during this maturation window. For in vivo validation, cardiomyocyte-specific Slc25a1 knockout (Slc25a1-cKO) mice were generated using Slc25a1-floxed and Tnnt2-Cre mouse lines. Gravimetric and survival analyses were performed across neonatal timepoints (P1, P7, P14, P21, and P28). Proteomics was performed on P28 hearts (n=5/genotype, $q<0.1$, $|FC|\geq1.5$) and analysis included GSEA against Gene Ontology and Reactome databases. Respirometry was performed on P28 hearts.ResultsFlux modeling revealed a progressive increase in mitochondrial ATP-producing flux across postnatal development (P1–P23). In silico knockout of citrate-related reactions reduced ATP flux and maturation, producing a marked decrease at P23, around the time maturation completes. In vivo, Slc25a1-cKO mice were morphologically normal at P7 but developed systemic growth defects by P14, significant by P21, with reduced survival. At P28, Slc25a1-cKO hearts showed decreased coupled and maximal uncoupled respiration. Proteomics identified 71 differentially abundant proteins (59 downregulated, 12 upregulated). Downregulated proteins were notably enriched for oxidative phosphorylation and mitochondrial translation, with GSEA showing negative enrichment of translation and electron transport chain programs.ConclusionIntegrated computational modeling identified mitochondrial citrate-related reactions as essential for mature postnatal ATP production, validated in vivo by our Slc25a1-cKO model. SLC25A1 thus coordinates the translational and oxidative phosphorylation networks driving neonatal cardiac maturation. Because maturation failure underlies congenital heart disease and the persistent immaturity of human iPSC-derived cardiomyocytes, these findings inform both pediatric disease mechanisms and the engineering of mature cardiac models.

Combination Treatment of Latency Reversal Agent AZD5582 and Immune Stimulant INI-4001 Plus Early ART+SIV bNabs Intervention Restrict SIV Reservoir Establishment in Infant Rhesus Macaques

Presenting Author: Kaleaha Davis, Emory University

Poster Number: 22

Co-Authors: DAVIS, KALEAHA; Kim, Daniel; Endrias, Kedan; Whang, Patrick; Wood, Jennifer; Ehnert, Stephanie; Chouinard, Magdalen; Liang, Shang; Miller, Shannon; Chahroudi, Ann

Background: Early reservoir establishment requires infants with vertically-acquired HIV to remain on lifelong antiretroviral therapy (ART). Novel pediatric cure strategies aim to limit formation of the reservoir and enhance antiviral immunity. In this study, we evaluated combination treatment with the latency reversal agent AZD5582 plus virus targeting broadly neutralizing antibodies (bNAbs) with or without INI-4001, a novel liposomal nanoparticle delivering a TLR7/8 agonist in SIV-infected infant rhesus macaques (RMs). Methods: Thirty infant RMs were infected intravenously with SIVmac251 and antiretroviral therapy (ART) was initiated 1 week post-infection. Animals were then assigned to three parallel treatment arms (n=10/group): Group 1 ART-only controls, Group 2 ART+bNAbs+AZD5582 and Group 3 ART+bNAbs+AZD5582+INI-4001. Treatment groups received five weekly doses of AZD5582 (0.2mg/kg) and INI-4001 (0.05mg/kg). Longitudinal blood collection was performed weekly to monitor plasma viral dynamics and immune parameters. Lymph node and rectal biopsies were collected to evaluate tissue-specific viral dynamics.Results: Peak viral loads ranged from 107 to 109 SIV copies/ml of plasma at week 1. The majority of RMs across all groups achieved virological suppression by week 16. In the triple combination cohort, two animals sustained viremia on ART necessitating an increased dose. Intact SIV proviral DNA in PBMCs trended lower in Groups 2 and 3 over 33 weeks of ART, with Group 3 achieving a significantly smaller intact reservoir size at week 17 compared to the ART-only Group 1 (p=0.02). Groups 2 and 3 also exhibited a significantly reduced intact viral reservoir in rectal tissue compared to controls. Intact lymph node SIV DNA cleared progressively across all three groups, with no statistically significant differences.Conclusions: Early bNAb and combination immunotherapy resulted in a significantly smaller reservoir established in blood and rectum. These results highlight the potential of this approach to target pediatric HIV reservoir formation as a component of a cure strategy.

Identification of Novel Antiviral Candidates Against Chikungunya Virus

Presenting Author: Asha Mathew, Emory University

Poster Number: 23

Co-Authors: MATHEW, ASHA MARIA; Kothapali, Yugandhar; Lee, Rachel; Lan, Shuiyun; Singh, Uma S; and SARAFIANOS, STEFAN G.

Background: Chikungunya virus (CHIKV) is a globally distributed mosquito-borne alphavirus and a Biosafety Level 3 (BSL-3) pathogen that continues to pose a significant public health threat. CHIKV infection poses a particular risk to the pediatric population, especially infants and young children, who can develop a broad spectrum of clinical manifestations ranging from acute febrile illness to severe neurological complications. Pediatric CHIKV infection is frequently associated with neurological

disorders, including encephalitis and seizures, as well as prominent musculoskeletal symptoms such as myalgia and arthralgia and dermatological manifestations including widespread rash and mucocutaneous lesions. Beyond the acute phase, some children experience persistent musculoskeletal pain, fatigue, and neurological sequelae that can adversely affect long-term health and quality of life. Despite its substantial clinical burden, there are currently no approved antiviral therapies for CHIKV, highlighting the urgent need for effective antiviral development to reduce disease severity and improve outcomes in vulnerable pediatric populations.Methods: The antiviral activity of nucleoside analogue CPA and its 5'-L-valyl amino ester prodrug was evaluated using Huh-7 CHIKV replicon cells expressing eGFP and Renilla luciferase reporters. Cells were treated with serial dilutions of the compounds, and CHIKV replication was quantified by measuring Renilla luciferase activity 48 hours after treatment. The half-maximal effective concentration (EC_{50}) was determined from the dose–response curves generated from luciferase measurements. Cytotoxicity was assessed in parallel using the XTT cell viability assay, and the half-maximal cytotoxic concentration (CC_{50}) was calculated accordingly.Results: The nucleoside analogue CPA and its prodrug exhibited potent antiviral activity against CHIKV in the Huh-7 replicon system, with EC_{50} values of 0.4 µM and 0.6 µM, respectively, which are substantially lower than the reported EC_{50} values for ribavirin (10–16.8 µM), highlighting their superior antiviral potency. Cytotoxicity analysis by XTT assay revealed no significant reduction in cell viability at the concentrations tested, with CC_{50} values exceeding 200 µM for both compounds. These findings indicate a favorable selectivity profile and strong inhibition of CHIKV replication.Conclusions: Our results demonstrate the potential of nucleoside analogue CPA and its prodrug as novel targeted antiviral agents against CHIKV, supporting further preclinical investigation to establish their safety and therapeutic efficacy in vivo.

High Awareness, Persistent Risk: Knowledge, Attitudes, Practices and Household Tick Infestation in Rocky Mountain Spotted Fever Fatality Hotspots in Hermosillo, Sonora, Mexico

Presenting Author: Kaci McCoy, Emory University

Poster Number: 24

Co-Authors: MCCOY, KACI D.; Bellman, Stephanie; Weimer, Kathleen; Gunter, Sarah M.; López-Pérez, Andrés; Álvarez-Hernández, Gerardo; and Murray, Kristy O.

Background: Rocky Mountain spotted fever (RMSF), a tick-borne zoonosis caused by Rickettsia rickettsii, has reemerged in northern Mexico as a hyperendemic disease with unusually severe outcomes. Case fatality rates are high (~40%) and greatly exceed those in the United States (~.05%), on par with fatality rates seen with Ebola and hantavirus. Very little is known about community, environmental, and behavioral factors sustaining transmission. Methods: We conducted a spatial cluster analysis of 1,462 RMSF cases reported from 2015 to 2025 to identify persistent transmission hotspots in Hermosillo, Sonora, Mexico. Based on the results, we targeted four hotspot neighborhoods to perform a cross-sectional household study aimed at (1) collecting ticks from owned dogs and the peridomestic space for testing for RMSF and (2) collecting data from household participants using a structured knowledge, attitudes, and practices (KAP) survey. We morphologically identified all collected ticks and characterized

sex, life stage, and fed status. We analyzed KAP responses descriptively and across domains. Results: In total, 93 households were surveyed, and 5,223 ticks were collected, corresponding to a mean infestation index of 56.1 ticks per household. Multiple dog ownership was common, with an average of two dogs per household, and free-roaming behavior was commonly reported. Respondents demonstrated high awareness of RMSF, with 86.2% (n=81) reporting knowledge of RMSF and 97.5% (n=79) of those recognizing its potential lethality. Reported engagement in environmental tick control was also high, with only 4.3% (n=4) reporting no preventive actions. However, important gaps were identified between knowledge, perceived risk, and protective behaviors. While 83.9% (n=78) reported being worried about ticks in their home, 43.0% (n=40) reported never checking children for ticks, and 26.7% (n=25) did not know when ticks should be removed. These findings occurred in the context of substantial household-level tick burden, suggesting persistent exposure risk despite high awareness. Conclusions: RMSF transmission in this hyperendemic setting represents a complex interplay of host, vector, and environmental factors. Effective control strategies should integrate dog-focused tick control, environmental management, and tailored social and behavior change interventions emphasizing personal risk and timely response to tick exposure. Future research should incorporate pathogen-level dynamics and vector control.

T-follicular helper cell dependence of anti-factor VIII antibody responses in a murine model of hemophilia A

Presenting Author: James McCoy, Emory School of Medicine

Poster Number: 25

Co-Authors: McCOY, JAMES W.; Jackson, Montana; Baafi, Deborah; Patel, Seema R.; Fuller, Megan; Meeks, Shannon; Stowell, Sean R.; and Zerra, Patricia E.

Background: Hemophilia A is a bleeding disorder caused by a deficiency in factor VIII (FVIII), a coagulation protein essential for blood clotting. FVIII replacement therapy is the primary treatment for bleeding episodes in individuals with Hemophilia A. However, a significant complication is the development of anti-FVIII antibodies (inhibitors), which neutralize the therapy and reduce its effectiveness. Despite the critical nature of this issue, the immune factors that drive the formation of these antibodies are not yet fully understood.Methods:We generated FVIII-OVA, a novel FVIII replacement product containing a portion of the ovalbumin peptide recognized by T cells from OTII transgenic mice. CFSE-labelled OTII splenocytes were adoptively transferred into hemophilia A mice, followed by FVIII-OVA exposure, and examination of FVIII-specific T cell proliferation by flow cytometry. A FVIII-specific MHC class II tetramer was used to track the FVIII-specific CD4+ T cell response in mice receiving 1-4 weekly FVIII doses. Bcl6 KO mouse models and a BCL6 inhibitor were used to further define the role of TFH cells in anti-FVIII antibody formation.Results:While initial FVIII exposure did not cause significant CD4+ T cell proliferation or IgG antibody production, both increased markedly after the third FVIII exposure. Use of a FVIII tetramer revealed that FVIII-specific CD4+ T cells and TFH cells expanded after two doses and continued to expand with subsequent doses. In TFH KO mice, exposure to multiple

doses of FVIII led to the complete absence of anti-FVIII IgG antibodies. After three exposures to FVIII, the tamoxifen-induced group showed no significant anti-FVIII IgG antibody response compared with the vehicle and naive groups. Mice receiving WK369 had a decrease in FVIII-specific IgG antibodies.Conclusion:Our research suggests that FVIII-specific CD4+ T cell proliferation and the formation of anti-FVIII antibodies require 2-3 exposures to FVIII, with TFH cells playing a pivotal role in antibody production. These findings, combined with our ongoing work investigating the therapeutic potential of Bcl6 inhibitors, may offer new strategies to prevent the development of anti-FVIII antibodies in patients with hemophilia A.

Underlying neural correlates of childhood impulsive behavior

Presenting Author: Tricia Resnick, Georgia State University

Poster Number: 26

Co-Authors: Resnick, Patricia; and Calhoun, Vince D.

Background: Making impulsive choices is a characteristic of psychiatric and developmental disorders such as ADHD, bipolar disorder, and addiction disorders. Despite research utilizing functional magnetic resonance imaging (fMRI), questions remain in regard to whether impulsive decision making and impulsive actions involve common or distinct neurological correlates. As impulsivity appears early in childhood and continues to develop across the lifespan, understanding neural correlates in childhood may better predict scholastic performance and future decision-making abilities. Methods: Neuroimaging and assessment data was downloaded from the Child Mind Institute's Healthy Brain Network database. A total of 373 children (9.93 ± 3.47 years; 175 Females) with no history of neurological or psychological illness were extracted for use in this study. Impulsive action was measured using the Flanker Task from the NIH toolbox. Impulsive decision making was measured using a standard temporal discounting task. Resting-state fMRI data was analyzed using constrained ICA. Temporal correlations between each of the 105 regions were then calculated. Measures of impulsivity were correlated with functional connectivity matrices, with age, sex, and site used as covariates. False discovery rate was used to correct for multiple comparisons. Results: 179 subjects (10.35 ± 3.16 years; 84 Female)were included in the final analysis for impulsive action and 92 subjects (10.51 ± 3.20 years; 44 Female) were included in the final analysis for impulsive choice. A positive relationship was found between total flanker score and connectivity between the medial supplementary motor area and the bilateral basal ganglia ($R2 = 0.043$, $p= 0.006$) as well as the connectivity between the supplementary motor area and paracentral lobule ($R2 = - 0.051$, $p = 0.003$). These relationships did not survive correction for multiple comparisons. A positive correlation was found between temporal discounting rate and connectivity between the left and right medial temporal lobes ($R2 = 0.217$, $p = 0.015$). Conclusion: Children with increased ability to attend to relevant stimuli show reduced connectivity between regions of the motor network, suggesting impulsivity is associated with increased neural priming for actions. Children who prefer immediate rewards show increased connectivity between regions associated with weighing emotional decisions, suggesting these children put more emotional weight behind immediate rewards.

Comparative Analysis of Glymphatic System Function and White Matter Microstructural Integrity in Pediatric MOG-Associated Disorder and Multiple Sclerosis

Presenting Author: Leonardo Tang, Emory University

Poster Number: 27

Co-Authors: TANG, LEONARDO; Goldman-Yassen, Adam; Gombolay, Grace; Wheeler, Austin; Shishido, Yuri; Damaraju, Eswar; Palasis, Susan; and Mao, Hui

Background: Pediatric myelin oligodendrocyte glycoprotein-associated disorder (MOGAD) and multiple sclerosis (MS) are distinct demyelinating diseases with overlapping clinical presentations that result in long-term disability. This study aims to create quantitative biomarkers to differentiate MOGAD and MS in children to help predict neuropsychological dysfunction by integrating the DTI-ALPS index as a proxy for glymphatic system function with multi-metric tract-based spatial statistics (TBSS) to evaluate microstructural white matter integrity.MethodsThis cross-sectional study included pediatric MOGAD, pediatric-onset MS, and healthy controls. Bilateral DTI-ALPS indices were calculated at the projection and association fibers near the lateral ventricles. ANCOVA analysis adjusted for age, sex, and scanner strength. Voxel-wise TBSS analysis of diffusion metrics, including fractional anisotropy (FA), geodesic anisotropy (GA), and radial diffusivity (RD), was performed. Significant voxels were mapped to the JHU white matter tractography atlas to calculate tract-specific volumetric involvement ratios, subsequently categorized into functional neural pathways.ResultsThe cohort comprised 25 MOGAD (M/F=6/19, median age 9), 23 MS (M/F=3/20, median age 17), and 20 controls (M/F=7/13, median age 13.5). The MOGAD cohort demonstrated significantly lower right hemispheric and whole brain averaged DTI-ALPS indices (p=0.046 and p=0.027, respectively) versus controls, indicating glymphatic dysfunction, while the MS cohort showed no significant differences following covariate adjustment. Both groups exhibited widespread decreased FA and increased RD, consistent with demyelination, but with divergent topographies. MOGAD displayed maximal decreased FA in the forceps major (0.784), correlating with visuomotor pathway disruption. MS exhibited maximal FA reductions in the left inferior longitudinal fasciculus (0.679) and bilateral parahippocampal cingulum (0.965 left, 0.945 right), predominantly impacting emotional and memory pathways. MS patients also exhibited significantly decreased GA.ConclusionDTI-ALPS indicates glymphatic dysfunction in pediatric MOGAD patients, while multi-metric TBSS demonstrates distinct, disease-specific topographic signatures of white matter microstructural damage, providing a neuroanatomical basis for the differing clinical phenotypes characterizing MOGAD and MS. Future work is needed correlating these findings with neuropsychological disability and how differences can impact patient treatment.

Hidden Pathogen Burden in Northwestern El Salvador: Expanded Molecular Surveillance of Acute Febrile Illness

Presenting Author: Kathleen Weimer, Emory University

Poster Number: 28

Co-Authors: Weimer, Kathleen; McNeil, Analiese; Hasell; Lingampally, Ritisha; Evans, Aaren; Ronca, Shannon; Campos, Kenni; Aguilar, Elias; Dominguez Rhina; Murray, Kristy

Background: Acute febrile illness (AFI) surveillance offers a critical but underutilized window into the complex, interwoven pathogen landscape in Central America, where climatic conditions, population density, and cross-border mobility sustain continuous transmission of diverse infectious diseases. In tropical, resource-limited settings, AFI is often approached through siloed diagnostic frameworks that separate vector-borne, respiratory, and enteric diseases despite shared ecological drivers and overlapping clinical presentations. In northwestern El Salvador, these dynamics converge within a densely populated, climatically permissive border region, creating a setting where pathogen co-circulation is constant yet incompletely resolved. From January 2022 through June 2024, we prospectively enrolled participants presenting with AFI and applied multiplex molecular diagnostics across gastrointestinal, respiratory, and vector-borne panels. Despite this integrated approach, many cases lacked an identified etiology; over 40% of patients with non-respiratory, non-gastrointestinal febrile illness had no pathogen detected. We therefore revisited this cohort using expanded diagnostic panels to better resolve patterns of pathogen detection and transmission.Methods: A total of 5,329 patients with AFI were enrolled and tested for 54 pathogens using multiplex molecular diagnostics. Among those with non-respiratory, non-gastrointestinal illness (n=1,169), 43.6% (n=510) had no pathogen identified. This subset was further analyzed for temporal clustering and epidemiological patterns to identify outbreak signals and inform targeted secondary screening efforts, including pan-alphavirus, pan-hantavirus, and Oropouche (OROV) assays. A targeted subset of participants with clinically compatible features, including respiratory progression or atypical presentations despite identified pathogens, was selectively screened to capture potential underrecognized or co-circulating zoonotic infections.Results: An outbreak of acute febrile illness clinically consistent with dengue but negative for dengue virus was identified in 2024 and selected for expanded molecular testing. Analyses are ongoing to further characterize the etiologic agents contributing to this outbreak, with updated findings to be presented.Conclusions: Together, this work highlights the persistent gaps in pathogen detection even within integrated surveillance systems and underscores the need for expanded, adaptive approaches to fully resolve transmission dynamics in complex epidemiologic landscapes.

Early introduction to fruit juice is associated with increased risk of obesity at 7 years among children exposed to a metabolically adverse prenatal environment

Presenting Author: Jean Welsh, Emory University

Poster Number: 29

Co-Authors: Chiang, Katelyn V.; Aguayo, Liliana; Hamner, Heather C.;, Hartman, Terry J.; Luo, Hanqi; Stein, Aryeh D.; WELSH, JEAN A.

Background: Recommendations to delay introduction of 100% fruit juice until 12 months have strengthened in recent years, yet evidence linking age at introduction with long-term health outcomes

remains limited. Moreover, it is unknown whether associations differ by the prenatal metabolic environment, despite evidence that in utero exposure to maternal cardiometabolic dysfunction increases susceptibility to childhood obesity. We examined the association between early fruit juice introduction (<12 vs. ≥12 months) and obesity at ages 7 and 15 years and evaluated effect modification by maternal cardiometabolic health during pregnancy.Methods: We analyzed data from the Avon Longitudinal Study of Parents and Children, including maternal reports of infant feeding, medical record–abstracted prenatal health information, and measured child height and weight at ages 7 and 15 years. Modified Poisson regression models estimated adjusted relative risks (aRRs) for obesity by timing of fruit juice introduction, stratified by maternal cardiometabolic health, defined by pre-pregnancy obesity, excessive gestational weight gain, or diabetes during pregnancy. Models adjusted for maternal education and other infant feeding characteristics.Results: Among children exposed to maternal cardiometabolic risk during pregnancy, introduction of fruit juice before 12 months was associated with a 59% higher risk of obesity at age 7 years compared with introduction at ≥12 months (aRR, 1.59; 95% CI, 1.09–2.33). The association was strongest among children introduced before 6 months (aRR, 1.70; 95% CI, 1.15–2.50), whereas the association for introduction at 6–<12 months was weaker and not statistically significant (aRR, 1.39; 95% CI, 0.90–2.14). In contrast, among children not exposed to a metabolically adverse prenatal environment, early fruit juice introduction was not associated with obesity at age 7 years (aRR, 0.88; 95% CI, 0.65–1.18). Associations were attenuated and no longer statistically significant by age 15 years.Conclusions: Early introduction of fruit juice was associated with increased obesity risk at age 7 years only among children exposed to maternal cardiometabolic adversity during pregnancy. These findings suggest that adherence to recommendations delaying fruit juice until 12 months may be particularly important for children at elevated metabolic risk and support targeted infant feeding education for mothers with pre-pregnancy obesity, excessive gestational weight gain, or diabetes during pregnancy.

Poster Abstracts

Empowering families through conversational design: A chatbot for sickle cell care

Presenting Author: Tulika Banerjee, Emory University

Poster Number: 30

Co-Authors: BANERJEE, TULIKA; Greenleaf, Morgan; Arconada Alvarez, Santiago; Aurora, Tarun; Mooney, Jan; Gee, Beatrice

Background: Children's Healthcare of Atlanta (CHOA) provides care for over 2,000 pediatric sickle cell disease (SCD) patients annually. Despite specialized care, families face persistent barriers related to transportation, insurance, financial aid, and health literacy due to a lack of streamlined resource access. To bridge these gaps, we designed Siby, a conversational AI agent powered by GPT-5 and built through a user-centered design (UCD) framework to provide caregivers with quick access to resources and plain-language explanations for navigating SCD care.MethodsSiby was developed by AppHatchery, an interdisciplinary digital health team at Emory and CHOA, using a five-phase UCD framework: empathize,

define, ideate, prototype, test. We interviewed 8 caregivers and 5 CHOA providers and observed a summer camp for youth with SCD, grouping findings into four domains: emotional/mental health, physical manifestations, medications/treatments, and logistical/social barriers. We prioritized logistical barriers as these hinder enrollment and care continuity, making them foundational to all other domains. Design requirements specified a tool that consolidates resources, provides logistical guidance, is intuitive for low tech literacy, works across devices, and requires minimal time. Through collaborative brainstorming with CHOA stakeholders, we envisioned a chatbot connecting to CHOA's SCD resource library.ResultsSiby is an AI chatbot providing 24/7 anonymous assistance for non-medical concerns. Trained on CHOA's SCD Handbook, insurance/financial aid guidelines, teaching sheets, and SCD webpage, Siby offers directions to CHOA sites, transit and parking options, financial assistance information, step-by-step insurance guidance, and social worker contacts. It also simplifies SCD concepts and guides new caregivers through first appointment preparation. Responses are at an 8th-grade reading level in a conversational format. In testing, 10 CHOA clinicians provided usability feedback, and preliminary testing with 9 caregivers yielded enthusiastic responses noting its intuitive interface, warmth, and practical utility. A CHOA-wide beta test is planned to deploy this year.ConclusionThrough UCD, we developed an AI chatbot connecting caregivers with non-medical SCD resources. Early feedback suggests conversational AI has strong potential to empower families and enhance care continuity by making essential resources accessible. Future efforts include longitudinal beta testing, risk assessment, and mixed-methods evaluation to refine chatbot scope based on caregiver needs.

A pediatric case of acute purulent pericarditis with cardiac tamponade

Presenting Author: Karin Videlefsky, Emory University School of Medicine

Poster Number: 31

Co-Authors: Videlefsky, Karin; Muffly, Mary; and Rodenbough, Anna

Background: Pediatric purulent pericarditis is rare. There is a high risk of acute complications including cardiac tamponade and a long-term risk of constrictive pericarditis.1,2 Treating infectious pericarditis generally requires a combination of source control (i.e., pericardiocentesis), extended duration of antibiotic therapy, and consideration of further surgical intervention.2,3 Early recognition and treatment are critical in reducing the significant risk of morbidity and mortality.1-3 Methods: Conducted a retrospective case review of an 11-month-old female with a history of 30-week prematurity and Duffy-associated neutropenia who developed respiratory failure and cardiac arrest secondary to disseminated methicillin-resistant staphylococcus aureus (MRSA) with empyema and purulent pericarditis. Results: The patient initially presented to an outside hospital with fever and diarrhea and was admitted for dehydration. Two days later, she was transferred to the pediatric intensive care unit (PICU) for hypoxemia and worsening respiratory distress, where she was intubated. Shortly following intubation, she had a brief bradycardic arrest with return of spontaneous circulation in less than 3 minutes. A subsequent echocardiogram showed a large pericardial effusion with tamponade. She transferred to our cardiac intensive care unit via flight for urgent pericardiocentesis and subsequently underwent placement of a

pericardial drain and bilateral pleural drains. Pericardial and pleural fluid cultures grew MRSA and she was transferred to our PICU for ongoing management. Her course was complicated by re-accumulation of pericardial effusion with tamponade physiology following initial clamping of the pericardial drain, which resolved with additional drainage. She later developed a pneumothorax requiring evacuation. She was eventually extubated, and all drains were successfully removed without radiographic or clinical signs of re-accumulation of pleural or pericardial effusion or pneumothorax. She was discharged home after a 20-day hospitalization with a one-month course of clindamycin and was scheduled to follow up with cardiology. At her two-week cardiology follow-up appointment, she was well-appearing without evidence of re-accumulation of pericardial effusion or constrictive pericarditis. She will continue to follow with cardiology to assess for long-term sequelae of purulent pericarditis, including constrictive pericarditis. Conclusions: This case contributes to limited reports describing pediatric acute purulent pericarditis and highlights the diagnostic challenge and critical nature of this condition. References1 Lutmer, J. E., Yates, A. R., Bannerman, T. L., Marcon, M. J. & Karsies, T. J. Purulent pericarditis secondary to community-acquired, methicillin-resistant Staphylococcus aureus in previously healthy children. A sign of the times? Ann Am Thorac Soc 10, 235-238 (2013). https://doi.org/10.1513/AnnalsATS.201211-104BC2 Chiabrando, J. G. et al. Management of Acute and Recurrent Pericarditis: JACC State-of-the-Art Review. J Am Coll Cardiol 75, 76-92 (2020). https://doi.org/10.1016/j.jacc.2019.11.0213 Wang, T. K. M. et al. 2025 Concise Clinical Guidance: An ACC Expert Consensus Statement on the Diagnosis and Management of Pericarditis: A Report of the American College of Cardiology Solution Set Oversight Committee. J Am Coll Cardiol 86, 2691-2719 (2025). https://doi.org/10.1016/j.jacc.2025.05.023

A Qualitative Evaluation of Implementation Determinants of a Drama Camp for Underserved ACE-impacted Youth

Presenting Author: Kaushiki Ravi, Rollins School of Public Health

Poster Number: 32

Co-Authors: Ravi, Kaushiki; Kubert, Jess; Bohl, Carson; Anderson, Kayla; Rogers, Robyn and Piper, Kaitlin

Background: Adverse childhood experiences (ACEs) are associated with unfavorable mental health outcomes, yet many youth who experience trauma lack access to mental health resources. Arts-based programs, often implemented by arts organizations and/or community non-profits, are increasingly implemented to address youth mental health challenges. However, despite the growing interest in arts-based programming, there is limited research on factors influencing the successful implementation of such programs. This study aims to generate evidence regarding the factors shaping the implementation of arts-based programming to inform the development of replicable, sustainable models to address youth mental health needs. Methods: Data for this study were collected from a 3-week drama camp offered through a partnership between a local theatre company and a non-profit serving youth who have experienced ACEs. To assess program implementation, including facilitators, barriers, and recommendations for future programming, we conducted in-depth interviews with both teaching artists and nonprofit program staff (n=16) at the 2026 summer drama camp program. Interviews ranged from

30-60 minutes. Inductive thematic analysis was used to group findings into broader themes to describe patterns across participant perspectives. In addition, a reflective journaling activity was conducted with middle- and high-school youth (n=33) participating in the camps to gather youth feedback on program implementation. Results: Teaching artists and nonprofit staff reported that the drama camp was successfully delivered and perceived the experience as feasible and acceptable for the youth. Key facilitators included the engaging curriculum focused on improvisation and embodied games, trauma-informed instruction, and teaching artists who demonstrated an understanding of youths' lived experiences. Barriers included large class sizes, differences in conflict resolution approaches between organizations, and limited pre-camp collaboration. Recommendations for future programming emphasized increasing teaching artist capacity and establishing cross-organizational collaboration prior to camp. Conclusion: This work offers an evaluation of a replicable model for a trauma-informed, arts-based theatre programming through drama camps for under-resourced youth. Findings revealed that successful implementation was shaped by these key factors: a youth-centered curriculum design, the quality of cross-organizational collaboration, and adequate staffing capacity and training. Implications for future arts-based programs and policies to support arts-based programming for youth mental health will be discussed.

Medulloblastoma Circulating Tumor Cell Clusters differ from Primary Brain Tumor Cells

Presenting Author: Martha Stewart, Emory University School of Medicine

Poster Number: 33

Co-Authors: Stewart, Martha; Ozkaya Ahmatov, Tevhide; Liu, Jingbo; Gershon, Isabella; Zhang, Hongying; Chien, Franklin; Du, Yuhong; Sarioglu, Fatih; and MacDonald, Tobey

Background: Prior work has shown evidence for hematogenous spread of medulloblastoma (MB). Our lab has created a label-free approach for collecting MB circulating tumor cell clusters (CTCCs) from patient blood and CSF. We hypothesize that captured CTCCs represent a sub-clonal population of cells within the primary tumor driving treatment resistance and relapse. We aim to compare the molecular and functional characteristics of MB CTCCs to primary brain tumor cells. Methods - Primary Group 3 MYC-amplified MB cells (BT52) were dissociated from the tumor and CTCCs (BT52 CTCCs) were collected from the patient's blood and established in culture. These were then molecularly compared by sequencing whole genome DNA (WGS) and single cell RNA (scRNA-seq). Metabolic profiles including oxygen consumption rate (OCR) and extracellular acidification rate (ECR) were assessed using the Seahorse Mitochondrial Stress Test. Drug sensitivity using high throughput sequencing (HTS) with over 1400 drugs was performed through the Emory HTS core. Results – WGS confirmed matching DNA copy number variations for BT52 and BT52 CTCCs, while scRNA-seq revealed significantly different transcriptional profiles. Gene set enrichment analysis confirmed significant enrichment in oxidative phosphorylation pathways of BT52 CTCCs, which had a higher basal, maximal, and spare capacity than BT52s as measured by OCR (basal 24.03 vs 19.55 pmol/min $p = 0.0313$; maximal 26.38 vs 15.89 pmol/min, $p = 0.0214$; spare 2.349 vs -3.657 pmol/min, $p=0.0069$). BT52 cells had higher extracellular acidification rate than BT52 CTCCs through all phases (16.92 vs 8.52 mpH/min, $p<0.0001$). Both cells

showed varied and significant resistance to some key drugs used in treatment of MB. Conclusions – Preliminary data suggests MB primary and CTCCs, while similar in genomic profiles, significantly differ in transcriptomic expression, metabolism, and response to select drugs in vitro. MB CTCCs may represent a critical sub-clonal population that can mediate, and potentially help elucidate, mechanisms of treatment resistance.

Characterization of Ventilator-Associated Tracheitis and Ventilator-Associated Pneumonia in Mechanically Ventilated Infants in a Level IV NICU

Presenting Author: Grace Shin, Emory University

Poster Number: 34

Co-Authors: SHIN, GRACE; Townsend, Janae; Floyd, Chase; Solis Solis, Jaquelin; He, Zhulin; Piazza, Anthony; and Dariya, Vedanta

Background: Mechanical ventilation is an essential therapy for critically ill neonates but increases the risk of ventilator-associated tracheitis (VAT) and ventilator-associated pneumonia (VAP). Although VAP has been associated with increased morbidity, mortality, and prolonged hospitalization, NICU-specific diagnostic criteria remain poorly defined, contributing to inconsistent diagnosis and treatment. We sought to characterize the epidemiology of VAT/VAP in a Level IV NICU to identify opportunities for antibiotic stewardship and future quality improvement initiatives. MethodsWe performed a retrospective cohort study of infants admitted to the Children's Healthcare of Atlanta Level IV NICU who required mechanical ventilation via endotracheal or tracheostomy tube for ≥48 hours between January 1, 2023 and December 31, 2025. Clinical data were collected using REDCap and the Children's Hospitals Neonatal Database. VAT/VAP incidence was calculated per 100 endotracheal/tracheostomy tube days. Incidence rates and clinical characteristics were compared across gestational age (GA) and birth weight (BW) groups using non-parametric statistical testing, with $p<0.05$ considered significant. ResultsAmong 208 mechanically ventilated infants, 865 infectious encounters and 657 VAT/VAP episodes were identified, corresponding to an overall incidence of 5.8 episodes per 100 endotracheal/tracheostomy tube days. Infants born at <28 weeks' gestation and those weighing <1000 g experienced significantly longer NICU stays ($p=0.003$ and $p=0.008$, respectively) and longer durations of mechanical ventilation ($p=0.005$ and $p=0.006$, respectively). Interestingly, VAT/VAP incidence differed significantly by birth weight, with higher incidence observed among larger infants (6.9 versus 5.3 episodes per 100 airway days, $p=0.012$). No significant differences were observed across gestational age groups. ConclusionsVAT/VAP represents a substantial infectious burden among mechanically ventilated infants in a Level IV NICU. As one of the largest contemporary Level IV NICU cohorts evaluating ventilator-associated respiratory infections, this study provides foundational epidemiologic data to inform standardized diagnostic criteria, antimicrobial stewardship, and targeted quality improvement initiatives. The higher incidence observed in larger infants warrants further investigation, while prolonged ventilation among extremely preterm infants underscores the importance of optimizing prevention strategies.

Language Justice for Non-English or Spanish Speaking Families for Hospitalized Patients

Presenting Author: Andrew Potter, Emory University

Poster Number: 35

Co-Authors: Andrew Potter, Nicole Hames, Naveen Muthu, Alison Arevalo-Amador, Ana Taiana, Amy Rule

Background: Georgia is home to roughly 850,000 immigrants, including many refugee families. Immigrants face unique challenges in health care every day, such as barriers to transportation, access to medicine, and language barriers in utilizing health services. Hospitalized immigrant patients and their families face these barriers while dealing with the additional stressor of an acutely ill child. This quality improvement project is aimed towards language justice for families that are non-English or Spanish (NESS) speaking. While families admitted to CHOA are asked their preferred learning methods and are screened for literacy, it is unclear how many receive education consistent with those needs. Methods: We conducted preliminary data collection utilizing chart review from June 2025 – November 2025 for all clinical admissions to Children's Healthcare of Atlanta – the 3 inpatient campuses. The top 6 most common languages spoken in hospitalized CHOA patients and families includes Amharic, Arabic, Vietnamese, French, Swahili, and Dari (from July 2025 – November 2025). Using EPIC Slicer-Dicer, we parsed out encounters with a preferred language for Amharic or Arabic as an initial pilot needs assessment. Families preferred learning method, literacy assessments, and whether they received discharge instructions in their preferred language were compiled and analyzed used descriptive statistics. Results: Of the 178 NESS families that were admitted to CHOA who spoke one of these 6 languages, 55% selected "reading" as a preferred learning method. Of the 178 NESS families, 0 received discharge instructions in their own preferred language. Conclusions: It is imperative that we develop culturally responsive and preferred-language congruent child health education resources in multiple languages. As part of our language justice initiative, this needs assessment further outlines the desire for immigrant families to have reading materials in their preferred language, and next steps for this pilot project involve utilizing local Amharic and Arabic interpreters to translate common pediatric diagnosis discharge instructions with cultural context in mind and implementing their use on the hospital medicine service at CHOA.

Protective Effect of Physical Activity on Depressive Symptoms Among Adolescents With High Social Media Use

Presenting Author: Tarun Achar, University of North Texas

Poster Number: 36

Co-Authors: Darbhakul, Rohit; Achar, Tarun; Pal, Aayush; and Gambhirrao, Dhruv

Background: The 2023 YRBS documented a youth mental health crisis: 39.7% of U.S. high school students reported persistent sadness or hopelessness, and 28.5% reported poor mental health most or all of the time in the past 30 days. That same year, for the first time, YRBS measured social media frequency. 77%

of students used it several times daily. Whether physical activity makes an impact on depressive symptoms, specifically among heavy social media users in a national sample, remains unexamined.Methods: We analyzed 2023 national YRBS data (N = 20,103), a cross-sectional survey of U.S. high school students. High social media use (QN80) was defined as several times daily or more. Depressive outcomes: persistent sadness or hopelessness 2 weeks in the past year (QN26) and poor mental health most or all of the time in the past 30 days (QN84). Physical activity exposures included the aerobic guideline (60 min/day on 5 days/week; QN76), sports team participation (QN78), and muscle strengthening 3 days/week (QN97). Among high social media users (n = 11,872), weighted prevalence ratios (PRs) and 95% CIs were estimated via log-binomial models, adjusting for age, sex, race/ethnicity, and grade. Survey weights accounted for complex sampling.Results: Among high social media users, 42.6% reported persistent sadness and 30.6% reported poor mental health, both higher than the overall sample. Meeting the aerobic guideline was associated with 26% lower sadness prevalence (PR = 0.74, 95% CI: 0.71-0.78, $p < 0.001$) and 25% lower poor mental health prevalence (PR = 0.75, 0.70-0.79). Sports participation showed 23% lower sadness (PR = 0.77, 0.73-0.80) and 30% lower poor mental health (PR = 0.70, 0.66–0.74). Muscle strengthening showed the strongest effects, PR = 0.72 for sadness and PR = 0.66 for poor mental health. All associations held across both sexes ($p < 0.001$).Conclusion: Across aerobic, team-based, and resistance methods, physical activity was associated with 23-34% lower depressive symptom prevalence among adolescents with high social media use. Only 46% of students met aerobic guidelines - showing real room to intervene. School programs and pediatric counseling should treat physical activity as a mental health tool, especially now that daily social media use is the norm for most American teenagers.

Systematic Review of Child Limb injuries in Armed Conflict: Proper Health Care is Paramount

Presenting Author: Thomas Adamkiewicz, MSM.edu

Poster Number: 37

Co-Authors: Shah, Zaria; Coulter, Colleen; Adamkiewicz, Tom

Background: Children continue to be innocent victims in armed conflict. Although pediatric amputations during conflicts are anecdotally reported, data is limited on scope of the problem.Methods: A systematic review was conducted following PRISMA guidelines to evaluate pediatric amputations and limb injuries resulting from global armed conflicts. Peer-reviewed articles were derived from MEDLINE/PubMed, Google Scholar, academic libraries, and cross-referencing a prior systematic review by Jain et al. Search terms included “child,” “pediatric,” “amputation,” “limb injury,” “trauma,” “war,” “armed conflict,” “surgical procedures,” and “rehabilitation.” Studies were screened using Covidence and EndNote and included if they were peer-reviewed, reported conflict-related limb injuries or amputations, and contained relevant pediatric data. Articles lacking extractable data for the categories of interest were excluded. Included studies were organized by hospital type and observation period. Extracted variables included mechanism of injury, patient demographics hospital setting (military or non-military).Results: Nine studies accounted for 4027 children and 10 studies included 8225 adult and children (2 studies

were in both groups). In children, mechanisms of injury were reported in following number of studies, blast/explosive: 4; gunshot/firearm: 4; burns: 2; falls: 2; landmine: 2; fragments/shrapnel: 2; cluster: 1; other: 3. For studies that included adults and children mechanisms were: gunshot/firearm: 6; landmine/IED: 6; blast/explosion: 5; fragments/shrapnel: 3; cluster: 2; falls: 2; burn: 1; other: 5. Aggregate data is presented in the figure:Table: aggregate relation between number of patients, deaths, limb injuries and amputationsAnalysis (a/b) Children a/b %Children+adult a/b %total deaths/total patients(260/3934) 7% (473/8129)6%≥1 limb injury/total patients(959/2721)35%(3347/6999) 48%≥1 amputations/total patients (207/2529)8%(444/6312)7%≥1 amputations/≥ 1 limb injury (186/914) 20%(428/2977)14%For each reported patient with amputations there was at least one patient that died (≥1 amputation/total deaths children: 186/159=1.2; general: 443/340=1.3)Conclusion: Limb injuries and amputations are common in children admitted for trauma during conflicts and may more likely result in amputations. Number of individuals with amputations may also reflect number of patients that died after being admitted for war related injuries. Provision of proper child health care in armed conflict is paramount.

Investigating the Role of Vessel Stiffness in Vascular Remodeling Using a 3D Biofabricated Model of Pulmonary Arterial Hypertension

Presenting Author: Vaahini Badre Narayanan, Emory University

Poster Number: 38

Co-Authors: Vaahini Badre Narayanan, Kaveeta Kaw, Muyang Liu, Elaine Do, Izzie Thompson, Hyunseo You, Vahid Serpooshan, Holly Bauser Heaton, Hananeh Fonoudi

Background: Pulmonary arterial hypertension (PAH) is a progressive condition associated with congenital heart disease in pediatric patients. PAH is characterized by pathologic vascular remodeling that increases stiffness in proximal and distal pulmonary arteries. Although stiffness is a known predictor of morbidity and mortality, the impact of incorporating a stiffened microenvironment into in vitro models of PAH remains poorly defined. Our lab has biofabricated a 3D vessel model incorporating human smooth muscle cells within a phototunable, perfusable hydrogel. We hypothesize that increasing construct stiffness will activate pro-inflammatory and pro-fibrotic pathways.We analyzed public human single-cell RNA-sequencing (scRNA-seq) datasets from healthy controls and PAH patients to identify clinically relevant stiffness-associated pathways associated with PAH. Constructs were hardened by varying crosslinking method (UV vs. blue light) and exposure time. Stiffness of constructs was characterized using microindentation with a Mach-1 system. A custom-developed macro processed Mach-1 output files and spatially mapped stiffness in Paraview.scRNA-seq analysis revealed that fibrotic markers, such as JUN and FOS, were more strongly associated with PAH patients compared to healthy controls. Following one minute of photo-crosslinking the top and bottom surfaces of constructs, we characterized stiffness at the outer surfaces and inner lumen. Constructs with broad UV exposure exhibited significantly greater stiffness than those exposed to blue light (12.8 kPa, n = 2 vs. 10.1 kPa, $p < 0.001$, n=3). No significant differences in surface stiffness were observed between light-exposed and unexposed regions within UV-

light- and blue-light-treated constructs. In contrast, luminal stiffness was significantly higher than surface stiffness for both blue-light constructs (11.7 kPa vs. 9.2 kPa, $p < 0.05$, $n = 3$) and UV-light constructs (15.7 kPa vs. 11.8 kPa, $p < 0.01$, $n = 2$). Future studies will perfuse vessel constructs with variable stiffness to evaluate how stiffness influences vascular remodeling pathway activation.We established a method for tunable, spatially defined stiffness in a 3D biofabricated pulmonary artery model. This system provides a physiologically relevant in vitro platform to investigate how vessel stiffness contributes to vascular remodeling in pulmonary arterial hypertension.

A Systematic Review of Mobile Applications for Sickle Cell Disease Management: A Multi-Stakeholder Assessment using the Mobile Application Rating Scale (MARS)

Presenting Author: Tulika Banerjee, Emory University

Poster Number: 39

Co-Authors: BANERJEE, TULIKA; Greenleaf, Morgan; Arconada Alvarez, Santiago; Yao, Jingying; Sheth, Chini; Wells, Aidan; Tang, Amy; Payne, Jason; Harden, Christopher; Lam, Wilbur; Gee, Beatrice

Background: Sickle cell disease (SCD) affects approximately 100,000 Americans, predominantly individuals of African and Hispanic descent, and requires lifelong self-management. As a digital health team developing SCD apps with Children's Healthcare of Atlanta (CHOA), we characterized the current app landscape to ensure new tools address genuine gaps. This study aimed to: (1) identify SCD mobile apps in the US; (2) assess quality using the Mobile Application Rating Scale (MARS); (3) identify strengths and deficiencies; and (4) generate insights for future SCD app development.MethodsWe searched the App Store, Play Store, and web using SCD-specific keywords. Nine apps met criteria; one was excluded as under active research testing, yielding eight apps. We selected the MARS - the most widely adopted mHealth quality tool, cited over 1,700 times - scoring apps 1 (inadequate) to 5 (excellent) across five subscales: Engagement, Functionality, Aesthetics, Information, and App Subjective Quality. A six-member team (three user experience designers, two health educators, one clinician) completed training and calibration before independently evaluating each app, with dual-perspective scoring assigned by expertise. All members developed a 10-item SCD-specific question set completed by every reviewer.ResultsThe mean MARS score across apps was 3.38 ± 0.31 (range: 2.96–3.83), between acceptable and good. Apps scored highest in Information (3.63) and Functionality (3.58), suggesting most deliver reasonable content and perform reliably. However, App Subjective Quality - whether reviewers would recommend an app - scored lowest at 2.91, closer to poor than acceptable. This 0.67-point gap has significant adoption implications. The top-ranked app, 360 SCD Hub (3.83), excelled through multi-modal content, gamified learning, and community features. Lower-ranked apps tended toward single-function designs. The SCD-specific subscale (3.31) highlighted moderate utility and insufficient personalization. All reviewers agreed on low Subjective Quality, confirming a systemic shortcoming.ConclusionsSCD apps today are functionally adequate but not compelling enough to recommend to patients - a mismatch for a condition demanding daily self-management. Our multi-stakeholder approach underscores the absence of a widely adoptable SCD app. These findings are

informing ongoing development at CHOA, where we prioritize engagement, culturally relevant content, and behavior-change tools. Future work should involve patients as co-designers and examine how apps impact self-management.

A Cross-Sectional Study Examining Child Exposure to Firearms Through Vehicle Storage, Parent Carriage, and Visitors

Presenting Author: Melissa Osborne, Kennesaw State University

Poster Number: 40

Co-Authors: Melissa C. Osborne; Lauren Matheny; Brianne Opoku-Agyemang; Caroline King

Background: Among U.S. children, the child's home is the most common source of firearms used in unintentional injuries and suicides. Understandably, much focus has been placed on firearms within the home. Less is known about other sources of children's exposure, including firearms stored in vehicles, carried by parents, or introduced by visitors. This study examines the prevalence of parents who keep a firearm in their vehicle, on their person, or who have had a visitor bring a firearm to the home. MethodsU.S. parents were recruited for this cross-sectional study through Qualtrics Panels (N=768). Parents with a household firearm (n=463) were asked if they bring their firearm in their vehicle, how it is stored, and if they carry a firearm on their person. All parents were asked if anyone had brought a firearm to their home. Chi-square tests assessed bivariate relationships; multivariable logistic regression assessed the relationships between ownership and urbanicity and firearms brought to the home, controlling for key covariates. ResultsOver half of parents with household firearms (56.2%; n=260) reported keeping a firearm in their vehicle; 66.5% (n=173) of them reported that it is securely stored. Over half of parents with household firearms reported carrying (54.6%; n=253). This varied little by level of urbanicity (p>.05). Over one-third (34.5%; n=265) of all parents reported that a visitor had brought a firearm to their home. Firearm non-owners less commonly reported that visitors brought firearms into the home (15.7%; n=48) compared to owners (51.0%; n=156) , p<.001. Regression results indicated that, compared to owners, non-owners had decreased odds of reporting firearms brought by a visitor (AOR= 0.54, 95% CI: 0.35, 0.82); urban parents had increased odds compared to rural parents (AOR=1.85, 95% CI: 1.15, 3.01).ConclusionA substantial percentage of parents carry a firearm in their vehicle or on their person. Many report that someone visiting their home has brought a firearm with them. Thus, children may be exposed to unsecured firearms through sources aside from firearms stored inside the home. Parents may benefit from education regarding secure storage outside the home and approaches to addressing firearms introduced by visitors.

Proinflammatory Cytokine Levels from Neonatal Blood Samples are Higher Among Children with Down Syndrome who Develop Acute Lymphoblastic Leukemia (ALL)

Presenting Author: Christopher Belz, Emory University

Poster Number: 41

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Background: Children born with Down syndrome (DS) are 20-times more likely to develop acute lymphoblastic leukemia ALL (i.e., DS-ALL) compared to those without DS. While the underlying causes remain largely unknown, it has been hypothesized that immune dysregulation could contribute to risk. This study evaluates associations between neonatal immune biomarker levels and DS-ALL. Methods: We conducted a case-control analysis comparing immune markers extracted from neonatal blood spots (NBS) from cases with DS-ALL compared to controls with DS but no ALL, identified by linking the Michigan Neonatal Biobank to the Michigan Cancer Surveillance Program. Multiple controls were pair-matched to cases based on race/ethnicity, sex, and birth year. Proteins were extracted from NBS using a modified protocol, and a panel of 80 cytokines/chemokines was quantified using a Luminex bead-based multiplex assay following the manufacturer's standard instructions. Analytes with values below the minimum detectable level (MDL) for >30% of samples were excluded from further analysis, and remaining analyte measures below the MDL were imputed as one-half of the MDL for that analyte and plate experiment. Measurements were log2-transformed and included as a transformed continuous variable in conditional logistic regression models for each analyte. Results: We included 118 children with DS in our analysis (n=25 cases and n=93 controls). After exclusions based on values below the MDL,19 analytes were evaluated in conditional logistic regression models; three were significantly associated with DS-ALL after Bonferroni correction (MMP-1, VEGF-A, FGF-2), while an additional five were nominally significant (IL-8, GRO-Alpha, MCP-1, IP-10, IL-20), one was borderline (MIF, p=0.051), and one was significantly negatively associated with DS-ALL (IL-4). Effect sizes ranged from 1.61-3.12 per unit increase in the log increase of cytokine level, while IL-4 had an effect size of 0.2. Conclusions: These findings suggest that pro-inflammatory cytokine signaling pathways are over-expressed at birth among children with DS who go on to develop ALL. This suggests the potential for improved screening and risk stratification, though further research is necessary.

Evaluation of Environmental, Cost, and Labor Savings after an Antimicrobial Stewardship Program Implementation of an IV to PO Intervention in a Pediatric Healthcare System

Presenting Author: Brielle Berkowitz, Emory University

Poster Number: 42

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Background: Antimicrobial Stewardship Programs aim to combat the rise in antimicrobial resistance by providing effective and appropriate antimicrobial use guidelines and advocacy within healthcare systems. IV to PO conversions have been linked to lower emissions, waste, and reduced healthcare costs. The Antimicrobial Stewardship Group implemented an IV to PO intervention to the hospital system in December of 2024. We sought to estimate the social, environmental, and financial benefits of this institutional change. From December 14 of 2024 until January of 2026 we found we saved over 45,000 doses of drugs dispensed. We estimate that per each 20cc syringe delivering drugs saved we saved approximately $25,000.00 dollars over the past two years. We estimate that per each syringe delivering

the saline flush post medication administration we saved approximately $11,000.00 dollars. Overall switching from IV to PO our initial estimates are approximately $36,000.00 in cost savings alone. There are also enormous environmental savings that occur when switching from IV to PO reducing healthcare systems' carbon footprint. This also optimizes patient safety and health by having patients on oral drugs it can reduce length of stay and lower overall costs (Mandell, 1995). Mandell L. A., Bergeron M. G., Gribble M. J., et al. Sequential antibiotic therapy: effective cost management and patient care. Canadian Journal of Infectious Diseases . 1995;6(6):306–315. doi: 10.1155/1995/165848. [DOI] [PMC free article] [PubMed] [Google Scholar][Ref list]

Every Blood Draw Is an Opportunity: Transforming Adolescent HIV Screening

Presenting Author: Emma Bernstein, Emory University

Poster Number: 43

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Background: The Centers for Disease Control and Prevention recommends HIV screening for all patients ≥13 years. Parts of Metro Atlanta have HIV positive rates 8-times the national average. Adolescents are the least likely group to know their HIV status and have lowest rates of linkage-to-care. In July 2023, Children's Healthcare of Atlanta (Children's) progressively implemented an opt-out HIV testing program in its emergency departments (ED) at all their sites for patients ≥13 years undergoing venipuncture. The aim is to assess testing rates in adolescents over the last two and a half years.Children's electronic medical record EPIC was used to compare HIV testing volumes of patients ≥13 years old, 35 months pre- and post-clinical implementation. All sites received educational promotion. Results were cross-referenced to determine newly diagnosed adolescents living with HIV (ALHIV) from known positives. The data was compared using descriptive statistics.A total of 3995 patients were tested pre-implementation, 2864 (72%) females and 1131 (28%) males. Thirteen new ALHIV were identified; average age (± standard deviation) was 17.8 ± 1.8. Ten were assigned male at birth, 3 coinfected with syphilis, and 3 assigned female at birth. Post-implementation, 8669 patients were tested: 5607 (65%) females and 3062 (35%) males. Sixteen new ALHIV were identified, 5 were acutely infected; average age was 16.0 ± 1.7, 13 assigned male at birth, 2 coinfected with syphilis, and 3 assigned female at birth. This demonstrates an overall positivity rate of 0.2%; 1 in 236 boys tested positive (0.4%). At sites receiving education for 35 months, 32 and 27 months, testing increased by 103%, 134% and 157% respectively. All newly diagnosed cases were linked to care with a median of 4 days.Atlanta remains a hotspot for new HIV cases. Sixteen cases in 35 months highlights the importance of universal HIV testing of adolescents. The initiative greatly increased HIV screening among adolescents and identified some ALHIV at an early stage of infection. Future efforts include improving pediatric sexual health screening, expansion to outpatient

clinics, and focusing on patients with sexually transmitted infections (STIs) for comprehensive STI preventive resources to address this public health crisis.

