



The 31st Annual
Summer Scholar Program
Abstract Booklet

July 27, 2023



2023 EVMS/CHKD SUMMER SCHOLARS PROGRAM

Celebrating its 31st year!

We would like to thank:

Children's Hospital of The King's Daughters

Eastern Virginia Medical School

Summer Scholar Program Committee:

Dr. Diane Duffy (Director), Dr. C.W. Gowen Jr, Dr. John Harrington, Dr. Susannah Dillender, Dr. Alexandra Leader, Dr. David Mu, Dr. Elena Galkina, Dr. Khalid Matrougui, Mr. Mekbib Gameda, Ms. Sara Rothenberg

Program Staff: Deepal Patel & Kazhmira Foster

Faculty Mentors and Co-Investigators

Workshop and Seminar Presenters

Our 2023 Sponsors:

The EVMS Office of Research

The Department of Pediatrics, EVMS/CHKD

The Brock Institute

The EVMS School of Health Professions

The EVMS Office of Diversity and Inclusion

A Note from Dr. C.W. Gowen & Dr. David Mu	3
Meet the EVMS/CHKD 2023 Summer Scholars	4 – 6
EVMS/CHKD Summer Scholars Abstracts	7 - 31

A Message from Dr. C.W. Gowen Jr.
Chair of the Department of Pediatrics at EVMS

The Summer Scholars Program began over 30 years ago with 2 scholars. Thanks to our faculty's dedication to scholarly activity, the Program has grown significantly - this year providing opportunities for 50 scholars. We are delighted to have worked with each of you this summer. Your curiosity and sense of discovery have led to many exciting findings in the areas of human behavior and education; global health; basic laboratory science; public health; and clinical medicine.

The following pages of abstracts are the results of your work this summer. We hope many of you will take advantage of future opportunities to display and discuss your projects. More importantly, we hope to have instilled in you a desire to ask thoughtful questions and the skills to find new solutions. Thank you for your work this summer, and we await the many great things you will accomplish in the years ahead. And finally, we wish you more than just good luck as you pursue your life's calling.

A Message from Dr. David Mu
Associate Dean for Research Administration, EVMS

2023 witnesses another summer ritual of active and productive research and learning by all of the Summer Scholars. We at the EVMS Office of Research are proud of this great tradition offering research opportunities to students of EVMS and other institutions. We know you all will continue to pursue careers with a research mindset. Regardless of your summer research outcome, we hope that you learn from this summer experience in shaping your future endeavors. Best wishes to all of you.

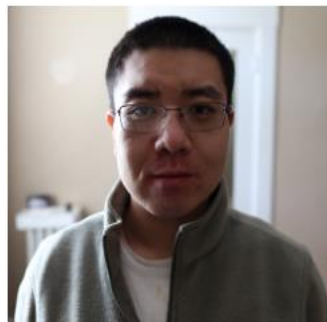
Meet Our Scholars:



Janvi Agrawal



Aracelia Aldrete



Robin Bai



Brendon Carnell



Fatima Chaudhry



Phyu Chaw



William Crafton



Alexander Culver



Spencer Davis



Cameron Dean



Trevor DiGirolamo



Ashraar Dua



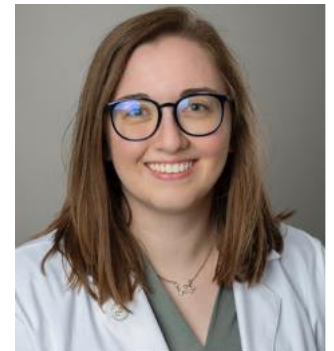
Zachary Duckett



Jillian Fleming



Michael Foley



Gwendolyn George



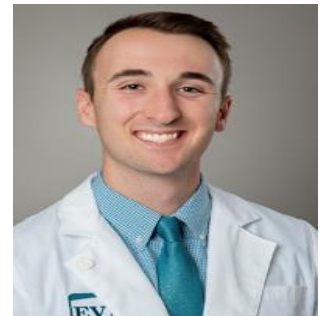
Trevor Glad



Kallen Hager



Wave Hatton



Zachary Holmes



Jackie Hwang



Benjamin Johnson



Nikia Johnson



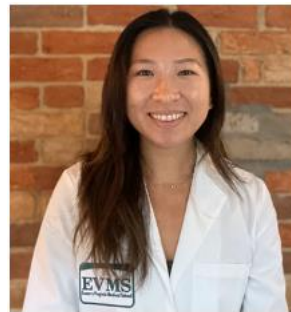
Jaekeun Jung



Christiana King



Ryan Krafty



Nina Li



My Boi Ly



Olivia Markert



Alim Osman



Joseph Peluso



Claire Piatak



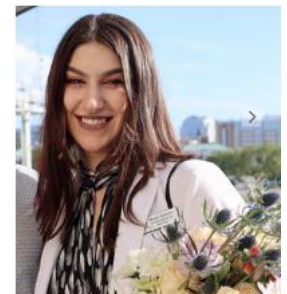
Emma Pierce



Mia Platt



Andrew Poirier



Megan Ralston



Noor Rana



Alisa Rendina



Chunghwan Ro



Kai Rossbach



Nargiza Sadr



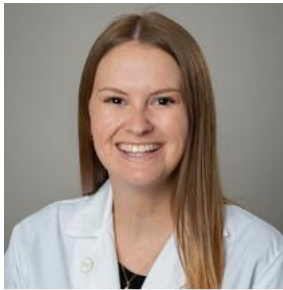
Evelyn Schendler



Evan Smith



Pavan Suryadevara



Madison Wagner



Trenton Wetsel



Meagan Wilkins



Alexandria Woods



Jeik Yoon



Nadia Zia

Summer Scholars Abstracts

What Does Healthy Relationship Look Like for Teens: Findings from a Crowdsourcing Open Call