Lethal Means Counseling Implementation in a Community Pediatric Emergency Department: A Quality Improvement Initiative

Presenting Author: Gracen Betts, Emory University School of Medicine

Poster Number: 44

Co-Authors: BETTS, GRACEN; Chaudhary, Sofia; and Akinsola, Bolanle

Background: Suicide is a leading cause of death among US youth ages 10-17. Lethal means counseling (LMC), provider counseling on restricting access to firearms, medications, and other lethal means, improves firearm secure storage practices but is inconsistently implemented in pediatric emergency departments (PEDs). At our PED (59,000 annual visits), with 24-hour behavioral mental health (BMH) social work coverage, LMC documentation was inconsistent and firearm locking devices were not offered. We aimed to increase LMC documentation for PED patients/caregivers presenting with BMH concerns and increase the percentage of caregivers with firearm access offered a safety device to 80% by October 31, 2025. Methods: This QI initiative targeted patients <18 years and their caregivers presenting to the PED with BMH concerns. Interventions included the Counseling on Access to Lethal Means program, an EMR-integrated LMC screening/documentation tool, conversational scripts/educational handouts, and group/individual feedback sessions. Process measures included the percentage of eligible visits with documented LMC and percentage of families with firearm access offered a lockbox. The outcome measure was percentage of families screened for firearm access. Balancing measures included PED length of stay and provider workflow burden. Data was analyzed using statistical process control (SPC) charts.Results:From May 2025 to Feb 2026, 1,395 youth presented to the PED with BMH concerns. LMC EMR documentation was achieved in 86% (1,199/1,395) of eligible encounters. SPC analysis demonstrated a shift with special cause variation sustained after intervention implementation. Among screened families, 181/1,199 (15%) reported firearm access; of these, 29% reported storing firearms loaded or unsure, 13% reported storing firearms unlocked or unsure, highlighting counseling opportunities. Among families with firearm access, 73% (131/181) were offered firearm locking devices, and 28% accepted. SPC analysis demonstrated improvement over time, though uptake of devices remained variable. 988/1,199 families reported medications at home, with 50% (498/988) not storing them locked.Conclusion:Standardized LMC training with EMR-integrated screening was associated with improved, sustained LMC documentation and increased firearm safety device offering to BMH patients in a community PED. The LMC documentation aim was achieved and lockbox offering showed meaningful progress toward the stated aim (73%), supporting this approach's feasibility and scalability.

Association of Markedly Elevated IL-18 With Interstitial Lung Disease and Severe Disease Phenotypes in Systemic Juvenile Idiopathic Arthritis

Presenting Author: Nicholas Blair, Emory University

Poster Number: 45

Co-Authors: Blair, Nicholas; Kumar, Deepak; Popler, Jonathan; Manos, Cynthia; Rouster-Stevens, Kelly; Ponder, Lori; Fitch, Taylor; Shanmuganathan, Chandrakasan; and Prahalad, Sampath

Background :Systemic juvenile idiopathic arthritis (sJIA) is an autoinflammatory disorder associated with macrophage activation syndrome (MAS) and sJIA-associated interstitial lung disease (ILD). Early identification of patients at risk for severe disease phenotypes remains challenging. Interleukin-18 (IL-18) is a well-established biomarker of systemic inflammation in sJIA and has been implicated in severe disease phenotypes. We evaluated the association between the magnitude of IL-18 elevation and severe disease manifestations, including ILD, MAS, and prolonged corticosteroid exposure.Methods:We performed a retrospective chart review of children meeting PRINTO criteria for sJIA who had serum IL-18 measured at diagnosis or disease flare between June 2015 and May 2026. Subjects were stratified into tertiles according to peak measured IL-18 concentration: Extreme High IL-18 (IL-18XH, n=11), High IL-18 (IL-18H, n=10), Moderate IL-18 (IL-18M, n=11). Presence of ILD, MAS, and corticosteroid exposure >6 months were compared using Fisher's exact test, and statistical significance was defined as $p< 0.05$.Results:Thirty-two subjects met inclusion criteria. Median diagnosis age was 5 years (range 0.8–15 years); 17 children experienced MAS during their disease course and 9 developed ILD.All subjects demonstrated elevated IL-18 concentrations. Children in the IL-18XH tertile had substantially greater frequencies of ILD, MAS, and prolonged corticosteroid exposure compared with patients in the lower tertiles. A particularly strong association was observed between IL-18 levels and ILD. ILD occurred in 8 of 11 patients in the IL-18XH tertile compared with 1 of 21 patients in the combined IL-18H and IL-18M tertiles (72.7% vs 4.8%, $p< 0.001$). IL-18 concentrations >200,000 pg/mL were strongly associated with ILD (8/9 vs 1/23; $p< 0.001$).Conclusion:Markedly elevated IL-18 concentrations were strongly associated with ILD and other severe disease phenotypes in children with sJIA. Children in the highest IL-18 tertile, particularly those with IL-18 levels > 200,000 pg/mL, demonstrated a strong association with ILD. High-risk HLA alleles were also associated with ILD. These findings support further investigation of IL-18 as a biomarker for severe sJIA phenotypes and to determine whether elevated IL-18 may serve as a risk-stratification tool for sJIA-associated ILD.

Gender Differences in Persistent Symptom Trajectories After Concussion in a Pediatric Cohort

Presenting Author: Natalie Bondulich, Georgia Institute of Technology

Poster Number: 46

Co-Authors: Bondulich, Natalie; Reisner, Andrew; and Blackwell, Laura

Background: Pediatric concussion is associated with a range of physical, cognitive, and emotional symptoms that vary in severity and duration. Emerging evidence suggests that gender may shape symptom trajectories although current findings are mixed. The primary aim of this study was to examine

the impact of gender on symptom recovery following concussion in a pediatric cohort. Methods: 152 pediatric patients with traumatic brain injury (TBI) were enrolled in the ED at Children's Healthcare of Atlanta, comprising 64% male (n=97) and 36% female (n=55), ages 5–18 years. Participants completed the Post-Concussion Symptom Scale (PCSS), a validated 22-item self-report instrument assessing symptom severity, at admission to the ED, one week, and four weeks post-injury. PCSS items were organized into three domains: physical (headache, nausea/vomiting, dizziness, fatigue, light/noise sensitivity, visual issues), emotional (irritability, sadness, nervousness, emotional lability), and cognitive (feeling slow/foggy, difficulty concentrating, difficulty remembering); sleep symptoms were excluded. Statistical analyses included mixed ANOVAs examining gender (between-subjects) and time (within-subjects) effects on each symptom domain. Results: At admission, 85.8% of patients endorsed ≥1 cognitive symptom (M=5.55, range 0–24), 83.8% endorsed ≥1 emotional symptom (M=4.44, range 0–22), and 86.8% endorsed ≥1 physical symptom (M=14.9, range 0–55). Mean domain scores declined by Week 4, with reductions of 82.2% (cognitive), 80.4% (emotional), and 83.2% (physical) from baseline. Analyses indicated a significant main effect of time across all domains ($p < .001$). No significant main effect of gender was observed ($p > .14$). The Gender × Time interaction trended toward significance in the emotional domain ($p = .089$) but not in cognitive or physical domains. Post-hoc analyses revealed females had significantly higher emotional and physical scores at Week 1 ($p < .05$). Conclusion: Although overall recovery trajectories were similar across genders, females demonstrated significantly elevated emotional and physical symptom burden at Week 1 compared to males ($p < .05$), while no cognitive gender differences emerged. The greater disparity in emotional and physical domains may reflect sex-based differences in autonomic response and emotional processing following head injury. These findings underscore the importance of considering gender in early post-concussion symptom monitoring, particularly for emotional and physical domains.

Utilization of Dot Phrases to Facilitate Documentation of Eligibility and Completion of the General Movements Assessment in the NICU

Presenting Author: Rachel Botbyl, Emory

Poster Number: 47

Co-Authors: BOTBYL, RACHEL; Neel, Mary Lauren

Background: Early identification of infants at risk for neurodevelopmental delays such as cerebral palsy (CP) remains a challenge. The General Movements Assessment (GMA) is a validated tool for early detection of CP, but despite its utility, logistical barriers limit its use in the NICU. While documentation in the electronic health record (EHR) is among the relevant demands, strategic use of tools such as Dot Phrases has shown utility in decreasing the burden of EHR documentation and prompting users to incorporate specific practices into their workflow. In this study, we aim to implement Dot Phrases as a standardized method for GMA documentation to facilitate improved rates of GMA completion without significantly increasing documentation burden among therapists in our large level IV NICU. MethodsIn this pre-post comparative effectiveness study, we will perform a retrospective chart review to determine

percentage of infants with documentation of GMA eligibility as well as completion rates among eligible infants. We will use multivariable logistic regression to estimate the effect of the intervention, adjusting for assigned therapist, infant age, and length of stay. As a balancing measure, we will survey therapists on time spent on documentation pre- and post-intervention and conduct a paired t-test to evaluate for increased documentation burden. ResultsOur previous quality improvement work to improve GMA utilization in the NICU resulted in an increase in GMA performance from 32% to 64% among eligible infants from August 2023-February 2025 following two Plan-Study-Do-Act cycles. Preliminary data from a subset of this post-intervention cohort (n=35) shows a documentation rate of 77% and a GMA completion rate of 72% with data collection ongoing. ConclusionPreliminary data for the current intervention cycle demonstrate high rates of GMA documentation as well as an increase in GMA completion among eligible infants. Final results and analysis will be presented to further support these early trends. Through our work thus far, we have demonstrated successful implementation of multiple methods to improve screening of eligible patients through provider education, multidisciplinary collaboration, and integration into routine NICU processes.

Human Papillomavirus (HPV) Vaccination Implementation in a Student-Run Free Clinic (SRFC): Capturing HPV Vaccination Initiation Opportunities Through Medical Student Administration in Partnership with the Vaccines for Children (VFC) Program

Presenting Author: Alex Bradham, Medical College of Georgia, Augusta University

Poster Number: 48

Co-Authors: GOVIN, RIYA; Woo, Sean; Ghiai, Deena; Bradham, Alex; Hashim, Aman; Holub, Jacob; Patil, Tanvi; and Camelo, Ingrid

Background: Underinsured and uninsured children have lower rates of HPV vaccine administration, highlighting disparities in access to routine preventative care [1]. While most children receive vaccines required for public school enrollment, non-required vaccines, like HPV are often missed or delayed. Asociación Latina de Servicios (ALAS) Pediatric Clinic is a SRFC that provides free healthcare to children from families 200% below the federal poverty line. Partnership with Georgia Department of Public Health VFC Program, allowed medical students to conduct eligibility screening via the Georgia Registry of Immunization Transactions and Services (GRITS) and administer vaccines under physician supervision. This study evaluates the impact of SRFCs in HPV vaccine series initiation in uninsured and underinsured pediatric populations.Methods:Retrospective analysis of patients who received one or more HPV vaccine doses administered at the ALAS Pediatric SRFC between April 2025 and May 2026 (n=53). Patients were divided by age group: 9-10 years old, 11-14 years old, and 15-18 years old. GRITS was used to determine if administered doses were initiation, interim, or final doses.Results:Across ages 9 to 18 years, 47 of 57 HPV doses were initiation doses. The 11–14 year old age group had the highest volume of administrations, with 20 of 25 being initiation doses. The 15–18 year old age group had 14 initiations of 19 total doses administered. In the 9–10 year old age group, all 13 administrations were initiation doses.Conclusions:The predominance of initiation doses across all age groups highlights SRFC's role as a

critical entry point into preventive care. Initiation is particularly important, as evidence suggests that even a single dose of the HPV vaccine can provide protection comparable to multi-dose regimens [3]. Initiation was concentrated among the 11–14 year old and 15–18 year old age groups, suggesting effective capture of patients for catch-up vaccination despite earlier eligibility. Through use of existing public health infrastructure, like the VFC program, medical students can play a meaningful role in reducing barriers to care and initiating critical cancer prevention services that might otherwise be delayed or missed entirely.

Improving Continuity of Care: Impact of Childhood Vaccination Services Implementation on Return Rates at a Student-Run Free (SRFC) Pediatric Clinic in Georgia

Presenting Author: Alex Bradham, Medical College of Georgia, Augusta University

Poster Number: 49

Co-Authors: BRADHAM, ALEX; Woo, Sean; Patil, Tanvi; Chaudhary, Amisha; Govin, Riya; Ghiai, Deena; Hashim, Aman; Holub, Jacob; and Camelo, Ingrid

Background: Continuity of care has been proven to improve health outcomes in pediatric populations [1,2]. However, underserved populations often face barriers to consistent care due to challenges such as insurance instability, transportation challenges, work schedules, and language barriers [3,4,5]. SRFCs are currently modeled to provide longitudinal primary and care coordination for these populations. This can facilitate patient connection and engagement with the broader healthcare system. By offering routine preventative services including vaccinations, SRFCs serve as key touchpoints to encourage patients' return to care [6]. This study evaluates the impact of implementation of a structured childhood vaccination program in enhancing overall patient return rates in a pediatric SRFC. Methods:This retrospective observational study includes all patients seen at the ALAS Pediatric Clinic in Augusta, GA from October 2023 to March 2026. Patients were divided into two groups based on visit date: pre-vaccine program implementation (10/2023-12/2024) and post-vaccine program implementation (01/2025-03/2026). The primary outcome of return visit rate was compared between the two groups. Results:Following the implementation of a childhood vaccination program in January 2025, through a partnership with the Georgia Department of Public Health (DPH) Vaccines for Children (VFC) Program, there was a 120.59% increase in the number of return visits from 34 return visits to 75 return visits. After implementation, 309 vaccine doses were administered by medical students, versus 0 prior to program implementation. The total number of appointments increased from 89 to 185 between groups (107.87% growth). Conclusions:Implementing a childhood vaccination program in our SFRC pediatric clinic increased patient return visit rates by 120.59%, demonstrating the efficacy of using an evidence-based preventative care intervention to improve continuity of care in the SRFC model. Pediatric vaccination schedules, especially catch-up schedules, provide a natural framework for regular return visits. This structure improves patient engagement with the healthcare system and increases continuity of care outside of the context of a traditional pediatric primary care office. Further, in the learning setting of a

SRFC, patient continuity is especially meaningful as longitudinal patient experiences have been shown to foster medical student interest in primary care careers.

Nitrous Oxide Use in Autistic Children – A Descriptive Study

Presenting Author: Rebecca Burger, Emory University School of Medicine

Poster Number: 50

Co-Authors: Reddy, Naina; Call, Nathan; and BURGER, REBECCA K.

Background: Care of an autistic child in the emergency department (ED) presents unique challenges, including the need for sedation for procedures, such as intravenous (IV) placement or laboratory draw, for which neurotypical children do not generally require sedation. Nitrous oxide has been utilized successfully in dental settings for autistic children, but there is a paucity of literature in the ED. Our primary aim was to determine the rate of adverse events (AEs) when administering nitrous oxide to autistic patients. Our secondary aim was to analyze patient-level and procedure-level variables and their respective association with AEs. MethodsA retrospective, descriptive study of autistic children, 3-18 years, who received nitrous oxide for procedural sedation during an ED or radiology encounter within a single hospital system between January 2014 and December 2023. Data was extracted from the electronic medical record and included patient demographics and comorbidities, as well as indication, maximum concentration, duration of administration, and adverse events of nitrous oxide. Descriptive statistics were used to summarize the data. ResultsAnalysis was performed on 186 patients (median age 8 years [IQR 5.2, 12.75], 74.2% male). IV placement was the most common indication. Most patients received 70% nitrous oxide with a median duration of 6 minutes [IQR 4, 9.75]. Adverse events were rare, occurring in only 3 patients (1.6%), with zero vomiting or aborted procedures. No demographic or procedural variable had a significant odds ratio to predict adverse events. ConclusionsNitrous oxide is safe, effective, and well-tolerated option for procedural sedation in autistic children, with a low rate of adverse events. These findings add to the limited literature supporting its use in non-dental settings and suggest it may be a valuable tool for facilitating minor procedures in this population. Future prospective studies are needed to optimize nitrous oxide delivery and determine factors contributing to adverse events.

Advancing Inclusive Patient-Centered Outcomes Research for Individuals with Autism Spectrum Disorder (ASD) and Intellectual and Developmental Disabilities (IDD)

Presenting Author: Laura Coleman, Marcus Autism Center

Poster Number: 51

Co-Authors: COLEMAN, LAURA; Furukawa, Sally; Faucett, Margaret; Fitzpatrick, Kasey; Tomberlin, Aaron; Curran, Alicia; Sohl, Kristin; Malow, Beth; and Brasher, Susan.

Background: Patient-centered outcomes research calls for the intentional and equitable engagement of all stakeholders in research. This includes those with the diagnosis, family members, and clinicians who provide care. However, people with intellectual and/or developmental disabilities (IDD), including autism spectrum disorder (ASD), are often excluded from having a meaningful role in the conduct of research concerning them. At the same time, there is a dearth of trained clinicians equipped to meet their healthcare needs. Thus, this population have poorer health outcomes relative to their nondisabled peers. To address these inequities, tailored approaches need to be designed for meaningful engagement and collaboration among different stakeholders, most importantly individuals with ASD/IDD. The overarching objective of this study was to build capacity within the ASD/IDD community to enhance knowledge on patient-centered outcomes research. Methods: This study created and tested a pilot educational program uniting researchers, self-advocates, family advocates, and clinicians through a virtual Project Extension for Community Healthcare Outcomes (Project ECHO) model. Stakeholders engaged in an online bidirectional learning community twice monthly for six months. Anonymous baseline surveys were administered to all participants to determine previous experience in research, as well as the extent to which they felt valued, heard, and trusted in the research process. Following each session, participants repeated the anonymous baseline survey to assess changes over time. A regional advisory board consisting of ASD/IDD individuals and other stakeholders (n=15) met quarterly to provide oversight to the project. Results: Thirty-four participants completed all surveys, allowing for matched pre- and post-program comparisons. Given the non-parametric distribution of Likert-scale responses and the relatively small sample, pre- and post-survey results were analyzed using the Wilcoxon signed-rank test to evaluate changes. Across all stakeholder groups, there was a significant increase in confidence levels from pre- to post-program highlighting the impact of the training with an overall significance level of p = 0.00012.Conclusions: Outcomes of this project included enhanced capacity building among ASD/IDD individuals and stakeholders, and multidirectional learning through a Project ECHO model. This type of model allowed for equitable engagement of all stakeholders to co-develop and co-design research responsive to the ASD/IDD population.

Multidimensional Digital Experiences and Adolescent Brain Connectivity

Presenting Author: Junqiang Dai, Georgia State University

Poster Number: 52

Co-Authors: Junqiang Dai, Brad Baker, Aline Kotoski, Vince D Calhoun

Background: Youths are coming of age within an always-on digital ecosystem nowadays. During this window, adolescent brains undergo substantial changes and heightened neuroplasticity in response to diverse environment inputs, including digital environment. Yet despite widespread concern, how digital experiences influence the developing brain remain poorly understood. The goals of this study are threefold: 1). To determine which specific digital domains are uniquely related to functional network connectivity (FNC); 2). To identify which digital domains may matter most at the neural level; and 3). To test whether different domains interact to shape individual variations in FNC. Method: We used the

second-wave data from the ABCD Study. We used domain-specific Principal Component Analysis (PCA) to reduce dimensionality and create a composite score. The FNC was derived from the NeuroMark framework across seven network domains, providing us 1,378 FNC. A total of 2,043 youths were included. Three analyses were conducted: 1). Each digital domain was tested individually and then all digital domains were entered together to identify their unique associations; 2). Selected domain-by-domain interactions were tested to examine whether combinations of digital experiences were associated with changes in FNC; and 3). Relative importance from machine learning framework was used to identify which domains contribute most strongly. Result: When examined separately, digital domains show widespread associations across all networks. Joint models substantially refined the findings, revealing that digital domains share variance but have specific effects: Game-related domain was related with Sensorimotor-Cognitive Control, passive digital consumption was related with Subcortical-Cognitive Control, social communication was related with reduced Default Mode-Cognitive Control connectivity, total digital exposure was associated with changes in visuoperceptual network and Subcortical connectivity. Problematic digital use was related to within and between connectivity in Subcortical, Cognitive Control, Default Mode networks. We revealed a significant interaction between total digital and problematic digital use in Subcortical, Cognitive Control, Default Mode networks. Feature importance result shows that problematic use emerged as the strongest unique predictor. Conclusion: These results underscore the importance of moving beyond simple screen-time metrics toward a more nuanced, multidimensional approach to understand when, how, and for whom, specific digital forms shape youth neurodevelopment.

Enhancing Outpatient Pediatric Psychiatry Billing Confidence with an Epic SmartBlock Decision Support Tool

Presenting Author: Katherine Daniel, Children's Healthcare of Atlanta/ Emory University

Poster Number: 53

Co-Authors: DANIEL, KATHERINE; Mays, Kayla; and Osoba, Olu

Background: Outpatient child and adolescent psychiatry providers frequently report confusion and anxiety regarding appropriate billing, including when to select time- vs. MDM-based codes and how to use add-on codes (e.g., psychotherapy, interactive complexity, extended time). This uncertainty can lead to underbilling, inconsistent documentation, and suboptimal reimbursement, threatening program sustainability. To address these challenges, we used Epic Electronic Health Record (EHR) SmartBlock functionality to build a questionnaire-style decision support assistant ("Billing SmartBlock") that helps outpatient psychiatry providers select billing codes and document accordingly.Methods: The Billing SmartBlock presents a structured series of yes/no and multiple-choice questions to capture encounter type (e.g., direct patient visit vs. indirect work; guardian-only vs. patient and guardian), services provided (e.g., medication management alone vs. with psychotherapy), and clinical status (e.g., acute vs. chronic; stable vs. deteriorating). Based on responses, it suggests appropriate primary and add-on CPT codes and, upon provider acceptance, auto-populates standardized supporting language into the clinical note. To

evaluate impact, we will survey outpatient child and adolescent psychiatry providers immediately prior to go-live (early August 2026) and at 1 and 3 months post-implementation. Surveys will assess self-reported billing confidence (Likert scales) and coding choices for two standardized case vignettes. Billing data will be analyzed by comparing code utilization in the 3 months pre–go-live to the 1-, 3-, and 6-month post–go-live periods.Results: We anticipate increased provider confidence in billing and greater accuracy and consistency in coding the case vignettes following implementation of the Billing SmartBlock. We expect more frequent and appropriate use of psychotherapy, interactive complexity, and extended time add-on codes, with closer alignment between documented services and billed codes. Overall, we anticipate increased relative value units (RVUs) and reimbursement for outpatient psychiatry visits, without evidence of systematic overbilling.Conclusions: EHR-integrated questionnaire-style decision support assistants, such as the Billing SmartBlock, may improve billing confidence, coding accuracy, and documentation quality among outpatient pediatric psychiatry providers. By guiding structured data capture and facilitating appropriate use of complex and add-on codes, this tool has the potential to enhance the financial sustainability of outpatient behavioral health services while supporting compliant, high-quality care.

Distributions of Family Socioeconomic Status at Birth Relative at to Autism Likelihood and Diagnosis

Presenting Author: Pranavi Dantuluri, Emory University

Poster Number: 54

Co-Authors: Dantuluri, Pranavi; Ravichander, Aanya; Shultz, Sarah; and Ford, Aiden

Background: Historically, diagnoses of autism spectrum disorder (ASD) were more common among children from higher socioeconomic status (SES) backgrounds; however, recent surveillance data indicate that ASD diagnosis now may be more common in low SES families. Few studies have investigated how SES in early infancy may vary relative to autism outcome. This study examines how distributions of the Child Opportunity Index (COI), i.e., a measure of resource access in neighborhoods, and the Income-to-Needs Ratio (ITN), a measure of family proximity to the federal poverty line, vary between families with low and elevated familial genetic likelihood (LL/EL) for autism based on older autistic sibling, and child autism outcome (ASD vs. non-autism (nASD)). Methods: Infant participants (n=202) were enrolled in longitudinal studies of social development and grouped as LL or EL. All infants were evaluated for autism outcome between 18-36 months. COI scores, ranging from Very Low to Very High, were derived from family address at the time of study enrollment. ITN was adjusted to the family income at enrollment relative to the number of people in the household. Between likelihood and diagnostic groups, chi-square tests were used for COI analyses, and ANOVAs were used for ITN analyses. Results: LL (N=107) and EL (N=95) families differed in COI distribution ($\chi^2(4)=11.54$, p=0.021) but did not differ in the ITN distribution (p=0.196, d=0.290). When grouped by child outcome, LL-nASD (N=107) and EL-ASD (N=49) families trended towards difference in the ITN with a moderate effect size (p=0.057, d=0.578). The EL-nASD (n=46) and EL-ASD families did not significantly differ in ITN but showed a moderately large effect size (p=0.102, d=0.72). Conclusions: The distribution of COI was higher in LL families than EL families,

suggesting some bias in study recruitment. The distribution of ITN did not differ between LL and EL families at time of enrollment, but it did show signal of differentiating EL-ASD outcomes from EL-nASD and LL-TD outcomes, with EL-ASD families having lower ITN distributions than the other groups during early infancy. Ongoing analyses will include more children to continue parsing these effects and evaluate how early SES is related to later autism outcome.

A Wireless Multimodal Skin-Interface Sensing Platform for Early Detection of CPAP Mask-Related Pressure Injuries in Children

Presenting Author: Seungwon Yoo, Georgia Institute of Technology

Poster Number: 55

Co-Authors: YOO, SEUNGWON; Ahmed, Saad; Wang, Xinye; Kim, Gyuwon; HESTER, JOSIAH D.; and YEO, W. HONG

Background: Children receiving noninvasive ventilation frequently develop device-related pressure injuries where the mask contacts the skin. The non-blanchable erythema, the earliest stage, is easily missed by intermittent visual assessment, so injuries are often recognized only after they have progressed. Continuous, objective monitoring of the mask-skin interface could enable intervention before tissue damage becomes irreversible. Methods: We developed a wireless, battery-powered multimodal sensing platform that integrates into a pediatric CPAP mask interface and streams data continuously over Bluetooth Low Energy. To capture skin pressure injury, the platform focuses on two primary indicators: the trend of an erythema index referenced to adjacent unloaded skin, and the cumulative pressure-time dose. Because melanin remains constant within a subject, within-subject spatial and temporal referencing combined with infrared-referenced ratiometric indices are designed to keep detection robust across skin pigmentation. The platform integrates contact-pressure sensors, multiwavelength reflectance photoplethysmography (PPG), and a temperature-humidity sensor, as skin temperature and humidity provide additional information needed to assess injury risk. Results: We confirmed that the prototype platform operates as intended and demonstrated that wireless data acquisition is feasible. Further work remains, however: the sensor assembly requires additional fabrication refinement so that it does not itself apply pressure to the skin, and circuit-level improvements are needed to enhance PPG signal performance. Conclusion: This platform will offer a route to continuous, skin-tone-independent early warning of mask-related pressure injuries in children. Following fabrication refinement and PPG circuit optimization, a clinical feasibility study at Children's Healthcare of Atlanta is planned to evaluate signal quality and validity against bedside skin assessments.

Aberrantly Enhanced Trained Immunity in Noonan Syndrome

Presenting Author: Erin Yoo, Emory University

Poster Number: 56

Co-Authors: YOO, ERIN; and Qu, Cheng-Kui

Background: Noonan Syndrome (NS) is a common genetic developmental disorder often diagnosed in children and is frequently caused by gain-of-function mutations in Ptpn11 (SHP-2), a key regulator of the Ras signaling pathway. NS is associated with an increased risk of developing aggressive myeloid disorders such as juvenile myelomonocytic leukemia (JMML), and emerging evidence also links NS to several autoimmune diseases, suggesting chronic pro-inflammatory immune dysregulation. However, whether NS alters innate immune memory remains unknown. Trained immunity is the metabolic and epigenetic reprogramming of innate immune cells that enhances responsiveness to secondary restimulation. In this study, we explored whether Ptpn11 gain-of-function mutations are linked to dysregulated trained immunity in NS.Methods: The effects of Ptpn11 mutations on trained immunity were investigated using a unique mouse model consisting of Ptpn11+/+/Mx1-Cre+ (wild-type) and Ptpn11E76K/+/Mx1-Cre+ (mutant) mice. Isolated monocytes were differentiated into bone marrow-derived macrophages and subjected to an in vitro trained immunity assay, using β-glucan as the training stimulus, followed by lipopolysaccharide (LPS) restimulation. Cytokine quantification, macrophage-T cell co-culture proliferation assays, and metabolic stress assays were performed after trained immunity was established to evaluate changes in immune responses.Results: Restimulated Ptpn11E76K/+ macrophages displayed an altered trained immunity response compared with wild-type controls. Following restimulation, trained mutant macrophages exhibited 3.2-fold and 8.8-fold increases in TNF-α and IL-6 production, respectively, relative to trained wild-type controls. Trained mutant macrophages suppressed T cell proliferation by 57%, whereas trained wild-type macrophages induced a 2.73-fold increase after restimulation. Trained mutant cells also exhibited a 31% reduction in glycolytic capacity and a 45% reduction in maximal respiration following restimulation. Together, these findings suggest aberrant trained immunity response and support the presence of a chronic pro-inflammatory environment in NS. Conclusions: Gain-of-function mutations in Ptpn11 may promote aberrantly enhanced trained immunity in NS, particularly following restimulation. Although mutant macrophages exhibited exaggerated pro-inflammatory cytokine production, their impaired metabolic function suggests that this heightened inflammatory response may occur alongside dysregulated maintenance of trained immunity, contributing to a chronic pro-inflammatory state in NS. Future studies may further clarify the molecular mechanisms and signaling pathways underlying trained immunity dysregulation associated with Ptpn11 gain-of-function mutations.

A Multi-Center CTSA Study Aimed at Improving the Efficiency and Efficacy of Pediatric Clinical Research Units after Implementation of Protocol Guides and Educational Outreach

Presenting Author: Khalel De Castro, Emory University

Poster Number: 57

Co-Authors: Khalel De Castro; Erica L Johnson; Jordan Bryant; Austin Chan; Stacy Heilman; Sarah Marie Huban; Saadia Khizer; Stephanie Meisner; Claudia R Morris; Toby Newcomer; Michelle Popler; Cheryl Stone; Miriam Vos; Cristina Wilson Kristy Murray; and Kirsten Mockridge Williams

Background: To achieve the goal of enhancing clinical trial efficacy and efficiency in our pediatric clinical research units (CRUs), we sought to increase the investigators and trials supported, and external funding for these studies. We implemented several outreach measures including: outreach departmental presentations to subspecialties and dissemination at the department level, electronic newsletter highlights, as well as a protocol guide for each unit who facilitated protocol navigation and training. We hypothesized that this effort would increase efficiency and efficacy of trials by increasing research unit utilization and external funding without increasing Clinical Translational Science Award (CTSA) allocation. Methods: We performed a retrospective review of our protocol utilization, investigators and specialties supported, and funding sources in 3 CRUs across two CTSA pediatric centers. We extracted data from January 2021 to October 2025 to capture the number of new trials initiated per year, number of principal investigators (PIs) who initiated new trials per year, number of new departments/subspecialties, and funding sources. The metrics were compared across the 5 years. Results: Utilization increased over the 5 years by 109%, from 22 protocols opened in 2021 to 46 in 2025 (to date), from 16 to 26 PIs supported, (63% increase overall), with increases each year except from 2023-2024. After 2021, 6 new subspecialties were represented in the new trials initiated in the subsequent 4 years. Industry funded studies doubled, increasing from 17 to 34 per year, with similar growth in federal studies that more than tripled, from 3 to 10 per year, and fewer studies supported by other mechanisms. Findings: Our data show growth in terms of protocols and PIs supported within the CTSA CRUs and a commensurate increase in external funding, consistent with increased efficacy of translational research and increased efficiency. Our next steps will include extracting data on patient visits (e.g. numbers, rural vs. city), surveying PIs to ascertain which measure was most valuable, and a new intervention to disseminate training for new clinicians seeking to incorporate translational science into their practice.

Compliance and Readiness to a Low Free Sugar Diet Among Latino Families: Lessons Learned From an Ongoing Pediatric NAFLD Prevention Trial

Presenting Author: Karla DeSantos, Emory University

Poster Number: 58

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Background: To evaluate the readiness to change and level of compliance of families who participated in a nutritionist led, family-focused multi-component intervention over 9 months to reduce sugar intake in Latino school-age children.Methods: Hispanic families with children aged 6-9 years were enrolled in a randomized controlled trial for non-alcoholic fatty liver disease prevention (ClinicalTrials.gov, NCT05292352). The intervention promotes a low free sugar diet through study purchased food

replacements (FR) of high sugar foods with family preferred low or no-sugar alternatives throughout month 1 and guided grocery shopping (GGS) sessions at months 3, 6, and 9. Families who completed a readiness-to-change questionnaire (RCQ) at baseline and up to 6 compliance assessments (3 during FR, 3 during GGS) were included in this analysis (N=36). Compliance was measured using a 5-level Likert scale and qualitative feedback was collected to describe challenges and behavior change goals. A 12-item RCQ was adapted from validated tools to measure parental readiness (confidence, perceived importance, commitment to act) on a Likert scale of agreement, and Transtheoretical Model stages using a scale of 0 (not ready) to 10 (very ready).Results: All families completed baseline RCQ, and 32 completed at least one compliance assessment. During the one-month FR, 15.7% of families found it easy to comply to a low free sugar diet, 23.1% difficult, and 61.1% neutral. During GGS, 17.5% found compliance easy, 16.5% difficult, and 75% neutral. Key challenges cited by parents included family communication issues with children, child's resistance to healthy choices, and inconsistent dietary practices within the household. Main behavioral goals were holistic family involvement, food preparation/planning, and fostering positive relationships with food to support long-term lifestyle changes. At baseline, caregivers expressed high confidence (81.5% agreement), perceived importance (44.4%), and commitment (88.9%) to reducing sugar intake. Caregivers were generally in the Contemplation stage to limit sugar drinks (median; IQR = 5; 5-8) and 100% fruit juices (5;5-5.5) for their children.Conclusions: Assessing compliance is crucial to effectively promote diet changes to prevent chronic diseases. While Latino caregivers showed high readiness to reduce their child's free sugar intake, they faced challenges in compliance largely due to family dynamics and child's acceptance.

Investigating Regional Cell Stress in a 3D Pressurized Pulmonary Artery Construct

Presenting Author: Elaine Do, Georgia Institute of Technology

Poster Number: 59

Co-Authors: DO, ELAINE; Kaw, Kaveeta; and Fonoudi, Hananeh

Background: Pulmonary arterial hypertension (PAH) is a progressive disease characterized by elevated pulmonary arterial pressures, high mortality, and substantial clinical heterogeneity. Given the limited evaluation of PAH therapies in children, patient-specific models are needed. Increased pressure alters vessel wall mechanics and cellular microenvironments, yet the relationship between pressure-induced vessel distension and regional cellular responses remains poorly understood. Here, we use a 3D bioengineered pulmonary artery construct to quantify pressure-dependent lumen distension and assess associated changes in cell viability and proliferation. Methods: We developed a tunable 3D bioprinted pulmonary artery (PA) model using gelatin methacrylate (GelMA) and human PA SMCs. Pressure was induced using a downstream clamp, and the constructs achieved mean pressures of 5 mm Hg to 100 mm Hg. By modulating flow rates with a peristaltic pump, acellular constructs were perfused at baseline, pressurized, and recovery pressures (10 mm Hg, 100 mm Hg, and 10 mm Hg, respectively) to quantify lumen distension. We performed live-dead quantification across the inner, middle, and outer regions of cellular constructs under static (no flow) and dynamic conditions (5 mm Hg or 25 mm Hg) using ImageJ.

Results and Conclusions: At 100 mm Hg pressure, the lumen diameter expanded by 67.9 +/- 6.97 µm (n=1), suggesting that the model demonstrates pressure-dependent distension. We quantified the live and dead cells post-perfusion (7 days) and found no significant differences between static controls and dynamic conditions, indicating that the model can sustain physiologic and pathologic pressures without significant acute cell death (static: n=2, 5 mm Hg: n=3, 25 mm Hg: n=3). Future studies will characterize regional differences in cell proliferation to identify mechanisms underlying preferential vascular remodeling. These results demonstrate the feasibility of a tunable 3D pulmonary artery platform for examining pressure-dependent changes in vessel mechanics, cell viability, and vascular remodeling.

Racial Disparities in Research Refusals Among Families of Pediatric Traumatic Brain Injury Patients

Presenting Author: Kaiden Dye, The George Washington University

Poster Number: 60

Co-Authors: Dye, Kaiden; Reisner, Andrew; and Blackwell, Laura

Background: Historical exploitation and systemic bias in clinical research have created a well-documented mistrust among Black populations. Underrepresentation in pediatric traumatic brain injury (TBI) studies is particularly critical, as it threatens to widen the health equity gap in neurotraumatic care. The aim of this study was to examine the relationship between race and reasons for study refusal in a prospective study of children with TBIs. Methods: Eligible children who identified strictly as non-Hispanic Black or White aged 0-21 presenting to Children's Healthcare of Atlanta with any head injury who were approached by the TORCH study team from 6/10/2025 to 6/12/2026 (N=312). Refusal rates were categorized into the following domains: blood draw, no interest, privacy concerns, time commitment, and requested time to think. Fisher's Exact Test was used to evaluate the correlation between race (Black vs. White) and reasons of refusal, and a Bonferroni Correction was applied with an alpha threshold adjusted to $p < 0.01$.Results: Among the total approached families, Fischer's Exact Test revealed a statistically significant overall association between race and refusal reason ($p = 4.6$ e-05). Bonferroni correction showed White families cited blood draw as the highest refusal reason (66.3%) compared to Black families (47.9%), and this difference was statistically significant ($p = 0.006$). Black families were more likely to cite lack of interest as their refusal reason (33.6%) compared to White families (12.7%), and this difference was statistically significant ($p = 0.00005$). Privacy concerns (Black: 3.4%; White: 5.4%), time commitment (Black: 2.7%; White: 7.2%), and requested time to think (Black: 12.3%; White: 8.4%) did not differ significantly between groups after Bonferroni correction.Conclusion: These findings suggest that race-specific barriers to research participation exist among families of pediatric TBI patients, with White families more likely to refuse due to blood draw aversion and Black families more likely to refuse due to lack of interest. Lack of interest among Black families may reflect the deep-rooted mistrust of medical research stemming from historical exploitation, signaling a need for incorporating culturally tailored recruitment strategies to promote equitable representation in pediatric neurotrauma research.

Intensivist Workload Stratified by Level of Care: National Survey of United States Pediatric Intensivists

Presenting Author: Nicholas Ettinger, Children's Healthcare of Atlanta and Emory University School of Medicine

Poster Number: 61

Co-Authors: Ettinger, Nicholas; Hsu, Benson; Licht, Paul; Wypij, David; Burns, Karen; and Agus, Michael

Background: We identified from critical division chiefs that a 1.0 clinical FTE (cFTE) was most commonly represented by 'total shifts per year' (Ettinger et al, 2024). However, this may vary by ICU size and/or level of care provided (community, tertiary, quaternary). We attempted to further characterize individual pediatric intensivist's perceptions of their workload and how self-reported workload varied by PICU level of care. We hypothesized that pediatric intensivist workload would vary significantly by PICU level of care.Methods:We used a national cross-sectional electronic survey of members of five independent intensivist society and network email mailing lists. We excluded those who worked exclusively in a cardiac ICU, were exclusively part-time, were exclusively employed in locum tenens positions, or were trainees/APPs.Results:Of the 3437 currently ABP-certified pediatric intensivists, after deleting duplicate responses, we analyzed 652 responses, although numerous respondents did not answer all questions. Respondents were 55% female and most commonly between 41-50 years [N=185 (39%)] with <10 years of experience [223(47%)]. The majority had in-house attending coverage 24/7 [547(84%)]. 'Beds covered per intensivist' varied by level of care and essentially doubled at night as compared to day at larger institutions. The median duration of day and night shifts were 10h and 15h, respectively. The most common reported cFTE model was 'total clinical weeks per year + calls' [n=240(42%)] with a median reported cFTE = 75% [IQR 53%-90%]. Although total clinical shifts per year did not vary by PICU level of care among the 141 intensivists with this cFTE model, both total clinical hours per year and total clinical calls per year decreased as level of care increased, likely reflecting a larger labor pool and more protected time for research. Of those who reported working as a division chief, the median reported protected FTE was 25% and the median reported FTE for a PICU medical director was 20%.Conclusions:The most commonly reported cFTE model was total clinical weeks per year plus calls with the median cFTE reported as 75%. However, these models varied across PICU levels of care, likely reflecting different workload distributions among larger numbers of intensivists.

Vector-Borne Causes of Acute Febrile Illness in Children in El Salvador

Presenting Author: Aaren Evans, Emory University

Poster Number: 62

Co-Authors: Aaren B. Evans, Kathleen Weimer, Stephanie Bellman, Shannon E. Ronca, Elias Aguilar, Kenni Campos, Rhina Dominguez, Kaci McCoy, Parminder Suchdev, Kristy O. Murray

Background: In El Salvador, the risk of vector-borne disease (VBD) transmission is high due to the tropical climate, high-density housing, migrant populations, and limited resources for surveillance and

diagnostics commonly found in low- and middle-income countries (LMIC). Furthermore, established mosquito, tick, and triatomine vector populations promote year-round transmission of VBDs. The most common VBDs of concern in El Salvador are dengue virus, Zika virus, chikungunya virus, Trypanosoma cruzi (Chagas disease), and Rickettsia. While malaria has been eliminated, ongoing transmission occurs in the neighboring country of Guatemala. In order the to track the incidence of these VBDs, the El Salvador Acute Febrile Illness (AFI) surveillance network was formed in 2022. Through this network, febrile patients are enrolled and tested for VBDs. Surveillance was established in the second largest department of the country—Santa Ana—which lies along the border of Guatemala. Our study aimed to understand incidence disparities of VBDs between children and adults.Methods: A total of 5,329 patients were enrolled from January 2022 to July 2024. Patients of any age, sex, or pregnancy status were eligible is they presented with a fever (≥ 38°C) or recent history of acute fever. Whole blood samples, nasopharyngeal (NP) swabs and eschar swabs were screened for seven vector-borne pathogens using real-time polymerase chain reaction (PCR). Data were analyzed using descriptive statistics to characterize the incidence of VBDs between children and adults. Results: Among the 5,068 participants enrolled in the study and tested for VBDs, 3,929 (78%) were children under the age of 18. We identified 641 participants (13%) positive for dengue. Children (n=555; 87%) were two times more likely to be positive for dengue compared to adults (odds ratio=2.01; p<0.001). Among the 7 cases positive for Chagas disease, 6 (86%) were children. Among the 6 positives for Rickettsia, 3 were children (50%). One adult tested positive for malaria. No other VBDs were identified. Conclusion: Dengue and Chagas disease disproportionately affected children more than adults, whereas no difference was observed with Rickettsia or malaria. Children presenting with febrile illness in tropical, LMIC countries should be prioritized for VBD testing due to the high risk.

Robust Neonatal Brain Segmentation in the Privacy and Convenience of the Browser

Presenting Author: Armina Fani, Center for Translational Research in Neuroimaging and Data Science, Georgia State University

Poster Number: 63

Co-Authors: Fani, Armina; LE, ISABELLE; Shultz, Sarah; Calhoun, Vince; Plis, Sergey

Background: Accurate segmentation of neonatal brain MRI is critical for understanding early neurodevelopment, yet existing tools are often computationally demanding, require complex installation, or are prohibitively slow for clinical and research workflows. There remains a need for accessible, high-throughput segmentation solutions that perform robustly across imaging modalities and diverse neonatal populations.Methods: We develop a set of 3D deep learning segmentation models for neonatal brain imaging, trained exclusively on synthetic data to maximize generalizability and eliminate dependence on large labeled clinical datasets. The training dataset was developed using a selective combination of neonatal segmentation tools that emphasizes each tool's strength while striving to compensate for the weaknesses. Multi-modal compatibility was achieved through aggressive domain randomization during training, which enabled robust performance across T1w, T2w, and other

acquisition protocols for ages 0-9 months. The architecture is optimized for lightweight inference without sacrificing segmentation fidelity. The models are deployed on BrainChop, a browser-based neuroimaging platform requiring no installation, no data upload to external servers, and no specialized hardware. A command-line version is also available with one-step installation for integration into automated pipelines.Results: Preliminary validation demonstrates that our models produce anatomically faithful parcellations across real neonatal MRI data, performing competitively with state-of-the-art methods, with inference completing in under 15 seconds within a standard web browser.Conclusion: This work presents freely accessible, installation-free, privacy-preserving neonatal brain segmentation tools capable of robust parcellation across MRI modalities. By leveraging synthetic training data and in-browser inference via BrainChop, our models lower barriers to neonatal neuroimaging analysis for researchers and clinicians globally.

IL-10, an Early-Life Immune Cytokine, Promotes HIV Latency Establishment in a Pediatric-Relevant Model

Presenting Author: Tzipporah Freeman, Emory University

Poster Number: 64

Co-Authors: Tziporah Freeman, Kaleaha S Davis, Mathew Cabezas-Boyd, Ann Chahroudi, Jairo A Fonseca

Background: The principal barrier to an HIV cure is the latent reservoir of transcriptionally silent proviruses in resting CD4+ T cells. Our group has shown that the pediatric HIV reservoir differs from that of adults in both cellular composition and responsiveness to latency reversal agents, suggesting that developmental differences in the immune microenvironment influence reservoir establishment and persistence. However, the contribution of early-life immunoregulatory cytokines to pediatric HIV latency remains poorly understood.Methods: The HIVGKO dual-fluorescent reporter vector was modified by replacing its dual-tropic envelope with the CCR5-tropic envelope pSVIII-92BR020.4, derived from a Brazilian patient, to reflect the CCR5-tropic viruses that predominate in pediatric HIV infection. Productive and latent infection were distinguished by GFP expression driven by the HIV LTR and constitutive mKO2 expression (GFP−/mKO2+), respectively. Cells were pretreated with CCL19 to enable efficient infection without cellular activation. Tropism was confirmed using CCR5-negative Jurkat and CCR5-positive CEM-NKR-CCR5 cells. To investigate whether IL-10, an immunoregulatory cytokine enriched during early life and implicated in HIV persistence, influences latency establishment independent of infection susceptibility, CEM-NKR-CCR5 cells were treated with 0, 5, or 50 ng/mL IL-10 either 48 hours prior to or immediately following spinoculation and analyzed by flow cytometry.Results: CCR5-tropic HIVGKO infected CEM-NKR-CCR5 cells at substantially higher rates than Jurkat cells (~170-fold productive, ~60-fold latent; $P<0.001$ and $P<0.0001$, respectively), confirming CCR5-dependent entry. IL-10 treatment did not significantly alter total infection efficiency at any concentration or timing relative to untreated controls. However, pretreatment with 50 ng/mL IL-10 48 hours prior to spinoculation significantly increased the proportion of latently infected cells (~71%) compared to untreated controls (~39%; $P<0.05$) and 5 ng/mL pretreatment (~40%; $P<0.01$), with no significant effect at lower doses or

post-spinoculation timing.Conclusions: These findings identify IL-10 as a potential regulator of HIV latency establishment during early life and demonstrate the utility of a CCR5-tropic HIVGKO platform for pediatric HIV latency studies. Ongoing validation in primary pediatric tonsillar tissue will establish a physiologically relevant model for investigating age-specific mechanisms of reservoir formation and evaluating reservoir-targeting strategies.

Parental Emotions Surrounding Child's Hearing Loss Diagnosis: A Qualitative Study

Presenting Author: Robert Fuss, University of Georgia

Poster Number: 65

Co-Authors: FUSS, ROBERT; Brasher, Susan; Bishop, Cia; Heggs, Akilah; and Govil, Nandini

Background: Pediatric PSNHL (profound sensorineural hearing loss) hearing loss not only impacts children, but also presents challenges for caregivers, particularly at the time of diagnosis. Understanding caregivers' emotional responses is essential for improving how physicians communicate diagnoses and for ensuring appropriate family-centered support and resource allocation. OBJECTIVES: The primary objective of this study was to examine the emotional experiences observed in caregivers of children with PSNHL with a focus on grief and related emotional processes following the initial diagnosis. METHODS: This qualitative interview study included caretakers of children aged three or younger with PSNHL. A structured interview guide was developed in conjunction with palliative care colleagues, based upon prior questionnaires examining parental grief in parents of children with chronic illnesses. Semi structured interviews led by one interviewer involved ten standardized questions exploring caregivers' emotional and experiential responses. Interviews were transcribed, coded, and analyzed thematically to identify commonalities across participants. Interviews were concluded when the study reached coding saturation. RESULTS: Eleven caregivers, five males and six females, participated across ten interviews. Five participants were based in rural areas and the remaining six participants from urban/suburban areas. Most caregivers associated negative emotions with their child's diagnosis but did not directly mention the word grief. For most caregivers, the negative emotions became less severe on average with healthcare, community, and family support following the diagnosis. CONCLUSION: This study highlights the complex emotional journey of caregivers following a child's diagnosis of PSNHL. Findings underscore the importance of timely, empathetic communication from medical providers and the need for structured emotional and informational support for families. Larger, more demographically diverse studies are warranted to better inform best practices in family counseling and resource provision.

Sustained IL-1β signaling enhances HBV replication through a p38 MAPK-driven, NF-κB-independent pathway

Presenting Author: Samuel Gallant, Emory University

Poster Number: 66

Co-Authors: Gallant, Samuel; Cuba, Jens; Bousali, Maria; Yeung, Kaiden; Moschogianni, Evgenia; Dangas, Georgios; Athanasiadis, Antonis; Levenson, Kenny; Zhou, Yichen; Aguzzi, Andriano; de Jong, Ype; and Michailidis, Lefteris

Background: Interleukin-1β (IL-1β) is well-established as an antiviral cytokine against HBV, restricting infection through downregulation of the entry receptor NTCP and induction of activation-induced cytidine deaminase (AID). However, prior studies have predominantly examined IL-1β in the context of acute cytokine exposure or pre-entry treatment windows, leaving the consequences of sustained, post-entry IL-1β signaling during established infection largely unexplored. Here, we investigated how prolonged IL-1β exposure alters HBV replication dynamics within the context of chronic inflammatory states, including HIV/HBV co-infection.Methods & Results: HepG2-NTCP cells and mouse-passaged primary human hepatocytes (mpPHH) were inoculated with HBV and treated with IL-1β (200 pg/mL) beginning 24 hours post-infection, with treatment replenished every three days through day 7 (HepG2-NTCP) or day 13 (mpPHH). Sustained post-infection IL-1β treatment significantly increased several viral markers including intracellular HBV DNA (2.5-fold), secreted HBV DNA (2.2-fold), HBcAg+ cell count (1.7-fold), HBeAg (2.4-fold) and HBsAg (2.2-fold) in HepG2-NTCP cells, and enhanced HBeAg secretion in mpPHH. This pro-viral effect was abolished by co-treatment with the IL-1R antagonist Anakinra or the IRAK4 inhibitor Zimlovisertib, confirming dependence on canonical IL-1β signaling. Notably, the phenotype was unaffected by NF-κB/IKK inhibition by TPCA-1 and BMS-345541 but was significantly reduced by the p38 MAPK inhibitor Ralimetinib. Consistent with these pharmacologic findings, CRISPR-Cas9 knockout of MAPK14 (p38) in HepG2-NTCP cells suppressed IL-1β-mediated HBV enhancement, while knockout of RELA (p65) did not, suggesting a p38 MAPK-dependent, NF-κB-independent signaling axis.Conclusions: These findings identify a previously unrecognized, p38 MAPK-dependent pro-viral role for IL-1β during established HBV infection. To define the downstream effectors mediating this phenotype, ongoing studies will identify p38-induced pro-viral host factors which may reveal novel therapeutic targets to limit HBV replication in the setting of chronic inflammatory disease.

Orbital Encephalocele Presenting as Progressive Proptosis in a Pediatric Patient with Sphenoid Wing Dysplasia

Presenting Author: Aryonne GenaeLink, Morehouse School of Medicine

Poster Number: 67

Co-Authors: GenaeLink, Aryonne; Li, Mirandy; and Cooper, Jacinta E

Background: Orbital encephalocele is a rare cause of progressive proptosis in pediatric patients and is frequently associated with sphenoid wing dysplasia and neurofibromatosis type 1 (NF1). Early recognition is important to prevent complications, including visual impairment and progressive craniofacial deformity.Methods:We present the case of a previously healthy, immunized, 4-year-old male who experienced a 4–5 month history of progressive right eye bulging and proptosis. Patients and family reported no change in vision, headaches, dizziness, blurry vision, vomiting, nor recent trauma at the

initial visit. The patient was initially evaluated by an optometrist and subsequently referred to ophthalmology after pulsations of the right eye were noted on examination. He was then referred to the emergency department for further evaluation. Computed tomography of the head demonstrated a bony defect of the right orbital roof with herniation of intracranial contents into the orbit, consistent with orbital encephalocele, as well as enlargement of the right middle cranial fossa. Results:The patient was diagnosed with orbital encephalocele associated with sphenoid wing dysplasia. Due to progressive proptosis, he underwent craniotomy with sphenoid wing reconstruction and encephalocele repair. He recovered without neurologic deficits and was discharged in stable condition. Follow-up Magnetic Resonance Imaging demonstrated successful repair with decreased mass effect on the right optic nerve and extraocular muscles and stable postoperative changes. Persistent enhancing right orbital and periorbital soft tissue was favored to represent a plexiform neurofibroma, prompting referral to a neurofibromatosis specialty clinic for further evaluation despite negative genetic testing for NF1.Conclusion:This case highlights the importance of considering orbital encephalocele in pediatric patients presenting with progressive unilateral proptosis, even in the absence of visual or neurologic symptoms. Recognition of associated sphenoid wing dysplasia should prompt evaluation for underlying conditions such as NF1. Early diagnosis and surgical intervention are essential to prevent progressive visual impairment, optic nerve compression, worsening orbital deformity, and potential neurologic complications.