Janvi Agrawal, Alexander K. Culver; Brady Goggin; Shikha Trivedi; Danielle Long; Samantha M. Strohm; Luwam Abeselom; Kelli J. England; Amy C. Paulson; Matthew C. Herman; and Hongyun “Tracy” Fu

Background: A crowdsourcing open call is a structured process of utilizing a broad range of stakeholders through a contest to generate creative knowledge and fresh perspectives to improve public health. The Teen Health 360 Program hosted an open call in 2022, surrounding the theme: What does a healthy relationship look like for teens? It aimed to address three goals: 1) guide teens to recognize a healthy/unhealthy relationship; 2) support teens to build and foster healthy relationships; 3) create safe spaces to empower teens to communicate, prevent, and act against bullying, harassment, and violence. **Methods:** Various in-person and virtual platforms were used to promote the open call. Submissions were collected online for 20 weeks in May/September 2022 and evaluated by a group of 40 independent judges representing diverse sub-populations. The judging process used a 10-point Likert scale and a standard set of judging criteria, including the relevance to the open call theme and youth, innovation, inclusivity, feasibility for program use, and overall quality. Submissions were quantitatively and qualitatively analyzed to summarize the characteristics and emergent themes about healthy relationship for teens. **Results:** We received 102 submissions (mean score: 41.83, Range: 27.71-54.71) among which 75% were from adolescents. After initial screening, seventy-eight submissions were selected for judging. Thirty-two submissions were identified for awards, receiving prizes of \$200, \$100, and \$50, respectively. The winning submissions have been publicly announced and disseminated through various channels (including website, social media, and community-based exhibitions) to generate dialogue about healthy relationships for teens. Thematic analysis of submissions highlighted: 1) various perceptions of teens about healthy/unhealthy relationships; 2) the importance of communication and support from caring adults; 3) the effectiveness of social media platforms when engaging teens in information sharing and health communication. **Conclusions:** Open call is an effective community engagement strategy to empower teens to nurture healthy relationships and take charge of their health and wellbeing.

Speech Therapy Outcomes in Bilingual Patients with Non-Syndromic Cleft Lip and/or Palate

Aracelia Aldrete; Olivia Markert; Rio Castro; Madeline Coleman; Evan Straub; Yifan Guo MD

Introduction: Cleft lip and/or palate (CL±P) are the most common orofacial congenital anomalies. The incidence is 1 in every 700 births. Cleft lip (CL) and cleft palate (CP) are defined as an incomplete closure in utero of the tissue of the lip or soft palate, respectively. CL and CP are closely related, as it is estimated that 45% of children with the malformation have both CL and CP. Post-repair, children with CL±P can have a long road to recovery. It is estimated that over 50% of children with CL±P will need speech therapy (ST) throughout their childhood. An effective measure of long term speech outcomes is ST attendance compliance rate (CR).

Methods: 719 patient charts were reviewed. For demographics; race, ethnicity, preferred language, and bilingualism were recorded. Also recorded were behavioral and/or educational delays, feeding difficulties, any ST attendance and if so, total visits scheduled and total ST visits attended. CR was calculated; [attended ST visits/total scheduled ST visits] *100. ST CR was only tracked for patients attending CHKD ST. Exclusion criteria included patients with submucosal CP, syndromic CL±P, non-congenital CL±P, prematurity, and/or documented medical diagnoses that could affect speech outcomes. **Results:** There were a total of 173 patients receiving ST; 81 patients completed their ST through CHKD. 87.7% (n = 71) of those patients spoke English only (EO). The remaining 12.3% (n = 10) were bilingual. The average CR for the EO and bilingual groups was 89.3% and 91.9%, respectively. There was no statistical significance between the CR for the two groups (p value = 0.6496). The bilingual group received an average of 18 more ST visits per child than the EO group. **Conclusion:** CL±P is a relatively common congenital abnormality that effects hundreds of families every year. An extensive amount of literature on EO CL±P patients' ST outcomes exists, yet there is a gap in literature on long term speech outcomes for CL±P patients who are bilingual. In this study, we attempt to provide a better understanding of potential additional support bilingual households may need to provide their child with the best quality care possible.

Improved Cognitive Performance in Myeloid-specific STAT4 deficient Ldlr^{-/-} mice

Robin Bai, Alina Moriarty, Coles Keeter, Natalie Stahr, and Elena Galkina
Department of Microbiology and Molecular Cell Biology

Background: Neutrophils are myeloid cells involved in every step of atherosclerosis. The Galkina Lab has shown STAT4, a transcription factor known for driving Th1 and Th17 differentiation, to be critical for neutrophil activation. Recently, we demonstrated that myeloid-specific Stat4 deficient Ldlr^{-/-} mice (Stat4LysMLdlr^{-/-}) have improved plaque stability compared to controls. Increasing evidence suggests that atherosclerosis may be an important risk factor for cognitive impairment. While innate immunity is a known driver for atherosclerosis, its involvement in cognitive decline remains poorly understood. Therefore, we investigated myeloid specific effects of STAT4 deficiency on cognitive performance in atherosclerotic mice. **Methods:** Stat4LysMLdlr^{-/-} and control Stat4fl/fl Ldlr^{-/-} female and male mice were fed a high-fat/cholesterol diet (DDC) for 28 or 32 weeks. Behavioral analyses, open field, (OF) and Y-maze, were conducted to assess memory and anxiety via Noldus Ethovision XT. During the OF tests, fecal boli counts were collected to measure as an additional anxiety measure.