Invasive Pneumococcal Disease after Hematopoietic Cell Transplant for Sickle Cell Disease

Presenting Author: Julia Gliwinski, Children's Healthcare of Atlanta / Emory University

Poster Number: 68

Co-Authors: Gliwinski, Julia; Hijano, Diego R; Elgarten, Caitlin; Liu, Katie; Haight, Ann E; Parikh, Suhag H; Barreto, Mauricio; Olson, Timothy S; Maron, Gabriela; Sharma, Akshay; Stenger, Elizabeth

Background: Children with sickle cell disease (SCD) undergoing allogeneic hematopoietic cell transplantation (HCT) remain vulnerable to invasive pneumococcal disease due to impaired splenic function (recurrent infarctions leading to splenectomies or auto-infarction leading to atrophied spleen) and HCT-related factors including delayed immune reconstitution, immunosuppression, and graft-versus-host disease (GVHD). Although splenic function may improve post-HCT for some patients, incomplete immune recovery together with the absence of standardized pneumococcal prophylaxis for SCD patients undergoing HCT leaves this population highly vulnerable to infection with encapsulated bacteria.To better understand the clinical impact of IPD in this population, we conducted a multicenter, retrospective cohort study utilizing registry data for subjects under 25 years old undergoing first allogeneic HCT. From conditioning through 1 year after graft infusion, pneumococcal infections, prophylaxis, and immunization practices were recorded to evaluate first-year S. pneumoniae IPD incidence and characteristics in SCD HCT populations.Of 182 subjects, 3 (1.6%) subjects developed IPD within 1 year after HCT. The overall median age at HCT was 9.9 years, compared with 6.8 years for IPD subjects. Transplant strategies were similar across groups: bone marrow was the predominant graft source (84% overall, 100% IPD), mostly

using HLA-matched related donors (81% overall, 100% IPD). Acute and chronic GVHD occurred in 21% overall; 1 IPD patient developed both. Absent pre-transplant splenic function (by liver-spleen scan) was prevalent (77% non-IPD, 100% IPD). All 3 IPD cases presented with S. pneumoniae sepsis and bacteremia confirmed by positive blood cultures; 1 also had confirmed meningitis. All 3 patients were receiving antimicrobial prophylaxis at infection onset. All required hospitalization; 1 case required ICU admission and subsequently died of septic shock, representing the only pneumococcal-attributed death in the cohort. Only 2 received pneumococcal vaccination post-HCT, with the first dose administered post-IPD; the third subject did not receive vaccination prior to death.IPD was rare in our cohort but clinically significant when it occurred, with substantial morbidity and mortality. Occurrence of IPD despite antimicrobial prophylaxis and before initiation of post-transplant pneumococcal vaccination underscores the ongoing vulnerability of this population and highlights the importance of continued vigilance in prevention and early recognition of infection.

Rituximab Use in Childhood Primary Sjogren's Disease: Single Center Experience

Presenting Author: Ellen Go, Emory University/Children's Healthcare of Atlanta

Poster Number: 69

Co-Authors: Go, Ellen; Blair, Nicholas; and Rouster-Stevens, Kelly

Background: Childhood Sjögren Disease (cSjD) is a rare, systemic autoimmune disorder without FDA-approved therapies. B-cell hyperactivity plays a role in disease pathogenesis making CD20 monoclonal antibody a rationale therapeutic strategy. We evaluated the clinical features, treatment indication, and outcomes of patients who received Rituximab (RTX) during their disease course.Methods:Retrospective chart review of children diagnosed with primary Sjogren's disease by a pediatric rheumatologist from August 2016 to May 2026. cSJD secondary to other autoimmune diseases were excluded. All received at least 1 course of RTX 750 mg/m2 (max 1000 mg) 2 doses 2 weeks apart.Results:Twelve patients were treated with Rituximab, 11 (91.6%) of which are female; 4 (33%) Caucasian, 2 (17%) Hispanic, 5 (42%) Black, 1 (89%) Asian. Age at diagnosis is 5 to 15 years old, median 12.5 years. Only 2 (17%) met the 2016 ACR/EULAR classification criteria of primary Sjogren Syndrome.Eleven (91.6%) patients had +ANA (>/= 1:40) and anti-SSA. 7 (58.3) with anti-SSB in combination with anti-SSA; 10 (83%) with hypergammaglobulinemia; 6 (50%) with elevated RF; 2 (16%) with low C3 and/or C4. RTX prescribed for immune thrombocytopenia (n=3), refractory inflammatory arthritis (n=3), chronic or recurrent parotitis (n=3), cutaneous vasculitis (n=2), kidney involvement (n=3). Two patients (17%) have more than one indication for RTX therapy. None of the patients had infusion-related reactions, cytopenia or infections directly related to the drug. Only 1 developed hypogammagobulinemia. Disease activity scores before RTX included 1 patient with low (score 1), 6 moderate (score 6-14), 5 high (score 15-32). Disease activity scores after RTX improved to 4 patients with no activity (0), 5 low (1-4), and 2 moderate (6-12) at last clinic visit. At most recent follow-up, 2 patients remain on RTX.Conclusion:Age & sex predilection of cSJD in this cohort mirrors that of published studies with diverse racial distribution. RTX is given for a variety of indications, including severe, systemic complications. In our cohort, RTX is a safe, well tolerated

therapy, and lowered the disease activity level. Further studies are needed to establish the use of rituximab in cSJD.

Relationships between Sickle Cell Outcome Grading System-Chronic Pain Severity and Patient-Reported Pain Frequency and Duration

Presenting Author: Jan Mooney, Emory University

Poster Number: 70

Co-Authors: Mooney, Jan; Aurora, Tarun; Hodges, Renee; Wardell, Joe; Bhakta, Nickhill; Cohen, Lindsey; Dampier, Carlton; and Sil, Soumitri

Background: About 23% of youth with sickle cell disease (SCD) report chronic pain, which is associated with considerable functional impairment. Standardized criteria for chronic pain in SCD from the Analgesic, Anesthetic, and Addiction Clinical Trial Translations, Innovations, Opportunities, and Networks and American Pain Society Pain Taxonomy (AAPT, 2017; pain on most days for 6+ months) support consistent identification and intervention. Yet, medical records (EHR) lack necessary information, and unidimensional proxy indicators (e.g., hospitalizations) vary in sensitivity/specificity and remain understudied in youth. The expert consensus-based Sickle Cell Outcome Grading System (SCOGS) defines chronic pain duration as 3+ months and evaluates severity using patient-reported outcomes or unplanned medical care. To inform its role in identifying youth with SCD and chronic pain, we evaluated the relationship between SCOGS chronic pain severity and AAPT-based classification.Methods: This secondary analysis utilized questionnaire and medical record data from a broader study focused on parenting and psychosocial distress for caregivers of youth with SCD (any genotype, 8-18 years old, not receiving chronic transfusions) conducted in a large southeastern US healthcare system. AAPT classification was based on self-reported pain frequency and duration, and SCOGS grades were based on unplanned medical care or Patient-Reported Outcomes Measurement Information System-Pain Interference (PROMIS scores. Dichotomizations of SCOGS grades were also examined.Results: Most participants (N = 73; Mage = 14.2, SD = 2.5; 57% female; 74% HbSS genotype) reported pain frequency/duration classified as not chronic pain (n = 57; 78%) based on AAPT criteria. SCOGS thresholds classified 12% as Grade 1 (lowest), 44% as Grade 2, 36% as Grade 3, and 8% as Grade 4. When dichotomized as Grade 1 and Grade 2/3/4, the SCOGS demonstrated 100% sensitivity (16/16 AAPT classifications) and 16% specificity (9/57). Alternative dichotomization as Grade 1/2 and Grade 3/4 resulted in 75% sensitivity and 65% specificity.Conclusion: Using this partial implementation of the SCOGS (unplanned medical care, PROMIS Pain Interference) may classify more youth with SCD as having chronic pain relative to AAPT criteria. Alternative dichotomization improves specificity though risks information loss. Future work could examine a weighted combination of multiple proxy indicators.

Targeting Stat3 in Ptpn11-Mutated Juvenile Myelomonocytic Leukemia

Presenting Author: Carly Harris, Department of Pediatrics, Emory University School of Medicine

Poster Number: 71

Co-Authors: HARRIS, CARLY, Department of Pediatrics, Emory University School of Medicine; Zhao, Peng, Department of Pediatrics, Emory University School of Medicine; and Qu, Cheng-Kui, Department of Pediatrics, Emory University School of Medicine

Background: Juvenile myelomonocytic leukemia (JMML) is an aggressive pediatric myeloproliferative neoplasm with a relapse rate of approximately 40% post-transplant. Approximately 35% of JMML are caused by a gain-of-function mutation in PTPN11, which encodes the protein tyrosine phosphatase SHP2 and promotes hyperactive Ras-MAPK signaling. In a Ptpn11E76K/+ mutant mouse model, we previously observed reduced Stat3 phosphorylation in leukemic stem cells (LSCs), implicating Stat3 signaling as a potential therapeutic target in Ptpn11-mutated JMML. Stat3 deletion in Ptpn11E76K/+ mutant mice also decreased the LSC pool and induced synthetic lethality, supporting the rationale for testing whether pharmacologic Stat3 inhibition can exploit this vulnerability in Ptpn11-mutated LSCs. We aim to explore this therapeutic vulnerability through a series of experiments utilizing control Ptpn11+/+/Vav-Cre hematopoietic cells isolated from mice, knock-in Ptpn11E76K/+/Vav-Cre mice LSCs, and FDA-approved Stat3 inhibitors Atovaquone and Pyrimethamine. Methods: To evaluate the effects of Stat3 inhibition, lineage-negative (Lin−) cells were isolated from mouse bone marrow using a Lineage Cell Depletion Kit and LS magnetic columns. Lin− cells were cultured in vitro for 4 days in StemSpan medium supplemented with mSCF, mTPO, and mFLT3L, with varying concentrations of Atovaquone and Pyrimethamine. Myeloid proliferation and apoptosis were analyzed using flow cytometry. Colony-forming unit granulocyte-macrophage (CFU-GM) assays were performed to assess myeloid proliferation Results: Western blot confirmed reduced Stat3 phosphorylation in Ptpn11E76K/+/Vav-Cre Lin- cells. Treatment with Atovaquone reduced both the size and number of colonies in CFU-GM assays, suggesting inhibited myeloid differentiation. In vitro culture of Ptpn11E76K/+/Vav-Cre cells showed enhanced myeloid differentiation in the vehicle-treated group, and reduced differentiation following Atovaquone and Pyrimethamine treatment compared to Ptpn11+/+/Vav-Cre. These findings suggest that Ptpn11E76K/+/Vav-Cre cells exhibit greater sensitivity to Stat3 inhibition than Ptpn11+/+/Vav-Cre cells. Apoptosis assays revealed more apoptotic cells in Ptpn11E76K/+/Vav-Cre compared to Ptpn11+/+/Vav-Cre cells after Stat3 inhibitor exposure. Conclusion: This preliminary data supports the hypothesis that Ptpn11E76K/+/VavCre mutant LSCs are more sensitive to pharmacological inhibition of Stat3, supporting Stat3 as a promising therapeutic target in JMML.

Reevaluation of Chagas transmission in Belize and El Salvador through integration of vector phylogenetics, parasite genotyping, and human serology

Presenting Author: Catherine Hasell, Emory University

Poster Number: 72

Co-Authors: Hasell, Catherine; Weimer, Kathleen; Gunter, Sarah M.; Justi, Silvia A.; Herrera, Claudia; Manzanero, Russell; Aguilar, Elias; Campos, Kenni; Beatty, Norman; Kneubehl, Alexander; Ronca, Shannon E.; Morazan, Gerhaldine H.; Dominguez, Rhina; and Murray, Kristy O.

Background: Chagas disease, caused by the parasite Trypanosoma cruzi, affects an estimated eight million people worldwide, causing >10,000 deaths annually. Despite generally asymptomatic acute infection, 35-50% of infected individuals develop life-threatening chronic cardiovascular disease. The Pan American Health Organization's 1997 Central American Initiative for Chagas Disease Control reduced regional transmission, including certification of interrupted vector-borne transmission in Belize. However, our recent discovery of an acute pediatric case in Belize through acute febrile illness (AFI) surveillance, identification of a novel vector triatomine species near the patient's home, and evidence of re-emerging transmission in El Salvador highlight the need to reassess T. cruzi transmission in this region.We integrated 1) T. cruzi IgG seroprevalence in AFI participants; 2) phylogenetic analysis of local triatomine vectors; and 3) discrete typing unit (DTU) analysis of T. cruzi from vectors and humans, to generate a dynamic map of regional vector-borne Chagas transmission. Seroprevalence was confirmed by dual positivity on independent serological assays. Vector phylogenies were reconstructed in MEGA12 and compared to reference sequences from dominant regional species. Next-generation sequencing performed on vector and patient samples determined predominant vector- and case-associated DTUs. Finally, we leveraged geospatial mapping in ArcGIS to synthesize these data and identify transmission hotspots.Screening a subset of AFI participants identified four T. cruzi IgG-positive patients in two districts in Belize (n=563; ~0.7% seroprevalence), including a relative of the acute pediatric case. In El Salvador, three IgG-positive individuals were identified within a single region (n=268; ~1% seroprevalence), as well as seven pediatric Chagas-positives. Multilocus phylogenetic analysis of five Triatoma specimens from Belize showed one clustering with T. dimidiata s.l. and four near T. huehuetenanguensis. The single T. cruzi-infected specimen exhibited ~97% COX1 sequence identity and morphological features suggesting a novel lineage. DTU typing identified TcIV, and Miniexon phylogenies identified four TcIV haplotypes associated with both vectors from southern Belize and the acute pediatric case, related to but distinct from Brazilian reference strains.Our study revealed ongoing Chagas transmission in Belize and El Salvador, with novel vectors contributing to transmission risk in humans. These findings underscore the need for integrated surveillance to accurately assess transmission risk.

Community Engagement, Recruitment, and Retention of Parent–Adolescent Dyads in a Longitudinal School-Based Randomized Controlled Trial: Lessons Learned

Presenting Author: Aisha Hilliard, Michigan State University

Poster Number: 73

Co-Authors: HILLIARD, AISHA; Donald, Sheldon; and Robbins, Lorraine

Background: Recruitment and retention of adolescents and their parents in longitudinal behavioral randomized controlled trials (RCTs) are complex, especially in under-resourced urban school settings.

Few studies provide detailed, year-over-year analyses of strategies used in large-scale, school-based dyadic interventions. Methods: This descriptive study examined community engagement, recruitment, and retention strategies across three annual cohorts of the Guys/Girls Opt for Activities for Life (GOAL) trial, a 16-week school- and home-based RCT targeting physical activity and healthy eating among adolescents (grades 5–8) and their parents. Procedures were iteratively refined each year. Quantitative outcomes including schools onboarded, dyads enrolled, and retention at baseline, post-intervention, and 9-month follow-up were compared across cohorts. Results:Across three years (2022–2025), 46 schools were contacted and 14 participated. Enrollment improved annually: Cohorts 1–3 enrolled 218 dyads (86% of target), 341 (met target), and 376 (exceeding target), totaling 935 dyads (106% of target). Adolescent post-intervention retention was stable (82%, 82%, 84%), averaging 83%. Parent post-intervention retention increased slightly from 52% to 54%, coinciding with structured communication and revised compensation. Adolescent 9-month retention rose from 55% to 67% before declining to 55.3% (59.5% overall). Parent 9-month retention remained lower (33%, 32%, 36.7%; 33.9% overall). Conclusions: Improvements in adolescent outcomes were associated with early school engagement, expanded Program Champion roles, enhanced compensation, and a Participant Engagement Specialist. Iterative optimization of partnerships, multi-modal recruitment, and structured engagement systems improved enrollment and retention, offering a replicable framework for future school-based dyadic trials.

Rosai-Dorfman Disease Presenting as Severe Right Pulmonary Artery Stenosis in a Pediatric Patient

Presenting Author: Seth Hinrichsen, Morehouse School of Medicine

Poster Number: 74

Co-Authors: Hinrichsen, Seth; Li, Mirandy; Cooper, Jacinta

Background: Rosai-Dorfman disease (RDD) is a rare non-Langerhans cell histiocytic disorder that typically presents with painless cervical lymphadenopathy. Extranodal involvement occurs in a substantial proportion of patients; however, isolated mediastinal disease is uncommon and can present significant diagnostic and therapeutic challenges. We report a case of extranodal RDD presenting as a middle mediastinal mass causing critical compression of major thoracic vascular structures. Methods:We performed a retrospective review of the patient's clinical presentation, imaging studies, pathology findings, hospital course, and subsequent management. Diagnostic evaluation included computed tomography (CT), positron emission tomography (PET), tissue biopsy, histopathologic examination, and immunohistochemical analysis. Results:A previously healthy young woman presented with progressive exertional symptoms and was found to have a large middle mediastinal mass. Cross-sectional imaging demonstrated severe compression of the superior vena cava and adjacent mediastinal vascular structures. PET imaging showed hypermetabolic activity within the lesion without evidence of widespread disease. Initial differential diagnoses included lymphoma, germ cell tumor, thymic neoplasm, and other mediastinal malignancies. Tissue sampling revealed a histiocytic proliferation characterized by large S100-positive histiocytes with emperipolesis, consistent with Rosai-Dorfman disease. The patient

remained hemodynamically stable throughout hospitalization despite critical vascular compression. Given the lesion's location and involvement of surrounding structures, multidisciplinary evaluation involving oncology, thoracic surgery, cardiology, and pathology was required to determine optimal management. The patient was discharged with close outpatient follow-up and further treatment planning. Conclusion:Isolated mediastinal Rosai-Dorfman disease is a rare presentation that may mimic malignancy and produce life-threatening mass effect due to compression of critical mediastinal structures. Accurate diagnosis requires tissue confirmation with characteristic histopathologic and immunohistochemical findings. Recognition of this uncommon entity is important to avoid misdiagnosis and to guide multidisciplinary management strategies tailored to disease extent, symptom burden, and anatomic involvement.

Agentic Memory Frameworks for Scientific Discovery

Presenting Author: Paul Horton, Georgia Tech

Poster Number: 75

Co-Authors: Horton, Paul; Almahfouz Nasser, Sahar; Li, Jinchu; Madabhushi, Anant;

Background: Effective diagnosis and treatment of complex medical conditions - such as rare cancers or genetic syndromes - requires synthesizing clinical data, genetics, pathology, and imaging. In the pursuit of automated decision support, a gap exists: how to match a scientific question to the data necessary for answering it? LLM-based agents show promise in this task but existing memory architectures are designed for small scale tasks, single data sources based on historical interactions, and fail to capture relationships necessary for aggregating multiple sources.MethodWe propose a decentralized memory framework to efficiently manage the scale and complexity of multimodal data. We split the task into three parts: compressing data into searchable representations, mapping relationships across data sources - such as patient genomic data to their pathology report - and consolidating prior query history to inform future searches. Unlike prior approaches, this framework is built for complex health information systems. ResultsWe evaluate our memory architecture on the KramaBench dataset, consisting of a variety of scientific file types, sizes, and tasks. The dataset contains scientific queries along with the ground truth files necessary for answering them. We compare against standard methods such as Retrieval-Augmented Generation (RAG) and Master-Slave architectures. Furthermore, we use ablation studies to isolate the effects of each component of the proposed memory system. We use F1, precision, and recall as performance measures.ConclusionData discovery is a key component of the diagnostic and treatment processes within a health system. Our decentralized memory framework efficiently captures the data, relationship, and historical interactions necessary for automated discovery. This work is a step advancing scientific discovery in a health system to improve patient outcomes.

Feasibility of Home-Based Study Procedures Among Families of Preterm Infants

Presenting Author: Junwen Huang, Emory University

Poster Number: 76

Co-Authors: Smyth, Heather; Huang, Junwen; Cruz Aboytes, Arly Alexandra; Prechtel, Christine; Ramsay, Gordon; Barahona, Joselyn; Beck, Kayla; Marra, Larken; and Neel, Mary Lauren

Background: Parent-child interactions are critical in child development, especially in preterm infants. However, these interactions can be challenging to study since clinical spaces are different than the home environment. While the goal is to measure parent-child interaction in the home environment, this presents logistical challenges. In this study, we aimed to investigate the relationship between family social risk and fidelity to an at-home study procedure in a cohort of preterm infant-parent dyads. MethodsIn this prospective observational cohort study, we included parent-infant dyads with infants 6-8 months corrected age (CA) born <35 weeks gestational age (GA). Participants completed an at-home audio recording using a Language Environment Analysis (LENA) device to study language exposures. Fidelity was defined as completion of an 8-hour-long recording and return of the device. After consent, the LENA device was mailed to the family with prepaid return postage, instructions, and child clothing to secure the device. Social risk was measured using the established "Social Risk Score (SRS)," an aggregate score including family structure, parental education, parent age at birth, employment, and occupation. Multivariable binary logistic regression examined associations between total SRS and individual components of SRS with LENA fidelity, adjusting for infant GA, sex, race, and ethnicity. ResultsOur study included n=73 dyads (71% Black, 7% Hispanic). All caregivers identified as birthing parents. Mean GA was 31 weeks and mean CA at assessment was 7.6 months. Overall fidelity to LENA protocol was 64%. Total SRS was not significantly associated with LENA fidelity. However, younger maternal age was associated with lower odds of LENA fidelity at 6 months (p=.028). Parental employment and occupation demonstrated trends toward association with fidelity (both p=.099). Educational and family structure were not associated with fidelity. Lower infant GA was consistently associated with reduced odds of fidelity across models. ConclusionAt-home recordings are feasible for capturing parent–child interactions beyond the clinic, but fidelity remains a challenge. Lower fidelity among younger mothers and those with more premature infants highlights the need for targeted support. Future work should focus on interventions to improve at-home procedure fidelity to enhance data quality and participation for all.

Risk Factors for Depressive and Anxiety Symptoms Among Birthing Parents of Preterm Infants

Presenting Author: Junwen Huang, Emory University

Poster Number: 77

Co-Authors: Cruz Aboytes, Arly Alexandra & Huang, Junwen; Symth, Heather; Barahona, Joselyn; Beck, Kayla; Marra, Larken; and Neel, Mary Lauren

Background: Caregiver wellbeing is crucial to early child development. It can be further complicated in preterm infant-caregiver dyads due to separation at birth, potential maternal illness, and infant fragility. Furthermore, prematurity disproportionally impacts underrepresented minorities and those with lower socioeconomic status. Thus, we are interested in understanding how social risk factors can predict caregiver well-being in this population. MethodsWe conducted a prospective observational study including parent-infant dyads with infants 6-8 months corrected age (CA) born <35 weeks gestational age (GA). Social risk was quantified using the "Social Risk Score (SRS)," an aggregate score of family structure, parental education, parent age at birth, employment, and occupation. Parental depression and anxiety were assessed using the Edinburgh Postpartum Depression Scale (EPDS) and The State-Trait Anxiety Inventory (STAI) respectively. Multivariable linear regression models examined associations between SRS and parental depression and anxiety, adjusting for infant GA, sex, race, and ethnicity. Exploratory multivariable ANCOVA examined differences in STAI and EPDS scores across SRS components using the same covariates. ResultsOur study included n=87 dyads (78% Black, 11% Hispanic). All caregivers identified as birthing parents. Mean GA was 31weeks, and mean CA at assessment was 7.6 months. Overall, 14% and 11% of caregivers met thresholds for depression or anxiety, respectively. SRS was not significantly associated with EPDS or STAI, although GA was positively associated with EPDS score (B = 0.46, p = 0.03). Across SRS components, caregiver educational was associated with depression (F(2,78) = 3.24, p = 0.044), with higher EPDS scores observed in middle and high education groups compared to the lowest. Employment status demonstrated a nonsignificant trend with anxiety (F[2,78] = 2.41, p = 0.097), with the highest STAI scores among part-time workers. No other subcategories approached significance. ConclusionInfant GA, caregiver education and potentially caregiver employment status are associated with caregiver depression or anxiety in a primarily Black cohort of caregiver/preterm infant dyads at 6-8 months CA. These results highlight several social factors that are associated with caregiver wellbeing, which is a strong predictor of child development. This suggests opportunities for advocacy and policy changes to support minority caregivers of preterm children.

Dietary Sugar Intake Is Associated with Hepatic Steatosis in Prepubertal Hispanic/Latino Children

Presenting Author: Helaina Huneault, Michigan State University

Poster Number: 78

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Background: Hispanic/Latino children bear a disproportionate burden of metabolic-associated steatotic liver disease (MASLD), yet the dietary drivers remain poorly characterized in this population. This study examined associations between dietary risk factors and hepatic steatosis (HS) in prepubertal Hispanic/Latino children.Methods: Cross-sectional study of 128 prepubertal Hispanic/Latino children aged 6–9 years. HS was quantified using MRI-proton density fat fraction (MRI-PDFF), and MASLD was

defined as HS ≥5% with at least one cardiometabolic risk factor. Dietary intake was assessed via 24-hour recalls analyzed using the Nutrition Data System for Research. Seven exposures were examined: added sugars, free sugars, ultra-processed food (UPF) intake, diet quality, saturated fat, fiber, and vitamin E. Sequential linear regression models adjusted for age and sex (Model 1), BMI z-score (Model 2), and PNPLA3 genotype (Model 3; primary model). Secondary analyses included logistic regression for MASLD status, sensitivity analyses adjusting for physical activity, and gene-diet interaction testing.Results: Mean age was 8.0 ± 1.1 years; 58% were male, 59.4% had obesity, and 35.9% met MASLD criteria. In the fully adjusted primary model, added sugars (β = 0.28 per % kcal; 95% CI: 0.05, 0.50; p = 0.016) and free sugars (β = 0.19 per % kcal; 95% CI: 0.02, 0.35; p = 0.027) were positively associated with HS, independent of BMI z-score and PNPLA3 genotype. Both associations persisted after adjusting for physical activity. In a joint model, added sugars remained independently associated with HS (β = 0.29; 95% CI: 0.07, 0.52; p = 0.012), while UPF intake was not (p = 0.354). No significant dietary exposure by PNPLA3 interaction was detected. Logistic analyses for MASLD were directionally consistent but did not reach statistical significance.Conclusions: Dietary sugar intake was positively associated with HS in prepubertal Hispanic/Latino children, independent of adiposity and genetic risk. These findings position dietary sugar as a potential modifiable target for MASLD prevention in this high-risk population and support the need for longitudinal investigation.

Quarterly QI Meetings Reduced Referral-to-evaluation for New Cystic Fibrosis Patients by Three Fold

Presenting Author: Elihu Igbinadolor, Emory University

Poster Number: 79

Co-Authors: Igbinadolor, Elihu; Reis, Olivia; and Gentile, Lori

Background: Cystic Fibrosis (CF) is an autosomal recessive, multisystem disease driven by mutations in the CFTR gene, causing abnormal chloride and bicarbonate transport that leads to characteristically thickened, restrictive secretions across the body's mucosal membranes. Notable otolaryngologic (ENT) and pulmonary concerns include chronic sinusitis, nasal polyps, ear infections, hearing loss, upper respiratory infections, pneumonia, and bronchiectasis. Coordination of care across the subspecialties treating people with CF is often disjointed, lacking a systematic approach, and prone to disruptions in patient care and outcomes. To identify strategies applicable across our CF healthcare network, we initiated a Quality Improvement (QI) project at a single ENT clinic aimed at improving the time from referral to initial ENT evaluation.Methods:Our goal was to reduce referral-to-evaluation time for new CF patients to 30 days and sustain this for approximately one year. Following the IHI Model for Improvement, a Key Driver Diagram (KDD) guided the creation of two interventions, each implemented through Plan-Do-Study-Act (PDSA) cycles. Prospective data were collected and compared to pre-intervention data from 4/2022 - 4/2023.PDSA1 (4/2023–8/2024): We designated two specific ENT providers to manage patient coordination, with referral sources messaging these providers directly via Epic in-basket, bypassing the standard scheduling process.PDSA2 (8/2024–6/2025): Referral times were reviewed quarterly with the quality team. Errors, barriers, and small, relevant logistical changes were

identified, discussed, and implemented as needed.Results:Baseline data came from 20 patients seen from 4/2022 to 4/2023, excluding one outlier that would have improperly inflated average referral time. PDSA1 had no measurable effect on referral times. PDSA2, after only one month, lowered referral time from 72.8 days to 24.1 days.Conclusion:Periodic review and discussion with our QI team reduced our patients' wait time from referral to evaluation threefold within one month of initiation. CF clinics, and possibly other clinics coordinating similarly multidisciplinary, multispecialty care, would likely benefit from implementing similar systems, though larger studies are needed. Direct EMR messaging between providers did not improve outcomes, likely due to increased provider burden. Automated scheduling systems may offer a solution, though significant technological barriers remain.

Challenging behavior during active and calm play contexts

Presenting Author: Kenel Jackson, Marcus Autism Center

Poster Number: 80

Co-Authors: Jackson, Kenel; Mutchler, Molly PhD BCBA-D; and Lloveras, Lindsay PhD BCBA-D

Background: Some children engage in challenging behavior during situations that appear enjoyable or exciting rather than aversive. Traditional assessment methods may not always capture the factors influencing behavior in these contexts. The purpose of this study was to explore whether challenging behavior occurred differently during active play compared to calm play and to examine possible variables related to this pattern. Methods Children diagnosed with autism spectrum disorder were recruited from a Challenging Behavior Support Program waitlist. All children who met the inclusion criteria participated in the study. Challenging behavior was measured during an active play condition and compared to a calm play condition. Behavior was evaluated across both contexts to identify potential differences in responding. Results Differences between the active play and calm play conditions varied across participants. Some children showed different levels of challenging behavior depending on the play context, while patterns were not consistent across all participants. Conclusion These findings provide an initial look at challenging behavior that occurs during exciting or enjoyable activities. Additional research is needed to better understand how active play may influence behavior and whether this pattern occurs across a broader group of children.

Unfair Discipline at School, Poor Mental Health, and Suicidality— national Youth Risk Behavior Survey, 2023

Presenting Author: Kathleen Krause, Emory University

Poster Number: 81

Co-Authors: KRAUSE, KATHLEEN; Lim, Heeju; Livingston-Burns, Belise; Okuizumi-Wu, Yuri; Jackson, Jalaia; Cardenas, Jennifer; and Bell, Charles

Background: Despite evidence that schools' use of exclusionary discipline harms youth, this is the first study to use a nationally representative sample of U.S. high school students to examine the association between receipt of unfair discipline at school with poor mental health and suicidal thoughts and behaviors in a comprehensive multivariable analysis.MethodsUsing the 2023 National Youth Risk Behavior Survey (N=20,103), logistic regression models estimated adjusted prevalence ratios (aPR) with 95% confidence intervals to examine the association between unfair discipline and 1) poor mental health, 2) persistent feelings of sadness and hopelessness, 3) seriously considering suicide, and 4) attempted suicide for students overall and stratified by race. Models controlled for demographics (as appropriate) and potential confounders, including experiences of bullying at school or online, racial discrimination at school, fighting at school, and substance use. aPRs that did not cross 1.0 were considered statistically significant. Models accounted for weighting and complex survey design and were conducted in SAS-callable SUDAAN version 11.0.4.Results Among all students, the receipt of unfair discipline was associated with an approximate 20% increase in the prevalence of poor mental health (1.22, 95% CI: 1.03-1.44) and persistent feelings of sadness and hopelessness (1.20, 95% CI: 1.06-1.37). In stratified models, although point estimates were consistently larger for Black students, confidence intervals overlapped. Among all students, receipt of unfair discipline was associated with suicidal thoughts (1.24, 95% CI: 1.09-1.42) but not suicide attempts (1.21, 95% CI: 0.89-1.64).ConclusionThere is a robust association between receipt of unfair discipline at school and poor mental health and suicidal thoughts among U.S. high school students. Although Black students are disproportionately disciplined at school, this study adds additional understanding that the magnitude of harmful associations between unfair discipline and poor mental health is the same for students regardless of race. There is a role for clinical intervention to work with schools to 1) reduce the use of unfair and exclusionary discipline and 2) connect youth to behavioral and mental health prevention and treatment services.

From Steroids to Precision Immunotherapy: Reframing Pediatric Atopic Dermatitis Management in the Biologic and JAK-Inhibitor Era

Presenting Author: Yash Jani, Medical College of Georgia

Poster Number: 82

Co-Authors: Jani, Yash; Bijoy Shah; Susan Boiko

Background: Pediatric atopic dermatitis (AD) has long been managed with topical agents and intermittent systemic corticosteroids, an approach that frequently yields incomplete disease control, recurrent flares, and ongoing caregiver burden. The emergence of targeted immunomodulatory therapies has reshaped this landscape, offering the prospect of more precise, durable, and steroid-sparing disease control. As additional agents enter pediatric practice, clinicians must balance efficacy, age-based approvals, route of administration, monitoring requirements, and safety considerations. This review synthesizes current evidence to clarify how clinicians might sequence and select among emerging biologic and JAK-inhibitor therapies in pediatric AD.Objective: To characterize the shift from corticosteroid-based management to precision immunotherapy in pediatric AD, with attention to

therapeutic efficacy, safety, and the evolving treatment paradigm.Methods: We performed a narrative review of English-language clinical trials, guideline updates, and real-world studies published between 2000 and 2026 in pediatric populations, emphasizing systemic and targeted therapies relevant to moderate-to-severe disease.Results: Biologic therapy with dupilumab has demonstrated substantial improvements in disease severity, pruritus, sleep disruption, and quality-of-life, with a favorable safety profile across pediatric age-groups. Emerging biologics targeting type 2 inflammatory pathways may further expand therapeutic options. JAK inhibitors achieve rapid symptom control with high efficacy, although long-term safety data continue to mature and require careful patient selection and monitoring. Systemic corticosteroids, by contrast, are limited by transient benefit, high relapse rates, and significant side-effects associated with repeated/prolonged use, including growth, adrenal, and metabolic disturbance. Despite therapeutic advances, access-barriers, cost, insurance constraints, limited specialist availability, and care disparities continue limiting the widespread adoption of targeted therapies.Conclusions: Pediatric AD management is undergoing a paradigm shift toward precision, mechanism-driven therapy. While biologics and JAK inhibitors confer substantial clinical benefit, their optimal integration into practice will require addressing access barriers, refining treatment algorithms, defining appropriate step-up and step-down strategies, and prioritizing long-term safety surveillance. Equitable implementation of these advances will be essential to improving outcomes for children with AD.

Geographic Disparities in Georgia's Pediatric Hospice and Palliative Medicine Physician Workforce

Presenting Author: Yash Jani, Medical College of Georgia

Poster Number: 83

Co-Authors: Jani, Yash; Lee, Katherine; and Brock, Katharine

Background: Pediatric hospice and palliative medicine provides symptom management, psychosocial support, complex decision-making assistance, and end-of-life care for children with serious illness. Access may be limited outside major children's hospitals and academic referral centers. This study evaluated county-level distribution of pediatric Hospice and Palliative Medicine (HPM) physicians across Georgia and characterized rural–urban disparities in workforce availability.MethodsCounty-level counts of physicians aged 70 years or younger currently certified in HPM by the American Board of Pediatrics were obtained from the 2025 Pediatrician State and County Data. County child population and median household income came from the 2024 American Community Survey, and rural population estimates came from the 2020 US Census. Counties were classified using 2023 Rural–Urban Continuum Codes as metropolitan (1–3) or nonmetropolitan (4–9). Physician density was calculated per 100,000 children younger than 18 years. Workforce distribution was summarized by county and rural–urban status.ResultsOnly 15 certified pediatric HPM physicians were identified across Georgia's 159 counties, corresponding to 0.59 physicians per 100,000 children statewide. All 15 were located in metropolitan counties, yielding a metropolitan density of 0.70 per 100,000 children. No certified pediatric HPM physicians were identified across Georgia's 85 nonmetropolitan counties, which collectively included

402,232 children.Physicians were present in only 7 counties (4.4%), leaving 152 counties (95.6%) without a local pediatric HPM physician. Fulton and DeKalb Counties contained 10 physicians, accounting for 66.7% of the statewide workforce. Bibb, Chatham, Cobb, Dawson, and Richmond counties each contained 1 physician. This clustering was consistent with concentration near tertiary pediatric hospitals and academic referral centers; however, county-level certification data did not confirm institutional employment.ConclusionsGeorgia's pediatric HPM workforce is extremely limited and geographically concentrated. Nearly all counties, including every nonmetropolitan county, lacked a local pediatric HPM physician. Although tertiary centers support specialized palliative care programs, their concentration may require rural families to travel long distances. Regional hub-and-spoke partnerships, Project ECHO, telepalliative care, outreach clinics, shared-care protocols, and palliative-care training for rural clinicians may improve access for children with serious illness throughout Georgia.

Geographic Inequities in Georgia's General Pediatrician Workforce

Presenting Author: Yash Jani, Medical College of Georgia

Poster Number: 84

Co-Authors: Jani, Yash; Dave, Rachna; and Rice, Zakiya Pressley

Background: Timely pediatric care supports preventive services, developmental surveillance, and chronic illness management. However, pediatricians remain unevenly distributed, leaving many rural communities without local care. This study evaluated county-level distribution of board-certified general pediatricians across Georgia and quantified rural-urban disparities in availability and practice-location density.MethodsCounty-level counts of board-certified general pediatricians aged 70 years or younger were obtained from the American Board of Pediatrics 2025 Pediatrician State and County Data; subspecialists were excluded. County child population, median household income, rural population, and land area were obtained from the 2024 American Community Survey, 2020 United States Census, and Census Gazetteer files. Counties were classified using 2023 Rural–Urban Continuum Codes as metropolitan or nonmetropolitan.National Plan and Provider Enumeration System data identified Georgia pediatric physicians and unique practice locations. Pediatrician density was calculated per 100,000 children, and practice-location density per 100 square miles. Mann-Whitney U and Kruskal-Wallis tests compared metropolitan, nonmetropolitan, and rurality-code categories.ResultsOverall, 1,792 board-certified general pediatricians were identified across Georgia's 159 counties. Most pediatricians were in metropolitan counties: 1,670 of 1,792 physicians (93.2%) served metropolitan counties containing 2,139,266 children. In contrast,122 physicians (6.8%) served nonmetropolitan counties containing 402,232 children.Forty-three of 85 nonmetropolitan counties (50.6%) had no pediatrician, compared to 21 of 74 metropolitan counties (28.4%). Mean pediatrician density was higher in metropolitan than nonmetropolitan counties: 40.37 versus 21.18 per 100,000 children ($P = .004$). Density also differed across all nine Rural–Urban Continuum Code categories ($H = 27.52$; $P < .001$). Among the 50 most rural counties, 37 (74.0%) had no pediatrician despite collectively containing 114,770 children.The practice-location analysis identified 150 unique pediatric practice locations. Of these, 145 (96.7%) were

in metropolitan counties and only 5 (3.3%) were in nonmetropolitan counties. Eighty nonmetropolitan counties (94.1%) had no identifiable pediatric practice location.ConclusionsGeorgia's general pediatric workforce is highly concentrated in metropolitan counties, leaving many rural communities with limited local pediatrician availability and few identifiable practice sites. Targeted rural recruitment, expanded pediatric training pathways, telehealth-supported care, and stronger integration of family physicians and pediatric-trained advanced practice providers may improve equitable pediatric access statewide.

High Supply, Unequal Access: Rural Gaps in Florida's General Pediatrician Workforce

Presenting Author: Yash Jani, Medical College of Georgia

Poster Number: 85

Co-Authors: Jani, Yash; Shah, Bijoy; Rice, Zakiya Pressley

Background: Florida has a large general pediatrician workforce, but statewide totals may obscure whether pediatric care is geographically accessible outside major metropolitan centers. This study evaluated county-level distribution of currently certified general pediatricians across Florida and examined whether overall workforce supply translates into equitable rural access.MethodsCounty-level counts of currently certified general pediatricians aged 70 years or younger were obtained from the American Board of Pediatrics 2025 Pediatrician State and County Data. General pediatricians included physicians certified in general pediatrics alone or additionally certified in another American Board of Medical Specialties discipline; pediatric subspecialists were excluded. County child-population estimates came from the same dataset. Counties were classified using 2023 Rural–Urban Continuum Codes as metropolitan (1–3) or nonmetropolitan (4–9). Pediatrician density was calculated per 100,000 children younger than 18 years. Mann–Whitney U and Kruskal–Wallis tests compared metropolitan/nonmetropolitan counties and RUCC categories.ResultsFlorida had 3,211 currently certified general pediatricians serving 4,380,843 children across 67 counties. Despite this large workforce, 3,181 pediatricians (99.1%) practiced in metropolitan counties, while only 30 (0.9%) practiced across 22 nonmetropolitan counties containing 135,434 children. Ten nonmetropolitan counties (45.5%) had no general pediatrician, compared with 5 metropolitan counties (11.1%). Mean county-level pediatrician density was more than threefold higher in metropolitan than nonmetropolitan counties (57.96 ± 42.09 vs 16.52 ± 19.20 per 100,000 children; $P < .001$). Density also differed across RUCC categories ($H = 24.35$; $P < .001$), demonstrating a rurality gradient. Among RUCC 8–9 counties, 9 of 11 (81.8%) had no general pediatrician; collectively, these counties contained 28,779 children but only 2 pediatricians, or 6.95 per 100,000 children. Metropolitan concentration was also marked: seven counties contained 2,054 pediatricians, representing 64.0% of the statewide workforce.ConclusionFlorida's large pediatrician workforce is overwhelmingly metropolitan and does not ensure equitable rural access. Statewide supply may mask substantial rural workforce gaps. Targeted rural recruitment, distributed pediatric training, regional outreach, telehealth-supported care, and support for family physicians caring for children may improve access.

Standardizing Bereavement Support After Pediatric Cancer Death: A Longitudinal Quality Improvement Initiative

Presenting Author: Yash Jani, Medical College of Georgia

Poster Number: 86

Co-Authors: Jani, Yash; Lange, Anna; Lee, Katherine; Radbill, Linda; and Brock, Katharine

Background: Bereavement care is recommended as a core component of support after a child dies from cancer, yet delivery remains inconsistent across pediatric oncology programs. National data show that only 69% of Children's Oncology Group centers report sending condolence cards and 50% report making bereavement phone calls after a child's death. Few institutions have published longitudinal data describing implementation and delivery of multi-component bereavement programs.Methods:We conducted a retrospective descriptive analysis of bereavement outreach within an outpatient pediatric palliative oncology program from 2017 to 2026 using an iterative quality improvement framework. Bereavement program components and end-of-life characteristics were tracked in REDCap. We summarized program evolution, annual completion rates among eligible families, and timing of outreach after death.Results:The cohort included 403 deceased pediatric oncology patients followed by the outpatient pediatric palliative oncology program. Patients were 54% male; 51% White, 41% Black, and 15% Hispanic/Latino; 50% were Medicaid-insured. Median age at death was 13.5 years. Diagnoses included solid tumors (42%), brain tumors (39%), and leukemia/lymphoma (16%); 70% were enrolled in hospice. During the pre-standardization period from 2017 to 2019, bereavement phone calls were the only tracked activity, with annual completion rates of 74–81%. Beginning in 2020, the program expanded sequentially to include standardized bereavement calls, initial condolence cards, first-anniversary cards, 3–4 month bereavement resource packets, holiday cards, and age-appropriate books. By 2022–2025, annual completion rates reached 93–100% for most eligible components. Bereavement phone calls and initial condolence cards occurred at a median of 6 days after death (IQR 4–10), resource packets at 96 days (IQR 84–108), and first-anniversary cards at 358 days (IQR 350–365).Conclusions:A structured bereavement program developed through iterative quality improvement achieved high and sustained delivery of multi-component support across a diverse pediatric oncology cohort. This stepwise model and accompanying data-tracking process may offer a practical framework for institutions seeking to standardize bereavement care. Future work should incorporate bereaved family feedback to assess perceived impact, communication preferences, and unmet needs.

The Pressure Injury Prevention System (PIPS): Addressing the Scourge of Pressure Injury

Presenting Author: Sundaresan Jayaraman, Georgia Institute of Technology

Poster Number: 87

Co-Authors: Park, Sungmee; Sriuma, Adarsh; Subhash, Mithun; Abeln, Katelyn; Taliaferro, India; Stockwell, Jana; Paden, Matthew; Iyer, Srikant; and JAYARAMAN, SUNDARESAN

Background: A major challenges for babies in PICUs is the occurrence of a pressure injury. A pressure injury (PI) "is localized damage to the skin and underlying soft tissue usually over a bony prominence or related to a medical or other device." The injury results from intense and/or prolonged pressure or pressure in combination with shear and moisture. PI is a "never event" and US hospitals are not reimbursed by insurance for the annual cost of hospital-acquired PI estimated to be $26.8billion. The Need: The current practice is to reposition the baby every two hours to relieve the constant pressure at the contact points. There is a critical need to transition from subjective evaluation of skin areas at risk of developing a PI to a technology-driven methodology based on real-time data acquisition as well as long-term benefit of developing risk assessment criteria. Methods: The pressure injury prevention system (PIPS) comprises fabric-based sensing networks for simultaneously monitoring pressure and moisture unobtrusively at the surface contact points between the baby and the mattress in the crib, signal processing hardware and firmware, knowledge processing software incorporating machine learning, and an App for pressure and moisture heatmap visualization along with the recommended personalized intervention action to be taken by the caregiver to prevent the occurrence of a PI. The CHOA and Georgia Tech IRBs approved the protocol to conduct a Clinical Pilot in the PICU@CHOA for 24 babies between 12 weeks and 25 months Results: . The ongoing Pilot involving 17 babies to-date has successfully demonstrated the realization of an unobtrusive platform for continuously acquiring pressure and moisture data in real time. Over four billion pressure sensor data have been acquired during 4,600 hours of continuous monitoring. PIPS has been seamlessly integrated into the hectic workflow in the PICU without any changes to caregiving practices. Conclusions: The Clinical Pilot has demonstrated the safety, functionality, usability, reusability, and reliability of PIPS to address the critical issue of pressure injuries in pediatric ICUS thereby laying the foundation for facilitating the transition from human vigilance to data-driven evidence-based personalized intervention to prevent pressure injuries.

Imaging and Clinical Phenotypes of Pediatric MASLD Using Quantitative MRI

Presenting Author: Gregory Jordan, Children's Healthcare of Atlanta

Poster Number: 88

Co-Authors: Jordan, Gregory; Nisseau-Bey, Zhuri; Welsh, Jean; Krupinski, Elizabeth Anne; Khanna, Geetika; and Alazraki, Adina

Background: Metabolic dysfunction-associated steatotic liver disease (MASLD) is now the most common cause of chronic liver disease in children. MRI proton density fat fraction (PDFF) and MR elastography (MRE) are increasingly used together, but their joint behavior and relationship to clinical markers in pediatric MASLD are not well defined. Purpose: To assess relationships between hepatic fat (PDFF), liver stiffness (MRE), and clinical/laboratory markers in children with obesity and features of metabolic syndrome, and to characterize combined fat–stiffness imaging phenotypes. Materials & Methods: This

single-center retrospective study (2017–2025) included patients <20 years who underwent same-session liver MRI with PDFF and MRE. Secondary liver diseases were excluded, yielding 82 patients (mean age 13.4 years). PDFF (%) and liver stiffness (kPa) were quantified using standardized protocols. Elevated PDFF was defined as >5% and elevated stiffness as >2.8 kPa, generating four phenotypes: Fat-/Stiff-, Fat+/Stiff-, Fat+/Stiff+, Fat-/Stiff+. BMI z-score, ALT, AST, platelets, GGT, and HbA1c within 3 months of MRI were recorded. Associations were evaluated with Pearson correlations. Results: Complete PDFF–MRE data were available in 75/82 patients. Mean PDFF was 14.7% and mean stiffness 2.68 kPa. Elevated PDFF occurred in 89.3% (67/75) and elevated stiffness in 28.0% (21/75). PDFF and stiffness were not significantly correlated (r=0.04, p=0.76). Phenotypes: 14 Fat-/Stiff-, 46 Fat+/Stiff-, 16 Fat+/Stiff+, 0 Fat-/Stiff+. PDFF correlated with GGT (r=0.31, p=0.01) and HbA1c (r=0.38, p=0.01). Stiffness correlated with BMI z-score (r=0.28, p=0.01), ALT (r=0.45), AST (r=0.53) (both p<0.0001), and inversely with platelets (r=–0.30, p=0.02). Conclusion: PDFF and MRE stiffness capture distinct aspects of pediatric MASLD: PDFF reflects metabolic dysfunction, whereas stiffness reflects hepatocellular injury and fibrosis risk, supporting their complementary clinical use.

Validation of Ultrasound Guided Attenuation Parameter Against MRI Proton Density Fat Fraction and BMI in a Pediatric Cohort

Presenting Author: Gregory Jordan, Children's Healthcare of Atlanta

Poster Number: 89

Co-Authors: Jodan, Gregory; Gagnon, Marie-Helene; Parikh, Ashishkumar Kanaiyalal; Linam, Leann Eggers; and Khanna, Geetika

Background: Metabolic dysfunction-associated steatotic liver disease (MASLD) is now the most common cause of chronic liver disease in children, paralleling the rise in pediatric obesity. Noninvasive, cost-effective methods to quantify hepatic fat are needed, as MRI-based fat assessment can be resource and time intensive.The goal of our study is to evaluate the association between ultrasound-guided attenuation parameter (UGAP) and MRI proton density fat fraction (PDFF) in pediatric patients undergoing routine clinical imaging, and to assess the association between BMI z-score and UGAP.MethodsThis retrospective cross-sectional study included patients younger than 20 years who underwent abdominal ultrasound with UGAP and abdominal MRI with LiverLab PDFF within 30 days. Eligible pairs were identified using Epic SlicerDicer and de-identified for analysis. When multiple eligible exam pairs were present for a patient, the closest pair was used. UGAP median (dB/cm/MHz), PDFF percent, and BMI z-score (when available) were abstracted from clinical reports or stored images. One patient with a hepatic tumor noted to potentially confound UGAP interpretation was excluded. Associations were assessed using Pearson and Spearman correlation. A sensitivity analysis included all paired exams regardless of interval.ResultsAfter exclusion of the tumor case, 14 patients had paired UGAP and PDFF values available and 12 met the within 30-day criteria. In the within-30-day cohort (n=12), UGAP showed a strong positive association with PDFF (Pearson r=0.90; Spearman rho=0.70). In sensitivity analysis including all paired exams regardless of interval (n=14), the association remained

positive (Pearson r=0.81; Spearman rho=0.54). UGAP was positively associated with BMI z-score in the within-30-day cohort (Spearman rho=0.66; p=0.019).ConclusionsIn this preliminary pediatric clinical cohort, UGAP showed a strong positive association with MRI PDFF and a positive association with BMI z-score. These findings support UGAP as a quantitative ultrasound marker of hepatic fat in children and motivate ongoing accrual to improve precision of estimates and broaden representation across PDFF values.

Plexin-D1 is a Mechanoregulator of Sonic Hedgehog Medulloblastoma Invasion

Presenting Author: Chrystian Junqueira Alves, Emory University School of Medicine

Poster Number: 90

Co-Authors: Taylor, Arabella; Cordero, Charlie; Lin, Mandy; French, Jonathan; Kim, Daniel; Dixon, Angela; Tikunov, Andrey; Gershon, Timothy; MacDonald, Tobey; and JUNQUEIRA ALVES, CHRYSTIAN

Background: Medulloblastoma is the most common malignant pediatric brain tumor, and invasive growth into surrounding cerebellar tissue remains a major barrier to durable disease control. Sonic Hedgehog (SHH) medulloblastoma provides a strong model to investigate mechanisms of tumor invasion because its developmental origin, signaling dependencies, and mouse models are well established. Plexin-D1 is a transmembrane guidance receptor implicated in developmental patterning, migration, and tissue organization, and emerging evidence suggests that plexin signaling may also function as a mechanosensitive pathway linking extracellular cues to cytoskeletal remodeling and cell invasion. However, the role of Plexin-D1 in medulloblastoma progression and local invasion remains poorly understood.Methods: We combined transcriptomic analysis, confocal tissue imaging, and engineered invasion models to evaluate Plexin-D1 in SHH medulloblastoma. Human medulloblastoma datasets were analyzed for PLXND1 expression across molecular subgroups, while mouse single-cell data were used to define Plxnd1 expression across tumor and microenvironmental populations. Plexin-D1 localization was assessed by confocal immunofluorescence in SHH medulloblastoma tissue, including invasive and adjacent non-tumor cerebellar regions. Functionally, matched PLXND1 loss- and gain-of-function human SHH medulloblastoma cells were tested in confined-migration microchannels and human brain tumor-assembloid invasion models.Results: Preliminary analyses show that PLXND1 is broadly expressed across human medulloblastoma subgroups, with the highest expression observed in SHH medulloblastoma. Single-cell transcriptomic analysis further indicates that Plxnd1 is enriched not only in proliferating tumor cells, but also in multiple tumor-microenvironmental populations, including endothelial, immune, astrocytic, and fibroblast-like cells. Consistent with these transcriptomic findings, confocal imaging of SHH medulloblastoma tissue revealed prominent Plexin-D1 expression within the tumor compartment and adjacent cerebellar microenvironment, with increased signal in tumor-invasive regions compared with non-tumor cerebellar tissue. Preliminary functionally analysis using engineered neural invasion systems, we found that PLXND1 loss-of-function in SHH medulloblastoma cells reduced invasion through microchannel devices and impaired tissue infiltration in human brain assembloids. Together, these preliminary data support a role for Plexin-D1 in promoting SHH medulloblastoma invasion and tumor–

microenvironment interactions.Conclusion: Together, these preliminary findings identify Plexin-D1 as a candidate regulator of SHH medulloblastoma invasion and tumor–microenvironment interactions. By linking tumor-intrinsic invasive behavior with adaptation to mechanically restrictive neural tissue, these data support Plexin-D1 as a potential mediator of local infiltration and medulloblastoma progression.

A Two-Year Surge of Parvovirus B19 Infection in Children with Sickle Cell Disease

Presenting Author: Grace Kalmus, Children's Healthcare of Atlanta

Poster Number: 91

Co-Authors: KALMUS, GRACE; Yee, Marianne; Patel, Ashwin; Tang, Amy; Payne, Jason; and Gee, Beatrice

Background: Parvovirus B19 (B19) is a respiratory infection that can cause aplastic crisis in children with sickle cell disease (SCD), leading to severe anemia. Outbreaks of B19 typically occur every three to four years. In late 2023, hematologists at Children's Healthcare of Atlanta (CHOA) observed an increase of B19 in SCD patients, prompting further investigation. MethodsPatients were identified via a comprehensive database of all SCD patients seen at CHOA, and B19 tests between 2010 – 2025 were identified within the electronic medical record (Epic). A positive test was defined as IgM ≥0.91 IV or PCR >199 IU/mL. Incidence of B19 in SCD patients was calculated for peak years, and demographic comparisons were made between the current cluster (Dec 2023–Dec 2025) and previous years (Jan 2010–Nov 2023). Clinical outcomes were described for 2024 cases. ResultsBetween 2010 and 2025, 362 cases of B19 were diagnosed among 4,824 patients with SCD, with clusters in 2014 (33 cases), 2019 (30 cases), and the current period (2024: 76 cases, 2025: 82 cases). Only four cases were diagnosed between March 2020 and November 2023. The incidence of B19 was significantly higher in 2024 (36.9 cases/1000 PY) and 2025 (41.6 cases/1000 PY) compared to 2014 (18.9 cases/1000 PY) or 2019 (14.9 cases/PY), ($p<0.001$). The proportion of patients tested was higher in 2024–2025 (10%) compared to previous clusters (4% in 2014). Compared to previous years, current cases were older at diagnosis (median age: 7.6 yrs vs. 9.5 yrs; $p <0.001$). Presenting symptoms in 2024 included pain (76%), fever (61%), fatigue (33%), and respiratory symptoms (28%). Nearly all (96%) were hospitalized, 82% required blood transfusion and 18% required intensive care. The median drop in hemoglobin from baseline was 3.9 g/dL (IQR: 3.0 – 4.7).ConclusionIncreases in parvovirus B19 infections among pediatric patients with SCD began in late 2023, with continued heightened activity through 2025. Many patients experienced severe disease requiring medical intervention. The rise in cases may be due to lessened immunity in children from reduced exposure to B19 during the COVID-19 years. Enhanced surveillance and provider awareness are essential for identifying B19 and initiating timely therapies.

Patterns of Clinical Trial Availability and Enrollment in Adolescents and Young Adults with Hodgkin Lymphoma at Affiliated Pediatric and Adult Cancer Centers

Presenting Author: Jacqueline Karpowicz, Emory University

Poster Number: 92

Co-Authors: Karpowicz, Jacqueline; Muñiz, Joshua; Khanna-Farber, Anjali; Hawk, Ashleigh; Lee, Katie; Ji, Xu; Bergsagel, Daniel; Fridlyand, Diana; Scheurer, Michael; Allen, Pamela; Koff, Jean; Blum, Kristie; Arellano, Martha; and Castellino, Sharon

Background: Adolescent and young adults (AYA; ages 15-39) have lower clinical trial enrollment rates compared to younger pediatric patients. Contributing factors may include institutional practices, differences in trial availability between pediatric and adult centers, and social determinants of health. However, limited data exist on how trial availability across treatment centers influences clinical trial enrollment among AYA patients. Methods: We identified a retrospective cohort of 407 AYA patients with newly diagnosed Hodgkin Lymphoma (HL) who presented to our affiliated institutions between 2010-2023. Institutional review board records from Children's Healthcare of Atlanta (CHOA) and Winship Cancer Institute were queried to determine availability of therapeutic frontline HL trials during the study period. Among newly diagnosed AYA patients for whom a frontline clinical trial was open at diagnosis and for which they were trial-eligible (n=100), we examined patient characteristics associated with trial enrollment. Results: At CHOA, 6 frontline trials were open at some point during the study period, depending on cancer subtype and trial open/closure dates; there were no trials for early-stage HL between 2011-2019 and none for advanced-stage HL between 2012-2015. At Winship, 4 frontline trials were open during the study period; there were extended periods lacking any frontline trials (2010-2011, 2013-2018). Among the 407 AYA patients identified, 280 (68.8%) received frontline therapy at either center. Across both institutions, 100 patients (35.7%) were eligible for an open frontline clinical trial. Of these, 25% enrolled in a trial (21.6% at Winship, 28.6% at CHOA). CHOA (vs. Winship) cared for a higher proportion of publicly insured patients (52.6% vs 19.6%, $p<0.01$) and Hispanic patients (22.4% vs. 2.0%, $p=0.02$). Trial enrollment did not differ by age, sex, insurance type, or race/ethnicity. Conclusions: Among AYA patients with HL, clinical trial availability differed by treatment center. However, there were no differences in trial enrollment by treatment center or patient characteristics. These findings highlight the importance of improving consistent and equitable trial availability for AYA patients across pediatric and adult centers. Ongoing work will extend this analysis to other hematologic malignancies in both the frontline and relapsed/refractory settings as part of a cross-system AYA program development.

Interventions for Improving HIV Pre-Exposure Prophylaxis Across the Care Continuum Among Adolescents and Young Adults: A Systematic Review

Presenting Author: Ashlyn Karr, University of Alabama at Birmingham

Poster Number: 93

Co-Authors: REHMAN, SABRINA; KARR, ASHLYN; White, Mia S.; Hill, Samantha V.; and Cooper, Jacinta

Background: United States (U.S.) adolescents and young adults (AYA) ages 13 to 24 accounted for 18% of reported new HIV infections in 2023. Preventing new HIV among AYA infections is critical to reducing HIV incidence. Yet HIV pre-exposure prophylaxis (PrEP) is underutilized by AYA due to limited knowledge of

and access to PrEP, challenges with self-assessment of risk, misinformation, costs, and confidentiality. This systematic review aims to evaluate current research interventions for AYA PrEP uptake and adherence.Methods:We conducted a systematic review focused on AYA PrEP uptake and adherence focused on intervention studies with U.S. HIV-negative AYA age 25 years or younger from 2019-2025. The outcomes were PrEP interest, PrEP uptake, PrEP adherence, and PrEP retention in care. A meta-analysis was not conducted given the range of uptake and adherence outcomes.Results:Thirteen studies were identified, including findings from two published abstracts. Measured outcomes included PrEP interest (N=1), uptake (N=10), adherence (N=5), and retention in care (N=0). Individual counseling sessions (N=3) increased PrEP uptake. Digital pill ingestion monitoring (N=1) increased PrEP adherence. Eight studies (62%) did not show significant changes in PrEP outcomes. Six of the eight studies (75%) failing to show significance primarily provided education to participants, including teaching sessions and mobile app-based resources.Conclusions:This review revealed few studies focus on crucial steps in PrEP use to decrease AYA HIV incidence. Specifically, education-focused interventions may be less effective. Further research is needed on interventions on PrEP uptake, adherence, and retention among U.S. AYA.

Generalized Neonatal Edema: An Atypical Presentation of Williams Syndrome with a Small 7q11.23 Deletion

Presenting Author: Sarah Khan, Morehouse School of Medicine

Poster Number: 94

Co-Authors: KHAN, SARAH; Li, Mirandy; and Cooper, Jacinta

Bakcground: Williams syndrome (WS) is a rare multisystem neurodevelopmental disorder caused by a heterozygous microdeletion at chromosome 7q11.23, typically spanning 1.55–1.83 Mb and encompassing 25–27 genes. It is classically characterized by distinctive facial features, cardiovascular anomalies (most notably supravalvar aortic stenosis), connective tissue abnormalities, developmental delay, intellectual disability, and a hypersocial behavioral phenotype. While neonatal hypercalcemia and cardiac defects are common early findings, generalized neonatal edema is not well described. Smaller deletions (<1.55 Mb) are less frequently recognized and may be associated with atypical or milder presentations. Case Presentation: We report a 25-day-old male presenting with progressive generalized edema. Physical examination demonstrated diffuse swelling involving the face, abdomen, scrotum, and extremities, resulting in a buried penis, nonpalpable testes, and a reducible umbilical hernia, with otherwise stable vitals and normal feeding. He was born at term following a high-risk pregnancy complicated by severe polyhydramnios, transient intrauterine growth restriction, and right hydronephrosis. Postnatally, edema progressed from the lower extremities to a generalized distribution. Extensive renal, hepatic, cardiac, and metabolic evaluations were unrevealing. Echocardiography revealed mild branch pulmonary artery stenosis and hypoplastic pulmonary arteries without significant functional impairment or supravalvar aortic involvement. Although insufficient to explain the edema, these findings raised concern for an elastin-related arteriopathy. Despite normal calcium levels, the constellation of persistent edema, subtle dysmorphic features, prenatal anomalies, and mild cardiac

findings prompted genetic testing. Chromosomal microarray revealed a 1.4 Mb deletion at 7q11.23, confirming the diagnosis of WS.Discussion:This case highlights generalized neonatal edema as an unusual presenting feature of WS associated with a smaller-than-typical deletion. The absence of hallmark features such as hypercalcemia or significant cardiac disease, along with only subtle dysmorphism, may obscure early recognition. This case expands the phenotypic spectrum of WS, and underscores the variability seen in patients with smaller atypical deletions.Conclusion: Clinicians should maintain a high index of suspicion for genetic conditions, including WS, in neonates with persistent, unexplained edema after common etiologies have been excluded. Early use of chromosomal microarray (CMA) can facilitate prompt diagnosis, enable anticipatory monitoring for cardiovascular and developmental complications, and support timely coordinated multidisciplinary care and family counseling.

Bidirectional Associations Between Functional Network Connectivity and Risky Behavior Across Adolescence

Presenting Author: Doh Ye (Doye) Kim, Georgia State University

Poster Number: 95

Co-Authors: Kim, Doh Ye (Doye); Kotoski, Aline; Calhoun, Vince ;and Dai, Junqiang (Jacob)

Background: Adolescence is marked by increased risk taking, drastic neurodevelopment, and heightened neuroplasticity (Dahl, 2004). A large literature has linked functional brains to adolescents' risky behaviors, often emphasizing the importance of the developing brain (Steinberg, 2008). Although valuable, this approach may not fully capture the developmental complexity of adolescence. Adolescents are not passive recipients of external stimuli but also active agents whose behaviors and social experiences also shape the developing brain. Adopting a transactional and dynamic perspective, we argue that risk-related behavior itself shapes brain development through experience-dependent neuroplasticity. To empirically test this possibility, we used random intercept cross-lagged panel models (RI-CLPM) to examine bidirectional associations between externalizing behavior and functional network connectivity (FNC) across time. Our approach provides a compelling test of whether changes in FNC predict subsequent behavior, whether behavior predicts later changes in FNC, or if both processes occur simultaneously. Method: Participants included 2,044 adolescents from the ABCD Study assessed at baseline (ages 9–10) and at 2, 4, and 6-year follow-ups. Resting-state FNC was derived from the NeuroMark framework, with 53 independent components grouped into seven functional domains, yielding 1,378 FNC pairs. Externalizing behavior was assessed via the parent-reported CBCL Externalizing scale. Separate RI-CLPMs were estimated for each FNC vector, adjusting for sex, race/ethnicity, and scanner manufacturer, multiple comparisons corrected using FDR. Results: We found significant reciprocal associations between externalizing behavior and FNC, with the most consistent effects involving subcortical connections with cognitive control, sensorimotor, visual, and default mode networks. Specifically, higher externalizing behavior predicted stronger subsequent functional connectivity from Wave 1 to Wave 2, which in turn predicted higher externalizing behavior at Wave 3.

This pattern was primarily observed for Subcortical network connections with Cognitive Control regions, including the insula, inferior frontal gyrus, and middle frontal gyrus, as well as a putamen–postcentral gyrus connection within the Subcortical–Sensorimotor circuit. Conclusion: Our findings indicate that the brain-behavior relationship is not unidirectional during adolescence, contrary to frameworks positioning the brain solely as a precursor to behavior. Adolescent brain-behavior development may thus be explained better by the dynamic and transactional approach, rather than the predominant unidirectional narrative.

ECHO Autism in Primary Care: Building Georgia's Diagnostic Workforce

Presenting Author: Justin Kim, Emory University

Poster Number: 96

Co-Authors: KIM, JUSTIN; Gonzalez Laca, Alexa; Ransom, Lyric; Zubler, Jennifer; Schwartz, Allison; Nelson, Natasha; Booth, Chris; Constantino, John; and Kuhn, Jocelyn

Background: Early identification of autism allows timely access to services that can improve a child's developmental trajectory. Despite the ability to reliably diagnose autism in children as young as 15 months old, the average age of diagnosis in the U.S. exceeds 4 years. Delays reflect a growing mismatch between the number of children needing evaluation and the availability of qualified clinicians. Extension for Community Healthcare Outcomes (ECHO) Autism: Primary Care Early Diagnosis is an evidence-based program designed to train primary care providers (PCPs) to conduct developmental screening, diagnose children 14–48 months old with unambiguous autism characteristics, and provide longitudinal care to patients on the autism spectrum. Methods: We launched the program in 2025 with a first cohort of 19 Georgia-based physicians and nurse practitioners. PCPs completed a two-day in-person training on administering the Screening Tool for Autism in Toddlers and Young Children (STAT), achieved reliability on the instrument, and attended virtual ECHO sessions twice monthly. At each session, a PCP presented a case, and our interdisciplinary hub team guided the diagnostic process, decision, and recommendations. Self-report surveys measured PCP self-efficacy, autism knowledge, and perceived barriers at baseline (February 2025) and post-program completion (February 2026). Results: Pre- to post-program comparisons showed increased self-efficacy across all seven measured autism-related clinical domains, including "Screening and Referrals" (28% ↑) and "Supporting Families and Autism" (31% ↑). PCPs also reported reduced perceived barriers to providing care, including "Limited opportunities for training" (53% ↓), "Limited confidence to serve autistic individuals" (42% ↓), and "Lack of ability to access autism specialist" (22% ↓). Conclusion: ECHO Autism: Primary Care Early Diagnosis represents a meaningful addition to Georgia's broader efforts to strengthen workforce capacity for children with developmental disabilities. Cohort 1 data demonstrated substantial reductions in barriers to care, improvements in PCP self-efficacy across all measured domains, and positive changes to professional practice. These findings will inform future program development as we continue to expand access to high-quality autism services for families across the state.

QUASS-Enhanced AREX Reduces T1-Related Variability in Pediatric Brain Tumor CEST MRI

Presenting Author: Hahnsung Kim, Department of Radiology and Imaging Sciences, Emory University School of Medicine

Poster Number: 97

Co-Authors: Kim,Hahnsung Kim; Goldman-Yassen, Adam; Jones, Richard; Philbrook, Phaethon; Aguilera, Dolly; Chern, Joshua; Sun, Phillip

Background: Chemical exchange saturation transfer (CEST) MRI is sensitive to dilute metabolites and mobile proteins/peptides but remains sensitive to tissue T1 and the acquisition protocol in clinical settings [1]. Pediatric brain tumors often exhibit substantial heterogeneity, which may limit the robustness of CEST MRI measurements [2]. This study evaluated whether quasi-steady-state (QUASS) reconstruction of the apparent exchange-dependent relaxation (AREX) reduces T1-related variability in pediatric brain tumors.Methods and MaterialsPediatric brain tumor patients underwent multi-slice 3T CEST MRI using RF saturation at B1 = 0.7 μT with a saturation time of 1.5 s. Lesion regions of interest were manually defined on representative slices. Mean lesion values were calculated after exclusion of non-finite values and outlier voxels exceeding two standard deviations within each ROI. Conventional and QUASS-corrected amide (3.5 ppm) CEST metrics, including APTw, CESTR, and AREX, were evaluated. APTw was the conventional MTR asymmetry, and CESTR was defined as the difference between the fitted reference spectrum and measured Z-spectrum (CESTR = Zref − Zlab). Associations between lesion T1 and each metric were assessed using Pearson correlation and linear regression. Exploratory receiver operating characteristic (ROC) analysis was additionally performed for low- versus high-grade lesion discrimination.ResultsRoutine AREX demonstrated modest association with T1 ($r = -0.53$, $p = 0.075$), whereas QUASS-reconstructed AREX demonstrated reduced and non-significant association with T1 ($r = -0.30$, $p = 0.35$). CESTR metrics showed relatively weak associations with T1 ($|r| < 0.25$). Across the cohort, QUASS correction reduced apparent relaxation-related variability while preserving lesion contrast. Exploratory low- versus high-grade discrimination performance was modest across metrics (AUC range: 0.54–0.69), likely limited by small cohort size and tumor heterogeneity.ConclusionsQUASS-reconstructed AREX reduced apparent T1-related variability in pediatric brain tumor CEST MRI. The findings support the potential clinical utility of QUASS-enhanced CEST imaging of pediatric brain tumors.
References[1] Zhou J et al. Review and consensus recommendations on clinical APT-weighted imaging approaches at 3T: Application to brain tumors. Magn Reson Med 2022.[2] Zhang H. Differentiation of low- and high-grade pediatric gliomas with amide proton transfer imaging: added value beyond quantitative relaxation times. Eur Radiol. 2021 Dec;31(12):9110-9119.

Starting Points: Baseline Knowledge of CP and Caregiving Strategies Among Spanish- and English-Speaking Caregivers of Infants with CP

Presenting Author: Ashley Kim, Emory University

Poster Number: 98

Co-Authors: BARAHONA, A. JOSELYN; Kim, Ashley; Perez Gomez, Emily; Castro, Daniela; Kjeldsen, Caitlin; Marra, Larken; and Nathalie Maitre

Background: Early intervention outcomes for cerebral palsy (CP), the most common neuromotor disability in childhood, improve significantly when caregivers are actively involved. While Hispanic LEP caregivers face disproportionate barriers to early intervention and show lower baseline awareness of developmental disabilities, our previous work shows they are highly motivated to support their child's development at home. This paradox motivated our evaluation of their baseline knowledge of CP and caregiving strategies, a critical step to effectively equip families to manage interventions at home. Methods: Caregivers of infants with CP in a randomized trial of a parent-administered intervention completed a baseline questionnaire based on the International Classification of Functioning Framework (WHO, 2006) across five domains: Body Systems (CP knowledge), Activity (how babies learn), Environment (daily routines), Participation (positive parenting strategies), and Personal Factors (self-care). Each Spanish-preferring caregiver was matched on education level and child's corrected age with two English-speaking caregivers. Because of the small sample and unequal group sizes, between-group comparisons were evaluated using Mann-Whitney U tests, and effect sizes were quantified using rank-biserial correlation.Results: A total of 21 participants were included, with 7 in the Spanish group and 14 in the English group. Across most domains, the English group showed higher scores than the Spanish group. The clearest difference was observed for Environment, where English-speaking caregivers had a higher mean score than Spanish-speaking ones (9.14 ± 0.77 vs 7.00 ± 2.52), ($p = 0.017$) with a large effect size (rank-biserial $r = -0.63$). No other variables reached statistical significance. However, several measures showed small-to-moderate between-group effects favoring the English group, including Body Systems (4.71 ± 0.49 vs 5.29 ± 0.83, $p = 0.113$, $r = -0.40$). Conclusion:Spanish-speaking caregivers begin CP interventions with a distinct baseline of knowledge. Because parenting practices are culturally grounded, these distinct scoring patterns suggest the gap may reflect differing cultural priorities rather than educational deficits. Lower scores in domains like Environment should prompt providers and researchers to align interventions with family values and priorities. Providers must leverage families' intrinsic motivation and baseline strengths to co-design culturally tailored, caregiver-implemented home interventions

Callous-Unemotional Traits, Sensation Seeking, Brain Structure, and Environmental Context in Youth with CD/ODD: Findings from the ABCD Study

Presenting Author: Tyler Klitenic, Georgia State University

Poster Number: 99

Co-Authors: KLITENIC, TYLER; Kotoski, Aline; Calhoun, Vince; and Dai, Junqiang

Background: Callous-unemotional (CU) traits represent a key dimension of conduct-related psychopathology. CU traits do not just emerge or operate in isolation during adolescence, a period

marked by changes in social contexts, neurodevelopment, and socioemotional outcomes. Yet, the relations between CU traits, environmental factors, brain development, and risk-taking behaviors remain poor understood. We investigate these relations in a clinically relevant subsample of youth from the Adolescent Brain Cognitive Development (ABCD) Study. Methods: A subset of youths (N = 363) with conduct problems and met the criteria were drawn from the ABCD Study. CU traits, sensation seeking, and environmental variables were assessed using self-report measures. The environmental variables included family, peer, and school contexts. Brain data includes cortical and subcortical regional volumes. Pearson correlation analyses were conducted to evaluate bivariate associations among CU traits, sensation seeking, environmental factors, and brain regions. Then, moderation analyses were conducted to investigate a). if the brain moderates the relation between CU traits and sensation-seeking and b). if the environmental factors moderate the relation between CU traits and the brain volume. Last, mediation analyses were conducted to test indirect effects of brain regions on the CU-sensation seeking association. Results: CU traits were positively associated with sensation seeking but not associated with environmental variables. CU traits were associated with multiple structural brain regions, particularly within frontal-striatal and limbic systems. There were no significant moderation effects. Mediation analyses indicated that the subcortical volume of both the right caudate ($p < 0.4$) and left caudate ($p < 0.03$), and total brain volume (ACME $p < 0.014$), partially accounted for the association between CU traits and sensation seeking. Conclusion: Findings suggest that CU traits and sensation are more consistently linked through neurobiological systems than through environmental factors, and the developing brain during adolescence plays a critical role.

Parent Incarceration and Associations with Unfair Discipline at School, Mental health, and Substance Use— national Youth Risk Behavior Survey, 2023

Presenting Author: Kathleen Krause, Emory University

Poster Number: 100

Co-Authors: KRAUSE, KATHLEEN; Jackson, Jalaia; Livingston-Burns, Belise; Okuizumi-Wu, Yuri; Lim, Heeju; Cardenas, Jennifer; Bell, Charles, and Welsh, Justine

Background: Among the 49.5 million high school students in the United States, nearly 7 million (14.4%), have had a parent or guardian incarcerated during their childhood— a known adverse childhood event (ACE)— and almost 10 million (19.3%) have reported receiving unfair discipline at school. The objective of this study was to 1) categorize students into four groups who had experienced both events, unfair discipline alone, parent incarceration alone, or neither, and 2) identify mental health and substance use behaviors associated with these categories. MethodsWe used the 2023 national Youth Risk Behavior Survey (N=20,103) to estimate the prevalence of high school students who fit into each category and compare estimates by race. Adjusted prevalence ratios modeled the relationship between the four incarceration/unfair discipline categories with poor mental health and substance use behaviors as the dependent variables. Results Among all students, 3.7% had experienced both events, 15.4% experienced school discipline only, 10.2% experienced parental incarceration only, and 70.7% had experienced

neither. Black students were more likely to experience both events (5.0%) as compared to White students (3.2%). Students who experienced both parent incarceration and unfair discipline had the highest risk for poor mental health (aPR=1.71, 95% CI: 1.56–1.87), persistent feelings of sadness or hopelessness (aPR=1.84, 95% CI: 1.73–1.97), binge drinking (aPR=3.88, 95% CI: 3.28–4.58), prescription opioid misuse (aPR=2.87, 95% CI: 2.44–3.39), cannabis use (aPR=2.59, 95% CI: 2.40–2.80), and vaping (aPR=2.28, 95% CI: 2.10–2.47) compared to students who experienced neither event.ConclusionThis study demonstrates that the combination of parent incarceration and unfair discipline creates a unique risk profile for U.S high school students. Students who had experienced both events were at a substantially higher risk for substance use and poor mental health outcomes compared to students who experienced neither, and importantly, 1 in 20 Black students have experienced both events. Healthcare and school systems can work together to support students and their families by 1) identifying children who have experienced parental separation due to incarceration, unfair discipline at school, or both; 2) assess their behavioral and mental health needs; 3) and provide coordinated care.

Pediatric Emergency Department Outpatient Follow-up Care After Youth Behavioral and Mental Health Crises: A Scoping Review

Presenting Author: Jalaia Jackson, Rollins School of Public Health, Emory University

Poster Number: 101

Co-Authors: Jackson, Jalaia; Krause, Kathleen; and Livingston-Burns, Belise

Background: Pediatric emergency department (ED) visits for mental and behavioral crises continue to increase in the United States. Despite national recommendations, many youths fail to engage in follow-up after discharge, at all, or within the 7-day or 30-day recommended timeframe. Objective: To conduct a scoping review to examine patient- and system-level factors associated with attending outpatient mental health appointments after ED discharge for mental health crisis among pediatric patients, including predictors of and barriers to care, as well as interventions to encourage attendance. Methods: The search was conducted using PubMed and Web of Science for studies published between 2010 and 2026 in the United States, if they examined outpatient mental health follow-up among youth discharged from an ED following a mental health-related visit, including suicidal ideation, suicide attempts, depression, or other psychiatric emergencies. Records were screened by two reviewers. Twenty studies met the inclusion criteria. Results: Follow-up rates after pediatric mental health ED visits were consistently low across studies, with approximately 29%-46% of youth receiving outpatient mental health care within 7-30 days of discharge. At the patient level, prior engagement with outpatient mental health services was the most common predictor of successful follow-up. Barriers to care included older age (15-18 years old) and identifying as a racial and ethnic minority. System-level barriers included shortages of outpatient mental health services, insurance challenges, related to access and cost, and inadequate care coordination. Intervention studies demonstrated improved linkage to care through structured discharge planning, family-based interventions, and post-discharge outreach. However, despite effectiveness, these interventions have not been widely disseminated, adopted or sustained

within their setting; therefore, lagging initiation of follow-up care remains an intractable issue. Conclusion: Although predictors, barriers, and successful interventions have been documented in the literature, timely outpatient follow-up remains inadequate for many youth, following a mental health crisis. Early and coordinated initiation of evidence-based interventions can meaningfully support crisis recovery and serve as an effective preventive strategy. Mental health screening during primary care visits and within schools has been identified as a high-priority approach to connecting children to care and improving recovery outcomes.

“At Drama Camp I Feel Safe": An Evaluation of the Impact of Drama Programming on Youth Mental Wellbeing

Presenting Author: Jessica Kubert, Emory University Rollins School of Public Health

Poster Number: 102

Co-Authors: Kubert, Jessica; Ravi, Kaushiki; Bohl, Carson; Rogers, Robyn; Anderson, Kayla; Piper, Kaitlin

Background: Youth who have experienced trauma are at increased risk for poor mental health outcomes across the lifespan. Expanding access to trauma-informed interventions is a public health priority. Theatre-based interventions have been shown to positively impact youth mental health by fostering confidence and resilience while reducing symptoms of mental disorder. However, few studies have explored the lived experiences of youth to understand how these programs promote mental well-being, particularly among racially and ethnically minoritized youth who have experienced trauma. Such insights are critical for designing culturally responsive interventions.Methods: This study evaluated a trauma-informed drama program delivered through a partnership between a local theatre company and a nonprofit serving vulnerable youth in Atlanta. Participants included students in kindergarten through 12th grade and program staff. Guided by a theory of change, data collection examined three domains: (1) creating a protected space, (2) fostering a more positive self-narrative, and (3) well-being outcomes. Younger students (K–4th grade; n = 63) participated in an interactive activity to indicate agreement with statements across these domains. Older students (5th–12th grade; n = 43) responded to these same domains using written surveys and journal entries. Semi-structured interviews were also conducted with staff (n = 16).Results: Findings aligned with the proposed theory of change, suggesting the program supported student mental well-being through multiple pathways. Students described the program as a safe, supportive environment where they could take risks, make mistakes, and express themselves without judgment. Participation in drama programming increased confidence and self-concept as students developed new skills and celebrated their accomplishments. Students also showed improved emotional expression and regulation, contributing to enhanced well-being. Staff observations reinforced these findings and highlighted the importance of arts programming in the students' lives.Conclusions: Trauma-informed arts programming is a promising strategy for promoting mental well-being among youth who have experienced trauma. Youth perspectives provide valuable insight into how these programs foster psychological safety, strengthen positive self-narratives, and build emotional skills.

Future research should examine how these processes may be implemented in other youth-serving settings (e.g., schools, sports, homes) and test the longevity of these outcomes.

Social validity of the 80% reduction criterion in the treatment of aggression

Presenting Author: Cypress Kuhnel, Children's Healthcare of Atlanta, GSU

Poster Number: 103

Co-Authors: Lloveras, Lindsay; Mutchler, Molly; Kuhnel, Cypress; Hines, Melissa; Freeman, Sarah; Hodnett, Jennifer

Background: Behavioral treatment for aggression involves measuring baseline rate of aggression and setting a goal to reduce this rate to meaningfully low levels; this measure of success is often set at 80% (e.g., Laureano et al., 2023). Although percent reduction has significance to clinicians, the impact of the change to the consumers and indirect consumers – often including clients' caregivers is also significant (Schwartz & Baer, 1991; Wolf, 1978). The extent to which this common clinical success criterion is socially valid to caregivers has not yet been explored. The experimenter recruited caregiver participants of an autism center in the southeast through a waitlist (clients waiting for behavioral treatment), current clients, and discharged clients (clients who completed treatment) who exhibit aggressive behavior. Participants watched audiovisual recordings of other patients receiving treatment at the center. Caregiver participants were asked questions about the severity of aggression when shown videos of baseline rates, a 50% reduction in baseline rate, an 80% reduction in baseline rate, and a 100% reduction in baseline rate (no aggression at all). Further analysis is necessary to determine the factors contributing to caregiver perception of percent reduction criteria. Current limitations of the study include that the selected caregivers may have bias in scoring due to exposure to aggression in an everyday context. There are also several other topographies of behavior outside of aggression that include limitations for day-to-day life.

Cardiac Organoids of Hypoplastic Left Heart Syndrome

Presenting Author: Nidhi Lal, Emory University

Poster Number: 104

Co-Authors: Lal, Nidhi; and Fonoudi, Hananeh

Background: Hypoplastic Left Heart Syndrome (HLHS) is a severe congenital disease characterized by an underdeveloped left ventricle and impaired systemic circulation. HLHS accounts for ~7.5% of congenital heart diseases (CHDs) and 25-40% of neonatal cardiac deaths, without intervention. Survival requires three subsequent palliative surgeries, where the right ventricle is reconstructed for univentricular circulation. Despite advances, eventual ventricular failure necessitates heart transplantation in a subset of patients, making HLHS one of the most resource-intensive CHDs. Our understanding of HLHS causative

factors is limited, due to disease complexity and a lack of reproducible animal models. We established a human organoid model of early cardiac chamber formation, with the hypothesis that identifying the differences between HLHS and healthy organoids would parse out disease-causing mechanisms.OBJECTIVE:To develop a reproducible human induced pluripotent stem cell (hiPSC) based cardiac organoid model to recapitulate HLHS pathology and identify causative gene networks.METHOD:hiPSC lines were generated from 3 HLHS patients, and 3 controls, and differentiated into cardiomyocytes (hiPSC-CM) and endocardial cells (hiPSC-EndoC). Transcriptomic differences between the HLHS and control hiPSC-EndoC were delineated using bulk RNA sequencing. Differentiated hiPSC-CM and hiPSC-EndoC were subsequently used to form organoids, and their morphology was investigated using whole organoid staining and confocal 3D imaging. Statistical differences were assessed using unpaired t test ($P < 0.05$).RESULTS:Our preliminary data shows successful generation of cardiac organoids from 3 HLHS and 3 healthy controls. The cells within the organoids from both HLHS and controls were alive and functional as marked by the expression of a-Actinin and visible contraction of organoids. These organoids can further be treated to form chamber-like structures including cavitation and organoids-like structure formation. No significant differences were observed in untreated organoids between HLHS and controls. However, the treated control organoids were larger compared to their untreated counterparts, while the size of HLHS organoids stayed the same before and after treatment, suggesting defective proliferation in HLHS organoids.CONCLUSIONS:In this study, we have utilized a cardiac organoid platform recapitulating early human ventricular formation to investigate HLHS pathology. Our preliminary data suggests defective cardiomyocyte proliferation as a potential disease driver of HLHS.

Concussion Knowledge and Care-Seeking Behaviors Among Undergraduate Students at Two Southeastern Universities

Presenting Author: Michelle LaPlaca, Georgia Institute of Technology / Emory University

Poster Number: 105

Co-Authors: GUPTA, GARGI; Barrett, Shannon; Panuganti, Rivik; Sharma, Manya; Verna, Stephanie; Woodard, Jill; Grell, Robert; LaPlaca, Michelle

Background: Undergraduate college students represent a vulnerable population for concussion, given ongoing neurodevelopmental maturation, elevated mental health burden, and high-risk activities common in campus life. Despite this, most concussion research focuses on athlete populations, leaving knowledge gaps regarding factors that influence concussion knowledge and care-seeking behaviors in the broader undergraduate population.Methods: A cross-sectional survey was administered electronically to undergraduate students at two southeastern universities (Emory University and Georgia Institute of Technology) following IRB approval at each institution. The survey comprised questions addressing demographics, concussion knowledge (22 items scored 0–100%), and care-seeking behaviors. Data were collected during different academic semesters and merged after cleaning and deduplication in RStudio. Participants who completed the survey in under 190 seconds or were identified as duplicates

were excluded. Concussion knowledge scores were analyzed using regression, Bayesian, and LASSO approaches with a beta family and logit linkage to generate odds ratios for associated factors.Results: The analytic sample included 449 students (Emory: n = 167; Georgia Tech: n = 282), with an age range between 18–21 years. The sample was predominantly female (64%), White (57%) or Asian (34%), and non-Hispanic/Latino (89%). Mean concussion knowledge scores were similar across institutions (Emory: 29.28 ± 6.17; GT: 27.82 ± 7.43). Regression analyses identified several significant predictors of concussion knowledge. Out-of-state residency (OR = 1.16, 95% CI: 1.04–1.29) and higher academic class standing (OR = 1.06, 95% CI: 1.01–1.12) were associated with higher knowledge scores. Conversely, school-provided health insurance (OR = 0.79, 95% CI: 0.66–0.93), off-campus housing (OR = 0.66, 95% CI: 0.49–0.89), and more frequent participation in biking, skateboarding, or extreme sports (OR = 0.91, 95% CI: 0.87–0.95) were negatively associated with concussion knowledge. Further analysis is ongoing.Conclusions: Concussion knowledge among undergraduates is influenced by sociodemographic and behavioral factors. Students who engage most frequently in head-injury-prone activities demonstrate the lowest concussion knowledge, representing a critical intervention target. These data indicate the need for universities to consider collage population-specific educational strategies, particularly for incoming students, commuters, and those relying on campus-based health insurance, to improve concussion recognition and care-seeking.

Burden of Clinically-documented Anxiety and Depression During Therapy for Pediatric ALL

Presenting Author: Katherine Lee, Children's Healthcare of Atlanta

Poster Number: 106

Co-Authors: LEE, KATHERINE; Stevenson, Jason; Hunt, Amy; Khanna, Anjali; Hawk, Ashleigh; Castellino, Sharon; and Miller, Tamara

Background: The intensive treatment used to treat pediatric Acute Lymphoblastic Leukemia (ALL) can lead to significant treatment-related adverse events (AEs), including anxiety and depression. Understanding how these AEs vary by demographics and treatment course can identify high-risk groups and time points for interventions to reduce burden of these AEs.MethodsThis retrospective cohort study included children aged 1–21 years treated for ALL at Children's Healthcare of Atlanta from 2010–2022. Course information and demographics were obtained from the electronic health record (EHR). Clinically-documented anxiety and depression were manually abstracted from clinician notes in each course as incident or persistent from prior courses following a detailed abstraction guide. Pearson's chi-squared tests were performed in RStudio.ResultsAmong 433 patients (median age 5.6 years; 71% White; 23% Hispanic; 49% female), 212 (49%) developed anxiety and 89 (21%) developed depression during therapy. Of the 220 (51%) who developed either AE, 156 (71%) had a psychology consult, but only 54 (25%) had a psychiatry consult. Rates of anxiety varied by race (White: 165/309, [53%], Black: 38/96 [40%], p=0.011) and age (≥10 years: 81/123 [66%], <10 years: 131/310 [42%], p<0.001), but not sex or ethnicity. Rates of depression differed by age (≥10 years: 58/123 [47%], <10 years: 31/310 [10%], p<0.001), but not by race, ethnicity, or sex. Incident anxiety was most common during induction (98/433 [23%] patients) and

consolidation (66/419 [16%] patients), and incident depression was also highest during induction (32/433 [7.4%] patients) and consolidation (66/419 [7.6%] patients). Of patients who experienced anxiety or depression, 80/212 (38%) and 32/89 (36%) respectively had symptoms that persisted beyond the completion of cancer therapy. ConclusionsClinically-documented anxiety and depression are common during ALL therapy, particularly among older patients, and often persists beyond the end of therapy. Higher documented anxiety in White patients may reflect differential comfort in reporting symptoms in Black patients rather than differences in symptom burden, and this could be further evaluated using patient-reported AEs. These findings can be used to identify who needs screening and early intervention to reduce development of these AEs.

TIPS as a Novel Therapy for Small Bowel Telangiectasia-Associated Gastrointestinal Bleeding in TINF2-Related Telomere Biology Disorder.

Presenting Author: Armelle Leukeu, Morehouse School of Medicine

Poster Number: 107

Co-Authors: Leukeu, Armelle; Clifford, Hawkins; Gill, Anne and Cohen, Reuven

Background: Telomere biology disorders (TBD) are inherited conditions that can cause severe gastrointestinal (GI) bleeding, especially in patients with TINF2 mutations. Prior studies have shown that bleeding is often due to gastric or small bowel vascular ectasias, is frequently transfusion-dependent, and responds poorly to medical and endoscopic therapies. Patients with TINF2-associated TBD are also at increased risk for liver disease and portal hypertension.Method/ Case Presentation:An 8-year-old female with dyskeratosis congenita due to a pathogenic TINF2 mutation was diagnosed at age 2 after evaluation for pancytopenia and markedly shortened telomeres. She underwent matched unrelated donor hematopoietic stem cell transplantation at age 3, followed by cord blood transplantation after graft rejection.At age 6, she developed severe transfusion-dependent anemia from GI bleeding that progressed from occult blood loss to melena and hematochezia. Upper endoscopy revealed small non-bleeding esophageal varices, while enteroscopy demonstrated diffuse proximal small bowel telangiectasias believed to be the source of bleeding. Liver biopsy showed mild sinusoidal dilatation and perisinusoidal fibrosis without cirrhosis. Additional evaluation demonstrated splenomegaly, ascites, intrapulmonary vascular shunting, and portal pressures consistent with non-cirrhotic portal hypertension.Despite treatment with octreotide, tranexamic acid, sirolimus, bowel rest, total parenteral nutrition, and repeated transfusions, bleeding persisted, and hemoglobin fell to 4.4 g/dL.Results:A transjugular intrahepatic portosystemic shunt (TIPS) was placed. Following the procedure, GI bleeding resolved, hemoglobin stabilized without further transfusions, platelet counts improved, and no additional episodes of melena or hematochezia occurred. Doppler ultrasound confirmed TIPS patency through 18 months of follow-up. At age 8, she remains clinically well with stable blood counts and no recurrent bleeding.Conclusion:This case demonstrates successful long-term control of severe transfusion-dependent GI bleeding after TIPS placement in a child with TINF2-associated TBD and non-cirrhotic portal hypertension. It suggests that portal hypertension may contribute significantly to

bleeding severity and that TIPS should be considered in selected patients with refractory bleeding, potentially avoiding liver transplantation.

Acute Sleep Disruption Partially Recapitulates Core and Comorbid Autism Spectrum Disorder Phenotypes in Mice in a Sex-Dependent Manner

Presenting Author: Amalia Louis, Mercer University School of Medicine

Poster Number: 108

Co-Authors: Louis, Amalia; and Eltokhi, Ahmed

Background: Sleep is a vital physiological state essential for optimal nervous, immune, and metabolic system function. Sleep disturbances are disproportionately prevalent in individuals with autism spectrum disorder (ASD), a pediatric condition affecting 1 in 31 US children with a 4:1 male sex bias and early behavioral signs emerging in the first year of life. However, it remains unclear whether ASD causes sleep disruption or whether disrupted sleep contributes to ASD symptom onset or exacerbation. We investigated whether experimentally induced sleep disruption produces ASD-like behavioral phenotypes in adolescent mice, suggesting a causal link.Methods: Wild-type adolescent C57BL/6J mice underwent 2 days of intermittent sleep interruption using an orbital shaker protocol (100 RPM for 30 seconds every 2 minutes over 48 hours). Over the subsequent 4 days, different cohorts of mice were assessed with a comprehensive behavioral battery targeting core ASD phenotypes (social interaction, communication, and repetitive behaviors) and ASD-related comorbidities (motor function, locomotor activity, risk-taking, and cognitive function), analyzed separately by sex. Results: Sleep-interrupted mice exhibited social deficits and communication impairments, as evidenced by fewer ultrasonic vocalizations during social interactions, without increased repetitive behaviors, partially replicating core ASD phenotypes. Sex-specific effects on social behavior were observed: females showed reduced direct social interaction and impaired social novelty preference in the three-chamber test, whereas males displayed reduced social dominance in the tube dominance test. ASD-related comorbid phenotypes also emerged in a sex-dependent manner, with females exhibiting hypoactivity-like behavior and males showing increased risk-taking behavior. Cognitive ability, assessed by the puzzle box test, was impaired in males but not females. In both sexes, no major motor impairments were detected in the cliff avoidance, balance beam, or inverted screen tests, confirming that behavioral changes reflect genuine ASD-like phenotypes rather than motor confounds. Conclusion: Acute sleep disruption partially induces ASD-like phenotypes in adolescent mice in a sex-dependent manner. These findings suggest a causal link between sleep disruption and ASD symptomatology and highlight sex as a critical modulating factor. Future studies should explore the underlying mechanisms to inform therapeutic strategies targeting both sleep disturbances and behavioral deficits in children with ASD.

Targeting Developmental Prefrontal Circuit Dysfunction to Reverse Cocaine-Induced Cognitive Deficits

Presenting Author: Deborah Luessen, Emory University School of Medicine- Department of Pediatrics

Poster Number: 109

Co-Authors: LUESSEN, DEBORAH; Meadows, Mac; Gallinger, Isabel; Wolfe, Brenna, and Conn, P Jefferey

Background: Exposure to psychostimulants, such as cocaine, during adolescence produces persistent changes in the prefrontal cortex (PFC) which parallel cognitive deficits seen in adulthood. Further, adolescent exposure to psychostimulants impairs inhibitory transmission in the PFC in adulthood, suggesting that enhancing PFC inhibitory transmission may be a promising strategy to reverse drug-induced cognitive deficits. Activation of the mGlu1 subtype of metabotropic glutamate receptor increases inhibitory transmission in the PFC and working memory by selective excitation of somatostatin-expressing GABA interneurons (SST-INs). Therefore, we hypothesize that repeated exposure to cocaine during a critical developmental period in adolescence disrupts PFC inhibition via SST-INs and drives working memory impairments in adulthood which can be mitigated by activation of mGlu1.Methods: Male and female mice were injected once daily with cocaine (20 mg/kg, i.p.) for 7 days (PND 35-42). Behavioral and electrophysiological testing was conducted between 10-12 weeks of age. mGlu1 positive allosteric modulators (PAMs), SST- and PV-Ai9 tdTomato mice, whole-cell patch-clamp electrophysiology, maze- and touchscreen-based automated cognition testing. Results: We found that repeated administration of cocaine during a critical adolescent period impaired PFC SST-IN, but not parvalbumin-expressing interneuron (PV-IN), firing compared to saline-treated mice. Adolescent cocaine exposure significantly decreased the frequency of spontaneous excitatory postsynaptic currents onto SST-INs but not PV-INs. These findings were paralleled by adolescent cocaine-induced impairments in spatial working memory in adulthood. Importantly, these physiological and behavioral effects of adolescent cocaine exposure were reversed by selective mGlu1 activation. Lastly, repeated amphetamine administration during the same adolescent critical period did not result in impaired SST-IN function or spatial working memory in adulthood.Conclusions: These studies show that: 1) cocaine, but not amphetamine, exposure during an adolescent critical period induces persistent and selective deficits in PFC SST-IN function and cognition in adulthood and 2) selective activation of mGlu1 with PAMs represents a novel strategy for reversing cocaine-induced cognitive impairments.

Airway metabolomic signatures of tuberculosis-associated lung injury suggest shared inflammatory mechanisms with cystic fibrosis

Presenting Author: James Lyles, Emory University School of Medicine

Poster Number: 110

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Background: Pulmonary tuberculosis (TB) is characterized by heterogeneous lung injury, including inflammation, airway damage, and cavitation, which may result in persistent respiratory impairment despite microbiologic cure. These features parallel other chronic airway diseases, including cystic fibrosis (CF), where sustained neutrophilic inflammation contributes to progressive structural damage beginning early in life. In TB, Mycobacterium tuberculosis drives dysregulated immune responses in macrophages, monocytes, and neutrophils, with neutrophil-mediated injury implicated in tissue destruction. Metabolically active immune cells likely shape the airway microenvironment and influence disease progression. While metabolomic biomarkers linked to inflammation and lung injury are well described in CF, the relationship between airway metabolites and structural lung damage in TB remains poorly defined. We applied airway metabolomic profiling of induced sputum to identify signatures associated with disease severity and early treatment response in TB.MethodsInduced sputum was collected from adults with drug-susceptible pulmonary TB in Johannesburg, South Africa at treatment initiation (baseline) and after 2 and 4 weeks of therapy. Pulmonary function testing was performed at baseline and 6 months, and high-resolution chest CT at baseline. Sputum supernatant was analyzed using HILIC-mass spectrometry in positive and negative modes. Data were processed using Compound Discoverer and R. Associations between metabolites and clinical or radiographic measures were assessed using Spearman correlation with false discovery rate correction.ResultsAmong 157 participants, 22% were female and 35% had HIV coinfection. At baseline, 32% and 41% had reduced FEV1 and FVC, respectively. Radiographic abnormalities were common, including cavitation (85%), >25% consolidation (91%), and non-traction bronchiectasis (72%). Distinct metabolic signatures were associated with structural lung injury. Xanthosine monophosphate was consistently associated with cavitation across time points. Uridine and its phosphorylated derivatives were positively associated with consolidation and cavitation early in treatment, whereas cytidine demonstrated inverse associations. Cytidine monophosphate was positively associated with consolidation. Methionine sulfoxide, a marker of oxidative and neutrophil-mediated injury, was associated with bronchiectasis.ConclusionsAltered nucleotide metabolism and oxidative stress pathways are associated with TB-related lung damage. These findings implicate immunometabolic mechanisms underlying inflammatory lung injury and recovery and suggest shared pathways across chronic airway diseases, including cystic fibrosis. Further evaluation may inform risk stratification and targeted approaches to mitigate post-infectious lung impairment.

When Favorable Isn't Equitable: Unexplained Outcome Disparities Among a Contemporary Cohort of Children with MRD-Negative B-ALL from the REDIAL Consortium

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Poster Number: 111

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Background: Minimal residual disease (MRD) after induction is the strongest prognostic factor in pediatric B-cell acute lymphoblastic leukemia (B-ALL), yet whether disparities in B-ALL differ by MRD stratum remains unclear. Methods. We analyzed data from the REDIAL Consortium (n=1911, ages 2-20, diagnosed 2005–2017) using Cox regression to calculate adjusted hazard ratios and 95% confidence intervals for disease-free and overall survival by race and ethnicity, stratified by MRD status. Models were adjusted for clinical, demographic, and socioeconomic factors. We assessed relapse timing and cytogenetic risk distribution (collapsed into Favorable/Unfavorable/Unknown Impact categories) across racial and ethnic groups among MRD-negative strata patients as a sensitivity analysis. An ongoing pilot study of 10x single-cell multi-omic samples (diagnostic and relapse bone marrow; n=12, 6 relapse and 6 non-relapse) from Latino children with MRD-negative ETV6::RUNX1 ALL is examining whether tumor-immune interactions or genetic ancestry contribute to relapse biology. Results. Among MRD-positive cases, Latino children experienced better disease-free (aHR=0.57, p=0.03) and overall survival (aHR=0.39, p=0.005) than non-Latino White children. Conversely, among MRD-negative cases—considered favorable prognosis—Latino (aHR=1.62, p=0.02) and non-Latino Black children (aHR=2.23, p=0.02) had significantly worse disease-free survival. Non-Latino Black children had worse overall survival (aHR=3.58, p=0.003). Early relapse was three times more common in non-Latino Black children (36%) compared to non-Latino White children (12%), and more than twice as common in Latino children (28%; p=0.024), suggesting aggressive disease in a stratum typically viewed favorably. While overall cytogenetic risk distribution differed significantly—with Latino children carrying a higher proportion of unfavorable subtypes (14.7% vs 10.8% non-Latino White vs 9.1% non-Latino Black; p=0.005)—the relative cytogenetic risk composition among MRD-negative relapsers did not differ significantly across racial and ethnic groups (Fisher's exact with Monte Carlo; p=0.53). Results from our MRD-negative ETV6::RUNX1 multi-omics analysis are pending. Conclusion. Racial and ethnic disparities in childhood B-ALL are paradoxically most pronounced among MRD-negative cases, a stratum traditionally thought to have favorable outcomes. Differences in unfavorable subtype prevalence offer only a partial explanation for the observed disparities, pointing to biology not yet captured by current cytogenetic classification schema. Therefore, identifying molecular mechanisms underlying MRD-negative disease may inform future risk-stratification among minority populations.

Emory + Children's Health Informatics Core (CHIC): An Integrated Informatics Infrastructure to Accelerate Translational Pediatric Research

Presenting Author: Mark Mai, Emory University

Poster Number: 112

Co-Authors: MAI, MARK; Roberts, Christina; Beus, Jonathan; Price, Carol; Park, Jonathan; Orenstein, Evan; and Muthu, Naveen

Background: Translating pediatric research from discovery to clinical practice requires robust informatics infrastructure, yet many investigators lack access to the technical expertise needed to extract, analyze, and act on electronic health record (EHR) data. The Emory + Children's Health Informatics Core (CHIC) was established in 2023 at Children's Healthcare of Atlanta and Emory University to address this gap by providing end-to-end informatics support from data extraction through software implementation.Methods: CHIC provides three primary services. Data Services accelerates discovery through high-quality EHR data extraction. Collaboration Services are facilitated through Data Engineering, which designs and builds automated data pipelines and multi-center registry infrastructure. Innovation Services advance cutting-edge technology solutions in care delivery through new Epic Build and Software Engineering. Subsidized Data Delivery Awards are available quarterly to support high-impact child health research. We summarize CHIC utilization from inception through Q2 2026 and describe representative translational projects.Results: From 2023 through Q2 2026, CHIC supported 43 distinct research projects and fulfilled 243 discrete data requests across 14 quarters. Twelve Epic build projects have been delivered or are in active development. Collectively, CHIC-supported projects have received over $1.78 million in extramural grant funding. Highlighted projects illustrate this range. The Knowledge in Diagnosis and Early Action for Youths with Chronic Kidney Disease (KiDnEY) project links EHR care-gap analysis across disease stages with co-designed MyChart Care Companion features for disease management. The Screen2Prevent project supports a multi-site pragmatic trial comparing targeted, opt-in, and opt-out HIV screening in pediatric emergency departments, using a patient-entered survey to guide rapid PrEP or treatment linkage. The Algorithm to Counteract Clinical Onset of Rapid Deterioration (ACCORD) project operationalizes a machine learning model at the bedside on inpatient floors through the Pediatric Technology Center. CHIC enabled participation in PEDSnet, a national multi-institutional network of children's hospitals, which has already facilitated new grant-funded research.Conclusion: CHIC provides a scalable, multidisciplinary informatics infrastructure that accelerates translation of pediatric research into clinical practice. By lowering barriers to EHR data access and enabling direct Epic-integrated implementation, CHIC supports the bench-to-bedside pipeline, from risk factor identification to intervention deployment, across a high-volume pediatric health system.

Development of a Novel Pan-Alphavirus Assay to Determine the Incidence of Alphavirus Infections in a Cohort of Patients Presenting with Acute Febrile Illness in El Salvador.

Presenting Author: Analiese McNeil, Emory University

Poster Number: 113

Co-Authors: McNeil, Analiese; Weimer, Kathleen; Waggoner, Jesse; Ronca, Shannon; Campos, Kenni; Aguilar, Elias; Dominguez, Rhina; and Murray, Kristy O.