Results: 32 weeks DDC fed Stat4LysMLdlr^{-/-} female mice showed a significant increase in correct alternations on the Y-maze in comparison with age- and diet- matched Stat4fl/flLdlr^{-/-} controls. Interestingly, DDC feeding for 4 additional weeks resulted in a significant decrease in correct alternations among female Stat4fl/flLdlr^{-/-} mice, implying a decline in spatial recognition memory following extended DDC feeding. It is important to note that male mice showed no significant differences in correct alternations between genotype and/or diet duration. Mice naturally avoid open areas and prefer to stay along the periphery. Decreased center/periphery duration implies increased anxiety. No significant difference was observed in the center/periphery duration among all groups. Additionally, no differences were observed in fecal boli count between groups. Together, these data suggest similar anxiety levels across groups. **Discussion:** Overall, Stat4LysMLdlr^{-/-} female mice made more correct alternations on the Y-maze compared to control Stat4fl/flLdlr^{-/-} group, which indicates improved cognitive function and memory. Thus, our data suggests that STAT4 in myeloid cells and/or potentially other cells of the brain plays a pathological role for cognitive health that is likely connected with an increased neuroinflammation. Future experiments will be focused on an identification of cell-specific mechanisms by which STAT4 is involved in neuroinflammation in the conditions of atherosclerosis.

Pediatric Lethal Means Counseling: Implementing a standardized screening tool to increase rates of counseling on promoting safe lethal means storage

Brendon Carnell, MS2; Cassandra Stegall, DO; Alexandra Leader, MD

Aims and Objectives: Implement a congruent lethal means counseling (LMC) protocol as a part of standard discharge education at Children's Hospital of the King's Daughters (CHKD). **Background:** Firearm related injuries are the leading cause of death among children and adolescents in the United States excluding prematurity and congenital abnormalities.¹ The presence of a firearm in the home increases the risk of injury and death. This risk increases when safe-storage practices are not implemented.² Safe storage practices include storing firearms and ammunition locked separately with a locking device. Despite these risks, approximately 1/3 of households have a firearm, and among these households with children, 1/5 store one or more firearms loaded and unsecured.³ LMC in conjunction with free firearm storage devices significantly improves safe storage rates.² **Methods:** This is a quality improvement project within a pediatric emergency department (PED) mental health unit evaluating current rates of LMC provided by mental health social workers (SW). Baseline data was obtained through distribution of an electronic survey through REDCap^{4,5} to families presenting to the PED for a mental health evaluation or positive SSQ screen. Nominal dichotomous data was recorded deidentified in Google Sheets. This study was approved by EVMS IRB. **Results:** The baseline data demonstrates that 77% (7/9) of patients are provided with LMC. Mental health SW gave counseling on access to firearms for 33% (3/9) of encounters, pills 33% (3/9), and knives 66% (6/9). **Future efforts:** After identifying baseline rates of LMC, PDSA 1 will include implementing a new powerchart form for SW that includes questions about access to lethal means and counseling provided. SW will universally offer cable gun locks to families with a QR code survey link evaluating implementation of safe storage devices. This will occur in the PED mental health unit, trauma department, and inpatient psychiatric hospital. **Conclusions:** Currently mental health SW do not consistently conduct a lethal means assessment with counseling on safe storage of firearms, pills, and knives. This demonstrates a need for standardization of LMC to help prevent access to harm within this patient population.

Cancer Racial Disparity in Operable and Inoperable Pancreatic Cancer Patients at Hampton Roads Virginia

Fatima Chaudhry MS, Rick J. Jansen, Ph.D., Richard A. Hoefler, D.O., FACS, and Amy Tang PhD,

Introduction: Pancreatic Ductal Adenocarcinoma (PDAC) is the third leading cause of cancer-related deaths, with only 12% of patients surviving 5 years post-diagnosis. The dismal prognosis of PDAC is due to the delayed onset of symptoms, lack of an early and effective screening method, unsuccessful treatment, and advanced and metastatic presentation, rendering a majority of PDAC patients ineligible for surgical resection. Consequently, the median survival for inoperable PDAC is less than one year, and three years for operable PDAC. Black/African American (AA) patients suffer a 30-70% higher PDAC mortality rate than other racial groups in the United States. This Sentara PDAC project was developed after racial disparity and disparate disease burden of PDAC were identified in our local Black/AA communities. **Methods:** Chart review of 427 inoperable PDAC patients from the Sentara Cancer Network and Virginia Oncology Associates (VOA) was performed. The age at diagnosis, treatment onset/delay, survival time, and death date were extracted. KM survival analysis will be performed to compare the survival rates of the Black/white operable and inoperable PDAC patients in Hampton Roads, Virginia. **Results:** Black/white PDAC patients in our cohort had worse overall survival than the national SEER database. In Hampton Roads, Virginia, the black population endured a 17.3% mortality rate, a striking difference from its white counterpart's mortality rate of 10.8%. Further, the average age at diagnosis of operable black/AA patients was 6 years younger than the white cohort. **Discussion:** This study indicates an unmet need to invest in early detection and curative therapeutic intervention, which will lengthen the overall survival of all PDAC patients. The racial disparity in age, malignant presentation, treatment delay, and survival time in both Black/white populations prompts an investigation into discovering alternative approaches tailored toward Black/white PDAC patients. Understanding the oncogenic KRAS tumor-driving pathway hyperactivation and genetic and socioeconomic factors contributing to racial disparity and high PDAC mortality in our local communities may also provide clinically actionable information into their attainment of care and treatment compliance. These endeavors will address the alarming statistics and reverse the dismal survival of PDAC, which can aid in mitigating the health inequities in this deadly malignancy.

On Further Understanding of Dendritic Cell Contribution to Microvascular Cell Dysfunction In Type 2 Diabetes

Phyu Chaw, Dr. Khalid Matrougui

Background: Type 2 diabetes (T2D) is a complex metabolic disease that presents itself with significant clinical problems such as microvascular endothelial cell dysfunction, which may lead to stroke, myocardial infarction, wound healing delay, and atherosclerosis. While it is established that the immune system is dysregulated in T2D, the impact of dendritic immune cells on these mechanisms is not well understood. This study aims to characterize how dendritic cells contribute to microvascular health dysfunction in T2D conditions. **Methods:** Endothelial cells from C57/BL6 were incubated as control, with ATP, and with ATP + High Glucose/Lipid/Palmitic Acid and assessed for P-ENOS and Total ENOS (both in association with nitric oxide, a key component of vasorelaxation), Beta-Actin, and GAPDH protein expression via Western Blot. C57/BL6 mice mesenteric arteries were incubated in isolation, with control dendritic cells taken from euthanized C57/BL6 mice, and with dendritic cells incubated under similar control and hyperglycemic High Glucose/Lipid conditions. Endothelial-dependent relaxation and contractility were assessed with wire myography, and compared with wire myography data of this procedure done using DC cells from db/db mice and db/het mice for control and use of mesenteric arteries. **Results:** Incubation of C57/BL6 EC cells with ATP + HG/L/P-Acid mixture presented with decreased expression of detectable proteins in comparison to control incubation and isolated incubation with ATP. C57/BL6 DC cells did not significantly impact mesenteric artery endothelium-dependent relaxation, however, DC cells from db/db mice did impair db/het mesenteric artery endothelium-dependent relaxation. **Discussion:** Endothelial cell exposure to hyperglycemic conditions inhibited expression of proteins associated with vasorelaxation, and dendritic cells exposed to hyperglycemic conditions in-vivo also led to vasorelaxation impairment, suggesting its contribution to microvascular dysfunction in patients with type 2 diabetes. Additional in-vitro assessments are warranted for further understanding of the vascular role of dendritic cells in type 2 diabetes.

Assessing Access to Care for Sleep Apnea Oral Appliance Therapy

William L Crafton, Alisa Rendina, Sara M Rothenberg, MPH

Introduction: Oral appliance therapy (OAT) is emerging as a popular alternative to CPAP, the gold standard for obstructive sleep apnea (OSA) treatment. However, CPAP machines are often poorly tolerated and thus

have lower compliance rates. OAT is found by many patients to be less cumbersome, leading to improved compliance. Unlike CPAP and other traditional treatment methods employed by sleep physicians, OAT is often custom-fit and managed by dentists. The availability, efficacy and ease of access of OAT is an ongoing subject of research both nationally and internationally. This project seeks to elucidate the accessibility of OAT as a viable alternative for the treatment of OSA as it pertains to patients and providers in the Hampton Roads, Virginia area. **Methods:** The “secret shopper” methodology, in which study investigators pose as patients calling dental practices, was used to garner information regarding availability and cost of OAT, insurance coverage, and prior referral requirements, among other factors. A call script probing these factors was piloted with three randomly chosen dental practices from a spreadsheet containing all general dental practices in Hampton Roads before being finalized. For each city in Hampton Roads (Chesapeake, Norfolk, Hampton, Portsmouth, Suffolk, Newport News, and Virginia Beach), 50% of practices listed on the spreadsheet were randomly selected to contact. A survey was created in the data entry and analysis service, REDCap, to operationalize and aggregate the information from secret shopper calls. **Results:** Of 97 practices in the Hampton Roads area that were contacted, 43 (44.3%) offered OAT. Of these practices, 21 (53.8%) required a referral from a sleep physician. For the practices that shared the estimated cost of OAT (n=25), the average cost was \$1628; lowest price of \$470, and highest of \$3000. Most practices report little to no coverage from either medical or dental insurance; 16 practices stated outright they accept no form of insurance for OAT. Only 19 practices were able to provide a referral to a local provider who does offer OAT; this included a combination of general dentists, cosmetic/implant dentists, periodontists, orthodontists, and oral/maxillofacial surgeons. **Conclusions:** Just over half of dental practices surveyed in the Hampton Roads area did not offer OAT. Of those that did, there were variable requirements on prior referrals and proof of diagnosis. Most practices required an initial consultation/impression with a dentist. Overall, insurance coverage was limited and highly variable. Further investigation on insurance coverage, out of pocket costs and referral patterns in OAT is warranted to identify larger trends nationally, target common barriers to OAT, and improve outcomes in patients with OSA

Teen Health 360 Academy: Implementing Comprehensive Sex Education among Adolescents in Eastern Virginia under the context of COVID-19 Pandemic

Alexander K. Culver; Janvi Agrawal; Luwam Abeselom; Dannielle Long,; Renee Brown; Taylor Drake; Amanda Graves; Gwen George; Samra Rashid; Rose Danver; Tran Phung; Kelli J. England; Amy C. Paulson; Matthew C. Herman; and Hongyun “Tracy” Fu