Background: Alphaviruses are a group of 29 different mosquito-borne RNA viruses, nine of which are known to be of medical relevance. These viruses can be found on nearly every continent and can lead to severe disease, including eastern equine encephalitis, western equine encephalitis, Venezuelan equine encephalitis, Mayaro, Madariaga, and chikungunya. Major alphavirus outbreaks have emerged in recent

decades due to climate change and increased movement of populations, presenting a re-emerging public health concern. Notably, alphaviruses infect multiple vector species, greatly increasing their transmission dynamics. Furthermore, those infected with alphaviruses present with non-specific symptoms, including fever and headache, making them difficult to clinically distinguish from other infections. Due to the high diversity of alphaviruses and ease of transmission, a pan-alphavirus assay would allow for streamlined screening and diagnosis of these infections, which then could be further differentiated by downstream molecular methods. Using the pan-alphavirus assay developed by Giry et al., we performed analytical validation prior to application in a clinical cohort of patients with acute febrile illness (AFI) in El Salvador. Epidemiological analysis of outbreaks (2020 – 2024) identified a 2024 outbreak that clinically presented as dengue-like illness; however, no DENV serotypes were detected, supporting this cohort's inclusion for targeted sub analysis to screen for alphavirus infections. The assay employs degenerate primers and a probe targeting the conserved nsP4 gene to enable broad alphavirus detection. Following analytical validation with synthetic oligonucleotides and viral RNAs, we conducted clinical validation, using whole blood extracts from AFI patients that tested negative on standard vector borne disease panels, including the alphavirus chikungunya (CHIKV), along with Dengue virus (DENV), Trypanosoma cruzi (Chagas Disease), Zika virus (ZIKV), West Nile virus (WNV), Pan-Rickettsia, and Pan-Plasmodium (malaria). We successfully implemented the assay in a clinical cohort and are finalizing testing of specimens; findings will be reported at the meeting. Given the epidemic potential of alphaviruses and the need for rapid, reliable detection, our clinical validation of the assay developed by Giry et al. demonstrates this technology's diagnostic potential. In turn, rapid diagnosis of specific alphaviruses and case identification facilitates preemptive outbreak response through vector control and disease interventions.

Developmental NMDAR Hypofunction Disrupts mGlu1 Control of Striatal Dopamine Signaling

Presenting Author: Mac Jack Meadows, Emory University

Poster Number: 114

Co-Authors: Meadows, Mac; Gallinger, Isabel; Wolfe, Brenna; Heaton, Elizabeth; Pemu, Karena; and Luessen, Deborah

Background: Adolescent exposure to phencyclidine (PCP) increases extracellular dopamine concentration in the dorsal striatum (DS), leading, in adulthood, to lasting alterations in striatal dopamine (DA) signaling and behavior deficits analogous to symptoms of adult schizophrenia. In preclinical models, we found that metabotropic glutamate receptor subtype, mGlu1, negatively modulates DA release in the DS. Further, mGlu1-treated mice that completed amphetamine induced hyperlocomotion (AHL) showed the potential for mGlu1 positive allosteric modulators (PAMs) to become a drug candidate to recover behavioral deficits associated with the positive symptoms of schizophrenia. Given the potential for its striatal dopaminergic modulation and its decrease of sensorimotor impairment, we hypothesize that mGlu1 activation can recover sensorimotor impairments derived from chronic exposure to PCP during a critical point in development. METHODS: Male and female mice (Strains: C57/BL6 and GRM1-D1-KO - trangenic selective deletion of mGlu1 receptors in dopamine D1 receptor expressing cells) were injected

with PCP (10mg/kg, s.c.) for 7 days (postnatal day 35-42). Saline- and PCP- treated mice were injected with AAV5-dLight1.1 into the DS. After 3 weeks of recovery, D'Light transients were recorded in response to a single injection of amphetamine (4 mg/kg, i.p.) in an open field. Pre-pulse inhibition (PPI) and AHL were also tested to determine sensorimotor performance in adult mice. VU6004909, a mGlu1 positive allosteric modulator (PAM), (30mg/kg, i.p.) was administered during photometry and behavioral studies. RESULTS: PPI is impaired and AHL is increased in PCP-treated mice compared to saline controls. However, when pre-treated with VU6004909, PCP-treated mice show recovery of PPI impairment and increased AHL response compared to saline controls. Further, in GRM1-D1-KO mice, AHL is increased compared to littermate controls, with VU6004909 partially blocking this phenotype. Ongoing photometry studies explore our overarching hypotheses that DS DA transmission will be increased in GRM1-D1-KO mice compared to littermate controls and VU6004909 will occlude dopamine inhibition. CONCLUSIONS: Overall, our study expands the current understanding of signaling mechanisms between mGlu1 and DA neuronal populations in the dorsal striatum. Given the promising recovery of sensorimotor impairment in preclinical models, our study also suggests that mGlu1 PAMs show therapeutic potential for the treatment of positive symptoms of schizophrenia.

Fluoridation and the risk of multiple fillings for privately insured Massachusetts children: a retrospective cohort study

Presenting Author: Sam Merabi, Columbia University Mailman School of Public Health

Poster Number: 115

Co-Authors: MERABI, SAM; Factor-Litvak, Pam; Tranby, Eric; Mushamiri, Ivy

Background: Community water fluoridation (CWF) is widely associated with reduced childhood dental decay. This study examines whether fluoridation is linked to lower dental filling rates among privately insured children in Massachusetts.MethodsThis retrospective cohort study analyzed dental insurance claims (2016–2019), linked to municipal fluoridation and IRS data, among 35,610 privately insured children aged 1–16 years. Linear regression estimated adjusted mean differences in fillings-to-examinations ratios, and Poisson regression with log link estimated adjusted risk ratios (RRs) for multiple fillings. Age stratification included teenagers entering the study (n=9215). Models adjusted for age, sex, income, topical fluoride, and sealants.ResultsIn adjusted models, CWF was associated with a 3.4% lower fillings-to-examinations ratio overall (95% CI: −0.057 to −0.011). Age-stratified analyses showed reductions among children entering at ages 13–16 (9.2% lower; 95% CI: −0.155 to −0.030), 15–16 (12.3% lower; 95% CI: −0.220 to −0.026), and 9–11 (4.3% lower; 95% CI: −0.079 to −0.006), with non-significant effects in other age groups. Secondary threshold analyses demonstrated generally larger relative risk reductions with higher treatment thresholds, reaching 19.0% reduction for >8 fillings overall (RR 0.81; 95% CI 0.70–0.94) and 26.9% for >7 fillings among teenagers (RR 0.73; 95% CI 0.60–0.89). ConclusionsCWF was associated with lower restorative treatment burden, particularly among adolescents and at higher treatment thresholds. Findings support the extension of CWF's preventive public health benefits to privately insured children.CWFPractical ImplicationsResults show CWF remains

relevant for reducing dental treatment needs and may inform municipal fluoridation decisions.Key Words:Fluoridation, Dental Fillings, Tooth Decay, Public Health, Teen Oral Health, Pediatric Oral Health

Empowering Nursing Practice: Examining Evidence and Education Considerations for Pediatric Patients Receiving Intramuscular Injections in a Psychiatric Emergency

Presenting Author: Margaret Faucett, Emory University

Poster Number: 116

Co-Authors: Faucett, Margaret; Tomberlin, Aaron ; and Brasher, Susan

Background: Intramuscular (IM) administration of antipsychotic medications is a common intervention utilized during psychiatric crises as a means of mitigating acute agitation and aggression. Accurate identification of intramuscular (IM) injection sites and needle selection is essential during psychiatric crises to ensure effective treatment, yet significant variability in both factors impacts patient safety and outcomes. The purpose of this project was to conduct a review of the literature on IM medication administration of antipsychotic medications during pediatric psychiatric crises in emergency department settings and implement an in-service education program to improve nursing practice.MethodsA review of 14 peer-reviewed studies highlighted that up to many nurses do not consider IM site, needle length/gauge, or patient size during IM administration, leading to complications such as accidental subcutaneous injection, tissue necrosis, nerve damage, and reduced medication efficacy. Although IM administration data on adult populations is more robust, literature on pediatric populations is scarce. An in-service education program in a single pediatric hospital system was developed for pediatric nurses. Nurses were given an in-service education and completed anonymous pre and post surveys. ResultsHospital nurses (n=23) participated in the educational intervention, with 20 nurses (n=20) completing both the pre- and post-survey. Nursing professional experience ranged from less than 2 to 10+ years of experience. Years of experience showed no effect on the odds of selecting the correct needle (OR 1.0) and had minimal significance in selection of the correct site (OR 0.87). However, significant improvement in site selection was detected from baseline of 56.5% correct site administration to post-survey 95% correct site administration. There was also significant improvement in needle length selection, from baseline of 8.7% correct needle selection to post-survey of 80% correct needle selection. Confidence of nurses rose from 21% Very Confident at baseline to 65% Very Confident post intervention.ConclusionFuture research is needed in larger samples and expanding beyond a singular pediatric hospital system to further evaluate the educational intervention and resulting patient outcomes. This project underscores the need for ongoing, targeted education among pediatric hospital nurses to ensure safe and effective medication administration.

Examining the Evidence Base for Psychiatric Response Teams: A Scoping Review of Restraint Measures and Team Structures

Presenting Author: Margaret Faucett, Emory University

Poster Number: 117

Co-Authors: Faucett, Margaret; Tomberlin, Aaron; Brasher, Susan

Background: This scoping review aimed to examine the existing evidence on Psychiatric response team (PRT) effectiveness, with particular attention to restraint use as a patient outcome. PRTs have been implemented in multiple hospital settings for behavioral crises with limited amount of research for guidance. Restraint use has emerged as one of the few reported patient outcomes used to evaluate these teams. However, the extent to which restraint is identified, measured, and reported uniformly remains unclear. The review also sought to identify professional practice gaps related to team structure, training, and outcomes. MethodsA scoping review was utilized. Searches were conducted across eight databases, yielding 1,418 studies. For screening and extraction, data were managed using Covidence (an online systematic review tool). Study selection was documented using a PRISMA flow diagram. Thirty-five articles were selected for full-text review with 24 excluded primarily due to lacking patient outcomes, reporting data exclusively on team structure, workplace violence, or staff perspectives. 11 studies met inclusion criteria. Data were synthesized descriptively to identify patterns in restraint reporting and outcome measurement.ResultsAcross the included PRT studies, restraint use was the most frequently reported patient outcome. Pre-implementation data were only available in half of the studies, limiting conclusions regarding effectiveness. Substantial variability existed in restraint reporting, including different units of measurement, criteria for restraint use, and classification of physical versus mechanical restraint. Additionally, most studies were quality improvement projects focused on general team implementation or workplace outcomes rather than standardized patient measures. Team structures and training were inconsistent. Reported patient outcomes ranged from verbal de-escalation to restraint. Reported restraint use was heterogeneous in specificity (type of restraint) as well as how the outcome was measured (e.g., total events, patient days, incidence rates, behavioral health hours, ED visits). ConclusionFindings reveal a significant professional practice gap in the lack of uniform team structure, training, and standardized outcome measures necessary to meaningfully evaluate and improve PRT implementation. Future research should prioritize consistent identification and measurement of restraint, incorporate pre- and post-implementation comparisons, include patient-centered outcomes, and utilize more rigorous, multi-site designs to build a replicable evidence-base for PRT effectiveness.

Associations Between the Gut Microbiome and Hemodynamic Parameters in Neonates with Congenital Heart Disease

Presenting Author: Anna Miele, Emory University School of Medicine

Poster Number: 118

Co-Authors: MIELE, ANNA; Murphy, Allison; Calamaro, Christina; Brown, Ann-Marie; Denning, Patricia; Gillespie, Scott; Huang, Hui; Keiffer, Rachael; Sanders-Lewis, Kolby; St. John, Amelia; Bai, Jinbing; Fundora, Michael P.

Background: The gut microbiome (GM) plays a critical role in metabolism, immune development, and physiologic adaptation in early life. Neonates with congenital heart disease (CHD) are exposed to altered hemodynamics, yet the associations between GM features and hemodynamic status is not well understood.Objectives: To characterize the gut microbiome of neonates with CHD and explore associations between microbiome features and hemodynamic parameters.Methods: A secondary analysis of stool samples from a prospective cohort of 50 neonates with CHD was conducted. Samples were collected preoperatively (T0), postoperatively (T1), and prior to discharge (T2). Microbial DNA was extracted and the 16S rRNA V4 region sequenced. Hemodynamic variables included echocardiographic parameters and vasoactive–inotropic scores (VIS) measured at the time of each stool collection. Alpha- and beta-diversity metrics and relative taxa abundance associated with hemodynamics variables were analyzed using QIIME 2 and Microbiomeanalyst 3.0.Results: Forty-one neonates with CHD were analyzed, 59.3% male, 51.9% White, and 91.4% non-Hispanic. Alpha-diversity was not associated with echocardiographic parameters and VIS scores. Beta-diversity showed marginal differences in normal vs abnormal echocardiographic parameters (Bray-Curtis, F=1.81, p=0.095; Jaccard, F=1.82, p=0.076). Neonates with abnormal ventricular function showed less Enterococcus (p=0.001, padj.=0.006) and more Haemophilus (p=0.006, padj.=0.019). Neonates with abnormal ventricular function and higher VIS scores showed less Streptococcus (p=0.00004, padj.=0.0003) and Haemophilus (p=0.0002, padj.=0.0005).Conclusions: Neonates with CHD seemed to exhibit distinct gut microbiome diversity and specific taxa linked with hemodynamic parameters across the perioperative period. Exploring associations between microbiome features and hemodynamic parameters provides insight into mechanisms linking physiologic instability, microbial dysbiosis, and recovery in this high-risk population.

Spatial Profiling of Tertiary Lymphoid Organs in Pediatric Kidney Transplantation

Presenting Author: Ahmad Mohammad, The University of Alabama at Birmingham

Poster Number: 119

Co-Authors: MOHAMMAD, AHMAD; Melendez-Ferro, Miguel ; and Seifert, Michael

Background: Long-term kidney allograft survival in pediatric patients is limited by cumulative alloimmune injury, which is frequently associated with the formation of Tertiary Lymphoid Organs (TLOs). While TLOs are recognized as localized hubs of immune response, their molecular identity and impact on the surrounding transplant microenvironment remain poorly understood, especially in children. This study seeks to define the molecular architecture unique to TLOs in different transplant contexts and characterize the localized immune-kidney crosstalk that drives graft dysfunction. Methods We studied archived formalin-fixed, paraffin-embedded (FFPE) pediatric kidney transplant biopsy specimens using the GeoMx Digital Spatial Profiler (DSP) to perform morphology-driven spatial profiling of the whole

transcriptome (18,000 genes) in stable, T-cell mediated rejection (TCMR), and antibody-mediated rejection (AMR) cases. We used CD45 (infiltrating immune cells), CD31 (endothelial cells), and PanCK (tubular epithelial cells) immunofluorescence markers to isolate gene expression patterns from regions of interest (ROIs) that represented distinct tissue compartments. Additionally, we distinguished organized TLOs from disorganized non-TLO immune infiltrates via separate immunohistochemistry staining for CD20+ B cells and CD3+ T cells. Data were processed using standR and geomxTools (R), and cell-type deconvolution was performed using SpatialDecon with the safeTME reference matrix. Results The pipeline demonstrated high technical performance, yielding a robust detection of 10,000+ genes across multiple tissue compartments despite the challenges of archived FFPE samples. Differentially expressed genes between immune, endothelial, and epithelial regions validated the specificity of our morphology markers. In these representative pediatric cases, cell-type deconvolution indicated that TLOs in the AMR case were enriched for B-cell subsets (naïve and memory), while the TCMR-associated TLOs showed higher proportions of CD8+ and regulatory T-cells. Other cell types were similar between rejection groups. Conclusion High-resolution spatial profiling preserves spatial relationships between TLOs and nearby kidney graft parenchyma, better distinguishing TLO- and non-TLO-associated immune cells in pediatric biopsies. We demonstrated the feasibility of using archived FFPE samples to generate high-quality transcriptomic data for pediatric-specific studies. Defining the TLO transcriptome can help develop new diagnostic biomarkers and therapeutic targets, with significant potential to improve long-term outcomes for pediatric transplant recipients.

NIH-Funded Trial of Infant-Activated Caregiver Voice Intervention in the NICU

Presenting Author: Megan Moran, Emory University

Poster Number: 120

Co-Authors: Moran, Megan; Maitre, Nathalie L.; and Kjeldsen, Caitlin P.

Background: Systemic and structural factors often limit parental presence in the NICU, depriving preterm infants of a critical neurodevelopmental stimulus: infant-directed voice. Recorded caregiver voice offers a feasible alternative, deliverable passively or contingent on non-nutritive suck (NNS). For clinical use, such interventions must be both acoustically and physiologically safe—avoiding elevated sound levels and adverse autonomic events; the impact of these delivery methods on NICU sound environment and infant stability remains unknown.In this randomized controlled trial, 201 preterm infants were assigned to receive their caregiver's recorded voice either contingent on NNS (n= 100) or via passive playback (n=101), delivered via a research prototype of the smallTalk NICU egg. Infants received 2–3 daily sessions over 2–3 weeks, up to 20 sessions. Environmental sound pressure levels (SPL, dB(A)) were recorded each session. Mean and peak SPL were compared across groups and room types. Autonomic events were monitored.Data from 3,699 sessions included 2,444 in open bays (mean SPL=49.5 dB(A)), 1,119 in semi-private spaces (mean SPL=48.2 dB(A)), and 135 in private rooms (mean SPL=48.3 dB(A)). Mean SPL did not differ between groups (F=1.832, p=0.178). Peak SPL was higher during passive (74.5 dB(A)) compared to contingent (73.5 dB(A)) sessions. Room type did not significantly affect mean SPL. All infants in the

contingent group successfully triggered playback, indicating background noise did not impede participation. No apneas occurred, and bradycardia and desaturation events were similar between groups.Recorded caregiver voice, delivered passively or contingent on NNS, did not increase average NICU sound levels beyond recommended thresholds and was not associated with adverse autonomic events. The small peak SPL difference likely reflects procedural variability rather than intervention effects. These findings support the feasibility, acoustic safety, and physiological safety of this developmental care strategy across NICU settings, encouraging further research on clinical and neurodevelopmental outcomes.

Association Between Adolescent and Young Adult (AYA) Age, Acuity of Illness at Diagnosis, and Clinical Trial Enrollment Among Patients with Hematologic Malignancies at a Pediatric Center

Presenting Author: Joshua Muniz, Emory University/Children's Healthcare of Atlanta

Poster Number: 121

Co-Authors: Muniz, Joshua; Ji, Xu; Jain, Tarun; Strange, Liberty; Lee, Katherine; Williamson Lewis, Rebecca; Miller, Tamara; Arellano, Martha; and Castellino, Sharon

Background: Adolescent and young adult (AYA) patients with hematologic malignancies have inferior disease-free and overall survival compared to their younger peers. Clinical trials may offer the best medical and social support for AYA patients; thus, understanding barriers to clinical trial enrollment may address the survival disparities seen in AYAs. Methods: We performed a retrospective study of individuals, ages 0-21 years, diagnosed and treated at Children's Healthcare of Atlanta (CHOA) for hematologic malignancies between 2010-2018. The primary study outcome was enrollment in a frontline therapeutic clinical trial (yes vs. no). We evaluated AYA age (≥ 15 years old) and high acuity of illness at diagnosis as the primary exposure variables. Acuity of illness was defined by any use of intensive care unit resources within 72 hours of cancer diagnosis via manual chart abstraction. Covariates examined include sex, race/ethnicity, primary language (English vs. non-English), health insurance type (public vs. private), and blood cancer subtype (leukemia vs. lymphoma). Logistic regression analysis was performed. Results: Between 2010-2018, 1030 patients were diagnosed and treated for a hematologic malignancy at CHOA. An open frontline clinical trial was available for 621/1030 patients (60.3%). Among these, 99 (15.9%) patients were AYA age, 172 (27.7%) patients identified as non-Hispanic Black, and 160 (25.8%) patients had high acuity of illness at diagnosis. Among 602 trial-eligible patients, 437 patients (72.6%) enrolled on a trial. Unadjusted models showed that AYA age (OR: 0.34 [95% CI: 0.22-0.53]), public insurance (OR: 0.70 [95% CI: 0.50-0.99]), non-Hispanic Black race/ethnicity (OR: 0.46 [95% CI: 0.46-0.69]), and high acuity of illness (OR: 0.61 [95% CI: 0.42-0.90]) were negatively associated with clinical trial enrollment. In the adjusted model, AYA age (aOR: 0.45 [95% CI: 0.28-0.73]) and non-Hispanic Black race/ethnicity (aOR: 0.51 [95% CI: 0.32-0.80]) remained significant.Conclusions: In a large academic pediatric cancer center with robust clinical trial commitment, we found that AYA age and non-Hispanic Black race/ethnicity have independent associations on non-enrollment in a clinical trial. Ongoing

analyses will characterize the reasons for clinical trial refusal/ineligibility. Future studies will expand this analysis to include AYA patients treated for hematologic malignancies at an affiliated adult cancer center.

Exploring the Relationship Between Imaging-Related Radiation Exposure and the Gut Microbiome in Neonates with Congenital Heart Disease

Presenting Author: Allison Murphy, Emory University School of Medicine

Poster Number: 122

Co-Authors: Murphy, Allison; Miele, Anna; Calamaro, Christina J; Brown, Ann-Marie; Denning, Patricia; Gillespie, Scott; Huang, Hui; Keiffer, Rachel; Sanders-Lewis, Kolby; St. John, Amelia; Bai, Jinbing; and Fundora, Michael P.

Background: The gut microbiome (GM) is critical in metabolic regulation and development. Neonates with congenital heart disease (CHD) are exposed to ionizing radiation from diagnostics and catheterization. The influence of radiation exposure linked to GM remains largely unknown. Objectives: To characterize radiation exposure in neonates with CHD and explore associations with the GM across the perioperative course.Methods: Secondary analysis of a prospective cohort of 50 neonates with CHD. Stool samples were collected preoperatively (T0), postoperatively (T1), and prior to discharge (T2). Microbial DNA was extracted and 16S rRNA V4 region sequenced. Radiation exposures included portable radiographs (XR) quantified using Exposure Index (EI), computed tomography (CT) quantified by milliampere-seconds (mAs), and cardiac catheterization quantified by dose–area product (cGy·cm²). Associations between radiation exposures and GM were analyzed using QIIME 2 and Microbiomeanalyst 3.0.Results: Between admission and T0, 50 subjects underwent 234 radiographs (mean 5.7; EI 63,378), 9 CTs (7,440 mAs), and 11 catheterizations (401 cGy·cm²). T0 to T1, 506 radiographs (mean 11; EI 57,172), 6 CTs (2,831 mAs), and 6 catheterizations (1,481 cGy·cm²). T1 to T2, 612 radiographs (mean 15; EI 13,894), 3 CTs (1,064 mAs), and 2 catheterizations (476 cGy·cm²). Neonates with more XR exposure showed marginally lower alpha diversity (p=0.10). Beta diversity was not associated with exposure. Less XR was associated with higher Streptococcus (padj.<0.001) and Haemophilus (padj. <0.001). Lower EI had more Haemophilus (padj. <0.001) and Streptococcus (padj. <0.001). Those who did not undergo catheterization had higher Streptococcus (padj.=0.002), Haemophilus (padj.=0.002), and Enterococcus (padj.=0.022). Neonates with less XR and EI had more Streptococcus (p<0.05) after controlling for confounders.Conclusions: Neonates with CHD experiencing more radiation exposures were associated with differences in the GM. Evaluating the relationship between radiation exposure and GM may provide insight into previously unrecognized contributors to microbial dysbiosis in this high-risk population.

Effect of Infant Age in Accurately Estimating Gaze Location Using an Artificial Neural Network

Presenting Author: Marina Nakayama, Emory University

Poster Number: 123

Co-Authors: Nakayama, Marina; Olmstead, Jack; Gibeily, Caius; Klin, Ami; Shultz, Sarah; Jones, Warren; and Ford, Aiden

Background: Studying visual attention during the neonatal period can highlight early learning divergences in infants at elevated likelihood for neurodevelopmental conditions. However, neonates have immature oculomotor control, which limits their ability to complete standard eye-tracking calibration protocols. In this project, we develop and evaluate an artificial neural network to predict infant eye-tracking data lacking corresponding calibration information with the aim of extending this effort to infant populations. Methods: Eye-tracking data (60Hz, ISCAN ETL-400) were collected from 1-6-month-old infants who participated in prospective, longitudinal studies of infant social development at the Marcus Autism Center. A dense neural network was trained using 5,820,622 samples from 151 infants aged 5.92±0.64 months. Prediction of gaze location was considered accurate if the error was within 3° of visual angle. Network performance was evaluated against infant clinical outcome assessed at 2-3 years (autism (AUT) versus typically developing (TD)) and infant age. First, accuracy was compared between 5.0-6.8-month-old AUT (n=17) and TD infants (n=20) using a t-test. Second, accuracy was evaluated relative to infant age in a longitudinal sample of n=66 TD infants aged 1.6-6.7 months (average 1.8 sessions per infant) using a generalized additive mixed model (GAMM), with session quality as a fixed effect and participant-level repeated measures as a random effect. Results: The mean accuracy across all TD and AUT infants was 87.04% with a mean±SD error of 1.95°±1.47° of visual angle with no significant difference between AUT (mean=86.60%) and TD (mean=86.59%) infants ($p>0.05$). The mean accuracy across all sessions in the longitudinal TD sample was 74.58%, with a mean±SD error of 2.60°±2.31° of visual angle. The GAMM revealed a significant effect of corrected age on network accuracy ($\chi^2=28.96$, $p<0.001$). Session quality and the random effect for participant-level repeated measures were not significant predictors ($p>0.05$). Conclusions: The network yielded high accuracy in older infant data with no significant differences between AUT and TD infants, showcasing promising potential for clinical use. However, the lower accuracy in younger infants shows need for more work before applying it to neonate data. Neonates may have more noise or movement, requiring more robust data cleaning during preprocessing.

Caregiver Positive Affect in Infant-Directed Interactions: A Comparative Evaluation of Human vs. Automated Coding Approaches

Presenting Author: Peyton Narr, Marcus Autism Center, Emory University School of Medicine

Poster Number: 124

Co-Authors: NARR, PEYTON; Chen, Meiyu; Alviar, Camila; Bien, Elena; Shultz, Sarah; Lense, Miriam; and Ford, Aiden

Background: Caregiver expressions of positive affect, e.g., smiles and wide-eyed engagement, are key signals of infant-directed engagement that support infants' attention to and participation in reciprocal social interaction, including infant emotion regulation, attachment formation, and early social learning.

Promoting positive caregiver expressions is critical for interventions targeting caregiver-infant interaction quality, particularly in vulnerable dyads involving premature infants or peri- and postnatal depression. Measuring positive affect behaviors at scale remains challenging. Manual behavioral coding is standard but labor-intensive and challenging to implement in intervention contexts. Open-source tools for automated quantification of expressions, like OpenFace, may offer scalable alternatives, though concerns remain regarding validity and clinical applicability. This study evaluated automated detection of caregiver positive affect expressions using OpenFace compared to human coders.Methods:A sample of N = 23 caregiver-infant dyads (birth–6 months) participated in n = 31 total screen-mediated sessions, ranging from 1-4 sessions per dyad (M = 1.38, SD = 0.71). Trained experimenters manually coded for the presence or absence of smiles and/or greeting expressions. OpenFace detected caregiver smiles via Action Units (AUs) 6+12 (19,358 frames) and greeting expressions via AUs 1+2+5+26 (4,364 frames). Frame-by-frame agreement was assessed between manual and OpenFace coding using Gwet's AC1, sensitivity, and specificity.Results:OpenFace demonstrated substantial agreement with manual coding for both smiles (AC1 = .67) and greeting expressions (AC1 = .72). Smile detection yielded high sensitivity, i.e., OpenFace and human coders agreed on the presence of smiling (.89), but moderate specificity, i.e., they agreed on the absence of smiling (.48). In contrast, greeting expression detection showed moderate sensitivity (.42) but high specificity (.92).Conclusions:OpenFace showed potential as a scalable means of measuring caregiver positive affect in infant-directed interactions. Overall agreement was substantial and appeared to be expression specific. OpenFace was also less accurate at detecting expression onset and offset relative to human coders, suggesting OpenFace may be better suited for quantifying overall expression duration (e.g., total time spent smiling) than for analyses requiring precise temporal information. Therefore, its use should be guided by the specific research or clinical question and interpreted alongside manual coding when temporal precision is necessary.

Storage-Induced Micro-Erythrocyte Content in Red Blood Cell (RBC) Units Transfused to Patients with Sickle Cell Disease

Presenting Author: Zahra Naseh, Pathology Department of Emory University

Poster Number: 125

Co-Authors: Naseh, Zahra; McCoy, James; Chanroo, Toni; Fuller, Megan; Kim, Sungwoong; Fasano, Ross M. ;Zerra, Patricia E., and Yee, Marianne E.

Background: The storage lesion encompasses changes in metabolic, biochemical, and structural changes that occur to donor red blood cells (RBCs) during cold storage prior to transfusion. In storage, cytosol-derived membrane vesicles are released from RBCs, forming storage-induced microerythrocytes (SMEs), which have an increased rate of extravascular clearance after transfusion. Survival of donor RBCs mediates chronic transfusion efficacy in recipients with sickle cell disease (SCD), and SMEs may impact transfusion outcomes. SME proportion varies among different donor units over time, providing a functional estimate of the storage lesion. We aimed to assess the range of SME in units transfused to patients with SCD and identify if donor RBC mean corpuscular volume (MCV) impacted SME

%.Methods:Segments of RBC units that were ≤ 21 days old and transfused to SCD patients were obtained. SME testing was performed at baseline then weekly for 4 weeks. The MCV of each unit was determined by standard hematology analyzer. RBCs were stained with CFSE dye and incubated at 37°C for 48 hours. SMEs were quantified by flow cytometry, with CFSE-high populations representing SMEs and CFSE-low representing normal morphology. SME (%) at given unit ages (21, 28, 35, 42 days) was estimated by linear interpolation between the 2 nearest test timepoints.Results:55 RBC units were tested at 220 storage timepoints. RBC unit MCV was <80fL in 2 (3.6%), 80-100fL in 44 (80%), and >100fL in 9 (16.4%). SME (%) was strongly correlated to unit age (r=0.706, p<0.0001). SME (mean ± standard deviation) interpolated at 4 standard storage timepoints were: 1.41 ± 1.29% at day 21, 2.84 ± 2.70% at day 28, 6.56 ± 4.65% at day 35, 11.47 ± 7.08% at day 42. SME at day 42 were inversely correlated with MCV (r= -0.48, p=0.0003). At day 42, mean SME was 28.53 ± 1.60% for MCV<80fL, 11.40 ± 6.59% for MCV 80-100fL, and 8.01 ± 4.09% for MCV >100fL (p=0.0005). Conclusion:SME, a measurement of functional unit age and storage lesion, increase at the end of storage shelf-life, and are significantly higher in units with baseline MCV<80fL, which suggests donor thalassemia trait or low iron. Future studies should examine SME as a predictor of donor RBC survival.

Association between the Child Opportunity Index and Congenital Diaphragmatic Hernia Outcomes

Presenting Author: Mahima Natarajan, University of Michigan (Ann Arbor)

Poster Number: 126

Co-Authors: NATARAJAN, MAHIMA; O'Leary, Michael; Rollins, Paris D.; Hassett, Kristen P.; Kamdar, Neil; Papillon, Stephanie; Kohne, Joseph; Perrone, Erin E.; and Hughes, Byron D.

Background: Despite the known disparities in congenital diaphragmatic hernia (CDH) outcomes by social determinants of health, the impact of neighborhood opportunity remains poorly understood. This study aims to examine associations between Child Opportunity Index (COI), a neighborhood-level measure of opportunity, and inpatient perioperative outcomes among infants with CDH.Methods:We conducted a retrospective cohort study of infants with CDH using the Pediatric Health Information System (PHIS) database. A total of 11,999 infants admitted on day of life 0 who underwent surgical repair were identified using ICD-9 diagnosis code 756.6 and ICD-10 diagnosis code Q79.0. They were grouped into COI quintiles, ranging from “very low” to “very high", based on residential ZIP code. Demographic characteristics and outcomes, including mortality, ECMO utilization, gastrostomy, and tracheostomy, were compared across COI quintiles using chi-square tests. The association between COI and mortality was evaluated using multivariable logistic regression models adjusted for race and sex. Cox proportional hazards models (censored one year after birth) were used to compare time-to-gastrostomy and time-to-tracheostomy across COI quintiles.Results:COI varied by racial composition (p < 0.001) but not sex (p = 0.15). Mortality decreased with increasing COI quintile, ranging from 14.3% in the very low COI group to 9.9% in the very high COI group (p < 0.0001). Even after adjustment for race and sex, moderate, high, and very high COI remained associated with lower odds of mortality compared to the very low COI group (OR 0.69, 0.75, and 0.72, respectively, all with p ≤ 0.0013). Gastrostomy rates also decreased across COI

categories (6.6% in the very low COI quintile vs. 4.0% in the very high COI quintile, p = 0.0011). Very high COI was associated with a lower hazard of gastrostomy within one year of birth (hazard ratio 0.62, p = 0.0012). No significant association was found between COI and tracheostomy. Conclusions:Neighborhood opportunity may influence CDH outcomes beyond individual demographic factors. Children from higher COI neighborhoods had significantly lower odds of mortality and gastrostomy utilization during the index admission compared to those with lower COI. By leveraging a large, national multicenter cohort, this study demonstrates these associations across diverse pediatric hospital settings.

A Pilot and Feasibility Study to Evaluate High vs Low Glycemic Index Mixed Meal Tolerance Test in Adolescents and Young Adults with Cystic Fibrosis

Presenting Author: Jenipher Ober, Emory University

Poster Number: 127

Co-Authors: OBER, JENIPHER; Subramani, Sriya; McNeany, Jocelyn; Coker, Desiree; Martin, Linque; Zaveri, Swati S.; Chandler, Joshua; Gillespie, Scott; Cossen, Kristina; Alvarez, Jessica; Stecenko, Arlene; and Daley, Tanicia

Background: Cystic fibrosis–related diabetes (CFRD) prevalence increases with age, affecting ~50% of CF adults. As survival improves, evidence-based dietary guidelines that address the metabolic effects of energy-dense, nutrient-poor foods are increasingly needed. This feasibility study evaluates postprandial glycemia, islet cell function, and incretin responses to high- versus low-GI meals with and without sugar-sweetened beverages. Methods This randomized 2 × 2 factorial feasibility study will enroll 40 pwCF aged 12–25 years with pancreatic insufficiency. Exclusion criteria include CFRD, recent glucocorticoid use, pulmonary exacerbation, severe lung disease, transplant history, organ dysfunction, G-tube feeds, pregnancy, and concurrent interventional studies. Participants will be randomized to four mixed-meal conditions varying by glycemic index (GI; high ≥75 vs low ≤55) and sugar-sweetened beverage (SSB; with vs without). Meals will be matched for macronutrients. After an overnight fast, participants will consume the assigned meal, with blood collected at 0, 10, 20, 30, 60, 90, and 120 minutes. The primary outcome is postprandial glucose; secondary outcomes include insulin, C-peptide, GLP-1, GIP, insulinogenic index, Matsuda index, and disposition index. Results - Proposed analysis Feasibility outcomes include screening, recruitment, retention, adherence, tolerability, and study completion. Exploratory analyses will estimate within- and between-subject variability in primary and secondary outcomes, including redox biomarkers, using linear mixed-effects models to account for repeated measures. Participant-level AUCs at 30 and 120 minutes will be calculated. Exploratory comparisons of glucose variability and islet cell function, including GI × SSB interactions, will be evaluated using factorial linear models. ConclusionsWe anticipate generating preliminary data to inform future studies of postprandial glucose responses and aminothiol redox imbalance in pwCF and guide the design of interventions to reduce glycemic excursions and develop evidence-based dietary guidelines. AcknowledgementsWork supported by National Institutes of Health (NIH) [R21DK128731, P30DK125013]

The Relationship Between ARFID Symptoms, Child Anthropometrics, and Psychological Symptoms in a Pediatric Sample

Presenting Author: Madeline Ober, Emory University

Poster Number: 128

Co-Authors: OBER, MADELINE; Rodrick, Eugene; Johnson, Laura; and Proctor, Kaitlin B.

Background: The typical dietary pattern and relatively earlier age of onset for Avoidant/Restrictive Food Intake Disorder (ARFID) confer significant risk for negative health outcomes associated with malnutrition, including low body weight, cognitive impairment, and growth stunting. Children with food selectivity in the context of ARFID often consume diets high in processed foods, carbohydrates, and added sugars with low intake of fruits, vegetables, and proteins. These diets often fall below daily recommended intake for macronutrients as well as micronutrients critical for bone development and growth, including vitamins A, C, D, K, B12, zinc, iron, calcium, and potassium. The aim of the current study was to examine the relationship between anthropometric and psychosocial outcomes in a pediatric ARFID sample. Methods: Twenty-three children ages 5-16 years old enrolled in an observational study. All children had previously received ARFID diagnoses. Measures included anthropometric measurements and bone densomitry imaging using Dual-energy x-ray absorptiometry (DXA) scans. Parents completed psychosocial measures, including measures of ARFID symptoms and impact (Nine Item ARFID Screen; Family Management Measure of Feeding), child anxiety (Screen for Anxiety and Related Disorders, Parent and Child forms; Spence Children's Anxiety Scale, SCAS), and the Pediatric Quality of Life Inventory (PedsQL). Descriptive statistics and Pearson R correlations (Pearson R) were conducted to evaluate relationships among variables. Results: Within this clinical ARFID sample, higher anxiety was associated with poorer Quality of Life (QoL) and more family impact in terms of effort/challenges related to feeding. Two of three NIAS subscales (fear and disrupted appetite) were positively correlated with anxiety. These subscales were correlated with some anthropometric indicators (body mass index and lean mass). Finally, the third NIAS subscale (sensory sensitivity) was negatively correlated with child-rated QoL, such that increased sensory sensitivity to food was related to poorer QoL. Conclusions: There may be important relationships between ARFID and anxiety symptoms, quality of life, and anthropometric indicators. Children referred for ARFID care may benefit from screening of psychosocial and quality of life factors.

Understanding Youth Suicide Risk in the Emergency Department Using CAMS-BI

Presenting Author: Madeline Ober, Emory University

Poster Number: 129

Co-Authors: OBER, MADELINE; Fernandez, Francesca, and Reid, Morganne

Background: Based on CDC estimates, there has been an increase in hospital visits for youth presenting with self-injurious thoughts and behaviors over the last two decades. Suicide remains a leading cause of non-accidental death for American adolescents. There is a need for further research on effective bedside

suicide interventions within hospital emergency departments (EDs). The Collaborative Assessment and Management of Suicidality Brief Intervention (CAMS-BI) has been adapted into a single session meant for use in hospital settings. During the current study, CAMS-BI was implemented with youth presenting to a southeastern children's hospital ED. We reviewed qualitative study data regarding what suicide drivers youth are reporting within hospital ED's. Methods: Youth (N=20) completed the CAMS-BI protocol, responding to eight open-ended questions from Section A of the Suicide Status Form (SSF): five core assessment items, reasons for living (RFL), reasons for dying, (RFD) and "One Thing" question. Youth also completed pre- and post- Subjective Units of Distress (SUDS) ratings. Three independent raters completed a content analysis of these qualitative items using a previously published coding structure. Further analyses will be conducted to explore patterns beyond the predefined codes for all responses—including participants' RFL, RFD, "one-thing", and suicidal drivers. Results: Most patients cited relational challenges as their primary reason for experiencing psychache (61.1%) and agitation (50%). Situation-specific factors were the most prevalent causes of stress, while concerns about the future was associated with hopelessness (50%), and external factors were linked to self-hatred (50%). Youth reported a decrease in distress after receiving the bedside intervention. Conclusions: In this population, relational concerns are a primary reason for multiple core risk factors for suicide, while concerns about the future, situation-specific, and external reasons were also main challenges. Addressing these issues at the moment of crisis may be a critical and effective point of intervention. While CAMS has been explored in large-scale clinical trials, this is the first study to take the intervention directly to a patient's bedside while at the exact moment of crisis in ED, underscoring the importance of meeting the patients literally and metaphorically where they are.

Methemoglobinemia and Hypoxia as features of atypical presentation of Glucose-6-Phosphate Dehydrogenase Deficiency: A Case Report

Presenting Author: Ifeyinwa Ogu, Emory University School of Medicine

Poster Number: 130

Co-Authors: OGU, IFEYINWA; Labudde, Emily J.; Mitchell, William G.; Cooper, Jacinta E.

Background: Glucose-6-phosphate dehydrogenase deficiency (G6PDd) is a genetic condition that causes vulnerability to oxidative stress, resulting in hemolytic anemia when exposed to an oxidative trigger. While the classic presentation of patients with G6PDd includes symptoms of hemolytic anemia, such as fatigue, pallor, and jaundice, the co-occurrence of methemoglobinemia and hypoxia in the absence of respiratory distress is less commonly recognized. We present a pediatric case highlighting this atypical presentation. Methods We describe a pediatric patient with previously undiagnosed G6PDd presenting to the emergency department. Clinical presentation, laboratory findings, treatment course, and outcomes were retrospectively reviewed from the electronic medical record. Results A previously healthy 12-month-old male presented with vomiting, irritability, and jaundice. Initial evaluation demonstrated oxygen saturation of 82% with otherwise reassuring vital signs, though notably the patient did not have any cardiopulmonary symptoms. Laboratory evaluation revealed hemoglobin 7.9 g/dL,

indirect bilirubin 3.1 mg/dL, LDH 674 U/L, and methemoglobin 5.6%. Although methemoglobinemia initially raised concern for toxin exposure, no causative exposure was identified. Hematology recommended against treating the methemoglobinemia with methylene blue because of concern for a possible underlying oxidative hemolytic process. Further history revealed first-time fava bean ingestion, a known oxidative trigger, preceding symptom onset, prompting evaluation for G6PDd. Plasma free hemoglobin was elevated, and G6PDd was confirmed by enzyme assay. The patient was managed with supportive care, supplemental oxygen, and packed red blood cell transfusions for a hemoglobin nadir of 6.4 g/dL, with resolution of hypoxia, jaundice, and methemoglobinemia. Conclusions G6PDd should be considered in children presenting with unexplained hypoxia, methemoglobinemia, and laboratory evidence of hemolysis, particularly in the absence of respiratory distress. Careful inquiry regarding oxidant exposures, including fava bean ingestion, may expedite diagnosis. Recognition of this presentation is clinically important because use of methylene blue to treat methemoglobinemia may exacerbate hemolysis in patients with G6PDd.

Postoperative Diuretic Management in Neonates Following Cardiac Surgery — Comparing Continuous and Intermittent Diuretics: A Descriptive Study from a High-Volume Heart Center

Presenting Author: Ifeyinwa Ogu, Emory University School of Medicine

Poster Number: 131

Co-Authors: OGU, IFEYINWA; Krishnam, Neha; Len, Kathleen; Akila, Ahmed; Guerin, Liam; Zaki, Hania; Branstetter, Joshua; and Beshish, Asaad

Background: Neonates undergoing congenital heart surgery are at high risk for postoperative fluid overload and acute kidney injury (AKI). Loop diuretics are routinely used to optimize fluid balance. It remains unclear whether renal and post-operative clinical outcomes differ between continuous and intermittent loop diuretic dosing. This study describes postoperative outcomes associated with both diuretic modalities in a high-volume heart center. Methods: Single-center retrospective cohort study of neonates undergoing STAT 3-5 cardiac surgery between 2020 and 2023 at a high-volume heart center. Patients were stratified by initial postoperative diuretics strategy: continuous infusion (CI) versus intermittent dosing (ID). The primary outcome was AKI, defined using modified neonatal Kidney Disease Improving Global Outcomes (n-KDIGO) criteria. Secondary outcomes included duration of mechanical ventilation (MV), cardiovascular intensive care unit length of stay (CICU-LOS), and hospital-LOS. Appropriate statistics were used for analysis. Results: A total of 260 neonates were included, with 195 (75%) receiving CI of furosemide. Demographics and clinical characteristics were similar, though ID patients were older (8 vs 6 days, p=0.024) and had fewer extracardiac anomalies (29% vs 45%, p=0.030). Circulatory arrest was more common in the CI group (48% vs 28%, p=0.006).Postoperative AKI occurred in 8 patients (3.1%), all within the CI group (4.1% vs 0%, p = 0.207). CI was associated with higher vasoactive inotropic score (VIS) at 12–48 hours ($p < 0.05$), longer duration of MV (90.7 vs 47.0 hours, p = 0.001), longer CICU-LOS (12.6 vs 5.6 days, p = 0.001), and longer hospital-LOS (32.7 vs 21.1 days, p = 0.001). Operative mortality was 8.1% vs 3.5% (p = 0.210).Among patients with Stage 2–3 AKI (n = 8),

all received CI and had longer MV duration (193.9 vs 71.7 hours, p = 0.040), and higher rate of postoperative extracorporeal membrane oxygenation use (37.5% vs 9.6%, p = 0.040). Conclusion: In this high-volume single-center study, continuous diuretic infusion was associated with greater illness severity markers and longer postoperative recovery, while AKI remained uncommon and occurred exclusively in the continuous group. These findings highlight the need for prospective evaluation of diuretic strategies in neonates undergoing high risk congenital heart surgery.

Assessing the Performace of an Adult-Trained Whole-Body MRI Segmentation Model on Pediatric Lung Anatomy

Presenting Author: Darlene Okpokpo, Morehouse School of Medicine

Poster Number: 132

Co-Authors: Okpokpo, Darlene; Barrow, Michael; Daldrup-Link Heike

Background: Accurate lung segmentation in magnetic resonance imaging (MRI) is critical in pediatric thoracic imaging, particularly for evaluating and staging lymphoma. The diaphragm serves as an essential anatomical landmark, with disease involvement above or below this boundary determining stage classification. Recent advances in artificial intelligence (AI) have enabled automated segmentation using models primarily trained on adult datasets. However, pediatric patients possess unique anatomical and physiological characteristics that may limit the accuracy of these models. We hypothesize that an adult-trained MRI segmentation model will demonstrate reduced accuracy when applied to pediatric whole-body MRI due to anatomical and developmental differences, resulting in predictable failure patterns. This study evaluates the model's ability to delineate lung and diaphragm boundaries in pediatric scans, identify common error types, and assess whether inaccuracies could impact lymphoma staging.Methods:A total of 206 pediatric whole-body MRI scans were analyzed. An adult-trained MRI segmentation model was applied to identify the lungs and diaphragm. Segmentation outputs were reviewed and manually corrected using 3D Slicer, an open-source medical imaging platform. Errors were categorized into five groups: minor lung adjustments, significant lung errors, segmentation outside the lungs, incorrect anatomy, and total failure. Errors were analyzed with attention to implications for lymphoma staging accuracy.Results:Of 206 scans, 28.6% demonstrated acceptable segmentation without modification, and 11.2% required minor adjustments. Significant lung segmentation errors occurred in 20 scans 9.7%, while 52.4% exhibited segmentation extending outside the lungs, often including mediastinal or abdominal structures. Despite these issues, 88.9% of scans still contained correctly localized lung regions that could be refined through manual correction. Major errors were most common in scans with mediastinal tumors or distorted anatomy.Conclusion:Adult-trained AI segmentation models show moderate success when applied to pediatric MRI, with about 40% of scans requiring minimal or no correction. However, over half exhibited over-segmentation or misclassification due to pediatric anatomical variability and disease-related distortion. These findings highlight the need for pediatric-specific training datasets and refinement strategies to improve model reliability for clinical use in pediatric oncology imaging.

Enhancing Connection to Care After Pediatric Mental Health ED Visits

Presenting Author: Darja Beinenson, Children's Healthcare of Atlanta

Poster Number: 133

Co-Authors: BEINENSON, DARJA; Copeland, William; Phoebe McCutchan; Cummings, Janet; and Constantino, John

Background: Pediatric mental health–related emergency department (ED) visits have increased substantially over the past decade, reflecting growing unmet behavioral health needs. Suicide-related ED visits increased nearly fivefold from 2011 to 2020, rising from 0.9% to 4.2%. Although ED encounters serve as critical points for identification and intervention, continuity of outpatient care remains a challenge. ED revisits are common among youth with suicidality, with approximately 1 in 9 returning within 7 days. Missed appointments and incomplete follow-through on referrals further limit timely access to behavioral and mental health services. Together, these patterns highlight persistent gaps in connecting patients to outpatient care and underscore the importance of improving processes that support timely follow-up and sustained engagement.Methods. A chart review was completed to identify patients who presented to Children's Healthcare of Atlanta EDs for suicide-related concerns between October 1, 2025, and March 31, 2026, and were referred to outpatient crisis recovery services but not subsequently seen. Targeted outreach was then conducted to assess caregivers' awareness of their child's referral and to understand barriers to follow-through. Outreach included direct patient contact to explore whether referrals were communicated effectively and to identify opportunities to re-engage patients in care.Results. Outreach was conducted to 46 families, with 21 successfully reached. Approximately 46% of referred patients do not ultimately connect to care, due to the lack of awareness of the referral, challenges with scheduling, or obtaining services elsewhere. Of those, approximately 50% were not aware that a referral had been placed, highlighting an opportunity to strengthen communication during the ED encounter. While 70% of families reported establishing care elsewhere, many still described ongoing needs—20% expressed continued concerns related to the ED visit, and 40% indicated interest in additional support or connection to services. Additionally, 9 patients had a subsequent ED visit, underscoring the importance of timely and effective linkage to outpatient care.Conclusions. Leveraging clinical encounters and targeted outreach to improve referral awareness represents a promising strategy for enhancing access to care. Future efforts will focus on refining workflows, clarifying points of contact, and integrating these practices into routine clinical processes to support sustained improvements in patient engagement.

Cardiovascular Imaging Research Core Laboratory At Children's Healthcare Of Atlanta: A Multicenter Collaborative Platform For On-Demand Cardiac Imaging

Presenting Author: Phenique Parker, Children's Healthcare of Atlanta

Poster Number: 134

Co-Authors: PARKER, PHENIQUE; and Nutall, Barbara

Background: The Cardiovascular Imaging Research Core Laboratory (CIRC) at Children's Healthcare of Atlanta is a dedicated, research-focused imaging center that operates independently of standard clinical services and is supported by the Cardiac Service Line. CIRC provides high-quality, non-invasive cardiac imaging support for clinical research involving infants, children, and adolescents.This study describes the role of CIRC as a multicenter collaborative core imaging laboratory that standardizes imaging workflows, facilitates secure image transfer, supports high-quality research analysis, and enhances coordination among internal departments and external research institutions across the United States.Methods: From 2020–2025, CIRC coordinators implemented standardized procedures for requesting, transferring, organizing, and managing cardiac imaging for both internal and external research collaborations. Coordinators also supported research scheduling, sonographer workflow management, quality assurance tracking, protocol adherence, and communication among multidisciplinary teams to promote imaging standardization and research quality.As part of the quality assurance process, quarterly interobserver variability assessments were conducted. Two sonographers independently measured the same images, and results were reviewed to identify discrepancies, reinforce best practices, and ensure consistent, high-quality imaging measurements. Data collected included:Number and type of collaborations between internal departments and external facilitiesTotal study volumes from 2020–2025Representative examples of CIRC functioning as a core imaging laboratoryQuarterly interobserver variability metrics as a marker of measurement consistencyResults:Between 2024–2025, CIRC's highest level of interdepartmental collaboration was with the Oncology department, which accounted for 46% of all internal partnerships. In contrast, Neurology represented the lowest level of interdepartmental collaboration, at 2.2% of all partnerships. From 2023–2025, 46% of CIRC collaborations involved private institutions, contributing to large-scale outcomes research and the advancement of evidence-based clinical practice.Quarterly interobserver variability assessments demonstrated consistent agreement between sonographers, supporting the reliability of CIRC's imaging measurements and standardized quality assurance processes. Conclusion:The Cardiovascular Imaging Research Core Laboratory at Children's Healthcare of Atlanta demonstrates the value of a centralized, research-focused imaging infrastructure through standardized workflows, quality assurance, and multidisciplinary coordination providing reliable support for multicenter pediatric cardiac imaging research. As demand for multicenter pediatric cardiovascular imaging research grows, the CIRC model provides a scalable framework for standardization, efficiency, and collaboration.

Human iPSC-Derived Cardiac Models Enable Predictive Assessment of Tyrosine Kinase Inhibitor–Induced Cardiotoxicity

Presenting Author: Gayatri Patel, Georgia Institute of Technology, Emory University

Poster Number: 135

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Background: Chronic myelogenous leukemia (CML) is a rare hematologic malignancy that presents unique clinical challenges due to the need for long-term therapy during critical stages of growth and cardiac development. Tyrosine kinase inhibitors (TKIs) such as nilotinib, commonly prescribed in children, while ponatinib is recommended cautiously, have significantly improved survival. However, nilotinib shows moderate cardiovascular risk, whereas ponatinib exhibits more severe toxicity, with 878 and 951 cardiovascular adverse event reports, respectively, recorded in the FDA Adverse Event Reporting System for 2025. Understanding the mechanisms of TKI-induced cardiotoxicity using relevant three-dimensional cardiac models is essential to improve long-term quality of life in pediatric CML patients. Objective: To evaluate the dose-dependent cardiotoxic effects of TKIs in 2D and 3D human induced pluripotent stem cell–derived cardiomyocytes (hiPSC-CMs). Methods: hiPSCs were differentiated into early-stage cardiomyocytes and assessed for differentiation efficiency and cellular purity. Both 2D and 3D hiPSC-CM models were treated with increasing concentrations of nilotinib and ponatinib for defined exposure periods. Cardiotoxicity was assessed through measurements of cell viability, mitochondrial stress, ATP content, contractile function, including contractility and relaxation velocity. Results: Nilotinib and ponatinib reduced cell viability in a dose-dependent manner in 2D differentiation cultures containing >77% cardiomyocytes. Ponatinib treatment resulted in a dose-dependent increase in mitochondrial reactive oxygen species. In addition, high concentrations of nilotinib caused a significant loss of mitochondrial membrane potential, leading to cardiomyocyte depletion, as evidenced by reduced expression of cardiac markers NKX2.5, a-actinin, and cardiac troponin T. Consistent with these observations, 3D cardiac spheroids exhibited a marked reduction in ATP content over a five-day exposure period to both TKIs, accompanied by pronounced morphological alterations. Functional assessment of 3D cardiac spheroids revealed drug-specific cardiotoxic profiles: nilotinib exposure impaired contraction and relaxation velocities within 24 hours, while ponatinib significantly disrupted contractility after 72 hours. Conclusions: Although TKIs such as nilotinib and ponatinib have revolutionized CML treatment, their associated cardiotoxicity poses a significant barrier to long-term patient health and quality of life. This study highlights the utility of hiPSC-CM platforms for predictive cardiotoxicity screening with the future aim of exploring potential cardioprotectants to improve the safety profile of CML treatments.