Introduction: Although high rates of teen pregnancy and sexually transmitted infections (STIs) have been consistently reported in Eastern Virginia, access to comprehensive sex education (CSE) for adolescents is limited due to socioeconomic, cultural, and structural barriers. The Teen Health 360 program adopted the Get Real Comprehensive Sex Education That Works curriculum for pilot among adolescents. The program is funded by a 5-year grant from the Virginia Department of Health (VDH) and the Health Resources and Services Administration (HRSA). This study examined the effect of the program on sexual health knowledge among middle school program participants. **Methods:** Middle school age youth were recruited between May 2021 and July 2023 through various channels, using a parent opt-in form. Academy sessions were delivered online or in-person by trained health educators. Program monitoring data was collected using pre- and post-assessments, fidelity logs, and participant feedback forms. Descriptive statistics and multiple regression analysis were used to examine differences in sexual health knowledge between pre- and post-assessment, and differential changes across sub-group of program participants, adjusting for participant background characteristics. **Results:** A total of 391 adolescents attended middle school academies, among which 75% had perfect attendance. Over one-third (37%) participants were African American, followed by White (25%), Asian (24%), and Hispanic (11%), and mixed race/unknown (10%). Regarding sexual orientation, over half of participants (57%) self-identified as heterosexual/straight, 22% unknown/unsure/questioning, 9% bisexual, 5% pansexual, 4% gay/lesbian, and 3% asexual. Regarding gender identity, over half (52%) self-identified as female, 36% male, 7% preferred not to answer, 3% nonbinary, and 1% transgender. Significant increases were revealed from pre to post-assessment in knowledge related to risks for STI (37%), curable STI (28%), knowledge about fertilization (17%), reproduction (12%), body parts and human anatomy (28%), and reproduction system (34%) (P<0.05); with the increase being larger among in-person session participants. Eighty-seven percent of participants said they were glad they attended the pilot and would recommend it to their peers. **Conclusions:** This CSE program is a feasible and effective approach to increase knowledge about

puberty, developmental and sexual health among diverse adolescents under the context of the COVID-19 pandemic.

Understanding Educational Needs for Teaching Clinicians Using a Mixed Methods Approach

Spencer Davis BS, Eric Werner MD MMM

Introduction: Developing impactful faculty development education for busy clinicians is challenging. Medical education literature is expanding exponentially while at the same time, clinical responsibilities and administrative tasks cause enormous time demands for clinical faculty and residents. These time demands limit participation in traditional learning experiences and in assessments of educational effectiveness. Understanding faculty and resident needs for assessing and improving their skills as educators and their preferences for how to receive that information is crucial for creating faculty development education that is useful for busy clinicians. **Methods:** A convergent mixed methods design was used. Eastern Virginia Medical School Department of Pediatrics faculty and pediatric residents were recruited and interviewed virtually or in person using a semi-structured interview format. Thematic analysis was used to analyze interview responses. Faculty and residents were surveyed on faculty development topics and ways of receiving information using a 5-point Likert scale. Survey responses were entered without identifiers and analyzed using descriptive statistics. **Results:** A total of 40 faculty members out of the 225 invited to participate were interviewed (17.8% response rate) along with 2 residents. 37 faculty surveys and 2 resident surveys were recorded. Improving feedback to learners, how to assess learners' clinical skills, and how to assess for implicit bias were marked as high need or very high need by 84.6% (n=33), 57.9% (n=22), and 53.8% (n=21) of survey responses, respectively. Brief pearls and short videos were marked as quite useful or most useful by 76.9% (n=30) and 55.3% (n=21) of responses, respectively. Thematic analysis revealed three themes: (1) creating a sustainable educational environment, (2) the importance of quality in the educational content, and (3) challenges to implementing faculty development. **Conclusion:** Interviews revealed that faculty members largely wish to participate in faculty development activities. However, faculty development education must be given out in short, high-quality ways to increase participation. Survey data confirmed this finding as brief distribution methods were the most popular. Future faculty development education in this department needs to be high-quality, brief, and focused on improving feedback to learners, assessing learners' clinical skills, and assessing for implicit bias.

What's Up with Teen Marijuana Use Project - Parent Experiences Survey: A National Survey on Parent Experiences with Teen Marijuana and Delta-8 Use

Cameron Dean, Amy Paulson, MPH, Ann Edwards, MS, Paul Harrel, Ph.D, Rachel Lowery, MPH

Introduction: Marijuana and delta-8 THC use is a growing public health concern because of its negative effects on human health and environmental health. In 2021, an estimated 10.5% of youth aged 12-20 had used marijuana in the past month and according to the CDC, in 2019, 4 in 10 high school students reported having used marijuana within their lifetime. It is therefore important that we understand the knowledge, attitudes, beliefs, and behaviors of parents surrounding marijuana/delta-8 products so that we can best prepare them for the experimental ages of their children's lives. There has not yet been a national survey to understand parent experiences with teen marijuana/delta-8 use. Gaps in knowledge include proper family response and access to resources for navigation of marijuana use behavior. We hope to utilize this information to better understand what marijuana education resources are available to parents and their teens and how public health professionals can assist in the prevention of teen marijuana use through policy and programming.