Medication Adherence Challenges Among Children with Special Healthcare Needs: A Caregiver Survey

Presenting Author: Chloe Phillips, Philadelphia College of Osteopathic Medicine - Georgia Campus

Poster Number: 136

Co-Authors: BANG, GRACE; Phillips, Chloe; Kim, Yujin; and Wang, Eric

Background: Children with special healthcare needs (CSHN) frequently require multiple long-term medications, making medication adherence essential for effective disease management. Caregivers are

primarily responsible for medication administration but often encounter socioeconomic, educational, and healthcare access barriers that may compromise adherence. Despite the growing complexity of medication regimens in CSHN, limited research has explored caregiver-reported barriers and their interest in Medication Therapy Management (MTM) services. This study aims to characterize these barriers and evaluate caregiver perceptions of MTM as a potential strategy to improve medication management.MethodsThis IRB-approved cross-sectional survey study recruits caregivers of children aged 5–17 years who are responsible for managing at least two chronic medications. Eligible participants complete a comprehensive questionnaire assessing caregiver demographics, socioeconomic characteristics, medication adherence challenges, healthcare utilization, and interest in pharmacist-led MTM services. Participants receive a $10 Target gift card upon survey completion. Recruitment and data collection are ongoing, with a target enrollment of 30 caregivers.ResultsRecruitment is currently underway. Six caregivers have completed screening, with two determined to be ineligible based on predefined inclusion criteria. Data collection will continue until the target sample size is achieved, after which descriptive and inferential analyses will evaluate caregiver-reported barriers to medication adherence and factors associated with interest in MTM services.ConclusionThis study will provide preliminary evidence regarding caregiver-reported barriers to medication adherence among children with special healthcare needs and evaluate caregiver interest in pharmacist-led MTM interventions. Findings will support the development of targeted strategies to improve medication management, reduce caregiver burden, and enhance health outcomes in this medically vulnerable population.

An Evaluation of the Validity of a Bracketed Preference Assessment

Presenting Author: Ayanna Prather, Children's Healthcare of Atlanta

Poster Number: 137

Co-Authors: Prather, Ayanna; Cormier, V. Caeli; DeLeon, G. Iser; Argueta, Tracy

Background: Stimulus preference assessments (SPAs) are used to identify reinforcers for individuals with neurodevelopmental diagnoses. Two common SPAs are the paired stimulus preference assessment (PSPA) and the multiple stimulus without replacement (MSWO), both of which have practical limitations. For example, the MSWO can only be used with learners who can scan larger arrays, and the PSPA is time-consuming. Currently, no SPAs address these disadvantages concurrently. Thus, we evaluated the predictive validity and efficiency of an SPA modeled after a sports tournament bracket (i.e., the bracketed preference assessment [BPA]) with three autistic children.Method: We conducted an eight-item BPA to identify highly preferred (HP) and less preferred (LP) stimuli and assessed their relative reinforcing properties using a concurrent operant reinforcer assessment.Results: The BPA identified a hierarchy of HP and LP stimuli for all three participants and had a mean duration of 9.77 min. During the concurrent operants reinforcer assessment, mean responding was higher during the HP condition (i.e., compared to the LP and control condition) for all three participants. Conclusions: These findings suggest that the BPA has predictive validity and may be an efficient assessment to identify reinforcers for autistic children. Furthermore, the BPA may be an alternative to MSWOs or PSPAs in clinical practice when time

is a barrier, a hierarchy of preferred stimuli is needed, and when learners have difficulties scanning larger arrays.

Toward More Child-Centered ABA Services: Perspectives of Autistic Adults, Caregivers, and Clinicians

Presenting Author: Michelle Pu, Emory University SOM

Poster Number: 138

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Background: Over half of all diagnosed autistic children receive Applied Behavior Analysis (ABA) therapy, and insurance mandates now require coverage in all 50 states. The ABA field itself encompasses a wide range of settings, service models, and strategies to engage children, yet the field's rapid expansion has raised concerns that practices prioritize compliance and can result in negative psychiatric outcomes. In response, there is increasing emphasis on providing socially valid care that is developmentally appropriate and neurodiversity affirming. However, there has been limited empirical examination of the provider-, organizational-, and system-level factors shaping the implementation and experience of ABA services. To address this gap, this study aimed to 1) characterize ABA service delivery and identify the implementation challenges to naturalistic, child-centered approaches; and 2) identify the multi-level factors affecting the delivery of child-centered and developmentally appropriate care. Methods: Participants who identified as autistic adults, clinicians (Registered Behavioral Technicians and Board Certified Behavior Analysts), and/or caregivers participated in semi-structured interviews on ABA strategies and the service system (n=27). Interview transcripts were coded and analyzed using framework matrix analysis to identify themes across provider, clinic, and system factors affecting care quality and access. Results: Characterization of ABA services found long waitlists, varied communication within organizations and with caregivers, and a need for more developmentally-appropriate practices. Additionally, participants experienced a variable ABA service landscape in terms of diverse ABA agencies and their overall quality. We further identified factors which impact child-centered care, including clinician attitudes and training, clinic culture, and insurance coverage of ABA. Overall, our findings highlight clinician-, clinic-, and system-level factors impacting a family's receipt of child-centered ABA. Conclusions: Improving the use of developmentally-appropriate ABA practices requires both implementation and de-implementation of strategies within a complex and heterogenous ABA service landscape. Policy-, clinic-, and provider-level factors may each be important targets in future implementation projects aiming to promote high quality care for autistic children and their families.

Eat, Sleep, Console: A Quality Improvement Study for Management of Neonates with Prenatal Opioid Exposure

Presenting Author: Ratheya Rajakumar, Ochsner

Poster Number: 139

Co-Authors: McMullen, Mary-Margaret; RAJAKUMAR, RATHEYA; WONG, AUDREY; Lin, Andrew; Keum, Jaeho; and Wright, Alexandra

Background: Prenatal opioid exposure is associated with prolonged neonatal hospitalization and increased healthcare utilization. The Eat, Sleep, Console (ESC) model is a function-based assessment tool that prioritizes non-pharmacologic interventions and caregiver involvement before initiating pharmacologic therapy for neonatal opioid withdrawal syndrome. A multicenter randomized trial published in 2023 demonstrated that ESC reduced length of stay (LOS) and opioid exposure compared with traditional Finnegan scoring. ESC was implemented at Ochsner Baptist in November 2024; however, its impact on institutional outcomes had not been formally evaluated.Methods: A single-center retrospective quality improvement study of neonates with in-utero opioid exposure before and after ESC implementation. All exposed neonates were managed using the ESC Care Tool following protocol initiation. Demographic and clinical data, including hospital LOS and pharmacologic treatment requirements, were collected. Outcomes were compared between pre- and post-implementation cohorts using T-test and Chi-Squared Analysis accordingly.Results: Neonates seen after ESC implementation (n=24) had a significantly shorter LOS than those before implementation (n=25). Patients before implementation had an average LOS of 28 days compared to the 14 days after implementation (p=0.031 [CI 1.2,25.6]). Additionally, fewer patients after ESC implementation received morphine (16.7% vs 76%; CI 37, 82; chi-squared = 17.3, p-value < 0.001). Additional data collection and statistical analysis are ongoing with final results to be presented at the conference.Conclusion: Preliminary findings suggest that implementation of the ESC model was associated with substantial reductions in hospital LOS and pharmacological treatment among neonates with prenatal opioid exposure. These findings support continued use of ESC at Ochsner Baptist and may inform broader implementation across Ochsner Health. Ongoing analysis will further evaluate program effectiveness and identify opportunities to optimize non-pharmacologic and pharmacologic care, staff education, and long-term patient outcomes. Future research should explore parental satisfaction, post-discharge outcomes such as readmission and follow-up visit rates, and long-term infant developmental outcomes.

The Value of Developmental-Behavioral Pediatrics

Presenting Author: Ratheya Rajakumar, Ochsner

Poster Number: 140

Co-Authors: Rajakumar, Ratheya; George, Amritha; Murugadass, Roshini; Elmayan, Ardem; Voigt, Robert; and Moran, Elisa

Background: Disorders of development, behavior, and learning (including developmental delays, intellectual disability, autism spectrum disorder, learning disorders, and attention-deficit/hyperactivity disorder) are among the most prevalent chronic medical conditions in pediatrics (n=19 million). Diagnostic developmental evaluations can be performed by developmental-behavioral pediatricians

(DBPs), psychologists, or both via multidisciplinary assessments. Despite this high demand for evaluation, there is a limited DBP workforce (N = 803) with resultant long wait lists nationally. Thus, it is critical to identify the most efficient pathway for diagnostic developmental evaluation, and this study is the first to compare diagnostic evaluations performed by DBPs versus child psychologists. MethodsA single-center retrospective observational study of children who underwent diagnostic developmental evaluations with either a DBP or psychologist was performed for a calendar year. Data for number of visits required to make a diagnosis and time from referral to evaluation completion were compared using both Welch's T-test and Mann-Whitney test to account for skewed data.ResultsPatients evaluated by DBP (n=173) had significantly fewer visits to establish a diagnosis than patients evaluated by psychology (n=498) with an average of 1 [IQR 1-1] visit for DBP compared to 3 [IQR 1-4] visits for psychology ($p < 0.001$ [CI 1.93, 2.50]). For patients with data regarding date of referral, a diagnosis was also received from a DBP (n=120) 52 days sooner than from a psychologist (n=362) ($p = 0.01$ [CI 20.5, 83.4]). ConclusionThis study highlights the efficiency of DBP as compared to psychology in diagnostic developmental evaluation. Results from this study suggest a primary role for DBP in diagnostic evaluation, while reserving the more time-consuming psychology evaluations for those patients for whom the diagnosis is uncertain following initial DBP evaluation. Given the long wait lists for diagnostic developmental evaluation, the importance of early identification and intervention, and the limited DBP workforce, given their efficiency in diagnosis, medical evaluation, and counseling families, all typically in a single visit, the primary role of DBPs nationally should be to focus on diagnostic developmental evaluation.

Fatty Liver, Big Heart Risk: Prevalent Cardiovascular Risk Among Young Children with Subclinical and Clinical Hepatic Steatosis

Presenting Author: Ana Ramirez, Emory University

Poster Number: 141

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Background: Hepatic steatosis is closely linked to cardiometabolic risk factors (CMRF) in adults; however, less is known in childhood. In particular, data is lacking in younger children because of the challenges in accurately measuring liver fat. We investigated hepatic steatosis (HS) and cardiometabolic risks in pre-pubertal Hispanic/Latino children.Methods: This was a prospective cohort study including 130 Hispanic/Latino children aged 6–9 years old (NCT05292352). Eight binary cardiometabolic risk factors (CMRFs) were combined into one risk CMRFs score (range 0–8): waist-to-height ratio (WHR) ≥0.5, triglycerides ≥100 mg/dL, total cholesterol (TC) ≥170 mg/dL, HDL <45 mg/dL, LDL >110 mg/dL, fasting glucose ≥100 mg/dL, HbA1c ≥ 5.7% and insulin >15 µU/mL. High-risk was classified as ≥3 CMRFs. HS was measured via MRI proton density fat fraction (MRI-PDFF) and was defined as low <3%, subclinical 3-5%, and clinical ≥5%. Prevalences of individual CMRFs and high-risk classification were compared across HS categories using Fisher's exact tests. Results: Mean (SD) age was 8.0 (1.1), 42.3% female, 56.2% had a

BMI >95th percentile. The most prevalent CMRFs were increased WHR (73.1%), elevated TC (33.1%), and low HDL (32.3%). Prevalence of several individual CMRFs rose with increasing HS (p-trend <0.0003 for all). Among those with HS <3%, 3-<5%, and ≥5% respectively, prevalences were, 1) High triglycerides: 6.7%, 25.0%, and 54.3%, 2) Low HDL: 15%, 29.2%, 56.5%; 3) High WHR: 48.3%, 87.5%, and 97.8%, and 4) High insulin: 1.7%, 16.7%, 26.1%. There was no significant trend between elevated HS and prevalence of high LDL, TC, HbA1C, or fasting glucose. High-risk prevalence (≥3 CMRFs) rose from 16.7% among those with low HS to 37.5% and 54.3% among those with subclinical and clinical HS. None of the patients had more than 6 CMRFs.Conclusion: Over one-third of children of Hispanic/Latino school-age with subclinical steatosis of 3-<5% had ≥3 CMRFs. These findings support re-evaluating current pediatric guidelines, which recommend screening beginning at age 10 and intervention only for HS ≥5%.

A Technical Report of an Elopement Space

Presenting Author: Amulya Rekapalli, Children's Healthcare of Atlanta, Marcus Autism Center

Poster Number: 142

Co-Authors: Lindsay A. Lloveras1,2, Christian P. Yensen1, Daniel R. Mitteer1,2, Nathan A. Call1,2, and Joanna E. Lomas Mevers1,2, Cypress Kuhnel 1, Amulya Rekapalli1, Peyton Wofford 1

Background: Elopement is a dangerous form of challenging behavior that presents unique challenges to typical assessment and treatment. It has been reported that half of those diagnosed with autism spectrum disorder engage in some form of elopement. Because it can result in serious injury and other safety risks, effective intervention is necessary. However, clinicians may struggle with balancing client safety with the need to allow for elopement to occur to create a successful treatment plan. Other solutions to these challenges include locked or slow to close doors, inclusion of physical boundaries, or confinement. While these prevent potential safety risks, they will not be present in natural environments or will still require staff to utilize retrieval procedures often. MethodsTo address some of these challenges, our team created a specialized Elopement Space consisting of two session rooms connected by a hallway and monitored via cameras and one-way windows. This design was created to allow for a contained environment in which opportunities for elopement are accessible, and behavior can be observed while minimizing unnecessary therapist involvement. ResultsThis Elopement Space provides a practical solution for assessing and treating elopement in a controlled setting. The design allows clinicians to observe participant behavior, arrange opportunities for elopement within a session, and to evaluate other maintaining variables. The space is effective as it reduces staffing demands and reduces the use of retrieval procedures and physical containment. ConclusionsThe Elopement space may serve as a useful model for various specialized treatment settings that regularly serve individuals who engage in elopement. We recomment several additional considerations that practitioners, researchers, and hospital systems may make in their replication of similar systems.

Reducing Sensor Requirements in Pediatric Robotic Exoskeletons Through Machine Learning-Based Gait Phase Estimation

Presenting Author: Emily Rice, Georgia Institute of Technology

Poster Number: 143

Co-Authors: RICE, EMILY; Nathella, Siddharth; Harvey, Taryn; Herrin, Kinsey; and Young, Aaron

Background: For treatment of children with gait disorders, physical rehabilitation is a minimally invasive and effective approach. Robotic exoskeletons combined with a biofeedback system have been shown to improve patient retention and engagement while reducing clinician burden [1], [2]. One limitation to widespread adoption is the number of sensors required to detect gait events and adapt assistance across diverse clinical populations and environments. A common method for knee exoskeletons to estimate gait phase uses force-sensitive resistors (FSRs) mounted on the shoe to detect heel strike. Replacing these sensors with a machine learning–based gait event detection algorithm could reduce system complexity, decrease setup time, and improve usability, facilitating deployment outside controlled laboratory settings. Methods: Acceleration and gyroscope measurements from thigh and shank-mounted inertial measurement unit (IMU) sensors were collected during steady-state walking trials from pediatric patients with gait disorders (n = 6). A Temporal Convolutional Network (TCN) was developed to estimate continuous gait cycle percentage where 0% corresponded to heel strike and 100% corresponded to the instant before the subsequent heel strike of the same limb. The model was trained and evaluated using a leave-one-subject-out cross-validation approach, and performance was assessed by comparing estimated gait phase to ground-truth gait phase using root mean squareerror (RMSE). Results: The TCN successfully estimated continuous gait phase across all participants. Leave-one-subject-out validation yielded participant-specific RMSE values ranging from 5.5% to 16.6% of gait cycle, with a mean RMSE of 9.1%. Four of the six participants demonstrated RMSE values below 7.4%, while two participants exhibited substantially larger errors. These results indicate that the model was largely able to capture gait phase progression, although performance varied considerably across individuals. Conclusion: These findings demonstrate the potential for IMU-based machine learning models to estimate gait phase without FSRs, improving the practicality of pediatric exoskeletons and their future as a promising intervention strategy. Result variability is likely due to the small training dataset, so future work should focus on expanding this to improve model robustness and generalizability across diverse clinical populations. References: [1] Nathella et al. (2025) ICORR, [2] Lee et al. (2024) J Biomech Eng.

Acute Kidney Injury and Demographic Differences in Pediatric Acute Gastroenteritis

Presenting Author: Daniel Rose, Emory University

Poster Number: 144

Co-Authors: Rose, Daniel; Shin, Stella

Background: Acute gastroenteritis (AGE) is a common pediatric illness that can lead to dehydration and acute kidney injury (AKI), both associated with increased healthcare utilization. Emergency department (ED) risk stratification for AKI varies across institutions and often relies on subjective clinical assessment. Limited data describe characteristics associated with AKI in pediatric AGE. We aimed to characterize hospitalized children with AGE and AKI to inform future biomarker-based risk stratification studies. METHODS We conducted a retrospective cohort study of patients aged 0–18 years presenting to a pediatric ED between May 1, 2018, and August 31, 2024, with AGE requiring admission to pediatric hospital medicine. Patients presenting from urgent care or with sepsis, shock, or chronic illness were excluded using ICD-9/10 codes. Data collected included demographics, insurance status, fluid resuscitation, length of stay, ED disposition, and AKI incidence defined by KDIGO criteria. Continuous variables were reported as mean (SD) or median (IQR), and categorical variables as counts (%). Comparisons across AKI stages used Kruskal-Wallis and Fisher exact tests. RESULTS Among 60,582 eligible ED visits, 5.5% resulted in hospitalization for AGE. Of admitted patients, 8.8% developed AKI. Among patients with AKI, racial distribution was White (33.9%), Black/African American (32.1%), and Multiracial Hispanic (28.8%), compared with the overall ED population of Black/African American (46.9%), Multiracial Hispanic (27.7%), and White (20.6%). Among admitted AGE patients, racial distribution was White (39.7%), Black/African American (32.3%), and Multiracial Hispanic (22.9%). Overall, 52.1% of ED patients and 52.2% of admitted patients were male. The mean age was 4.37 years (SD 4.52). The most common insurance types were Peach State (39.6%), Amerigroup (31.4%), and CareSource (18.1%). Multivariable analyses are ongoing. CONCLUSIONS Differences in admission and AKI patterns by race and insurance status warrant further investigation into potential healthcare disparities. Younger children and males represented the majority of admitted patients. These findings support the need for objective, standardized approaches to AKI risk stratification in pediatric AGE and may inform future biomarker-based screening strategies.

Neighborhood Environments and Cardiovascular Risk in Children and Adolescents with Type 1 Diabetes

Presenting Author: Raul Ruiz-Perez, Emory University

Poster Number: 145

Co-Authors: RUIZ-PEREZ, RAUL; McCauley, Linda; and Griggs, Stephanie Alisha

Background: The neighborhood environment is an increasingly recognized determinant of cardiovascular health. While children and adolescents with type 1 diabetes (T1D) face inherent disease-related risks, the degree to which residential obesogenic environments, characterized by limited healthy food access, low walkability, transport infrastructure, and limited green space, compound these risks remains unclear. We examined the contribution of obesogenic environments to cardiovascular risk profiles in children and adolescents.Methods: This retrospective observational cohort study linked ZIP code-level obesogenic risk scores to clinical data from 20,244 children and adolescents (aged 2-20 years) across 67 endocrinology centers in the T1D Exchange Registry (2007-2017). Two hypotheses were tested: (1) higher obesogenic

neighborhood risk is associated with higher levels of individual and composite scores including body mass index (BMI) z score, glycated hemoglobin (HbA1c), low-density lipoprotein cholesterol (LDL-C), and blood pressure (BP) z score; and (2) residing in high-risk environments (≥90th percentile) increases the odds of meeting clinically significant risk thresholds (BMI ≥85th percentile, HbA1c ≥7%, LDL-C ≥100 mg/dL, and BP ≥90th percentile). Multivariable linear regression assessed associations with continuous markers, and logistic regression determined the odds of exceeding clinical thresholds. Results: Residing in higher risk obesogenic environments was associated with higher BMI z scores (B = 0.019, p = 0.005), higher HbA1c (B = 0.028, p = 0.011), higher blood pressure z scores (B = 0.022, p < 0.001), and higher cardiovascular risk composite scores (B = 0.011, p < 0.001). Individuals living in the highest risk obesogenic neighborhood environments had 22% higher odds of overweight or obesity (95% CI 1.07, 1.41), 52% higher odds of high HbA1c (95% CI 1.20, 1.92), and 27% higher odds of a high cardiovascular risk composite (95% CI 1.12, 1.43). LDL-C was not significantly associated with obesogenic neighborhood risk. Conclusions: In this large national registry cohort, obesogenic neighborhood environments were associated with cardiovascular risk indicators across multiple domains in children and adolescents with T1D. Addressing structural environmental barriers alongside traditional diabetes care may be important for reducing cardiovascular risk across the early life course. These findings support incorporating environmental context into cardiovascular risk assessment.

Optimizing Capillary Blood Collection Workflows for HCV and HBV Point-of-Care Diagnostics

Presenting Author: Courtney Sabino, Emory University

Poster Number: 146

Co-Authors: Sabino, Courtney; Bowers, Heather B.; Sullivan, Julie; McLendon, Kaleb; Damhorst, Greg; Schinazi, Raymond F.; Lam, Wilbur; Bassit, Leda; and Rao, Anuradha

Background: As part of the RADx®/ITAP program at Emory University, HCV and HBV diagnostic studies are conducted in partnership with academic, industry, and government collaborators to expand access to point-of-care testing and support global infectious disease elimination efforts. Although capillary blood collection is widely used for decentralized diagnostics, there are limited evidence-based resources describing optimal collection methods for different testing applications. Existing guidance primarily focuses on specimen safety and handling rather than standardized approaches to maximize specimen quality, collection efficiency, and usability. We systematically evaluated capillary blood collection devices and workflows to optimize specimen collection for HCV and HBV diagnostic research.Methods:Capillary blood collection methods were optimized for HCV molecular testing and HBV lateral flow assay development. For HCV studies requiring 250–500 µL of capillary whole blood, multiple lancets, warming methods, and EDTA microtainers were evaluated to maximize blood yield while maintaining participant comfort. For HBV testing that requires only 50 µL of blood, three capillary transfer devices were compared for usability, specimen handling, anticoagulant requirements, and cost. Collection protocols were iteratively refined to meet assay-specific blood volume requirements, improve workflow efficiency, and ensure biosafety.Results:A blade-style lancet, hand warming, and K2EDTA microtainer were

identified as the preferred collection strategy for high-volume HCV applications. For low-volume HBV testing, two low-cost capillary transfer devices demonstrated equivalent performance, with final selection based primarily on ease of use and cost-effectiveness. Tailoring collection methods to each diagnostic application improved specimen collection efficiency, reduced unnecessary blood collection, and minimized biosafety risks associated with handling bloodborne pathogens. These optimized workflows have been successfully implemented across multiple ongoing diagnostic studies and laboratory training activities.Conclusion:Systematic optimization of capillary blood collection workflows improves specimen quality, operational efficiency, and biosafety for point-of-care diagnostic research. These standardized methods are now being applied to additional infectious disease diagnostic initiatives, including HIV testing and the development of dried blood spot assays for HCV, and have potential applications in pediatric heel-stick and fingerstick testing. As decentralized diagnostic technologies continue to expand, these workflows may help establish evidence-based best practices for capillary blood collection across research and clinical settings.

Trends in Beverage Consumption Among U.S. Children: A Decade of Change (2011–2023)

Presenting Author: Cristian Sanchez-Torres, Emory University

Poster Number: 147

Co-Authors: SANCHEZ-TORRES, Cristian; Chiang, Katelyn; DeSantos, Karla; Ramirez Tovar, Ana; Vos, Miriam; and Welsh, Jean.

Background: Childhood obesity rates are increasing, with notable socioeconomic disparities. Beverage consumption patterns have been linked to a higher risk of obesity and related chronic diseases. While the intake of sugar-sweetened beverages (SSBs) and dairy is known to have been decreasing before the COVID epidemic, more recent trends and the extent to which they are consistent across economic subgroups, is not known.Methods: 17,727 twenty-four-hour dietary recall data from 2–19-year-old participants in each of the 2-year cycles of National Health and Nutrition Examination Survey (NHANES) from 2011-2023 were analyzed to assess beverage intake. Beverage classification was based on What We Eat in America. Trends in leading sources of free sugars, SSBs and juice, were also assessed in combination. The prevalence of consumption and mean intake as a percentage of total energy intake (TEI) and in total ounces were estimated. Trend analyses were conducted using regression models and methods designed to account for the complex sampling design. Analyses were stratified by age, race/ethnicity, and household income.Results: Between 2011–2012 and 2021–2023, there was a significant decline in the prevalence of all beverages excluding water from 97.6% to 88.2%. Prevalence declines were greatest for dairy (70.9% to 56.7%) and sweetened beverages (63.1% to 46.8%%), with consistency in this trend across all income groups. TEI from all beverages also decreased, from 19.3% to 13.6% with reductions greatest in the free sugar-containing beverages,100% juice and SSBs. The lowest-income households consistently had the highest consumption of SSBs, with a prevalence of 52.3% and 5.8% TEI in the 2021-2023 cycle). The decline in dairy consumption was greatest among the highest-income households, with a prevalence of 77.8% to 48.1% and TEI from 9.5% to 5.3%. In contrast, water

consumption increased across all income levels (p-trend <0.0001), with 2021-2023 consumption prevalence 82.3% among the lowest, and 95.4% among the highest high-income households.Conclusions: The findings suggest a growing trend towards a healthier beverage choice in the diets of U.S. children. However, income disparities persist, with low-income households still consuming high amounts of sugar beverages and higher income families consuming less dairy milk.

Velacur as a Non-Invasive Test for the Detection of Pediatric Hepatic Steatosis

Presenting Author: Cristian Sanchez-Torres, Emory University

Poster Number: 148

Co-Authors: SANCHEZ-TORRES, CRISTIAN; Schneider, Caitlin; Ramirez Tovar, Ana; Huneault, Helaina; Chatman, Kelsey; Khanna, Geetika; Knight-Scott, Jack; Alazraki, Adina; Bai, Shasha; Welsh, Jean; and Vos, Miriam B.

Background: Noninvasive, point-of-care tests to detect hepatic steatosis (HS) are needed for rapid diagnosis of MASLD in outpatient pediatric clinics, particularly in young children with early onset of the disease. Conventional ultrasound is the most widely used imaging modality due to its safety, tolerability, and ease of use in children. However, its performance is suboptimal, and it typically requires scheduling a separate appointment in radiology. Velacur is a non-invasive, point-of-care, ultrasound-based method for the assessment of attenuation and liver stiffness, demonstrated to be superior to Fibroscan for liver fat detection in adults (referenced to MRI-PDFF).Methods:This prospective, cross-sectional study included 113 Hispanic/Latino children prospectively recruited from the community as part of a MASLD prevention trial. Each participant underwent both MRI-PDFF (Proton Density Fat Fraction) and Velacur assessment on the same day. The primary outcome was the presence of liver steatosis (≥5.2%) as measured by MRI-PDFF. The performance of Velacur attenuation coefficient estimate (ACE) was evaluated using Area Under Curve (AUC) analyses for hepatic steatosis thresholds of normal (<5.2%), mild (5.2 - 11%), and moderate (>11%) defined by MRI-PDFF.ResultsA total of 113 Hispanic/Latino children, aged 6-9 years, were included in the study (mean age: 7.9 years (SD 1.05) , 55% male). 34% of participants were categorized as obese, 18% overweight, and 48% as normal weight. Overall, 35% (n=40) had HS ≥5.2% as determined by MRI-PDFF. Velacur ACE had fair diagnostic performance for MASLD in children (AUC 0.76, CI 0.67 – 0.86). Using the optimal ACE cutoff of 250 dB/m, which maximized the combination of sensitivity and specificity, sensitivity was 70%, and specificity was 67%, Positive Predictive Value of 48% and Negative Predictive Value of 84%. For moderate steatosis (>11%) Velacur ACE diagnostic performance improved to AUC 0.88 (CI 0.78 – 0.98).Conclusion:Velacur™ attenuation demonstrated fair to good performance in detecting hepatic steatosis in young children, particularly at higher levels of liver steatosis. While accuracy improves with increasing liver steatosis content, the overall negative predictive value of 84% supports clinical utility. Further validation in a larger more diverse pediatric population is needed.

Identifying PTK7 and developing PTK7-CAR gamma delta T cells as an effective strategy against T-cell acute lymphoblastic leukemia

Presenting Author: Austre Schiaffino Bustamante, Emory University

Poster Number: 149

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Background: The clinical success of cellular immunotherapies for T-cell acute lymphoblastic leukemia (T-ALL) has been limited due to the lack of T-ALL specific antigens. γδ T cells are a promising alternative CAR platform due to their innate anti-leukemic properties and MHC-independent mode of action; however, limited bone marrow trafficking and in vivo persistence remain significant challenges. We identified protein tyrosine kinase 7 (PTK7) as a potential target in T-ALL and previously demonstrated that γδ T cells expanded in the presence of transforming growth factor beta (TGFβ) exhibit enhanced persistence and increased bone marrow trafficking. Here, we describe a novel cellular immunotherapy strategy utilizing TGFβ-expanded γδ T cells engineered to express a PTK7-directed CAR to improve anti T-ALL activity. METHODS: PTK7 was identified through RNA sequencing by comparing the transcriptional profiles of T-ALL samples and γδ T cells. PTK7 protein expression was validated by Western blot and flow cytometry. γδ T cells were expanded in the presence of TGFβ and transfected to express a PTK7 CAR. CAR expression was quantified by flow cytometry, and cytotoxic activity of TGFβ-expanded PTK7 CAR γδ T cells against T-ALL cell lines was assessed using a flow cytometry-based cytotoxicity assay. RESULTS: Differential gene expression analysis confirmed upregulation of PTK7 in T-ALL samples, with low expression observed in γδ T cells. Western blot and flow cytometry demonstrated PTK7 expression at both total protein and cell surface levels in T-ALL cell lines. CAR expression was higher in TGFβ-expanded γδ T cells compared to non–TGFβ–expanded controls (92.8% CAR+ vs 46.2% CAR+, respectively), and this was associated with enhanced cytotoxic activity against T-ALL cell lines.CONCLUSIONS: PTK7 has previously been studied in our group as a promising immunotherapy target for pediatric solid tumors. Here, we demonstrate that PTK7 is highly expressed in T-ALL and can be effectively targeted using TGFβ-expanded PTK7 CAR γδ T cells. These findings support the feasibility of TGFβ-expanded γδ T cells as an alternative CAR product and highlight PTK7 as a potential target for the development of novel cellular immunotherapies for T-ALL.

Real-Time Optimization of the Total Cavopulmonary Connection in Fontan Patients: A Novel Computational Surgical Planning Paradigm

Presenting Author: Imran Shah, Georgia Institute of Technology

Poster Number: 150

Co-Authors: SHAH, IMRAN; Mahadevan, Kripa; Ballarin, Francesco; Wei, Zhenglun Alan; Yoganathan, Ajit; Dasi, Lakshmi; and Veneziani, Alessandro

Background: Pre-operative surgical planning via computational fluid dynamics (CFD) simulations for the Fontan procedure has become popular for characterizing total cavopulmonary connection (TCPC) hemodynamics. However, individual simulations require up to 48-96 hours to complete using high-performance computing resources. Evaluating multiple surgical options in a trial-and-error fashion can thus extend total planning times to several weeks per patient, limiting the clinical translatability of computational surgical planning approaches. Methods: A reduced order modeling (ROM) framework was developed to enable real-time hemodynamic simulations and automated optimization of patient-specific TCPCs. The ROM was constructed using the Proper Orthogonal Decomposition (POD) approach. Combined with appropriate geometrical parameterization techniques, the framework was validated in a cohort of 9 Fontan patients divided into two groups. Group 1 (n = 3) was used for methodological development and accuracy assessment, and Group 2 (n = 6) was used for retrospective evaluation against pre- and post-operative outcomes. In each case, optimization objectives targeted a balanced hepatic flow distribution (HFD) set to 50/50% between the left and right pulmonary arteries. or minimization of the total power loss (PL).Results: ROM simulations achieved strong agreement compared against traditional CFD evaluations, with maximum errors in blood flow velocity and pressure data of 4.4%. Computing costs were reduced by 99.8%, with individual simulations completing in as little as 10 seconds. The optimization algorithm was successfully able to identify optimal TCPC configurations within 3 hours. In the retrospective analysis, ROM-based optimized TCPCs achieved more balanced HFD splits compared to the pre-operative surgical option in all 6 patients and outperformed post-operative outcomes in 5 of 6 patients.Conclusions: The proposed ROM framework enables real-time, individualized optimization of patient-specific TCPCs, thus transforming surgical planning from a trial-and-error based evaluation into a rigorous optimization-driven workflow. By dramatically reducing computing costs while preserving hemodynamic accuracy, the framework represents an essential step towards the realization of physics-based Fontan digital twins. Future work includes exploring multi-objective optimization that balance the competing natures of both the HFD and PL metrics, as well as extensive validation in prospective patient cases.

Implementing Genetic Testing into Childhood Cancer Care: A Report from the Children's Oncology Group and the Molecular Characterization Initiative

Presenting Author: Caroline Shi, Emory University

Poster Number: 151

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Background: The Molecular Characterization Initiative (MCI) is part of the National Cancer Institute's Childhood Cancer Data Initiative (CCDI) and currently implemented through the Children's Oncology Group (COG). The MCI has established an integrative molecular profiling framework prioritizing timely clinical sequencing with a primary focus on tumor findings. Notably, the MCI does not include a

standardized approach for returning germline results to participants or subsequent cascade testing in relatives. To address these gaps, we developed two companion studies: 1) the Outcomes and Health Risks among Individuals with Genetic Predispositions to Cancer (ORIGen) study and 2) the Genetic Information for Families after Tumor Testing (GIFTT) study. Methods: These studies will recruit and follow patients with a germline variant reported in MCI, along with their first-degree relatives. Because of the sensitivity of these results, treating physician approval is required before contacting patients or families. ORIGen surveys administered in REDCap collect information on healthcare utilization and patient-reported outcomes. The GIFTT study develops a chatbot intervention using the Way to Health platform, designed with input from parents of patients with an actionable germline finding, to increase uptake of cascade testing among family members.Results: Among the 6,582 patients tested in MCI, 889 (13.5%) had an actionable germline variant in a cancer predisposition gene (CPG). The most frequent childhood-onset CPGs were TP53, DICER1, and NF1, while adult-onset CPGs included BRCA1, BRCA2, MLH1, MLH2, and MSH6. Co-design meetings with parents yielded feedback that improved the chatbot's educational value, clarity, and acceptability. We have received contact information on 440 patients. Of 163 physicians contacted, 132 responded, and 102 patient families were deemed eligible for recruitment. We have sent introductory letters to 88 families, followed up via phone with 59, and sent consent forms to 17. To date, five families have consented for ORIGen. After completing the survey, participants will be referred to GIFTT, where family members without a history of cascade testing can access genetic service through the educational chatbot. Conclusion: The ORIGen and GIFTT studies will provide important insights into cancer predisposition, outcomes, and genetics-related healthcare utilization among children diagnosed with cancer and their family members.

Cardiomyocyte-specific βPIX deletion results in dilated cardiomyopathy and mislocalization of integrin-adhesion complex proteins

Presenting Author: Luke Shoemaker, Emory University

Poster Number: 152

Co-Authors: SHOEMAKER, LUKE J.; Ghazal, Nasab; Kalan, Tiara; Qadota, Hiroshi; KWONG, JENNIFER Q.; BENIAN, GUY M.

Background: Cardiomyopathies represent a substantial burden on the global healthcare system. While many cases are associated with mutations in genes encoding mostly sarcomeric proteins, in many other cases the genes involved are unknown, highlighting a significant need for new genetic factor discovery. Loss-of-function mutations in the C. elegans gene pix-1 result in loss of assembly of integrin-associated complexes (IAC) in striated muscle. PIX-1 is a Rac GEF that activates Rac and thereby activates its protein kinase PAK. The mammalian ortholog, βPIX, has a poorly understood role in mammalian muscle. Because mutations in some IAC components result in cardiomyopathy, we postulated that βPIX may be involved in cardiac muscle regulation and disease via IAC dysregulation.Methods: We localized βPIX in the mouse heart via immunofluorescence and generated a cardiomyocyte-specific knockout (βPIX-cKO) mouse model. Cardiac function was assessed longitudinally with echocardiography. Intercalated disk

morphology was quantified by contour length-to-chord length ratio. IAC protein levels and localization were evaluated at two and eight months of age with western blotting and immunohistochemistry, respectively. Cardiomyocyte adhesion to laminin was assessed with GentleMACS perfusion and RICM microscopy.Results: βPIX localizes to intercalated disks, costameres, and Z-disks in cardiomyocytes. βPIX-cKO mice develop dilated cardiomyopathy by eight months of age and die between eight and eleven months. Intercalated disks show increased amplitude in βPIX-cKO mice at eight months. No differences in IAC protein levels were detected; however, integrin-linked kinase (ILK) is lost at costameres as early as two months of age, prior to overt cardiomyopathy, and Kindlin-2 forms abnormal aggregates at eight months. Finally, cardiomyocytes show a functional decrease in adhesion to laminin at two months of age.Conclusions: Loss of βPIX perturbs integrin adhesion complex localization, results in decreased adhesion to laminin, and contributes to dilated cardiomyopathy development, identifying βPIX as a novel genetic factor in cardiac disease.

Strangulated Inguinal Hernia Presenting as Testicular Torsion in an Infant

Presenting Author: Tsering Shola, Morehouse School of Medicine

Poster Number: 153

Co-Authors: Shola, Tsering; Li, Mirandy

Background: Inguinal hernias are common in infants and may lead to incarceration of abdominal contents. Testicular ischemia due to a strangulated inguinal hernia is rare but can result in irreversible testicular loss. We present a case of testicular ischemia requiring orchiectomy in a six-week-old infant with bilateral inguinal hernias and hydroceles.Methods: A six-week-old male presented to the emergency department with acute bilateral scrotal swelling and firm testes that developed one hour prior to admission. The patient had a history of large bilateral hydroceles and bilateral inguinal hernias containing bowel loops extending into the scrotum. Physical examination demonstrated a tense tender scrotum with non-palpable testes, a high-riding left testis and marked swelling of the right hemiscrotum. Laboratory evaluation revealed findings consistent with a urinary tract infection. Doppler ultrasonography demonstrated absent vascular flow to the right testis, a twisted spermatic cord, a large septated hydrocele and bowel within the right hemiscrotum.Results: The patient was diagnosed with testicular torsion, orchitis, uncomplicated urinary tract infection, and congenital hydronephrosis. Manual detorsion was unsuccessful and prompted urgent surgical intervention. Scrotal exploration revealed a nonviable ischemic right testis secondary to compression from herniated bowel within the scrotum. A right inguinal orchiectomy and hernia repair were performed. The patient recovered without complications and was discharged the following day. Two months later, he underwent elective left inguinal hernia repair and scrotal orchiopexy.Conclusion: This case highlights the importance of prompt evaluation of acute scrotal symptoms in infants with known inguinal hernias. Early recognition and surgical intervention are critical to prevent vascular compromise and testicular loss. Clinicians should maintain a high index of suspicion for incarcerated hernias in infants presenting with acute scrotal swelling and tenderness.

Unraveling the dynamics of alloreactive T cell suppression after HCT with γMSC prophylaxis in acute GVHD

Presenting Author: Swathi Shrihari, Emory

Poster Number: 154

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Background: Acute graft-versus-host disease (GVHD) is the leading cause of morbidity and nonrelapse mortality after allogeneic HCT. About 50% of patients develop acute GVHD despite standard prophylaxis. In recent years, mesenchymal stromal cells (MSCs) have been studied for acute GVHD prevention and treatment. Although proinflammatory cytokines like interferon γ (γMSC) increase the immunomodulatory capabilities of MSCs, these cytokine-activated cells have received limited attentionUsing a fully MHC-mismatched hematopoietic cell transplant (HCT) model, we showed that mice develop GVHD at a median of 7 days, while γMSCs injection at day +1 post-HCT as the sole prophylactic agent extends GVHD-free survival to a median of 23 days. Thus, a single infusion of γMSCs is effective early but insufficient to prevent GVHD long-term. These data suggest γMSC-induced T cell suppression is short-lived, and repeated doses are required for clinically relevant GVHD prophylaxis. Our hypothesis is that a rationally designed dosing schedule of γMSC infusions can prevent GVHD post-HCT. We sought to identify the kinetics and the anatomic location of alloreactive T cell recovery. In our model, γMSCs measurably suppressed T cell proliferation in the spleen on day +3, but the number of donor T cells in target organs at 7 days was similar to controls. Histologically, we observed substantially less small and large bowel injury compared to controls. These findings suggest that suppression of proliferation is not the biologically relevant mechanism of γMSC prophylaxis of GVHD. We next transplanted mice with CCR7 knockout (KO) T cells and infused γMSC on day +1. As expected, the CCR7 KO did not enter gut-associated lymphoid tissue (GALT), but the γMSC trafficked to these sites similar to controls. Mice transplanted with CCR7 KO T cells developed GVHD 24-30 days after HCT, as reported by others, but the γMSC did not have any effect. These data indicate that viable γMSC must colocalize with T cells in vivo. Our current effort is directed to determining the site and timing that donor T cells recover and cause delayed GVHD. Then, we will administer multiple doses according to the kinetics of T cell recovery and demonstrate colocalization and persistent T cell suppression.

A Vascularized 3D-Bioprinted Myocardial Platform for Recapitulating Pediatric Congenital Heart Disease

Presenting Author: Vani Sridhar, Emory University and Georgia Institute of Technology

Poster Number: 155

Co-Authors: Sridhar, Vani; Kaza, Pranitha; Serpooshan, Vahid; and Fonoudi, Hananeh

Background: Congenital heart diseases (CHDs) are complex structural and functional disorders that remain the leading cause of birth defect-related mortality. Current understanding of CHD development is hindered by animal models that fail to replicate human-specific cardiac physiology and patient-specific genetics. We hypothesize that a vascularized, 3D-bioprinted human myocardium could serve as a tunable, biomimetic platform to model CHD progression.METHODS: Cuboidal myocardial analogues with bifurcated vascular channels were designed via CAD and fabricated using high-resolution stereolithography with a custom bioink. The platform incorporates hiPSC-derived cardiomyocyte (CM) spheroids and an ECM-mimicking hydrogel to recreate the myocardium and endothelial cells (ECs) in physiologically relevant ratios within the vasculature. Constructs were cultured in custom perfusion chambers under physiological flow conditions for 14 days. Structural fidelity, mechanical stiffness, cell viability, and contractile kinetics were quantified. Computational fluid dynamics (CFD) analysis was performed on the geometry to assess flow velocity, wall shear stress (WSS), and mass transport. Sample sizes of n=6 and Student's t-tests were used to assess statistical significance ($P < 0.05$).RESULTS:Fidelity studies confirmed >90% structural stability for bioprinted bifurcated vascular geometries. Microindentation confirmed an elastic modulus of ~4 kPa for the interstitial ECM hydrogel (optimal for CMs) and ~10 kPa for the channel lumen (suitable for EC function). Immunostaining confirmed robust lumenal endothelialization and uniform distribution of viable hiPSC-CM spheroids. Notably, CM spheroids exhibited contractile forces exceeding 70% of those of 2D monocultures. CFD analysis visualized WSS, oxygen, and nutrient transport across the construct, validating the physiological relevance of the model.CONCLUSIONS:This platform enables the creation of personalized models using patient-specific hiPSCs to study the mechanisms underlying rare pediatric genetic diseases. By achieving >70% of 2D contractile force and maintaining high-fidelity bifurcated vascular geometries, this system provides a biomimetic environment suitable for longitudinal studies of CHD. Most importantly, integrating patient-specific hiPSCs enables investigation of the mechanistic drivers of rare pediatric genetic diseases and supports personalized drug screening.

Elevated myeloperoxidase activity in non-CF bronchiectasis and shared metabolite profiles in CF and non-CF bronchiectasis

Presenting Author: Advika Srinivasan, Georgia Tech, Emory University

Poster Number: 156

Co-Authors: SRINIVASAN, ADVIKA; Giraldo, Diego Moncada; Lyles, James; Li, Zhuo; Collins, Genoah; Anwar, Amrina; Silva, George Lucas; Driggers, Chris; Stecenko, Arlene; Swenson, Colin; Guglani, Lokesh; Tirouvanziam, Rabindra; Chandler, Joshua

Background: Bronchiectasis (BE) is a chronic condition characterized by progressive bronchial dilatation, infection, and inflammation. BE is common in cystic fibrosis (CF), a recessive genetic disease, but is also associated with non-CF etiologies (NCFBE). Chronic neutrophil activation is a key feature of BE, but the pathogenic mechanisms sustaining inflammatory signaling remain unknown. In prior research in CF, we identified a new fate of neutrophils, termed granule-releasing, immunomodulatory, and metabolically

active (GRIM), which actively releases bleach-producing myeloperoxidase (MPO) from their primary granules. The goal of this study was to compare sputum profiles in CF and NCFBE patients to identify key metabolites associated with airway inflammation.Methods: Sputum was collected by spontaneous expectoration from age-matched CF (N=27) and NCFBE (N=29, pediatric and adult) patients. CF patients included individuals off or on CFTR modulator therapy (elexacaftor/tezacaftor/ivacaftor, or ETI) to reflect a broad spectrum of disease severity. Sputa were processed, extracted, and analyzed by high-resolution accurate-mass mass spectrometry (MS)-based metabolomics using an untargeted HILIC-based method in positive and negative modes. MS data were processed using Compound Discoverer 3.5 (Thermo Fisher Scientific). MPO was measured after capture on an antibody-coated plate to quantify its enzymatic activity using Amplex Red oxidation, followed by sandwich ELISA. Statistics were performed using GraphPad Prism 10.Results: Principal component analysis of MS-based metabolomics showed a remarkable overlap between sputum metabolomes from patients with NCFBE, CF off ETI and CF on ETI, with broadly conserved pathological patterns of oxidation and proteolysis. Metabolites such as lysophosphatidylethanolamine (LPE) and palmitoylcarnitine positively correlated with MPO activity reflecting increased membrane remodeling and altered lipid metabolism associated with neutrophil-driven inflammation. Notably, we observed a significantly higher global arginine bioavailability ratio and higher MPO activity in NCFBE sputa, suggesting enhanced neutrophilic inflammation due to the release of primary granule contents.Conclusions: Building on our previous work in CF, the data suggests the relevance of several biomarkers in NCFBE and CF, providing opportunities to further explore disease pathophysiology and progression. Intriguingly, some metabolites (guanine, maltose) were inversely correlated with MPO and may reflect pathological targets of MPO effector functions. Despite the heterogeneity of NCFBE etiologies, the pathological burden associated with the active release of MPO and other powerful effectors by GRIM neutrophils in patient-derived samples and its correlation with clinical outcomes represents a potential unifying mechanism of pathogenesis. This approach will help define the contribution of metabolites to NCFBE and uncover novel pathways for therapeutic interventions.

Nivolumab-Associated Thyroid Dysfunction in Patients with Classic Hodgkin Lymphoma

Presenting Author: Jason Stevenson, Emory University School of Medicine

Poster Number: 157

Co-Authors: Stevenson, Jason M.; Hawk, Ashleigh; Fridlyand, Diana; Bergsagel, D. John; Keller, Frank G.; Miller, Tamara P.; Patterson, Briana; and Castellino, Sharon M.

Background: Nivolumab, a PD-1 blocking antibody, has shown high efficacy in classic Hodgkin Lymphoma (cHL). Immune-related adverse advents (irAEs) occur in up to 37% of patients receiving nivolumab alone and in combination with chemotherapy. Thyroid dysfunction is a recognized irAE, reported in 3%–7% of cHL patients on nivolumab with AVD (doxorubicin, vinblastine, dacarbazine; N-AVD). However, considerable uncertainty remains regarding the clinical course and management of nivolumab-associated thyroid dysfunction in cHL. This study aims to describe the pattern, severity, and clinical

management of thyroid dysfunction among patients with cHL treated with nivolumab as initial therapy.Methods: This retrospective cohort study included patients aged 12–21 years diagnosed with cHL at Children's Healthcare of Atlanta between January 2020 and December 2025. Manual chart abstraction identified Ann Arbor stage at diagnosis; presence per Common Terminology Criteria for Adverse Events v5.0 definitions of hypo- and hyperthyroidism; thyroid-stimulating hormone (TSH) and free thyroxine (FT4) levels at baseline, post–cycle 2, and post–cycle 6; and medical management of thyroid dysfunction. Demographic variables were extracted from the electronic health record. Descriptive statistics were conducted on all study variables.Results: Among 35 patients with cHL treated with frontline nivolumab-based therapy, the median age was 16 years (IQR: 13, 18), 20 (57.1%) were male, and 15 (42.9%) were non-Hispanic White. Median follow-up time was 230 days (range: 41-1796). Fourteen patients (40.0%) maintained normal TSH and FT4 levels. Twenty-one patients (60.0%) had abnormal TSH levels at a median of 83 days after the initiation of nivolumab, and 10 patients (28.6%) had abnormal FT4 levels at a median of 129 days. Among those who developed thyroid dysfunction (n = 21), 11 (52.4%) had hypothyroidism, 3 (14.3%) had hyperthyroidism, and 7 (33.3%) had a biphasic course characterized by initial hyperthyroidism followed by hypothyroidism. Seven (33.3%) patients received medical intervention for their thyroid dysfunction with 6 requiring ongoing treatment, 11 (52.2%) recovered without medical intervention, and 3 (14.3%) had continued thyroid dysfunction that did not require intervention.Conclusion: While a high proportion of patients receiving nivolumab experience thyroid level abnormalities, the pattern of recovery varies with a smaller subset requiring medication intervention for thyroid dysfunction.

Structural Determinants of Health Among Children Exposed to Parental Incarceration

Presenting Author: Sean Stielow, Emory University School of Medicine

Poster Number: 158

Co-Authors: Stielow, Sean; Piper, Kaitlin; Fernandez, Alejandra; and Huber, Rebekah

Background: The United States has the highest incarceration rate among independent democracies. Criminal legal system involvement profoundly affects families, with millions of children experiencing parental incarceration during childhood. Parental incarceration is a common adverse childhood experience associated with poorer developmental outcomes. Given that incarceration affects access to resources and opportunities, criminal legal system involvement has increasingly been recognized as a structural determinant of health. However, little is known about the neighborhood environments in which children affected by parental incarceration reside. This study examined whether children exposed to parental incarceration experience greater neighborhood-level structural disadvantage than their peers.Methods: Baseline data from the Adolescent Brain Cognitive Development (ABCD) Study, data release 7.0, were analyzed. The ABCD Study is a nationally distributed prospective cohort study of adolescent health and development. Children (mean age = 9.96 years, SD = 0.63) were categorized by parental incarceration exposure. Neighborhood characteristics were assessed using the Area Deprivation Index, Child Opportunity Index, Social Vulnerability Index, and Opportunity Atlas measures of upward

mobility. All neighborhood variables were standardized as z-scores and coded such that higher values reflected greater structural disadvantage. A composite structural disadvantage score was calculated as the mean of available standardized measures. Group differences between children with and without parental incarceration exposure were assessed using independent samples t-tests. Mean differences were reported with corresponding p-values.Results: Among 11,860 participants, 2,004 (16.9%) experienced parental incarceration. Compared with unexposed children, exposed children resided in neighborhoods with greater deprivation (mean difference = 0.58, $p < .001$), lower child opportunity (mean difference = 0.73, $p < .001$), greater social vulnerability (mean difference = 0.64, $p < .001$), and lower upward mobility (mean difference = 0.66, $p < .001$). The composite structural disadvantage score was higher among exposed children (mean difference = 0.65, $p < .001$).Conclusion: Children exposed to parental incarceration experience greater structural disadvantage than unexposed children. These findings suggest that parental incarceration occurs within a broader landscape of structural inequity, supporting recognition of criminal legal system involvement as a structural determinant of health. Improving outcomes for affected children requires addressing both upstream factors that contribute to parental incarceration and the structural conditions that shape children's health and development.