Methodology: This project aims to better understand the knowledge, attitudes, and beliefs of parents with teenage children surrounding marijuana/delta-8 product use. Parents of teens (aged 11-19) will be asked to participate in a voluntary, anonymous, online survey. Parent and teen online resources were also assessed for content and usability. **Results:** The project survey data is pending. Online resources were reviewed and analyzed. A total of 32 resources were reviewed for content. Review found that many resources lacked sources to data cited, as well as clear consensus as to how parents should engage in conversation with their teens relating to marijuana use. Resource review was utilized to guide development of key informant interview questions for phase 2 of the project. **Future Direction:** Pending IRB approval, initial advertisement will begin for survey participants. Data analysis from survey results will be performed to identify gaps in parents' access to resources. Those who opt-in to our interest list will be eligible for contact to participate in phase 2 key-

informant interviews, which will involve 8 questions designed to gain a more granular level of knowledge surrounding parent experiences with teen marijuana use.

Merging Automated and Quality of Hand Hygiene in a Children's Hospital

Trevor DiGerolamo BS, Ryan Krafty BS, John Harrington MD

Introduction: The emphasis on hand hygiene (HH) in the setting of healthcare has been commonplace for over a century. In 1846, Ignaz Semmelweis observed that child deliveries performed by midwives who washed their hands displayed a significantly lower mortality rate than physicians who did not. Since then, rules and regulations for handwashing have been implemented in healthcare facilities to enhance the safety of patient and provider alike. Today, hospitals have gone to great lengths to measure the frequency and quality of HH in medical professionals. Across Norfolk's Children's Hospital of The King's Daughter (CHKD), the "Wonder Washers" automated HH system has been installed to track how frequently medical professionals are taking advantage of HH opportunities using Bluetooth technology. In this study, we set out to assess the accuracy and validity of the Wonder Washers system as well as observe and improve the overall quality of HH amongst health care professionals within CHKD. **Methods:** We learned the standard CHKD job instructions for both Purell and soap HH. Using a discrete observation approach, we rounded throughout the hospital and recorded data on unit, job role, whether the professional was entering or exiting the room, the method of HH, correctness of the HH, and any comments related to the quality of HH. Data was collected from day and night shifts to ensure proper coverage of all hospital shifts to increase sample size and diversity. **Results:** The data collected was organized and visualized both graphically and in tabular format given the wide variety of variables we observed. When looking at the total data (day and night shift), ~50% of all HH observations were performed correctly with the majority of those seen in the ED from RNs coming out of patient rooms with Purell as their HH method. **Conclusion:** This data suggests that there is significant room for improvement within CHKD regarding HH. Further analysis will be done to validate that the Wonder Washers system is recording statistically similar data as our manual observations. Quality of HH is best improved by real time intervention and would require "just in time" feedback to be successful.

Healthy Portsmouth Million Hearts Blood Pressure Control Community CQI Implementation Project

Ashraar Dua MS, Brett Sierra DHSc MPH, Amy Paulson MPH

Background: Portsmouth, VA ranks among the least healthy counties in Virginia (113/124), with significantly higher death rates from stroke, hypertension, and heart disease compared to state and national averages. Inadequate follow-up and patient education have hindered previous screening measures. The Million Hearts Blood Pressure Control Community Continuous Quality Improvement (CQI) Project aims to address the pervasive cardiovascular issues by conducting city-wide blood pressure screenings, followed by post-screening activities, educational programs on blood pressure management, and self-monitoring and control classes. This project seeks to improve blood pressure control, reduce health disparities related to hypertension, and enhance access to care and medication management for residents with elevated blood pressures. **Methods:** The project engaged in a city-wide mass screening of blood pressure in trusted locations like churches, schools, workplaces, and community centers. Coordinated support activities assisted individuals in monitoring their situation and managing medication. Efforts were made to promote health literacy educational platforms, provide health insurance information to uninsured individuals, and offer education and support to participants. The project emphasized privacy and followed protocols to safeguard sensitive health information. Utilizing face-to-face and virtual approaches, the project included blood pressure screenings, education classes, and subsequent follow-up sessions. **Results:** Cohort 1 (February, n = 220) identified 108 participants (49.1%) with elevated blood pressure or hypertension according to American Heart Association guidelines. In Cohort 2 (n = 56), 39 participants (69.6%) had hypertension or elevated blood pressure. Most participants had a primary care physician, but a significant proportion did not self-monitor their blood pressure. Additionally, the majority did not use tobacco/nicotine-containing products, and many had co-existing conditions such as diabetes or hypertension. Notably, some individuals reported fruitful efforts in addressing their high blood pressure by consulting their primary care provider. **Discussion:** Implementing a Plan, Do, Study Act (PDSA) model, the project aims to develop an improvement plan ensuring successful connections between participants and healthcare providers. Recommendations for screening site selection, based on data utilization, can optimize resource allocation and future screening efforts. The findings provide insights into the demographics and health indicators of individuals with high blood pressure. However, challenges remain in

ensuring effective follow-up and engagement with healthcare providers. Overcoming these barriers may necessitate additional interventions or support systems. Addressing these issues will enhance the project's impact on blood pressure control, reduce health disparities, and improve the overall health of the community

Clinical and Translational Outcomes of a Tailored Exercise Intervention in Obese African Women

Zachary Duckett, Adebimpe Atanda, Carolina Casellini, MD, Taneisha Sears, Eilas Siraj, MD, Henri Parson, PhD, MD