Acknowledging Requests for Items to Improve Social Validity of Functional Analyses for Autistic Youth with Challenging Behavior

Presenting Author: Shannie Su, Emory University

Poster Number: 159

Co-Authors: Su, Shannie; Mutchler, Molly; Lloveras, Lindsay; and Scheithauer, Mindy

Background: Challenging behavior (like aggression) is a presenting concern in approximately 2–16% of youth, and behavioral interventions can successfully treat it. It is clinical best practice to conduct a functional analysis (FA) to identify why challenging behavior occurs before developing treatment. FAs generally use highly structuredtherapist responses to challenging and appropriate behaviors to isolate single variables. These responses do not always reflect how behaviors are addressed in the real world, which may diminish patient satisfaction during evaluations. Limited research has examined whether such structured responses are necessary to produce valid FA outcomes, or whether they can be changed to improve patient satisfaction while retaining valid results. The purpose of this study was to compare challenging behavior across three FA test conditions that varied in the programmed response to appropriate behaviors.Method. Three children aged 4–6 years (M = 4.67) participated. All were diagnosed with autism spectrum disorder and communicated using 1–2-word phrases or full sentences. During the control condition, preferred items and therapist attention were available, and no instructions were delivered. During the tangible reinforcement test condition, appropriate requests for toys were followed by a contextually appropriate statement (e.g., "You can have toys later."). During the tangible extinction test condition, the therapist did not respond to appropriate requests. Data were collected on challenging behavior and evaluated using a multielement single-subject design with structured visual analysis to determine FA results.Results. One participant was excluded due to zero instances of

challenging behavior. FA results revealed challenging behavior was maintained by access to preferred toys for two participants. For one, the average rate was equivalent across both tangible conditions (M = 1.63). For the other, more challenging behavior occurred during tangible extinction (M = 7.67) than tangible reinforcement (M = 3.67).Conclusion. For both participants, conclusions drawn from the FA were the same regardless of whether the therapist responded to appropriate requests. Thus, practitioners could consider acknowledging appropriate requests during FAs if preferred by the client or stakeholders. These results should be replicated across more participants, and more research is needed to evaluate how to improve behavioral assessments.

Design of a Robotic Baby to evaluate juvenile product hazards

Presenting Author: Todd Sulchek, Georgia Tech

Poster Number: 160

Co-Authors: Barclay, William; Kumar, Anish; Li, Wayne; Singhose, William; and SULCHEK, TODD

Background: Each year new juvenile products are released into the market with defective features, despite meeting industry-approved standards. The tragic outcome of these human experiments are thousands of deaths and injuries. At the core of the problem is the dearth of design methodologies suitable for “hard-to-test” populations such as babies, coupled with ethics of expose children to hazards. In the case of sleep products like bassinets, suffocation remains one of the deadliest hazards associated with post neonatal infants. This study designs a robotic platform called RoboBaby that simulates infant rolling to test for hazards.Materials and MethodsThe RoboBaby was based on a scanned anthropomorphic baby doll. Total mass, length, limb dimensions, weight distribution, and center of mass location are defined using the average values from anthropometric data. The core mechanical functions required for RoboBaby to roll over include lifting the legs and rolling the head using a DC gear motor for each leg. Head motion is achieved using a servo motor to rotate the head 56° to the left and right from center. To assess rolling risk, the RoboBaby was tested by performing a controlled comparative study between a cantilevered bassinet and a known safe sleeping environment of the flat, surface.Results and Conclusion The full rollover sequence was conducted for each sleep environment. Rollover was initiated by raising one leg, shifting the testing device’s center of mass in that direction. Elevating the opposite leg completes the transition into a full side rollover. The head mechanism then actuates to return the device to a neutral, “safe” position on its back.This sequence is repeated cyclically to alternate motion from one side to the other. For each environment, the RoboBaby was tested for 10 minutes on each side. The rollover sequence conducted in the cantilever bassinet was found to be frequent in the direction of the bed incline and correlated with the weight applied by the RoboBaby. Additionally, the RoboBaby was frequently unable to move back to its original supine position, in contrast to the flat surface. This result is consistent with cantilever bassinets being a higher risk environment.

Subtle Gait Abnormality Revealing Disseminated, Isoniazid-Resistant Tuberculosis in a Toddler

Presenting Author: Suha Sultan, Morehouse School of Medicine

Poster Number: 161

Co-Authors: SULTAN, SUHA; Li, Mirandy; Reasor, Joya; and Cooper, Jacinta E.

Background: Tuberculosis (TB) remains a major cause of pediatric morbidity worldwide. Extrapulmonary forms, including spinal TB (Pott disease), are particularly difficult to recognize due to subtle, nonspecific symptoms. Diagnostic delay increases the risk of permanent neurologic injury. This case underscores the importance of recognizing nonspecific gait changes as an early sign of disseminated disease in children with epidemiologic risk factors for TB.Methods: We retrospectively reviewed the case of an 18-month-old male, born in the United States with travel to Afghanistan one year prior to presentation, who developed a three-week history of progressive right-sided gait lean and irritability. Evaluation included physical examination, laboratory testing, chest computed tomography, spinal magnetic resonance imaging, lumbar spine radiography, tuberculin skin testing, QuantiFERON-TB Gold testing, and microbiologic culture with drug susceptibility testing of vertebral abscess fluid.Results: Examination showed a persistent right-leaning gait without focal neurologic deficits; laboratory studies were otherwise unremarkable. Chest imaging demonstrated right upper lobe opacities, calcified mediastinal lymphadenopathy, multifocal pulmonary nodules, ground-glass opacities, and splenomegaly. Spinal MRI showed L3-L4 discitis/osteomyelitis with a 2.2 cm L4 vertebral body abscess and epidural extension causing mild spinal canal narrowing, and lumbar radiographs confirmed L3-L4 disc space narrowing. Tuberculin skin testing and QuantiFERON-TB Gold were both positive. Acid-fast bacilli smear of abscess drainage was negative, but culture grew isoniazid-resistant Mycobacterium tuberculosis. Notably, the patient had a prior episode of cervical lymphadenopathy attributed to Bartonella henselae infection by serology alone, which in retrospect may have represented unrecognized TB lymphadenitis. He was started on empiric four-drug antitubercular therapy (rifampin, isoniazid/pyridoxine, pyrazinamide, ethambutol) pending susceptibility results, with isoniazid discontinued once resistance was confirmed. Follow-up showed clinical improvement with resolution of the gait abnormality.Conclusion: Subtle gait abnormalities in young children may signal serious underlying pathology and warrant prompt imaging. This case also illustrates how an isolated positive serology can mask an underlying mycobacterial infection, underscoring the value of a broad differential in at-risk children. Spinal tuberculosis should be considered even without systemic symptoms, and early microbiologic and drug-susceptibility testing are essential to guide therapy and prevent complications.

Clinical and Demographic Predictors of Successful Infant MRI Data Acquisition

Presenting Author: Hamza Syed, Emory University

Poster Number: 162

Co-Authors: Syed, Hamza; Inman Abigail; Chambers, Kareem; Keys, Tyla; and Shultz, Sarah

Background: Researchers often use Magnetic Resonance Imaging (MRI) to observe neurodevelopment in infants, including those at elevated familial likelihood (EL) for autism spectrum disorder (ASD). Infant research MRIs are typically conducted during natural sleep, making acquisition dependent on sleep onset and maintenance. Differences that could impact MRI acquisition (sleep, regulatory, sensory) emerge in ASD from infancy, which potentially introduce systematic data loss from certain phenotypes. Socioeconomic status (SES) also affects infant sleep, potentially reducing usable data from infants of lower SES. Underrepresentation of either ASD- or SES-related subgroups would limit results generalizability. This study examines whether SES and familial likelihood (FL) for ASD are associated with infant sleep during MRI.Methods: 117 infants (56 male) between 0-7 months-old underwent attempted MRI (T1, T2, resting-state, diffusion; ~50 minutes) at up to 3 timepoints. Sleep onset (at scan commencement) and sleep maintenance through each sequence were recorded. The sample included EL infants (those with a first-degree relative with ASD; n=46, 108 scan attempts) and low-likelihood (LL) infants (no ASD up to 3rd degree relatives; n=71, 157 scan attempts). SES was operationalized as Childhood Opportunity Index (COI), a neighborhood-level metric of resources and conditions, with the following distribution: Very Low: 10%, Low: 14%, Moderate: 12%, High: 29%, Very High: 35%. Logistic Generalized Additive Models (binomial, logit link) modeled sleep onset (Yes, No) as a function of FL, age, COI, and a random effect of subject.Results: COI level was not significantly associated with sleep onset ($\chi^2 = 1.8$, $p \approx 0.7$), which ranged from 62% (Moderate COI) to 75% (Very Low and Very High COI). FL was also non-significant ($\chi^2 = 0.94$, $p \approx 0.3$), with similar onset rates in EL (73%) and LL (70%) infants.Conclusion: FL and COI were not associated with sleep onset in 0-7-month-olds during research MRI. Thus, natural-sleep MRI studies may not systematically underrepresent infants based on these factors. Future analyses will examine how these factors, additional demographics (income-to-needs, sex, race, ethnicity), and clinical factors (including later ASD diagnoses) impact sleep maintenance during scanning to identify potential biases in infant neuroimaging data.

Burden and Outcomes of Respiratory Syncytial Virus Infection in Young Children in Atlanta, GA 2017-2023

Presenting Author: Sylvia Tangney, Emory University

Poster Number: 163

Co-Authors: TANGNEY, SYLVIA; Tippett, Ashley; Desta, Lidiya; Hassan, Taufiq; Beus, Jonathan; Dean, Natalie; Wong, Terianne; Domachowske, Joseph; Bergren, Nicholas; Izikson, Ruvim; Rostad, Christina; and Kamidani, Satoshi

Background: Respiratory syncytial virus (RSV) is the leading cause of acute lower respiratory tract infections and hospitalization in young children. Although maternal RSV vaccination and long-acting monoclonal antibodies are available for infants aged <8 months, children aged 8–36 months remain vulnerable without preventive options. We estimated the population-based incidence of RSV-related inpatient and outpatient (defined as emergency department or urgent care visits) in children aged 8-36 months in a large southeastern US metropolitan area.Methods:Children aged 8-36 months seen at a

Children's Healthcare of Atlanta (Children's) inpatient or outpatient facility between October 2017 and September 2023 were assessed for inclusion in our study. Demographic and clinical data were obtained from medical records. County-level population data were obtained from the Georgia Department of Public Health Online Analytical Statistical Information System and limited to counties within the Atlanta metropolitan statistical service area. RSV incidence rates were adjusted to account for Children's market-share in Atlanta and season-specific adjustments were made to account for testing practices. Results: Among the 14,933 inpatient encounters with acute respiratory illness (ARI) across the 6 seasons, 6,232 were tested for RSV. Of the 184,449 outpatient encounters with ARI, 10,806 were tested for RSV, while the proportion tested varied by season. RSV testing performed during inpatient encounters was more likely to yield a positive result than those during outpatient visits (30% vs. 19%, p <0.001). Seasonal RSV inpatient incidence rates per 100,000 were 364 (95% CI: 334-394) in 2017-18 to 352 (323-382), 302 (274-329), 339 (309-368), 478 (444-513), and 381 (349-412) in subsequent seasons (a pooled estimate: 369 [356-381]). Outpatient incidence rates per 100,000 were 6,202 (95% CI: 6,024-6,381) in 2017-18 to 8,031 (7,830-8,232), 6,640 (6,457-6,823), 7,227 (7,040-7,414), 7,919 (7,725-8,113), and 5,760 (5,593-5,928) in subsequent seasons (a pooled estimate: 6,963 [6,884-7,042]).Conclusion: Incidence rates of medically attended RSV infection among children aged 8-36 months in the Atlanta metropolitan area shows a substantial burden of disease between 2017 and 2023. This sizable burden of RSV in the age group underscores the need to strengthen surveillance and advance research into prevention and treatment strategies for children beyond 8 months of age.

An Artificial Intelligence Powered Application for Efficient Patient-Trial Matching in a Clinical Trials Center

Presenting Author: Rohan Thomas, The Paideia School

Poster Number: 164

Co-Authors: Thomas, Rohan; Thomas, Shaan; and Wang, Chia-shi

Background: There have been rapidly increasing numbers of clinical trials available for patients with kidney disorders. However, providers, patients, and trial sites may find it challenging to suitably match patients due to the complexity of eligibility criteria and resource constraints. Objectives: To develop an artificial intelligence (AI) powered app which facilitates "patient-to-trial" matching to improve patient-screening efficiency. Methods: We developed a web app utilizing the Google Gemini 3.0 (Pro and Flash) Large Language Model (LLM) architecture to automate the patient-to-trial matching process. Results: The AI-driven modules produce 4 key functions of the app 1) A repository-based engine that allows each trial site to customize the trials offered, then parsing unstructured inclusion and exclusion criteria text from each trial to generate key questions for assessing trial eligibility; 2) Trial staff / patients can input patient information by following a short, guided list of questions which minimizes the time spent on entry while maintaining match accuracy, or users can upload Portable Document Format (PDF) files of clinical notes; 3) Through an integrated optical character recognition and LLM based reasoning, discrete clinical information is extracted from the PDFs and semantic comparison between patient information

entered and study protocols is performed to generate eligibility findings. Outcomes include: “eligible”, when patient information fits inclusion criteria and no exclusion criteria are met; “ineligible”, when patient does not meet inclusion criteria and/or meets exclusion criterial, and “potential match”, when certain inclusion criteria are met but details are missing to assess full eligibility; 4) The results of the match are delivered in a color-coded visualization system for each of the trials: green (eligible), amber (potential match), and red (not eligible). Each result includes a summary of the reasoning behind the match decision, with direct links to source protocol documents in the repository. Conclusion This app automates eligibility interpretation and clinical note parsing, delivering clear, color-coded results with reasoning to reduce manual screening time and improve efficiency. We are now initiating a formal validation study with 50 patient records and 8 active trials, counting incorrect eligibility designations and comparing matching time against manual review to quantify real-world utility.

Emergency Department Visits and Subsequent Chronic Absenteeism Risk Across Pediatric Chronic Illness Groups

Presenting Author: Julia Thome, Johns Hopkins University

Poster Number: 165

Co-Authors: Thome, Julia; Fry, Carrie; Buntin, Melinda

Background: Emergency department (ED) visits are a common and consequential health event for school-age children, yet the transition from an acute ED encounter back to the classroom remains poorly characterized. This gap is particularly concerning for children with chronic illness, who already face elevated risk for school disruption and for whom prior work has emphasized the need for coordinated clinical and school-based supports. The pattern of elevated absenteeism risk following ED visits has not been examined in a large US-based dataset or by grade or condition type.Methods: Tennessee Medicaid claims were linked to statewide school records for students in grades 3-12 from academic years 2014-2019, yielding over 2.5 million student-year observations. Chronic absenteeism was defined as missing >10% of instructional days. Logistic regression was used to estimate the change in marginal probability of chronic absenteeism in the subsequent academic period following any ED visit or mental health (MH) ED visit in the prior period. Analyses were stratified by consecutive grade pairings, quarter pairings, and chronic illness group (mental/behavioral, physical, neurodevelopmental, any chronic illness, none) and adjusted for race, sex, rurality, academic year, and prior absence history.Results: Approximately 16% of students were chronically absent across 2015-2019 and 28% of students had at least one chronic illness. ED visits and MH ED visits were both significantly associated with increased probability of chronic absenteeism across all chronic illness groups, with marginal effects of approximately 2 to 10 percentage points. Effects were most pronounced at key academic transitions: the elementary-to-middle school period, the 8th-to-9th grade transition, and the summer-to-fall transition. Effects were generally larger among students with chronic illness.Conclusions: Both general and mental health ED visits are followed by increased risk of absenteeism across the pediatric Medicaid population in Tennessee, with effects concentrated at critical academic transitions. These findings suggest that ED visits may be used to help

identify students at elevated risk of chronic absenteeism after acute health events, consistent with prior work emphasizing the need for coordinated clinical and school-based supports for low-income, medically vulnerable children.

Pressure-driven Endothelial-Smooth Muscle Cell Paracrine Signaling in a 3D Model of Pulmonary Arterial Hypertension

Presenting Author: Izzie Thompson, Emory University

Poster Number: 166

Co-Authors: Izzie Thompson, Kaveeta Kaw, Vaahini Badre Narayanan, Elaine Do, Wyatt DeBord, Manasvi Parab, Maher Saadeh, Vahid Serpooshan, Holly Bauser-Heaton, Hananeh Fonoudi

Background: Pulmonary arterial hypertension (PAH) is characterized by progressive vascular remodeling that increases pulmonary vascular resistance and arterial pressure. Pediatric PAH primarily develops during pulmonary vascular maturation, often with developmental abnormalities preceding vascular remodeling. Endothelial cell (EC) dysfunction contributes to this remodeling through altered paracrine signaling that promotes smooth muscle cell (SMC) proliferation and vessel wall thickening. While EC-to-SMC signaling has been extensively studied, the role of SMC-to-EC communication remains poorly understood. This study investigates how elevated pressure influences SMC to EC paracrine signaling using a 3D tissue-engineered model of PAH. Methods: Our laboratory developed a tunable 3D vascular construct capable of modeling pressure-dependent remodeling. Conditioned media were generated from SMCs cultured in 2D, SMC-laden static 3D constructs, and dynamic perfused 3D constructs exposed to baseline or elevated pressures. Media were collected after 3 and 7 days and applied to HUVEC cultures to evaluate pressure-mediated paracrine effects. Immunofluorescence analysis was performed using HUVECs to assess biomarker expression and localization. Results: Conditioned media from pressure-exposed constructs altered endothelial phenotype compared with media from static and 2D cultures. Preliminary immunofluorescence analyses demonstrated reduced VE-cadherin expression in HUVECs treated with conditioned media derived from high-pressure EC constructs, suggesting impaired endothelial junction integrity and vascular stability. Ongoing studies are evaluating additional endothelial and smooth muscle biomarkers. Enzyme-linked immunosorbent assays (ELISAs) will be used to identify and quantify signaling molecules responsible for the observed phenotypic changes. Conclusion: Despite comprising a substantial portion of the arterial wall, the role of SMC-to-EC paracrine signaling in PAH remains poorly understood. This work seeks to define how pressure-dependent EC-SMC communication contributes to vascular remodeling and may reveal novel therapeutic targets for PAH.

One-Carbon Metabolism as a Therapeutic Vulnerability in Infant Medulloblastoma

Presenting Author: Andrey Tikunov, Department of Pediatrics, Emory University School of Medicine

Poster Number: 167

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Background: Infant Sonic Hedgehog medulloblastoma (SHH MB) remains a major therapeutic challenge because young children cannot tolerate radiation therapy and instead rely on chemotherapy. The dihydrofolate reductase (DHFR) inhibitor methotrexate (MTX) delays tumor progression but causes substantial neurotoxicity and long-term developmental disability. We hypothesized that the clinical efficacy of MTX reflects a dependence of SHH MB on folate-mediated one-carbon metabolism. Serine hydroxymethyltransferases 1 and 2 (SHMT1/2), which catalyze reversible serine–glycine interconversion and generate one-carbon units, represent attractive therapeutic targets downstream of DHFR.Methods: We modeled SHH MB in mice with Cre-activated expression of oncogenic, mutant Smo that develop cerebellar tumors with 100% penetrance and die by postnatal day 18 (P18). We measured the flow of amino acids through SHMT1/2 using stable isotope tracing by administering 2-^{13}C,^{15}N-glycine or equimolar 1-^{13}C-serine and ^{15}N-glycine. These methods quantified the bi-directional serine–glycine interconversion and the flux through SHMT1 versus SHMT2. Labeled metabolites were analyzed by LC-MS/MS and MALDESI imaging-MS. The SHMT1/2 inhibitor SHIN2 was formulated into polyoxazoline nanoparticles (POx-SHIN2) and administered intraperitoneally (IP) or intracerebroventricularly (ICV) to evaluate tissue-specific target engagement, and therapeutic efficacy.Results: Stable isotope tracing showed that both SHMT1 and SHMT2 are active in SHH MB. Early-stage tumors showed balanced bidirectional serine–glycine interconversion in both brain and liver. In contrast, mice with advanced tumors showed a shift toward hepatic serine production, resulting in elevated circulating serine enrichment, suggesting hepatic adaptation that may support tumor progression. SHMT1/2 and other folate pathway enzymes were upregulated in SHH MB, supporting increased dependence on one-carbon metabolism. POx-SHIN2 effectively blocked SHMT1/2 in vivo, with route-dependent effects. IP administration resulted in strong hepatic inhibition but limited brain inhibition, whereas ICV delivery achieved near-complete CNS target engagement and significantly prolonged progression-free survival in a mouse model.Conclusions: SHH MB undergoes dynamic remodeling of SHMT1/2-mediated one-carbon metabolism during progression, and pharmacologic inhibition of this pathway suppresses tumor metabolism and prolongs survival in vivo, identifying SHMT1/2 as a metabolic vulnerability and promising therapeutic target in infant medulloblastoma. These findings support development of CNS delivery of the nanoparticle-formulated SHMT1/2 inhibitor POx-SHIN2, combined with metabolic conditioning strategies, to enhance therapeutic efficacy.

Hospital Utilization Among Patients with Autism

Presenting Author: Aaron Tomberlin, Emory University

Poster Number: 168

Co-Authors: Tomberlin, Aaron; Cicero, Ethan; Higgins, Melinda; and Brasher, Susan

Background: Autism spectrum disorder (ASD) is a complex neurodevelopmental disorder that emerges in early childhood and persists throughout the lifespan. Research shows that a majority of individuals with ASD have co-occurring psychiatric and medical conditions that greatly increase their healthcare needs. Despite increased healthcare utilization, individuals with ASD have the poorest health outcomes compared to peers with chronic conditions. While literature is newly emerging to characterize healthcare utilization in young adults with ASD, little is known regarding the contributing factors linked to poorer health outcomes. Therefore, the purpose of this study was to examine healthcare utilization among young adults with ASD compared to non-ASD young adults.Method:A retrospective, cross-sectional study design was used to evaluate inpatient hospital data from the 2016 New Jersey Statewide Inpatient Data (SID) for encounters with and without an ASD diagnosis. ICD-10 codes were used to identify ASD encounters. Variables examined within the SID included age, race, gender, hospital diagnosis, admitting diagnosis, number of diagnoses (comorbidities), length of stay, and readmission. Logistic regressions tested for differences between groups. Results:Total reported hospitalizations (N= 173438) included inpatient stays for ASD group (N=1,233) and non-ASD group (N=172,205). Significant differences existed between healthcare utilization in terms of age of healthcare utilization ($p < 0.0001$), length of stay ($p < 0.0001$), chronic conditions ($p < 0.0001$), and readmission ($p < 0.0001$). Notably, the difference between those hospitalized with ASD during the transition period of 15-25 years (49.89%) compared to those without ASD (9.09%) represents a significant difference in transition healthcare utilization ($p < 0.0001$).Conclusions:ASD individuals were found to have longer hospital stays, more hospitalizations, different healthcare needs, and required more readmission. ASD individuals also have an increase in their hospitalizations during the transition to adulthood (ages 15-35) and thus further exploration is warranted surrounding the healthcare transition to adulthood in this population. Additionally, more insight is needed into how medical and psychiatric comorbidities impact health outcomes during this vulnerable period.

Beyond Glasgow Coma Scale: Applying the Comprehensive Brain Injury Model to Pediatric Traumatic Brain Injury

Presenting Author: Jai Trivedi, Georgia Institute of Technology

Poster Number: 169

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Background: Traumatic brain injury (TBI) is a major cause of death and long-term disability worldwide, leading to profound personal, societal, and economic burdens, particularly in children and adolescents. Despite decades of investigation, clinical management and therapeutic trial design in TBI continue to be constrained by marked heterogeneity. Glasgow Coma Scale (GCS) alone is insufficient for long-term functional prognostication in pediatric TBI, as it characterizes the clinical manifestations of injury rather than the underlying structural or biological processes. In 2025, the NIH–NINDS TBI Classification and

Nomenclature Initiative introduced the Comprehensive Brain Injury Model (CBI-M), a multidimensional framework encompassing four interrelated domains: clinical, biomarker, imaging, and modifier, providing a more precise classification method compared to GCS. To the best of our knowledge, this study is the first to investigate the applicability of the CBI-M framework to pediatric TBI. We examined whether operationalizing the CBI-M improves prediction of 6-month Pediatric Glasgow Outcome Scale–Extended (pGOSE) outcomes.Methods: In a prospective cohort enrolled at two emergency departments of a tertiary children's hospital (March 2017–June 2021; N = 592), prediction models were developed in a subset with 6-month pGOSE (n = 90). Unfavorable outcomes were defined as pGOSE 1–6. Twenty-eight predictors were screened with univariable logistic regression ($p<0.20$), then pillar-specific multivariable models ($p<0.10$), yielding a combined CBI-M model. Incremental discrimination was summarized with stepwise ROC. Discrimination is reported as AUC with 95% confidence intervals (CI).Results: The combined model retained GCS (adjusted odds ratio [aOR] 9.38; 95% CI 2.38–44.1), Ubiquitin C-terminal hydrolase-L1 (UCH-L1) ≥327 pg/mL (aOR 10.5; 95% CI 1.41–21.6), midline shift on CT (aOR 10.5; 95% CI 2.36–62.1), age ≤5yr (aOR 1.27; 95% CI 0.312–4.95), and male sex (aOR 4.94; 95% CI 1.18–26.7). Versus GCS alone, CBI-M improved AUC (95% CI) for pGOSE 7–8: 0.909 (0.831–0.966) vs 0.811 (0.711–0.903); pGOSE 3–6: 0.746 (0.614–0.861) vs 0.579 (0.446–0.711); pGOSE 1–2: 0.980 (0.948–1.000) vs 0.957 (0.912–0.992).Conclusions: These findings suggest that integrating clinical, biomarker, imaging, and patient-modifier data provides superior prognostic discrimination compared with GCS alone. CBI-M–based approaches may ultimately support more precise risk stratification, prognostication, and personalized management strategies, representing an important step toward precision medicine in pediatric neurotrauma.

Developmental Changes in Episodic Memory Performance on the Emory Pediatric Multimodal Learning Test (EPMLT)

Presenting Author: Mitchell Tuey, Emory University

Poster Number: 170

Co-Authors: Mitchell Tuey, Taylor Shade, Lydia Swinehart, Evan Brady, Carla Ammons, Molly Winston, Donald Bearden, Daniel Drane

Background: Episodic memory is a complex cognitive process that relies on coordinated interactions among connective brain networks. Throughout childhood, these neural systems continue to mature, contributing to age-related improvements in learning, encoding, and retrieval. The Emory Pediatric Multimodal Learning Test (EPMLT) is a novel, video-based assessment designed to evaluate episodic memory using ecologically valid verbal and visual learning tasks. Although developmental changes in episodic memory have been described using traditional neuropsychological assessments, age-related performance on the EPMLT has not been well characterized. Establishing developmental trends on the EPMLT may improve interpretation of performance in pediatric clinical populations and support its use as a standardized measure of multimodal episodic memory. This study examined the relationship between age and EPMLT performance across multiple memory domains. Methods: Data were collected from 16

participants who completed the EPMLT as part of a clinical neuropsychological evaluation. The EPMLT assesses recall of primary character names (maximum score = 7), secondary character names (maximum score = 18), and recognition of character locations (maximum score = 16) during both immediate and delayed recall conditions. Age was analyzed as a continuous predictor using simple linear regression. Separate regression analyses were performed for each memory domain, and statistical significance was defined as $p < .05$. Results: No significant associations were observed between age and EPMLT performance. For immediate recall, age explained 4.5% of the variance in primary name recall ($R^2 = 0.045$, $p = .428$), 0.2% of the variance in secondary name recall ($R^2 = 0.002$, $p = .861$), and 0.3% of the variance in location recognition ($R^2 = 0.003$, $p = .846$). Similarly, delayed recall analyses demonstrated no significant relationships between age and primary name recall ($R^2 < 0.001$, $p = .953$), secondary name recall ($R^2 = 0.003$, $p = .834$), or location recognition ($R^2 = 0.002$, $p = .885$).Conclusions: Within this sample, age was not significantly associated with performance on the EPMLT across either verbal or visual memory domains. These findings suggest that EPMLT performance remained relatively stable across the observed age range. Additional studies with larger pediatric samples are warranted to establish normative developmental trajectories and evaluate age-related changes in multimodal episodic memory.

Impact of Adverse Childhood Experiences and Toxic Stress on Pain Frequency in Youth with Sickle Cell Disease

Presenting Author: Unnati Upadhyay, Emory University

Poster Number: 171

Co-Authors: Upadhyay, Unnati; Faust, Haley L.; Mooney, Jan T.; Cohen, Lindsey L.; Saah, Elna ; Bearden, Donald J. ; Dampier, Carlton D.; Howard, Vontarius ; Ono, Kim E.; Sheehan, Vivien A. ; Sun, Binjian; Holcombe, Billy , and Sil, Soumitri

Background: Adverse childhood experiences (ACEs) (i.e., significant negative events such as abuse or neglect) and risk factors for toxic stress (e.g., food or housing insecurity) can increase a child's risk for negative health outcomes. Exposures to ACEs and toxic stress have been linked to chronic pain, anxiety, and depression (Elmore & Crouch, 2020). Youth with SCD already face a disproportionate burden of pain, anxiety, and depressed mood due to the chronic, unpredictable nature of their illness (Sil et al., 2016). This study aimed to examine relationships between ACEs and toxic stress with pain frequency, anxiety and depression among youth with SCD. Methods:Youth with SCD (ages 10 -18) and their caregivers receiving routine outpatient care at a SCD clinic were enrolled in a cross-sectional study. Caregivers completed demographic questionnaires and reported child ACE exposure using the PEARLS (cumulative score 0–10). Youth completed patient-reported health outcomes, including pain frequency (0–31 monthly pain days) and anxiety and depressive symptoms via the PROMIS Pediatric Profile–25. Pearson's correlation tests were used to examine associations.Results:Sixty-seven parent-child dyads participated in the study. About 70% (N=38) of caregivers endorsed that their child experienced no ACEs, 13% endorsed at least 1 ACE (N=7), 12% endorsed 2 ACEs (N=6), 3% reported 3 ACEs (N=2), and an additional

2% endorsed 4 ACEs (N=1). 62% (N=33) of caregivers endorsed no toxic stress for their child, whereas 21% (N=11) endorsed one experience of toxic stress, 11% (N=6) endorsed two, and 6% (N=3) endorsed three. Correlational analyses revealed that ACEs ($r = .246$, $p > .05$) and toxic stress ($r = .200$, $p > .05$) were not significantly associated with pain frequency, and toxic stress was not associated with anxiety ($r = .003$, $p > .05$) or depression ($r = .23$, $p > .05$). Notably, greater ACE exposure was significantly associated with higher depression scores ($r = .295$, $p < .05$) but not anxiety ($r = .083$, $p > .05$) in the current sample. Conclusion:These findings suggest that youth with SCD and exposure to ACEs may be a greater risk for depressed mood. The results highlight the clinical relevance of continuing to assess ACEs and toxic stress in pediatric SCD and their potential impact on health outcomes.

Necrotic Juvenile Granulosa Cell Tumor Presenting as Fever and Abdominal Distension in a 9-Month-Old Female

Presenting Author: Yog Vaghani, Morehouse School of Medicine

Poster Number: 172

Co-Authors: Vaghani, Yog; Li, Mirandy; and Cooper, Jacinta E

Background: Juvenile granulosa cell tumors (JGCTs) are rare sex cord-stromal tumors, accounting for fewer than 5% of ovarian neoplasms. Classic presentations include precocious puberty or a palpable abdominal mass. In infants, hormonal features are often absent. Torsion, necrosis, or rupture can dominate the picture, mimicking common febrile illness and posing a diagnostic challenge. We report a 9-month-old female with a ruptured, necrotic JGCT who was discharged once before the diagnosis was established.MethodsWe reviewed the clinical course, laboratory data, imaging, operative findings, and pathology of a previously healthy 9-month-old female who presented with fever, fussiness, and abdominal distension to a pediatric emergency department.ResultsAt the initial visit, urinalysis was not consistent with an infection, she stooled after a glycerin suppository, and she was discharged with presumed viral illness. She returned 12 hours later ill-appearing, with dry mucous membranes, delayed capillary refill, and a diffusely tender, distended abdomen. Workup showed Hgb 8.1 g/dL, bicarbonate 20 mEq/L, CRP 14 mg/dL, LDH 793 U/L, and procalcitonin 2.81 ng/mL. Ultrasound demonstrated a 7.6 x 6.7 x 5.3 cm mixed solid-cystic pelvic mass. Contrast-enhanced computed tomography confirmed a large necrotic pelvic mass with peritonitis. She underwent emergent laparotomy revealing a torsed, ruptured right ovary, and right oophorectomy was performed. Immunohistochemistry was positive for calretinin, inhibin, and SF-1, confirming JGCT (FIGO Stage IC2). She was discharged on postoperative day 2 and referred to pediatric oncology for surveillance.ConclusionJGCT should remain on the differential for infant females with unexplained fever, anemia, and abdominal distension, even without precocious puberty. Here, the absence of classic features and an initial attribution to viral illness delayed diagnosis and allowed clinical deterioration between visits. Unexplained anemia and distension without an infectious source, supported by a markedly elevated LDH, should prompt early cross-sectional imaging. Ultrasound showing a mixed solid-cystic adnexal mass distinguishes neoplasm from a simple cyst and should trigger prompt surgical and oncologic referral.

Motor and Electrodiagnostic Profile of AAV9 Seropositive SMA Newborns

Presenting Author: Sathvika Varahala, The University of Georgia

Poster Number: 173

Co-Authors: Varahala, Sathvika; Osman, Joli; Johnson, Laura Michelle; Almanaserh, Bashar; Verma, Soham; and Verma, Sumit

Background: Spinal Muscular Atrophy (SMA) is an autosomal recessive neuromuscular disorder caused by homozygous deletion of the SMN1 gene. Disease severity is determined by the SMN2 copies number. The AAV based gene replacement (onasemnogene abeparvovec) has transformed outcomes. However, the presence of elevated anti-AAV antibodies limits the ability to deliver gene therapy and requires bridging therapy with oral risdiplam, intrathecal nusinersen. Methods: A retrospective cohort study was performed on 24 infants with SMA identified through the Georgia newborn screening program between February 2019 and February 2026. Patients were classified according to positive or negative AAV antibodies when being evaluated for gene therapy. Eight infants (33%) tested positive and required bridging therapy (risdiplam or nusinersen), while 16 infants (67%) proceeded directly to gene therapy. Motor function was measured using CHOP INTEND assessments at baseline and 6 months. CMAP amplitudes were used to assess electrophysiology. R software (version 4.3.1) was used with linear mixed models for the longitudinal analysis.Results: Baseline CHOP INTEND scores were significantly lower in antibody-positive infants (45.75 ± 5.28) compared to antibody-negative infants (50.88 ± 8.3; $p = 0.025$; Cohen's $d = 0.72$). The antibody-negative group improved at 1.39 points/month ($p < 0.001$), while the antibody-positive group showed accelerated improvement (Time × Group interaction $\beta = 0.89$, $p = 0.017$). Mean 6-month improvement was 13.5 points in antibody-positive versus 8.5 points in antibody-negative infants ($p = 0.040$). Median APB amplitudes improved significantly in both groups (2.15 mV, $p = 0.001$; 1.95 mV, $p = 0.023$). Within the antibody-positive cohort, infants with three SMN2 copies showed significantly higher ulnar ADM amplitudes (5.97 ± 1.42 mV) than those with two copies (1.75 ± 1.23 mV; $p = 0.030$; Cohen's $d = 3.18$) at baseline. CHOP INTEND did not differ by copy number (46.0 ± 4.24 vs 45.5 ± 6.86, $p = 0.771$). Conclusions: Anti-AAV antibody-positive infants showed lower baseline motor function but had accelerated improvement after initial therapy and then gene therapy. This finding supports the effectiveness of this treatment sequence.

Development of a Motor-Free, EEG-Based Assessment of Cognition in Young Children with Motor Impairment

Presenting Author: Mariana Vega Aranda, University of Georgia

Poster Number: 174

Co-Authors: Mariana Vega Aranda; Caitlin P. Kjeldsen, PhD; Lucas Koh-Maitre; Alexandra P. Key, PhD; Nathalie L. Maitre, MD, PhD

Background: Early cognitive assessments often rely on motor responses (e.g., pointing, reaching, grasping, object manipulation), making it difficult to separate cognitive ability from motor limitations in children with cerebral palsy or other motor impairments. To isolate cognitive ability from motor skill, we sought to develop a motor-free, neurophysiological approach – specifically, an EEG-compatible video paradigm using short, realistic cause-and-effect events to evaluate early cognition. Methods: Initial stimuli depicting familiar physical events for young children (e.g., a ball bouncing with sound, toy car knocking over a tower of blocks) were generated with Grok AI. Each event was created with paired congruent (expected outcome) and incongruent (unexpected or missing outcome) videos. To ensure time-locking utility for EEG, each pair was engineered around a precise critical timepoint when the expected effect occurs. Two child development experts reviewed the initial stimulus pool, selecting the final set via consensus based on visual complexity, realism, ecological validity, and capacity to test early cognitive concepts related to attention, exploration, object permanence, and cause-and-consequence learning.Results: The development process initially generated 30 videos from real-world prompts, which were then edited using iMovie to ensure precise timing of visual/auditory cues. Following expert review, a finalized stimulus set of 14 videos were selected. This finalized set provides a standardized, motor-free tool to compare neural responses to expected physical relationships versus violations of expectation without requiring any manual manipulation, speaking or pointing.Conclusions: To validate this newly developed paradigm, we are conducting a pilot study of 60 infants and toddlers aged 9- to 27-months. This trial matches children with motor impairments 1:1 with typically developing peers across 3 distinct age strata spanning the full age range. Each video is presented in random order 5 times during the pilot protocol to allow expansion beyond cause-and-effect to evaluate neural signatures of predictive anticipation. The paradigm is used alongside other motor-minimized measures, including eye-tracking, and the Cognitive domain of the Bayley Scales of Infant Development (4th edition), the current gold standard in neurodevelopmental follow-up. This pilot will provide a foundation for more accessible, objective measures of early cognition, particularly for children with motor impairments.

Emerging Risk Factor in Pediatric Intracranial Gunshot Wounds: Age ≤5 Years

Presenting Author: Meena Verma, Children's Healthcare of Atlanta

Poster Number: 175

Co-Authors: VERMA, MEENA; Reisner, Andrew; Blackwell, Laura; Mulugeta, Makda; Javed, Mahwish

Background: Pediatric intracranial gunshot wounds (GSW) are a recognized cause of morbidity and mortality in the United States, with a marked rise in incidence and disproportionate increase among children ≤5 years. This reflects a broader increase in civilian firearm-related injury among children. The influence of social determinants of health (SDH) on these patients remains insufficiently characterized. Emerging evidence suggests a multifactorial etiology, including socioeconomic disruption during the COVID-19 pandemic and changes in firearm legislation. This study evaluates trends in incidence, severity, outcomes, and SDH in children ≤5 versus >5 years, and how these evolved across key societal events.Design:Retrospective cohort study.Methods:Retrospective analysis was performed for 74 children

aged 0–16 years (mean 8.6 ± 4.8) presenting to the emergency department with intracranial GSWs from January 2014 to December 2022. Pre-pandemic (n=32) and pandemic (n=42) cohorts were defined using 13 March 2020 (U.S. COVID-19 national emergency declaration). Clinical and social variables, including the Child Opportunity Index (COI), were analyzed.Results:Most patients were male (73%), Black (67.6%), and >5 years of age (66.2%). During the pandemic, the proportion of patients ≤5 years increased by 62%, while those >5 years decreased by 20.7%. Younger patients were more likely to undergo neurosurgical intervention (72% vs. 44.9%, p=0.047) and require inpatient rehabilitation (52% vs. 20.4%, p=0.008). Mortality among younger patients nearly doubled (12.5% to 23.5%), while remaining stable in older patients (41.7% vs. 40%). Children ≤5 years were more likely to reside in very low opportunity neighborhoods (68% vs. 30.6%, p=0.006), be publicly insured or uninsured (95.8% vs. 75.6%), and be Black (84% vs. 59.2%, p=0.005).Conclusions:Pediatric intracranial GSWs are increasing, particularly among children ≤5 years. Younger children demonstrated higher mortality during the pandemic and greater social vulnerability. Findings highlight the need for targeted prevention, firearm safety, responsible ownership, and caregiver education.

Kids Injury Detection Study (KIDSfast): Point-of-Care Biomarker Testing in Pediatric Traumatic Brain Injury

Presenting Author: Meena Verma, Children's Healthcare of Atlanta

Poster Number: 176

Co-Authors: VERMA, MEENA; Reisner, Andrew; Blackwell, Laura; Jaeger, Lindsay; Pierzchala, Amanda; Velasquez, Leslie; Muhammad, Maria; Khan, Myer; Trivedi, Jai; Frost, Kelsey

Background: Traumatic brain injury (TBI) remains a leading cause of morbidity and mortality in children. Rapid diagnostic information at the point of care (POC) may improve early risk stratification and management, yet data on POC blood-based biomarkers in pediatric TBI are limited. The i-STAT TBI system (Abbott) measuring glial fibrillary acidic protein (GFAP) and ubiquitin carboxyl-terminal hydrolase L1 (UCH-L1) is currently approved for adults. This feasibility pilot study evaluates the use of a POC biomarker platform in children and its ability to predict CT-positive findings.Design:Prospective observational study.Methods:Children 0-21 years, presenting with TBI, within 72 hours post-injury were enrolled. Whole blood samples were obtained and analyzed using the i-STAT platform for GFAP and UCH-L1. Clinical data included Glasgow Coma Scale (GCS) score, head CT findings, need for neurosurgical intervention, intensive care unit admission, and length of stay. Biomarker levels were compared between patients with and without intracranial injury on CT. Receiver operating characteristic (ROC) curves were generated to assess diagnostic performance.Results:29 patients were enrolled (mean age 9.6 ± 6.1 years). GFAP levels were significantly higher in patients with CT-positive (median 609 pg/mL, IQR 209–2571) compared with CT-negative patients (median 59 pg/mL, IQR 47–223). Similarly, UCH-L1 levels were elevated in CT-positive patients (median 486 pg/mL, IQR 209–2571) compared with CT-negative patients (median 87 pg/mL, IQR 87–164). The area under the curve (AUC) for prediction of intracranial injury was 0.805 for GFAP and 0.827 for UCH-L1.Conclusions:POC measurement of GFAP and UCH-L1 demonstrates

promising ability to identify CT-positive findings in pediatric TBI. This may reduce reliance on CT imaging and limit exposure to ionizing radiation. These data suggest potential use in early triage, including pre-hospital and interfacility transport settings. This pilot study supports future prospective randomized trials to evaluate biomarker integration into pediatric TBI management.

Rate of Decay of Elevated Anti-adeno-associated Virus Serotype 9 (AAV9) Titers in Spinal Muscular Atrophy (SMA) Newborns and Factors Influencing Readiness for AAV9 based Gene Therapy

Presenting Author: Soham Verma, University of Georgia (UGA)

Poster Number: 177

Co-Authors: VERMA, SOHAM; Almanaserh, Bashar; Osman, Joli; Varahala, Sathvika; Johnson, Laura; and Verma, Sumit

Background: Onasemnogene abeparvovec is an AAV9 based gene therapy for SMA newborns. However, maternally-transferred AAV9 antibodies in newborns can delay treatment. The titers must normalize i.e. <1:50 before gene therapy can be delivered. In this study, we evaluated serial AAV9 titers to understand the rate of antibody decay and treatment eligibility timing in antibody positive SMA newborns. Methods: Anti-AAV9 IgG titers were analyzed longitudinally using a linear mixed-effects model after natural log transformation to account for expected exponential decline. Day of life was included as a fixed effect, and patient as a random intercept. Antibody half-life was estimated as ln(2)/−β from the time coefficient. Breastfeeding status and its interaction with time were tested to assess differences in titer decline between groups.Results: A total of 27 anti-AAV9 IgG titer measurements from 9 patients were included in the longitudinal analysis. Overall, titers declined with age. In the log-linear mixed-effects model, day of life was negatively associated with log titer (β = −0.0145/day), corresponding to a half-life of 47.9 days. A sensitivity descriptive analysis using the first and last available titer for each patient showed a median patient-level apparent half-life of 36.0 days. Serial follow-up demonstrated that all patients reached titers of ≤ 1:50 on repeat testing, making them eligible for onasemnogene abeparvovec. Patients with the highest observed titer showed persistent elevation, suggesting that markedly elevated titers require longer follow-up before normalization. Breastfeeding status was explored as a potential modifier of titer decline. Six of 9 mothers had discontinued breastfeeding.There was no clear evidence that the rate of decline differed by breastfeeding status. The interaction between time and breastfeeding status was not statistically significant.Conclusions: Anti-AAV9 antibodies decreased and all patients reached eligibility for therapy. Higher baseline titers seemed to persist longer. Breastfeeding did not have an association with antibody decline. These findings may help guide expectations regarding the timing of eligibility for AAV9-based gene therapy in SMA and inform patient monitoring strategies.

Renal Risks and Real Talk: Sexual Health Screening in Adolescent Transplant Recipients

Presenting Author: Shubha Verma, Emory University School of Medicine

Poster Number: 178

Co-Authors: VERMA, SHUBHA; and George, Roshan

Background: Promoting safe sexual practices is imperative in adolescent and young adult (AYA) recipients of solid organ transplantation (SOT), as being on chronic immunosuppressive medications places them at increased risk for sexually transmitted infections (STI) and/or fetopathy in the event of an unplanned pregnancy. Given that sexual experimentation in AYA is a normal part of development, and SOT recipients have a unique risk, we designed a quality improvement (QI) project to study our current counseling and screening practices in Renal Teen Transplant Clinic. MethodsWe did a retrospective chart review of 1 year of clinic visits (4/17/25 – 4/17/2026), of AYA in Children Healthcare of Atlanta's Renal Teen Transplant Program assessing patient demographics, primary diagnosis, sexual health screening and counseling practices. ResultsWe assessed 50 patients (44% Black, 40% White, 36% female, 30% Hispanic/Latino), ages 16-22, enrolled in the program during this study. Primary causes for renal failure were congenital (20, 40%), nephrotic/nephritic disease (17, 34%), or unknown(13, 26%). Sexual health and activity were discussed with a clinician in the past year for 45 patients, (90%) and STI testing was offered for 32, (64%). Only twelve patients (24%) reported sexual activity, and of these 11 (91.67%) were offered testing, however only eight (66.67%) completed at least gonorrhea and chlamydia testing (GCCT) in the past year. Overall hepatitis panel was the most common STI screening performed (20, 40%) followed by GCCT (18, 36%). Only 3 patients (6%) received the entire STI testing panel. Of the female cohort, 15 (83.33%) received a urine pregnancy test (UPT). More female patients received GCCT testing than males (50% vs. 28.1%).DiscussionThere is an opportunity to offer more consistent sexual health screening for our patients. In our program, female patients were screened for STIs more, perhaps because they were also receiving a yearly UPT. Screening is currently offered as an opt-in service, but prior research shows that adolescents' rates of infection are similar regardless of their perceived risk. As the next step of this QI project, we plan to implement an opt-out model and standardize sexual health screening annually for all AYA renal transplant recipients.

Predictive Validity of Developmental Screening Tools Across Infancy between 9–21 Months

Presenting Author: Aubrey Welburn, Marcus Autism Center, Emory School of Medicine

Poster Number: 179

Co-Authors: WELBURN, AUBREY; Woodard, Camille; Cirilo, Anthony; Kemp, Megan; Klaiman, Cheryl; Jones, Warren

Background: Early identification of autism and neurodevelopmental disabilities (NDD) improves developmental outcomes. Despite early caregiver concerns, the average age of autism diagnosis in the U.S. remains 4–5 years. Early screening is challenging because developmental trajectories are highly variable individually and developmentally, making reliable early markers difficult to identify. This analysis evaluates how screening status across five timepoints predicts later developmental outcomes at 24 months.Methods: As of June 2026, 834 infants have been enrolled in an ongoing community screening

study in the Atlanta Metropolitan Area. Caregivers complete screening questionnaires every three months from 9–24 months, including the Infant Toddler Checklist (ITC) and Ages & Stages Questionnaires-3 (ASQ-3) at all timepoints, Ages & Stages Questionnaires: Social-Emotional-2 (ASQSE-2) at 12, 18, and 24 months, and the Modified Checklist for Autism in Toddlers (M-CHAT) at 18 and 24 months. At each timepoint, infants were classified as positive if they screened positive on any administered instrument; 24-month outcomes were defined as clinician evaluation when available (n = 71) or a composite of 24-month screening otherwise. Sensitivity, specificity, PPV, and NPV were calculated with 95% confidence intervals, and receiver operating characteristic (ROC) curves were created using the cumulative count of positive instruments at each timepoint as a graded predictor, with discrimination summarized via area under the curve (AUC). Preliminary results focus on those infants who have completed the longitudinal protocol (N=314; the remainder still in process). Results: Predictive performance varied across timepoints. Discrimination was weakest at 9 months (n=314; AUC=0.63; sensitivity=57%, specificity=65%) and improved at 12 (n=288; AUC=0.73; sensitivity=82%, specificity=50%) and 15 months (n=295; AUC=0.74; sensitivity=79%, specificity=59%). By 18 (n=267; AUC=0.71) and 21 months (n=266; AUC=0.72), sensitivity declined (58%, 51%) while specificity (83%, 92%) and PPV (48%, 58%) increased. NPV remained high across all timepoints (85–91%). Conclusion: Screening performance is not static across infancy: the 12–15-month window showed the highest sensitivity, while discrimination was weakest at 9 months. These findings suggest infants screening positive around 12–15 months may benefit from prompt referral, while repeated screening across infancy can help clinicians distinguish persistent concerns warranting evaluation from typical developmental variability.

Associations between Central Adiposity and Cardiometabolic Risk in School-Aged Hispanic Youth

Presenting Author: Jean Welsh, Emory University

Poster Number: 180

Co-Authors: WELSH, JEAN A.; Sanchez; Cristian; Ramirez, Ana; DeSantos, Karla; Gillespie, Scott; Vos, Miriam

Background: Obesity and the metabolic abnormalities that contribute to poor cardiometabolic health are often present well before clinical onset. However, the optimal age and strategies for early screening remain unclear. Central adiposity is strongly associated with increased cardiometabolic risk, but the predictive value of waist circumference as a screening tool beyond that of body mass index (BMI) is not known. The objective of this analysis was to examine the relationship between central adiposity measured using the ratio of waist circumference to height and key indicators of cardiometabolic health in a population of children at elevated risk.MethodsData from 161 Hispanic/Latino children aged 6–9 years (Tanner stage 1, BMI >50th percentile, ALT ≤23 IU for girls and ≤26 IU for boys, HbA1c <6.4, no chronic disease history) enrolled in an ongoing clinical trial (NCT05292352) were used. Anthropometrics (weight, height, waist circumference) were measured by trained staff, and biomarkers were analyzed using standard protocols. Odds ratios were calculated to examine associations between obesity (BMI

>95th percentile) with and without high central adiposity (waist-to-height ratio >0.50) and indicators of elevated cardiometabolic risk: elevated triglycerides (>100 mg/dL), low HDL cholesterol (<40 mg/dL), and elevated ALT (>22 for girls, >26 for boys). A Haldane-Anscombe correction was applied to account for absence of low HDL in those without obesity or high waist circumference.ResultsThe sample included 95 males and 66 females, mean age 7.4 years. Prevalence of obesity was 56.1% and of high central adiposity was 31.2%. The odds of increased cardiometabolic risk among those identified as having either obesity or high central adiposity were significantly greater than among those identified as having obesity only. The odds ratios for obesity or high central adiposity vs. obesity only were: high ALT=16.5 vs 6.9; elevated TG=17.8 vs. 5.9; and low HDL cholesterol=23.3 vs. 12.6, respectively.ConclusionThe likelihood of identifying children with elevated risk or cardiometabolic disease were greater when either total adiposity (measured using BMI) or central adiposity (measured using waist to height ratio) were used than with total adiposity only. This suggest that adding assessment of waist circumference to standard adiposity screening protocols that currently include only BMI would be beneficial. Further study in more diverse samples will be needed to confirm these findings and ensure their generalizability.

Early introduction to fruit juice is associated with increased risk of overweight/obesity at 5 years

Presenting Author: Jean Welsh, Emory

Poster Number: 181

Co-Authors: Chiang, Katelyn V.; Stein, Aryeh D.; Aguayo, Liliana; Hamner, Heather C.; Hartman, Terry J.; Luo, Hanqi; and WELSH, JEAN A

Background: Recommendations regarding sugar-containing beverages during early childhood have become increasingly restrictive, but evidence supporting delayed introduction of 100% fruit juice remains limited. We examined the association between introduction of 100% fruit juice before 12 months of age and overweight/obesity at 5 years among low-income U.S. children. We also evaluated whether greater sugar-containing beverage intake during early childhood mediated this association. We hypothesized that early fruit juice introduction would be associated with increased risk of overweight/obesity and that this relationship would be partially explained by higher later beverage consumption.Methods: We analyzed longitudinal data from the WIC Infant and Toddler Feeding Practices Study-2, including maternal interviews, repeated 24-hour dietary recalls, and measured child height and weight obtained through WIC or healthcare providers. Mean intakes of 100% fruit juice, sugar-sweetened beverages (SSBs), and total sugar-containing beverages were compared by timing of fruit juice introduction and overweight/obesity status at 5 years. Modified Poisson regression models estimated adjusted relative risks (aRRs) for overweight/obesity associated with early fruit juice introduction and assessed attenuation after adjustment for later beverage intake.Results: Children introduced to fruit juice before 12 months had a 27% higher risk of overweight/obesity at 5 years than those introduced at ≥12 months (aRR, 1.27; 95% CI, 1.02–1.58). Children introduced early consistently consumed more fruit juice, SSBs, and total sugar-containing beverages throughout early childhood than those introduced at ≥12 months. However, beverage intakes did not differ by overweight/obesity status

at 5 years, and adjustment for usual beverage intake at age 5 years or average intake from ages 1–5 years did not attenuate the association between early fruit juice introduction and overweight/obesity.Conclusions: Introduction of fruit juice before 12 months was associated with increased risk of overweight/obesity at 5 years. This association was not explained by greater sugar-containing beverage intake later in childhood, suggesting that other mechanisms may contribute. These findings support current recommendations to delay introduction of 100% fruit juice until 12 months of age.