Background: Lack of physical activity (PA) disproportionately affects African American (AA) women due to multiple reasons, including underlying health complications, lack of knowledge about physical fitness, social support, and cost. The goal of this study is to improve physical activity and cardiometabolic fitness of AA women via culturally sensitive supervised exercise intervention. **Methods:** A pilot, prospective, single arm 48-week exercise intervention study was conducted analyzing the effectiveness of a workout plan tailored to AA women. Participants were screened at EVMS to determine eligibility. FitBits were distributed to track physical activity measures such as calories, exercise minutes, and steps. Weight, body fat, waist, hip, and arm circumference were recorded at baseline and every 12 weeks. Lange skinfold caliper were used to measure skinfolds at seven distinct points. Body fat was calculated utilizing the skinfold measurements with adjustments for AAs. At Norfolk State University, participants performed exercises three days a week based on personal skill and exertion levels. For this report, data was analyzed for the five participants who reached week 12 of intervention. **Results:** Fifty-one participants screened, with 12 screen-failures and 39 at various stages in the study. FitBit data was downloaded and the average calories burned, very active minutes, and average activity calories were calculated. Change in body fat from baseline to 12 weeks ranged from -1.62 to +4.78%. Participants showed an overall increase in amount of calories burned and in amount of time spent very active when compared to baseline activity. A weak negative correlation ($r = -0.21$) was observed between change in body fat and average calories burned; moderate correlation between change in body fat percentage and average minutes very active ($r = 0.67$); weak correlation between change in body fat and average activity calories ($r = 0.02$); and moderate correlation between age and change in body fat ($r = 0.41$). **Conclusion:** Due to the small number of participants that have completed 12-weeks of PA, definitive conclusions cannot be drawn at this time. However, the FitBit data objectively shows that participants were engaged in the program. Complete data from this study will help determine if tailored exercise programs are effective for this population.

Cleaning Up Our Language in Practice and Policy: Evaluation of the Prefix Hyster- as a Linguistic Microaggression in Gynecology

Jillian Fleming, M2; Renee C. Morales, MD, FACOG; Judith C. Taylor-Fishwick, MSc; Annette Finley-Croswhite, PhD

Introduction: This paper examines the pseudoscience of hysteria and its etymological root hyster- as it relates to the pejorative use of the term hysterical. The historical and etymological context in which these words have been used against women perpetuates misogynistic bias as a microaggression within healthcare with terms such as hysterectomy. The aim for this paper is to offer background on the origin of the words hysteria and hysterectomy, the development of psychological and physical symptoms associated with hysteria, and the clear link between these diagnostic criteria and the female body, particularly the uterus.

Methods: We performed an interdisciplinary and historical literature review to further understand the framework within which hysteria has developed as a medical diagnosis. We collated the information brought forth in these texts as evidence to assert that the term hysteria and its link to the female body continues to pathologize women pejoratively today.

Results: We found that throughout countless ages and interpretations, hysteria, with its name derived from hyster-, womb, has been viewed and treated as a predominantly female ailment. Patriarchal society and medicine have fed into narratives of women as weak, defective, less than their male counterparts, which further bolsters the idea that the womb, feeble mindedness, and women who do not conform to accepted female norms contribute to the physical and psychological manifestations of hysteria.

Conclusion: The word hysterectomy and other hyster- derivative words are no longer appropriate to use because this derogatory language constitutes a microaggression, which in this case, is pervasive in patient care including in medical education, diagnosis, electronic medical records, insurance current procedural terminology (CPT codes), and public policy. Therefore, we propose that policy and healthcare address this

matter by abandoning the use of the prefix hyster- in favor of the etymological twin uter-. This realignment of language with current cultural values will intensify and expand current efforts ensuring respectful medical care for women.

Using Virtual Reality to Assist Students at Academic Risk in Human Anatomy

Michael Foley, Lauren Roten MS, Lindsay Meyers PhD, Robert Armstrong MS, Lisa Fore-Arcand PhD, Kelly McCoy MMHPE, Chad Eitel, Tod Clapp PhD, Natascha Heise PhD

Background: Learning human anatomy may be challenging for students for various reasons including the extent of course material or being able to visualize anatomical structures in true three dimensions. This is particularly difficult for students at academic risk. Virtual reality (VR) has shown that it can be a helpful tool for understanding structural relationships. Nevertheless, it is difficult to implement VR sessions into an established medical or health professions curriculum. **Objective:** This study aims to evaluate the use of VR for students at academic risk within the School of Health Professions to improve its implementation at EVMS.

Methods: Students at academic risk were invited to attend VR study sessions. A written post-survey of both ordinal scale and open-ended questions was administered to the participating students. Quantitative analysis was conducted to assess the effect on exam scores and Likert scaled data. An inductive thematic analysis of the open-ended questions and field observations was performed to capture the perspective of the students.

Results: The students who participated in VR study sessions performed similarly to the non-VR group in all practical exams. However, there was a significant difference in written exam performance involving head/neck (71.5% vs 83.4%, $p = 0.005$) and pelvis/lower limb (76.6% vs 87.0%, $p = 0.005$). Students agreed with VR being beneficial to their goal progression and building confidence in upper limb, thorax/abdomen, and pelvis/lower limb regions. However, some students disagreed about building confidence in head/neck anatomy or were neutral about confidence in medical scans. Positive themes identified from open-ended questions were visualization, accessibility, program capabilities, learning environment, additional resource, and positive impact. Emerging themes for improvement were program functionality and logistics. **Discussion:** The complexity of head/neck and pelvis regions may have contributed to the lower written exam performance and in their statements regarding lack of detail in certain model areas. However, the comparable practical exam performance and the positive nature of the survey responses demonstrated that VR may be an effective learning alternative for students at academic risk to bridge knowledge gaps that they experienced with other study methods. Future implementation within the School of Medicine is planned.