Preliminary Impact of a Community-based Family Healthy Weight Program: The Fit Together Gwinnett Pilot Program

Presenting Author: Jean Welsh, Emory University

Poster Number: 182

Co-Authors: WELSH, JEAN A.; Palmer, Wendy; , Benincasa Lauren; Tenorio Martinez, Sofia.

Background: The Fit Together Gwinnett pilot program is being implemented by Children's Healthcare of Atlanta (Children's) as part of an effort to increase access by Georgia's children to a family healthy weight program (FHWP) offering the recommended 26 hours or more of healthy lifestyle education and support for those with overweight or obesity. The purpose of this analysis was to assess participation levels and the preliminary impact of this participation on children's weight status. Methods: Children 6-11 y with overweight or obesity who are referred by their primary healthcare provider attend the Fit Together program with at least one adult family member free of cost. Enrollment is rolling and participants are encouraged to attend at least one of the two to three 2-hour sessions offered per week for up to one year. Sessions are held at a local parks and recreation facility and the program is delivered with the financial support and under the direction and management of staff from Children's. The curriculum was adapted from one developed at Duke University which combines fun, family-centered physical activity (1.5 hours) and experiential nutrition education (.5 hours). Participation was assessed using program records and impact on weight status was examined using growth charts and data collected as part of a healthcare visit. Mean change in body-mass-index z-scores (BMIz) from 6-months to 1-year prior to program enrollment and mean change from enrollment to follow-up after 6-12 months were estimated and the pre and post differences were tested using a paired t-test. Results: Between January 23, 2024, when the pilot program was initiated, and April 1, 2025, 21 clinicians in 4 practice locations have referred 129 children to the Fit Together Gwinnett pilot program and 56 have enrolled. Among those enrolled, 13 (78% female, mean age 9 years) attended at least one Fit Together session and have since had at least one follow-up visit with their referring healthcare provider 6-12 months after enrollment. Seventy-seven% participated in >5 sessions, 46% participated in >13 sessions (26 hours). Mean (SD) change in BMIz from 6-months to 1-year prior to program enrollment was +0.10 (0.23) and from enrollment to 6-12 months after enrollment was -0.08 (0.17), p=0.03. Conclusion: The preliminary results from the first 15 months of this ongoing pilot program demonstrate that the program is well-

received by clinician's and families and suggest that participation is helping to improve the weight trajectory of the youth that attend.

Trends in early life sugar-containing beverage consumption in the United States and impact of updated expert guidelines – NHANES 2013-2023

Presenting Author: Jean Welsh, Emory

Poster Number: 183

Co-Authors: Chiang, Katelyn V.; Luo, Hanqi ; Hamner, Heather C.; Aguayo, Liliana; Hartman, Terry J.; Stein, Aryeh D.; and WELSH, JEAN A

Background: Efforts to reduce the consumption of fruit juice and other sugary beverages among young children have intensified over the past decade. In 2017, the American Academy of Pediatrics and the American Heart Association recommended delaying introduction of 100% fruit juice until 12 months of age, limiting intake to ≤4 ounces/day through age 5 years, and avoiding added sugars, including sugar-sweetened beverages (SSBs), before 24 months. However, recent national trends and adherence to these recommendations have not been well characterized. We examined trends in fruit juice and SSB consumption among U.S. children ≤5 years from 2013–2023 and assessed changes following release of the updated recommendations.Methods: We analyzed nationally representative 24-hour dietary recall data from children ≤5 years participating in four cycles of the National Health and Nutrition Examination Survey (2013–2023). Outcomes included mean intake of fruit juice and SSBs as a percentage of total energy intake (%TEI), prevalence of any consumption, and prevalence of excessive fruit juice intake (>4 ounces/day). Outcomes were compared across survey cycles and between periods before (2013–2016) and after (2017–2023) the updated recommendations. Trends and subgroup differences by sociodemographic characteristics were evaluated.Results: From 2013–2023, fruit juice consumption improved significantly, with declines in both the proportion of infants consuming fruit juice and mean intake among children 1–5 years. In the years following release of the updated recommendations, infant fruit juice consumption decreased from 17.8% to 10.9%, while excessive fruit juice intake among children 1–5 years declined from 39.5% to 31.1%. However, mean intake among fruit juice consumers only remained high (>8 ounces/day), and lower-income, Hispanic, and non-Hispanic Black children continued to have lower adherence to recommendations. In contrast, no significant improvements were observed in SSB consumption. The proportion of infants and toddlers (<24 months) consuming SSBs and mean SSB intake among children 2–5 years remained unchanged over the decade. During 2021–2023, children ≤5 years obtained 5.6% of total energy from sugar-containing beverages.Conclusions: Despite meaningful improvements in fruit juice consumption, adherence remains suboptimal and disparities persist. Little progress has been made in reducing SSB intake during early childhood, highlighting the need for continued and targeted nutrition education and public health interventions.

Between Cure and Comfort: How PICU, BMT, and Palliative Care Teams Align to Care for Critically Ill Children

Presenting Author: Tahira West, Emory University

Poster Number: 184

Co-Authors: West, Tahira; Ozel, Erkin; Shin, Grace; Chohrach, Nathaniel; Johnson, Laura; Brasher, Susan; Faucett, Margaret; Tomberlin, Aaron; and Flynn, Emilee

Background: Children undergoing Bone Marrow Transplant (BMT) who require Pediatric Intensive Care Unit (PICU) admission face high mortality and long-term morbidity. Families often experience significant psychological stress further complicating informed decision-making. Early involvement of Pediatric Palliative Care (PPC) has been shown to facilitate communication and goal setting, decrease psychosocial distress, and improve quality of life. However, involvement remains inconsistent, especially in the PICU. This study explores factors influencing PPC utilization during PICU and BMT admissions, aiming to support more consistent collaborative care.MethodsWe conducted qualitative interviews within an exploratory mixed methods study. Participants included BMT, PICU, and PPC interdisciplinary clinicians at a single pediatric academic hospital. Semi-structured interview guides addressed domains specific to patients undergoing BMT, including knowledge and perceptions of PPC, level of comfort discussing prognosis and advanced care planning, needs of patients who have undergone BMT, and indications for optimal timing of PPC referral. Interviews were audio-recorded, transcribed, and thematically analyzed to identify barriers and facilitators to PPC utilization across the PICU and BMT setting.Results A total of 25 clinicians participated in the study. Themes identified include the complex interplay between ongoing and chronic care needs managed by PPC and BMT to the rapid shift in focus on acutely life-threatening care needs in the PICU. Additional themes include clinicians' perspectives that medical teams and families differ in how they view PPC's role and who is primarily managing and guiding ongoing care once patients undergoing BMT arrive in the PICU. ConclusionsEarly PPC involvement can bridge these divides by increasing opportunities for goals-of-care conversations, aligning expectations, and ensuring families have the longitudinal and psychosocial support they need when considering the balance of continued curative efforts against comfort-oriented care. Next steps include triangulating the data by conducting a retrospective chart review guided by the qualitative data.

Monitored Outpatient Traction Unit for Scoliosis (MOTUS): A Wearable, Sensing-Enabled System for Preoperative Spinal Traction

Presenting Author: Samuel Wilcox, Georgia Institute of Technology

Poster Number: 185

Co-Authors: WILCOX, SAMUEL; Huang, Zhefeng; Emling, Brian; Welling, Richard; Coulter, Colleen; Giavedoni, Brian; Schmitz, Michael; and Chen, Yue

Background: Severe pediatric scoliosis, defined by spinal curvature exceeding 40 degrees, can impair pulmonary function, cause chronic pain, and substantially reduce quality of life. Surgical correction is required, but large-magnitude deformity correction increases the risk of neurological complications. Preoperative spinal traction mitigates this risk, and the current gold standard is halo gravity traction (HGT), which gradually applies weight through a walker-based frame to lengthen the spine. Despite its clinical utility, HGT is bulky, restricts patient mobility, and is confined to inpatient settings, often requiring hospital stays exceeding four weeks. Existing systems also lack integrated sensing and real-time monitoring, limiting standardized treatment delivery and objective assessment of patient progress.Methods: We developed MOTUS, a wearable, noninvasive traction system that applies traction intrinsically within the halo construct, eliminating external support frames. Traction is anchored through a thoracolumbosacral orthosis to distribute force noninvasively across the torso. The prototype incorporates embedded sensing to measure applied traction force, patient movement, wear compliance, and pressure-injury risk at the brace-skin interface, with data streamed wirelessly to a clinician-facing application for remote monitoring. System performance was validated in a benchtop study using a scoliosis phantom. Over an 18-day traction protocol, spinal correction was serially quantified via CT imaging.Results: MOTUS achieved 13.9 mm of spinal correction, corresponding to 57.2% of the surgical target, with negligible halo drift. Embedded sensors successfully captured applied force, patient activity, and brace-skin interface pressure throughout the protocol, confirming reliable real-time monitoring.Conclusion: These results demonstrate the feasibility of wearable, sensing-enabled outpatient traction and support progression toward clinical evaluation. By enabling mobile, home-based, and continuously monitored therapy, MOTUS has the potential to reduce inpatient burden, standardize treatment delivery, and expand access to preoperative scoliosis care for pediatric patients.

Making Sense Out of Nonsense: Rescuing Cystic Fibrosis-Causing Variants Lost in Translation

Presenting Author: Ashlyn Winters, Emory University

Poster Number: 186

Co-Authors: WINTERS, ASHLYN G.; Freestone, Emily; Yang, Yolanda; White, Janiyah A.; Jackson, JaNise J.; Foye, Catherine; Ali, M. Haider; Wang, Wei; Hartman IV, John L.; Sorscher, Eric J.; and Oliver, Kathryn E.

Background: Premature termination codons (PTCs) are linked to ~11% of human genetic disorders, including cystic fibrosis (CF). This lethal autosomal recessive condition is caused by loss-of-function of the CF transmembrane conductance regulator (CFTR), an epithelial ion channel. Approximately 13% of CF patients encode PTCs such as G542X- or W1282X-CFTR. These variants are ineligible for clinically approved “modulators”, which are compounds designed to rescue defects in CFTR folding or gating. Our primary objectives are to better define mechanisms of PTC processing and therapeutically harness interaction networks that govern severity of CF-causing nonsense variants.MethodsWe previously employed yeast phenomics to identify gene deletions that confer PTC read-through. Prominent ‘hits’ included ribosomal proteins L12 (RPL12/uL11) and L8 (RPL8/uL2). In the present study, differential effects of RPL12 or RPL8 depletion conferred to CFTR PTCs were determined with siRNA knockdown

using Fischer rat thyroid cells, CF bronchial epithelia, and primary human airway epithelia. Immortalized cells were stably transduced with G542X- or W1282X-CFTR cDNA and/or a horseradish peroxidase tag to detect cell surface localization. CFTR mRNA abundance, protein maturation, and channel activity were quantified. Treatment conditions included G418 (read-through agent), PTI-428 (mRNA amplifier), and elexacaftor-tezacaftor-ivacaftor (ETI, clinically approved CFTR modulators).ResultsG542X and W1282X plasma membrane densities were significantly enhanced by ~50% knockdown of RPL12 or RPL8, with synergistic amplification achieved by G418, PTI-428, or ETI. Depletion of RPL8, but not RPL12, augmented G542X and W1282X mRNA levels, which were further increased by G418 or PTI-428. RPL12 suppression enhanced protein expression of G542X (full-length) and W1282X (truncated), and silencing RPL8 or RPL12 increased W1282X transepithelial ion transport.ConclusionsOur findings suggest that partial depletion of RPL8 impairs mRNA decay and confers PTC read-through to increase G542X and W1282X synthesis. In contrast, RPL12 knockdown does not impact PTC mRNA surveillance, yet does exert an amplifier effect on W1282X protein and modest read-through of G542X. Tuning expression of these RPLs should be considered as a novel therapeutic strategy for CFTR nonsense suppression – the effects of which may be augmented in a multiplicative manner by clinically approved drugs – thereby potentially benefitting people living with otherwise untreatable variants.

Rural High-risk Infant Follow-up in Georgia: Pilot Program of Satellite Clinics

Presenting Author: Jodit Yimenu, Emory University

Poster Number: 187

Co-Authors: Yimenu, Jodit; Barahona, Joselyn; Vaughan, Adele; Kjeldsen, Caitlin; Maitre, Nathalie; and Pope, Alexandra

Background: In Georgia, High Risk Infant Follow-up (HRIF) services are delivered through a network of Regional Perinatal Centers, with rural counties representing 78% of Georgia. Families in rural regions face demonstrated barriers to HRIF including travel distance and limited provider access. Little is known about neurodevelopmental and medical characteristics of HRIF patients from rural areas as they often do not attend scheduled Center visits. We aimed to study these patients in health department (HD) satellite settings compared to those seen in Centers.Method: As part of an ongoing collaboration with the Georgia Department of Public Health, we piloted monthly HRIF at Georgia HDs. Protocols followed guidelines utilized by the Atlanta Developmental Progress Clinic (DPC). Neurodevelopmentally-trained physicians, therapists, and trainees provided clinical services. Eligible HRIF patients residing within 30-miles of the HD were given the option to be seen locally at their first HRIF visit. Encounters across the pilot period were compared retrospectively with date-and-age matched encounters at DPC. Groups were compared using Mann-Whitney U tests and chi-square or Fisher's exact tests. Due to small sample size, a binary composite risk factor was created (HIE and/or gestational age <28 weeks) and a composite outcome (Cerebral palsy diagnosis, tracheostomy/ventilator dependence, and/or feeding tube use).Result: The cohort included 66 participants (30 HD, 36 DPC). Across both cohorts, median GA was 30.5 (27-37), corrected age at visit 6.2 months (4.4-12.7), 78.8.0% were male. No individual demographic

or perinatal variables differed significantly between groups. For the risk composite, 63.3% of HD participants versus 47.2% of DPC participants were positive (OR 1.93, p=0.222). For the composite outcome, 36.7% of HD participants versus 22.2% of DPC participants were positive (OR 2.03, p=0.276). Both composites were more frequent in the HD group, but neither difference was statistically significant.Conclusion: Our findings suggest that rural HRIF patients may represent a population with high neurodevelopmental and medical complexity with a critical need for access to care. These pilot data must be explored in a larger sample with the goal of improving rural healthcare infrastructure and expanding HRIF services accounting not only for geography but complexity as well.

Antimicrobial Resistance in the Infant Gut: Genomic Characterization of ESBL-Producing Escherichia coli Strains Isolated from Infant Fecal Samples

Presenting Author: Umme Abeeha Zafar, Aga Khan University, Pakistan

Poster Number: 188

Co-Authors: ZAFAR, UMME ABEEHA; Ibrahim, Muhammad; Hotwani, Aneeta; Naeem, Huda; Ramzan, Noman; Muneer, Sehrish; Arshad, Mehreen; and Pasha, Aneela

Background: Infants are vulnerable to antibiotic-resistant infections due to immature immune defences and perinatal exposure, with gut colonization representing a potential reservoir for resistant strains. Pakistan, carrying one of the world's highest preterm birth burdens and limited neonatal intensive care capacity, represents a critical setting for characterizing this risk. Escherichia coli (E. coli) is classified among the most critical antibiotic-resistant pathogens by the WHO Global Priority Pathogens List (2024). β-lactamases are hydrolysing enzymes produced by Gram-negative bacteria, including E. Coli, that confer resistance to β-lactam antibiotics; extended-spectrum β-lactamases (ESBLs) broaden this activity to aztreonam and oxyimino-cephalosporins, threatening the efficacy of both first line and escalation regimens used in neonatal sepsis.Objectives: To identify and characterize β-lactamase genes and co-resistance profiles in ESBL-positive E. coli strains isolated from fecal samples of infants enrolled in the AMANHI (Alliance for Maternal and Newborn Health Improvement) cohort in Pakistan.Methods: Stool samples were cultured on MacConkey agar supplemented with ceftriaxone for selective isolation. Isolates were confirmed biochemically using indole, methyl red, Voges-Proskauer, and citrate utilization tests. DNA was extracted using the QIAamp DNA Stool Mini Kit following bead-beater-mediated lysis and quality-assessed via NanoDrop ND-1000 spectrophotometry. Sequencing data were analyzed using BV-BRC, drawing on CARD and PATRIC databases, to identify resistance genes and sequence types.Results: Fifteen ESBL-producing E. coli strains were identified. CTX-M-15 was detected in all 15 strains. Pathogenic extraintestinal sequence types — including ST10, ST410, and ST28 — were present despite the cohort comprising otherwise healthy infants. Co-resistance genes spanning ten antibiotic classes were identified across the strain collection, with fluoroquinolone and polymyxin resistance detected universally. OXA-181, a carbapenem-hydrolyzing class D β-lactamase, was genotypically identified in ST167.Discussion and Conclusion: Near-universal CTX-M-15 detection reflects the global dominance of CTX-M-type enzymes in cephalosporin resistance. The presence of ST410 and carbapenemase-carrying ST167 signals resistance

reservoirs with severely limited treatment options should invasive infection arise. While this study characterizes colonization rather than active infection, these findings underscore the infant gut as an underrecognized AMR reservoir and highlight the urgent need for surveillance, antibiotic stewardship, and microbiome monitoring in high-risk maternal-infant populations.

Ear-resistable: Family Engagement with an AI-Enabled Otoscope Study

Presenting Author: Grzegorz Zapotoczny, Lurie Children's Hosptial of Chicago

Poster Number: 189

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Background: Artificial Intelligence (AI) in healthcare is promising, but parents often raise valid concerns about privacy, safety, bias, and how AI will be used in decisions about their children. These concerns, along with technical hurdles and AI's high data demands, can hinder adoption. Researchers face similar concerns when enrolling patients in studies about or with AI technologies. We examined family engagement and attitudes towards participating in a federally-funded study of an AI-enabled medical device. The objective of this study is to evaluate patient family engagement and attitudes towards AI research as a part of the NIH SBIR-funded study for the development of Remmie.ai, an AI-enabled otoscope intended for clinical decision support.MethodsBetween Dec 2024 and Nov 2025 we recruited 290 participants for the prospective Remmie.ai image collection study (IRB # 2024-6966). We offered to collect feedback from patients who declined to participate (brief interviews), enrolled in the study (focus groups; satisfaction surveys), and who took the device home (system usability surveys). Quantitative and qualitative data elements were summarized using descriptive statistics. ResultsWe enrolled 255/290 (88%) of all approached patients (Figure 1). The most cited reason to decline overall study participation was child discomfort 22/35 (62.9%), however only 20/161 (12.4%) participants who saw how the device worked shared this concern (Table 1). Of the 19 participants who filled out the satisfaction survey, respondents scored favorably 169/190 (88.9%) technology-related questions. Of the 20 participants who took the device home, 5% expressed a strong preference for the immediate AI feedback, while 65% preferred to wait up to 24h clinician feedback; 30% had no preference. They also scored Remmie.ai usability at 79.3 (Grade A- ; Excellent). None of the participants expressed strong concerns regarding the AI component. Figure 1. Remmie.ai - Consort Diagram Table 1. Patterns of AI Research Participation HesitancyConclusionsHigh enrollment indicates that families are willing to engage in AI research when safeguards are clear and children’s wellbeing is protected. While participants reported few AI-specific concerns, they preferred clinician-mediated feedback over immediate AI output. These findings suggest that clinician-in-the-loop designs and transparent communication can convert general AI wariness into research participation.

Revealing Discrepancies in FDA’s Documentation of High-Risk Pediatric Medical Devices

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Poster Number: 190

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Background: The US Food and Drug Administration (FDA) requires evidence of safety and effectiveness to allow the use of medical products in patients. There is a known gap in the availability of pediatric medical devices (PMD), resulting in 60-75% of medical products used off-label in children. Starting in 2008, Congress mandated that the FDA provide annual reports on premarket approvals for pediatric medical devices. However, there are no requirements or standards for how children are included or documented in device submissions. Given the persistent PMD scarcity and potential documentation gaps, we investigated the consistency of pediatric inclusion across multiple sources. The objective of this research is evaluate the fidelity and consistency of regulatory documentation associated with 101 high-risk devices reported to Congress as pediatric between 2008-2017.MethodsData extraction and statistical analysis of publicly available FDA databases. ResultsOver the 10-year period, adult high-risk devices were approved at a significantly higher rate than PMDs (35.0 vs. 11.0 devices/year, $p < 0.001$); the proportion of pediatric approvals declined by 32 percentage points (Figure 1). Of the 101 PMDs, 30 (29.7%) mentioned children in the labeling and 34 (33.7%) reported pediatric clinical data (Figure 2). Of those, only 13 (38.2%) were consistently indicated and reported to Congress as applicable to children ages 0-17 years. Similar concurrence was observed in 16/26 (61.5%) devices for young adults (ages 18-21 years). Of the 42 devices without any age information in the product labeling, 16 (38.1%) were reported as silent on age, while 12 (28.6%) were relabeled to reflect the clinical data (either pediatric or young adult). Overall, 21 devices (20.8%) exhibited inconsistencies across all three data sources. Figure 1. The Widening Gap in High-Risk Medical Device Approvals Between Pediatric and Adult Patients, 2008-2017 Figure 2. Sankey Diagram Illustrating Discrepancies in Device Applicability to Pediatrics ConclusionsFew medical devices reported as pediatric were tested and approved for children. Conversely, inclusion of children in clinical studies may not translate into pediatric specific indications. This variability poses significant problems for research, clinical use, and policy evaluation. The FDA should establish clear pediatric labeling standards to address this issue.

Prevalence of Social Determinants of Health and Adverse Childhood Experiences in Pediatric Patients Presenting with Violent and Non-Violent Traumatic Injury

Presenting Author: Nathaniel Webb, Emory University School of Medicine

Poster Number: 191

Co-Authors: Webb, Nathaniel; Chaudhary, Sofia; Duffy, Lucie; Gautam, Shreya; Jergel, Andrew; Linden, Allison; Meshramkar, John; Ramalingam, Nitya; Rodenbaugh, Anna M.; Sobrino, Justin; Sharma, Sriya; Fraser Doh, Kiesha

Background: Negative social determinants of health (SDOH) and adverse childhood experiences (ACEs) increase children's risk of traumatic injury. Rates of violent injury are rising, and more severe injuries are linked to poor long-term outcomes. This study characterized SDOH and ACE prevalence between non-violently and violently injured pediatric patients. MethodsWe conducted a four-month observational study of parents/legal guardians of children (≤17 years) hospitalized for traumatic injury. Violent injuries included firearm, stabbing, and assault; non-violent injuries included motor vehicle collisions, falls, and other trauma. Patients with suspected child maltreatment were excluded. Adolescents (12–17 years) and legal guardians completed age-specific surveys assessing social determinants of health, adverse childhood experiences, and demographic factors. Injury characteristics were extracted from the electronic medical record. Data were analyzed using descriptive and nonparametric statistics.ResultsWe enrolled 80 patients, 71 for non-violent and 9 for violent mechanisms of injury. Data show no significant difference ($p>0.05$) in demographic characteristics between non-violent injury and violent injury groups. Of the violently injured patients, 78% were male, compared to 56% of non-violently injured patients. 89% of violently injured patients identified as Black or African American, compared to 38% of non-violently injured patients. Eleven- to seventeen-year-olds accounted for 78% of violently injured patients, compared to 49% of non-violently injured patients. Caregivers of violently injured patients reported greater use of government housing subsidies (33%, $p<0.05$) and difficulty accessing essential items of daily living (44%, $p<0.05$) and government benefits (44%, $p<0.05$). Caregivers of violently injured patients more often reported a lack of both community financial support (67%, $p<0.05$) and community acceptance (22%, $p<0.05$). ConclusionsFamilies of violently injured patients have greater unmet social needs of daily living when compared to families of non-violently injured patients. Understanding social drivers of violent pediatric injuries and increasing screening for risk factors is critical in guiding hospital resource allocation to reduce violent injury, prevent reinjury, and improve long-term outcomes.

Hyperglycemia and Polyunsaturated Omega-6 fatty Acids Significantly Reduce CFTR Channel Function and Modulator Sensitivity

Presenting Author: Ella Rintala, Emory School of Medicine

Poster Number: 192

Co-Authors: RINTALA, ELLA; Foye, Catherine; White, Janiyah; Freestone, Emily; Shirley, Gabrielle; Collins, Genoah; Vazquez-Cegla, Analia J.; Kopp, Benjamin T.; Chandler, Joshua D.; McCarty, Nael A.; Alvarez, Jessica A.; Daley, Tanicia; and Oliver, Kathryn E.

Background: Cystic fibrosis-related diabetes (CFRD) is the most prevalent comorbidity among people with CF, a lethal autosomal recessive disorder caused by defects in the CF transmembrane conductance regulator (CFTR). CFRD is associated with more frequent acute pulmonary exacerbations and six-fold higher risk of mortality. Standard treatments include insulin delivery, continuous glucose monitoring, and improved diet quality, which improve lung function and survival. However, poor nutrition counteracts these efforts by increasing risks of obesity and cardiovascular complications. Polyunsaturated omega-6 fatty acids are pro-inflammatory and found in processed foods common to western diets, including the

CF legacy diet. Our objective is to determine whether hyperglycemia and/or omega-6 fatty acids contribute to accelerated pulmonary decline through effects on CFTR functional expression. Methods CF bronchial epithelia (CFBE41o-), Fischer rat thyroid (FRT) cells, and primary human nasal epithelia were employed. Immortalized cells were stably transduced with wild-type (WT) CFTR or variants such as F508del or G542X. Cells were grown in hypoglycemia (0.5g/L), normoglycemia (1.0g/L), hyperglycemia (2.5g/L), or super-hyperglycemia (3.5g/L). Treatments also included a polyunsaturated omega-6 fatty acid (arachidonic acid), CFTR modulators (elexacaftor-tezacaftor-ivacaftor (ETI)), or read-through compound (G418). Glucose consumption, CFTR protein expression, and channel activity were measured. Results In primary HNE and CFBE41o-, hyperglycemia diminishes WT-CFTR transepithelial ion transport between 6-33%. Hyperglycemia also reduces F508del-CFTR baseline activity (~34%) and ETI-rescued currents (~11%). Interestingly, hyperglycemia elicits no effects on WT- or F508del-CFTR protein biogenesis. In FRT cells, hyperglycemia significantly decreases G542X-CFTR processing at baseline. When exposed to arachidonic acid, this molecule depletes G418-mediated rescue of G542X cell surface localization. In primary HNE with CFTRF508del/G542X genotype, arachidonic acid decreases ETI-rescued CFTR activity from ~24% to ~16% of WT. Conclusions Results demonstrate hyperglycemia or arachidonic acid reduce WT and mutant CFTR activity at baseline and under small molecule-induced correction. Such influence may be elicited through accumulation of reactive oxygen species, which could impair CFTR plasma membrane insertion. Future studies will focus on understanding mechanisms by which dysregulated glucose and arachidonic acid affect redox state, CFTR function, and modulator sensitivity to strengthen precision medicine-based approaches to CFRD complications.

Early-Life Adversity Reveals Sex-Dependent Roles for Microglial Glucocorticoid Receptor Signaling in Synaptic Development and Behavior

Presenting Author: Fadya H. Mroue Ruiz, Georgia State University

Poster Number: 193

Co-Authors: MROUE-RUIZ, FADYA H.; Heist, Sylvie; Shehu, Jonila; Lekkala, Sahiti; Otuonye, Nneka; Towriss, Morgan; Ciernia, Annie; and Bolton, Jessica L.

Background: Early-life adversity (ELA) is a robust predictor of poor mental health outcomes such as depression. Animal models are valuable tools for understanding the mechanisms by which this increased risk of psychiatric disorders occurs. Accordingly, we know that ELA alters the Hypothalamic-Pituitary-Adrenal axis, causes increased levels of corticotropin-releasing hormone (CRH), and increases threat-response behavior. We have previously reported that ELA increases excitatory signaling onto CRH+ neurons in the paraventricular nucleus of the hypothalamus (PVN) at postnatal day (P)10 by decreasing synaptic pruning by microglia. However, the mechanisms by which ELA impairs microglial function during brain development are unknown. We used transcriptomics to look for ELA-derived gene expression changes in isolated microglia at P8. Our results indicated enrichment for glucocorticoid receptor (GR)-modulated genes. Thus, we aimed to determine the role of microglial GR in causing the effects of ELA on microglial function and later behavior. We employed CX3CR1-Cre+::GR-fl/+ mice to delete one allele of

GR in microglia (mGR-HD) combined with the limited bedding and nesting model for ELA. We assessed the effects of genotype, ELA, and sex on synapse number, microglial engulfment, and behavioral outcomes in each condition. In males, mGR-HD altered the effects of ELA on excitatory synapse number at P10, reducing excitatory synapse number in ELA mGR-HD animals. Consistently, mGR-HD increased microglial engulfment of vGlut2+ puncta in ELA males at P8, suggesting enhanced synaptic pruning. In adulthood, ELA increased anxiety-like behavior in males, whereas females exhibited increased risk-taking behavior and heightened responsiveness to threat-related stimuli. Notably, several behavioral effects of ELA were recapitulated by mGR-HD in both males and females, though in opposite directions, suggesting that disruption of mGR signaling is sufficient to mimic certain aspects of ELA programming. Together, our findings may suggest a role for mGR in negative feedback on the hypothalamic-pituitary-adrenal axis. These results will have important implications in the development of personalized therapies for at-risk children.

Community-Co-Designed Model to Address High Rates of Pediatric Iron Deficiency Anemia in Refugee Communities

Presenting Author: Shea Goodson, Emory University

Poster Number: 194

Co-Authors: GOODSON, SHEA; Videlefsky, Karin; Hau Dim, Esther; Kapapa, Memory; Alokozai, Marhaba; Moore, Temple; Rule, Amy; Boden, Laurie; Young, Melissa; Rose, Eve; and Blake, Sarah;

Background: Refugee children in Clarkston, Georgia, experience iron deficiency anemia at rates significantly higher than national averages. Data from a clinic serving refugee communities identified elevated iron-deficiency anemia prevalence among refugee children ages 12–24 months, prompting a deeper community assessment. Refugee Women's Network, Ethne Clinic, Emory University, Rollins School of Public Health, and Department of Pediatrics formed the Multicultural Pediatric Nutrition Task Force to launch a co-designed intervention.A longitudinal, multi-community focus group design was employed with monthly sessions for mothers from Congolese, Afghan, and Burmese backgrounds (n=24). Groups were co-facilitated by community members and academic partners, in person at community sites. Each language group participated in four co-design focus group sessions: 1) anemia and nutrition knowledge, 2) a potluck centered on iron-rich foods, 3) a cooking demonstration, and 4) filming in-language nutrition videos. Exit interviews were conducted after video completion and focused on the effectiveness of the information shared. Participants reported increased knowledge of anemia prevention, dietary strategies, and safe infant feeding. Mothers emphasized the value of hands-on learning and expressed a strong desire to share this information within their communities. In-language video content was identified as the most accessible and sustainable tool for peer education, especially across varying literacy levels. This initiative highlights the effectiveness of co-designed, experiential learning for refugee health education. Community-led programming enhances trust, cultural relevance, and applicability of materials. Replicating this model could extend nutrition education and improve

pediatric health outcomes among refugee families nationwide. In the future, the project will assess the implementation and evaluation of resources in both clinical and community support settings.

Associations between autoantibodies against type I interferon and disease severity in COVID-19 and dengue in two pediatric cohorts

Presenting Author: Ritisha Lingampally, Emory University

Poster Number: 195

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Background: Autoantibodies, host-derived immunoglobulins reactive against self-antigens, are increasingly associated with severe viral infections. In COVID-19, autoantibodies that block type I interferons (IFN)- signaling key antiviral cytokines- are found in roughly 15-20% of severe cases; however, no known studies have been performed in pediatric population to understand this relationship across severe disease states, including MIS-C. Beyond the acute phase, patients with post-COVID symptoms show higher rates of autoantibody positivity than healthy individuals, suggesting persistence and contribution to long-term clinical consequences. Diversity of autoantibody responses against type I IFN by disease severity has not been evaluated in dengue virus (DENV) infections, though likely influences susceptibility. Comparative characterization across infectious diseases, and their relationship to disease severity, remains poorly studied but could provide insight into pathogenesis. A particularly vulnerable and understudied group includes children with inborn errors of immunity (IEI), where specific autoantibodies may influence outcomes from recovery to life-threatening illness. The goal of this study is to understand autoantibodies' role against type I IFN and their influence on disease severity among two pediatric cohorts with COVID-19 and dengue. We performed ELISA serological assays to detect and characterize autoantibodies targeting two type I interferons, IFN-α2 and IFN-ω, in clinical cohorts of pediatric patients with COVID-19 and dengue infection. Patients were analyzed based on categories of disease severity as the primary clinical correlates. For the COVID-19 cohort, analysis included demographics, level of care received, and length of hospital stay. For the dengue cohort, analysis included demographics and hospitalization. Age-matched controls were included for comparison. A preliminary analysis of the COVID-19 cohort reveals significant associations between type I IFN autoantibody reactivity and disease severity, consistent with prior severity-stratified studies in adults. We are currently conducting more thorough cross-disease comparisons and characterizations, incorporating immunological parallels between dengue and COVID-19 to identify shared autoimmune mechanisms underlying severe viral disease. This study works to underscore autoantibody profiles as clinically significant correlates of viral disease severity. Based on the associations found, these findings can guide therapeutic strategies and support interventions to reduce the risk of severe disease and long-term sequelae, particularly in vulnerable populations such as those with IEI.

School-Based Mental Health Referrals to the Pediatric Emergency Department

Presenting Author: Rebecca Haber, Emory University

Poster Number: 196

Co-Authors: Zwiebel, Hannah; Haber, Rebecca; Harris, Julia; Jergel, Andrew; and Okeson, Karli

Background: There is an increase in patients who present to the pediatric emergency department (PED) for Behavioral Mental Health (BMH) concerns, and schools are in a unique position to address needs in the spectrum of pediatric mental health care. The purpose of this study is to examine the population of patients who are referred to the PED for behavioral and mental health concerns by school personnel compared to other referral sources. Methods: This study is a retrospective chart review of visits to the PED at a large academic pediatric hospital between July 2022 – June 2024. Patients who visited during these dates for a chief complaint of "behavioral complaint" of any gender, ages 10-17 were eligible to be included into the study. Data was collected related to demographics, medical history, and the emergency department visit. Preliminary statistical analysis included medians, Wilcoxon rank sum tests, Fisher's exact tests, and Pearson's Chi-squared tests. Results: Data was collected from 430 PED visits. 181 patients were referred from school (42%). There was a significant number of patients who presented to the PED for suicidal ideations from schools (65%) vs other referral sources (46%), ($p<0.001$). For aggressive behavior, 21% were school-based referrals and 40% of patients were from all other referral sources ($p<0.001$). There was no difference between groups on whether a psychiatric hold was signed [school-82/181 (45%), other source-114/249 (46%), $p=0.862$)] Conclusions: Patients who are referred from school to the PED are more likely to present with suicidal ideations. There were significantly less referrals from schools for aggressive behavior. Need for psychiatric hold was not significantly different between those referred from school vs other referral sources. This may indicate that schools have resources to identify suicidal emergencies, and perhaps that schools have resources to handle aggressive outbursts. Data analysis is ongoing.

Association Between BMI at Diagnosis and Development of Anorexia in Children Undergoing Treatment for Acute Lymphoblastic Leukemia

Presenting Author: Rebecca Haber, Emory University

Poster Number: 197

Co-Authors: Haber, Rebecca; Lee, Katie; Stevenson, Jason; Hawk, Ashleigh; Hunt, Amy; Khanna, Anjali; Park, Yoonseo; Castellino, Sharon; and Miller, Tamara

Background: Despite high survival rates, children with acute lymphoblastic leukemia (ALL) commonly experience treatment-related adverse events (AEs), including anorexia that can impact quality of life. Nutritional status at diagnosis, commonly measured by body mass index (BMI), may influence treatment tolerance, but the relationship between BMI and development of anorexia remains poorly defined. Existing literature describes associations between extremes of BMI and survival outcomes in ALL, but

studies investigating anorexia in relation to BMI are limited. Clarifying this association may help identify high-risk patients and guide surveillance. Methods: This retrospective cohort study included children aged 1-21 years treated for ALL at Children's Healthcare of Atlanta from 2010-2022. BMI at time of ALL diagnosis was calculated and categorized per CDC guidelines. Grade 2+ clinically-treated anorexia (CT-anorexia), defined per Common Terminology Criteria for Adverse Events (CTCAE) v5.0 definitions, was manually abstracted. The primary outcome was development of CT-anorexia at least once during therapy. Unadjusted logistic regression models evaluated association between BMI and CT-anorexia. Results: Of 290 patients in the cohort, 190 (66%) were underweight prior to chemotherapy, 70 (24%) were normal weight, 22 (7%) were overweight, and 8 (3%) were obese. Overall, 117 (40%) had 1+ AE of CT-anorexia. Among these, 67 (57%) patients were underweight, 35 (30%) were normal weight, 13 (11%) were overweight, and 2 (1.7%) were obese. Compared to normal weight patients, underweight patients had significantly lower odds of developing CT-anorexia (OR=0.54, 95% CI: 0.31–0.94, p = 0.028). Odds did not differ significantly for overweight (OR=1.44, 95% CI: 0.55–3.91) or obese patients (OR=0.33, 95% CI: 0.05–1.56). Conclusion: Anorexia was common, with 40% of patients requiring intervention during ALL therapy. Most patients who developed CT-anorexia were underweight, reflecting the underlying BMI distribution of the study cohort. However, the relative odds of developing CT- anorexia was significantly lower for underweight compared to normal weight patients. These findings suggest anorexia is not limited to underweight patients and may occur among children with normal or higher baseline BMI. Future analyses will evaluate demographic factors and characterize the development of CT-anorexia by specific chemotherapy course to identify high risk populations and periods.

Community Advisory Board Informing Methods for Large-Scale Deep Phenotyping in Children with Down Syndrome

Presenting Author: Shea Goodson, Emory School of Medicine

Poster Number: 198

Co-Authors: GOODSON, SHEA; Rasmussen,Sonja A.; Taylor, Olga A.; Scheurer, Michael E.; Jacola,Lisa M.; and Lupo,Philip J.;

Background: Down Syndrome (DS) is the most common chromosomal abnormality, occurring in 1 in 1,000 live births. The Down Syndrome Early Childhood Omics, Deep Phenotyping, and Epidemiology (DECODE) study is one of five studies within the NIH's INCLUDE Collaboration for Down Syndrome Progress. INCLUDE aims to build a large longitudinal and representative research cohort of individuals with Down Syndrome with the purpose of learning more about co-occurring medical conditions and overall health across the lifespan. DECODE's focus is on conducting deep phenotyping in infants and children with DS to understand longitudinal outcomes as well as the impact of external and environmental factors. The DECODE study has established a Community Advisory Board to ensure that each component of the study reflects the needs of the DS community and improves participation for underrepresented groups. Methods: Ten participants were recruited through purposive and snowball sampling methods. Participants include self-advocates, family members of individuals with DS, and

professionals who work with individuals with DS. Focus was placed on recruiting members who are engaged with both the Latino and DS communities. The community advisory board meets quarterly to review different stages in the research. CAB members review materials related to protocol, incentive amounts, remote testing methods, and transportation. Recommendations were documented and reviewed during study planning. Results: Members provided invaluable insights through CAB meetings. They emphasized that families would benefit greatly from access to assessment results. Additionally, CAB members connected to the Latino community emphasized the need for alternatives to in-person visits following public concerns about immigration policies. These recommendations emphasized the importance of providing robust and accessible remote assessment options. CAB participation informed the development of specifics to improve the experience of participants and their family members undergoing assessments. Conclusions: The DECODE CAB sets an important precedent for other large-scale pediatric studies, as having community input improves outcomes in developing the protocol. In the future, the Community Advisory Board will continue to support work within the DS community. As the DECODE study prepares to recruit participants, engagement with the CAB will allow for a better understanding of engagement with members of the DS community.

Enhancing Elementary Pediatric Health Education: Supplementing a Pediatric Health Curriculum with Take-Home Videos to Improve Familial Health Literacy Dialogues

Presenting Author: Emily Clarke, Emory University School of Medicine

Poster Number: 199

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Background: Childhood health literacy is a key predictor of long-term health outcomes but remains underemphasized in childhood education. Although the Georgia Standards of Excellence for Health Education outline competencies in health literacy, the lack of a standardized evidence-based curriculum leads to variability in integration across school districts. To address this, the Elementary Pediatric Health Curriculum (EPHC) has partnered with Burgess Peterson Academy (BPA), an Atlanta elementary school comprised of 65% minority and 31% economically disadvantaged students, to develop and deliver an annual health literacy curriculum guided by CDC guidelines (2021 HECAT). Beyond the curriculum, literature suggests that reinforcing health education through family-centered resources may help encourage spaced repetition of key topics. Studies also demonstrate that caregiver health knowledge strongly influences their confidence and willingness to engage in at-home conversations1. As a result, families with limited access to educational resources or opportunities for health-related discussions, such as those served by BPA, may experience greater barriers to reinforcing current recommendations. MethodsThe current project aims to bridge the gap between caregivers' health knowledge and classroom lessons by using parent-facing videos to improve familial communication and enhance at-home health behaviors. In accordance with lesson plans and current evidence-based guidelines, video scripts were independently developed and reviewed by healthcare professionals. Artificial intelligence

software was then used to create cartoon-style videos summarizing key takeaways from each lesson at a 5th-grade health literacy level. These videos model health-focused conversations between children and caregivers, prioritizing key messaging and plain language to ensure understandability across all levels of health literacy. ResultsClassroom lessons were successfully translated into 5-10 minute cartoon-style videos that model child-caregiver conversations while emphasizing key aspects of health, such as hydration, healthy eating, and injury prevention. ConclusionThe lack of a standardized pediatric health curriculum contributes to variability in health literacy across school districts and socioeconomic groups. Therefore, developing and evaluating accessible reinforcement tools may help address important public health needs and encourage the adoption of sustainable, family-level healthy behaviors. Future efforts will include surveying the BPA parent-teacher association on perceived effectiveness and adapting videos based on feedback and community needs before large-scale dissemination to caregivers.

Presurgical Hypothesis Accuracy and Surgical Outcomes in Pediatric Stereo-Electroencephalography: A Single-Center Study

Presenting Author: Joseph Abergel, Emory University School of Medecine

Poster Number: 200

Co-Authors: ABERGEL, JOSEPH N.; Futch, Hunter S.; Cosgrove, Megan; Lin, Jenny; Laxpati, Nealen G.; Chern, Joshua J.

Background: Stereo-electroencephalography (SEEG) has become the predominant intracranial monitoring technique in pediatric epilepsy surgery programs. The current literature mostly focuses on safety and overall seizure outcomes, and the accuracy of the presurgical hypothesis and its relationship to postoperative outcomes remain underexplored. Hence, this study analyzes the concordance between the noninvasive presurgical hypothesis for the seizure onset zone (SOZ) and SEEG findings and then examines the association between hypothesis-SEEG concordance and postoperative seizure outcomes in a pediatric population. Methods: This retrospective cohort study included 86 pediatric patients who underwent SEEG implantation at Children's Healthcare of Atlanta, between August 2019 and May 2025. All patients underwent comprehensive noninvasive presurgical evaluations to generate a ranked presurgical SOZ hypothesis. The SOZ hypothesis relation with SEEG was defined at the lobar or regional level within three cumulative definitions (H1 only, H1 or H2, and any hypothesis). Postoperative seizure outcomes were classified using the Engel Epilepsy Surgery Outcome Scale. Results: Mean age at implantation was 15.7 years (SD 5.55), and mean age at seizure onset was 5.7 years (SD 4.6). 61.6% achieved Engel Class I seizure freedom and 77.9% achieved Engel Class I–II outcomes, comparable to the literature. Under the strictest H1-only definition, the presurgical hypothesis was concordant with SEEG-defined SOZ in 65.1% of patients (56/86), rising to 74.4% when secondary hypotheses were included and 93.0% under any-hypothesis concordance. H1-concordant patients had significantly greater odds of achieving Engel Class I outcome than discordant patients (OR 2.55, 95% CI 1.03–6.32, p = 0.042). Although concordant patients also demonstrated higher odds of Engel Class I outcome under the H1-or-H2 (OR 1.56, 95% CI 0.59–4.14, p = 0.370) and Any-H (OR 3.00, 95% CI 0.52–17.36, p = 0.202) definitions,

these associations weren't statistically significant. Conclusion: Concordance between the leading presurgical SOZ hypothesis and the SEEG-defined SOZ was associated with significantly greater odds of postoperative seizure freedom. The broader concordance definitions demonstrated similar trends, but insignificantly. These findings suggest that the accuracy of the primary presurgical hypothesis may have prognostic value and support further multicenter prospective studies to validate the role of hypothesis–SEEG concordance in surgical decision-making and long-term seizure outcomes.

Maternal Obesity and Early-Life Gut Microbiome Development: Potential Implications for Long-Term Metabolic Health in Offspring

Presenting Author: Anaya Kabir, Bridgeland High School

Poster Number: 201

Co-Authors: Kabir, Anaya

Background: Maternal obesity has become an increasingly prevalent public health concern and has been associated with adverse outcomes in both mothers and offspring. Emerging evidence suggests that maternal obesity may influence the establishment of the neonatal gut microbiome, potentially contributing to long-term metabolic and immune health consequences.Objective: This review examines current evidence regarding the relationship between maternal obesity and alterations in neonatal gut microbiome composition and explores potential implications for childhood metabolic health.Methods: A literature review was conducted using peer-reviewed studies investigating maternal obesity, neonatal microbiome development, microbial diversity, and subsequent health outcomes in offspring. Studies focusing on early-life microbial colonization and metabolic programming were analyzed.Results: Multiple studies demonstrate that infants born to mothers with obesity exhibit differences in gut microbial composition compared with infants born to mothers without obesity. Reported findings include altered bacterial diversity, changes in the abundance of key microbial taxa, and disruptions in metabolic pathways associated with energy regulation and inflammation. These microbiome alterations may contribute to increased susceptibility to obesity, insulin resistance, and metabolic dysfunction later in life. Factors including delivery mode, maternal diet, antibiotic exposure, and infant feeding practices may further influence these associations.Conclusions: Current evidence suggests that maternal obesity may play a significant role in shaping the neonatal gut microbiome and influencing long-term metabolic health outcomes. Additional research is needed to identify specific microbial mechanisms and develop targeted interventions that promote healthier microbiome development during early life. Improved understanding of these relationships may provide opportunities for prevention strategies aimed at reducing future metabolic disease risk in children.

Identifying Cardioprotective Compounds Against Carfilzomib-Induced Cardiotoxicity Using Human iPSC-Derived Cardiomyocyte Screening and 3D Cardiac Organoids

Presenting Author: Wenhao Zhang, Emory University

Poster Number: 202

Co-Authors: Zhang, Wenhao; Patel, Gayatri; Qui, Min; Wang, Matthew; Li, Stephanie; Vij, Sia; Du, Yuhong; Mandawat, Anant; Miller, Eric; Xu, Chunhui

Background: Chemotherapy-induced cardiotoxicity remains a major clinical challenge, particularly for pediatric cancer survivors who face increased long-term cardiovascular risk. Carfilzomib (CFZ), a second-generation irreversible proteasome inhibitor used to treat relapsed or refractory multiple myeloma, is associated with cardiovascular adverse events including heart failure, arrhythmias, and ischemic injury. Currently, no FDA-approved therapies prevent CFZ-induced cardiac injury while preserving anti-cancer efficacy. This study aimed to develop and optimize a human stem cell-based high-throughput screening (HTS) platform for identifying cardioprotective compounds against CFZ-induced cardiotoxicity.Methods:CFZ-induced cardiotoxicity was evaluated using human induced pluripotent stem cell-derived cardiomyocytes (hiPSC-CMs) cultured in monolayers. To optimize HTS conditions, hiPSC-CMs were plated in 1536-well plates at densities of 1,000 or 1,500 cells per well and exposed to CFZ (0.25–10 µM) for 48 hours. Cell viability was measured using CellTiter-Blue assays. A streamlined workflow compatible with 1536-well screening formats was evaluated for assay robustness and screening feasibility. Complementary 3D human cardiac organoids were also generated and characterized.Results:CFZ produced reproducible dose-dependent cytotoxicity in hiPSC-CMs under 1536-well screening conditions. Optimization experiments demonstrated that plating 1,500 cells per well improved assay performance and reproducibility compared with lower cell densities. Exposure to 1 µM CFZ for 48 hours reduced cell viability by approximately 40% and was selected as the screening condition for pilot HTS studies. The optimized workflow reliably captured CFZ-induced cardiotoxicity and demonstrated compatibility with large-scale screening. Pilot studies identified candidate cardioprotective compounds for further validation. Development of 3D human cardiac organoid models was also successfully initiated.Conclusions:We established a scalable hiPSC-CM platform compatible with 1536-well HTS formats for evaluating CFZ-induced cardiotoxicity. Optimization identified robust screening parameters and enabled pilot studies that revealed candidate cardioprotective compounds. Integration of 3D human cardiac organoid models may further enhance the physiological relevance and translational potential of this platform for developing strategies to mitigate chemotherapy-associated cardiotoxicity.

Early life exposures and Early-Life Factors to infant gut microbiome development across the first year of life in a low-resource setting in Mozambique

Presenting Author: Rina Das, Rollins School of Public Health, Emory University

Poster Number: 203

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Background: Early-life exposures shape the infant gut microbiome; however, limited longitudinal data from low-resource settings provide insight into microbiome development during the first year of life. To understand how environmental exposures influence the developing infant gut microbiome, we leveraged data from the PAASIM study, a prospective mother–infant cohort in Beira, Mozambique that enrolled pregnant women and followed infants from 3-12 months of age. Methods: We profiled the gut microbiome using 16S ribosomal RNA gene sequencing at 3, 6, 9, and 12 months and tested the relationship between exposures at prior timepoints with microbiome features at subsequent timepoints.Results: We found that infants with higher Shannon alpha diversity at early timepoints maintained higher diversity in later infancy, suggesting a strong effect of the founder microbiome. By contrast, most environmental exposure variables (household crowding, food insecurity, animal contact, animal feces fecal exposure, water, sanitation and hygiene (WASH) conditions, dietary fiber and dairy intake) showed limited evidence of association with alpha diversity, and signals were often time-varying rather than consistent across ages. Similarly, weighted UniFrac community structure showed extensive overlap by environmental exposures, and these exposures explained only a small fraction of beta diversity variation. Differential taxonomic abundance analyses showed that infants weaned by 3 months (vs those with ongoing exclusive breastfeeding) had higher 6-month relative abundance of Clostridioides(β=5.90; 3.11–8.69) and Bilophila (β=5.32; 95% CI 2.57–8.07) and increased representation of Desulfobacterota (β=6.31; 2.30–10.33). At 9 months, early weaning was associated with a higher relative abundance of Roseburia β=5.63; 3.23–8.02). Additionally, each additional child under-5 in the household was associated with higher Campylobacterota (β=1.28; 0.54–2.03) at 6 months. Conclusions: Together, our findings suggest that infant feeding transitions and household crowding are the most significant correlations with differential taxonomic abundance. Exposure–diversity associations are most pronounced around 9 months, consistent with mid-infancy (6–9 months) as a key period for diversification. Still, environmental exposures accounted for only a small fraction of the between-sample variation in community structure.

Effect of Diarrhea on Early-Life Gut Microbiome Composition and Subsequent Infant Growth in Beira, Mozambique: Analysis of The PAASIM Longitudinal Birth Cohort

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Poster Number: 204

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Background: The first year of life is a critical period for gut microbiome maturation; however, the interplay between diarrheal burden, microbial development, and growth in high-burden settings remains poorly understood. Objective: We leveraged longitudinal data from the PAASIM longitudinal birth cohort study in Beira, Mozambique, to test whether diarrhea is associated with gut microbiome characteristics and whether microbiome profiles relate to infant growth.Methods: Stool samples collected at 3, 6, 9 (n ~150 at each time point), and 12 (n = 536) months underwent 16S rRNA gene sequencing, with microbial diversity and taxonomic composition analyzed alongside monthly caregiver-reported diarrhea and anthropometric measurements. Results: Alpha diversity increased across infancy, and beta diversity shifted significantly with age, consistent with the ongoing maturation of the microbiome. Cumulative period prevalence of diarrhea from birth to 12 months was not associated with microbial diversity or community composition at 12 months. Higher alpha diversity at 3 months was positively associated with length-for-age z-scores (LAZ) at 12 months (β coefficient 1.49; 95% CI: 0.33,2.67), whereas higher diversity at 6 months was inversely associated with LAZ at 12 months (β: −2.85; 95% CI: −4.25, −1.45), showing age-dependent relationships with later linear growth. At 12 months, we observed small beta-diversity differences between wasted and non-wasted (PERMANOVA R^2=0.05, p=0.012) and between stunted and non-stunted (R^2=0.05, p=0.014) children. An exploratory longitudinal analysis revealed a positive association between Finegoldia abundance and wasting at 12 months (β = 1.66; 95% CI: 0.83,2.48), which met multiple-testing thresholds (FDR = 0.19). Conclusions: These findings suggest that early microbial trajectories, independent of cumulative diarrheal burden, may be linked to growth outcomes, warranting further research to identify potential microbiome-targeted interventions in the first year of life, a pivotal window for promotion of healthy growth in resource-limited settings.