Does Community Type Influence Collective Efficacy? A Comparison of Family and Senior Public Housing Communities Within Hampton Roads

Gwendolyn R. George, Carolyn Caraballo Velez, Victoria O. Goree, Katie Jones, Kristen Moore, Miasha T. O'Neal, Andrew D. Plunk

Introduction: Collective efficacy describes the ability for a community to achieve a shared goal and is divided into two constructs, informal social control and social cohesion. Informal social control is determined by a neighbor's willingness to intervene for the common good, the likelihood of which decreases when neighbors do not trust each other or when a community's rules are vague or poorly enforced. Informal social control is therefore dependent on the social cohesion. We hypothesize that perceived collective efficacy will be higher in senior/disabled public housing communities across Hampton Roads. **Methods:** Surveys were conducted by members of the research team in public housing communities in six of the Hampton Roads cities. Collective efficacy was measured using a series of Likert scale items as outlined by Sampson et al (1997). Results of the Likert scale items were divided into social cohesion and informal social control subscales, averaged, and then the average of the two subscales was taken to determine collective efficacy. Demographic information, including age and number of children living in the home, were also collected. Bivariate t-tests were used to estimate differences in collective efficacy based on housing type. **Results:** Senior communities reported 10.57 higher levels of collective efficacy, 6.1% higher social cohesion, and 15.8% higher social control ($p < 0.001$ for all comparisons). **Conclusion:** Overall, senior/disabled public housing communities were statistically more likely to report higher levels of collective efficacy as well as higher levels of social cohesion and informal social control.

Complex Care Clinic at General Academic Pediatrics

Trevor Glad, Heidi Flatin MD, John Harrington MD

Introduction: Children with Medical Complexity (CMC) are a subset of Children with Special Health Care Needs which have multiple chronic conditions, are seen by multiple medical specialists, are dependent on technology, and exhibit high health care utilization. Managing care for CMC is complicated and requires extensive coordination methods to ensure these children receive the care they need. This study aims to facilitate the implementation of a complex care clinic in a general academics practice by performing a landscape analysis of pediatric complex care programs throughout the nation. **Methods:** Semi-structured virtual interviews were conducted with representatives from complex care programs, with the option to correspond over email. Interviews consisted of six questions concerning the program's clinic structure, care model, CMC identification criteria, transition to adult care, and billing information. **Results:** Data from ten complex care programs was collected, two of which preferred to correspond via email. Seven programs reported functioning as a medical home providing primary care for CMC and three reported working as a consultation service for PCPs treating CMC patients. The most widely used criteria for identifying CMC were dependence on technology and the number of specialists seeing a child. Two programs reported not having any set identification criteria and work with any patient referred by their PCP. Various programs reported the existence of a transition program, but every program noted the difficulty of transitioning patients to adult care. **Conclusion/Discussion:** Several clinic representatives explained that their program had grown 'organically' out of the need for a care coordination program for CMC. Although some patterns can be seen between programs, the variation in care models and inclusion criteria can be attributed to this need-based implementation. Based on this analysis, the development of a program at general academic pediatrics (GAP) should be done by first assessing the patient population in need of complex care, and then determining which aspects of other programs would best care for its population. In addition, one model utilized their clinically integrated network model, similar to the one at GAP, to advocate for decreasing healthcare costs and as a way of funding the program for sustainability.

The Prevalence of Concealed Concurrent Substance Use during Acute Care Hospitalization for Treatment of Acute Pain and Opiate Detoxification.

Kallen Hager, Megan Ralston M.S., David Spiegel M.D. FAPA

Introduction: The opioid epidemic in the United States poses a major public health concern, with concurrent substance use complicating treatment and management efforts. The lack of sufficient literature on the prevalence of concurrent substance use during hospitalization for acute pain and opiate detoxification necessitates a comprehensive study. **Methods:** This study conducted a retrospective cohort analysis to evaluate opioid use disorder patients who had inappropriate use of controlled substances during inpatient treatment. The objective of this study was to determine the prevalence of positive drug screens on hospital admission among patients requiring acute hospitalization and coded for opiate use; and among this same patient group, the prevalence of positive drug screens for any non-facility prescribed substance during their hospital stay. **Results:** However, an update to this abstract with the results of the study will include the prevalence rates found, any significant associations between opiate use and positive drug screens, and any notable differences between surgical and psychiatric departments. **Conclusion:** Understanding the prevalence of concurrent substance use in patients receiving opioids during hospitalization is crucial to ensuring safe and effective patient care. The results of this study would offer valuable insights into concurrent substance use patterns, helping healthcare providers to mitigate potential risks and tailor treatment approaches.

History-indicated cerclage compared with cervical length screening in individuals with a history of cervical insufficiency.

Wave Hatton, Lea Nehme, MD; Jerri Waller, MD; Tracey DeYoung, MD; Madison C. Collazo, MD; Monica A. Ethirajan, BS; Camille M. Kanaan, MD; Alfred Abuhamad, MD; Tetsuya Kawakita, MD, MS

Introduction: Preterm delivery occurs in approximately 10% of live births in the United States. Preterm birth is the leading cause of neonatal death and chronic neurological complications for pre-term infants. A history of cervical insufficiency in a current or previous pregnancy is one of the largest risk factors for pre-term delivery. This study evaluated pregnancy outcomes of history-indicated cerclage compared with ultrasound cervical length screening in patients with a history of cervical insufficiency defined as prior spontaneous preterm delivery from 14 0/7 to 23 6/7 weeks' of gestation. **Methods:** This was a retrospective cohort study of patients

with singleton gestations with a history of cervical insufficiency. Patients were excluded who started prenatal care after 24 weeks, delivered before 24 weeks, or declined both a history-indicated cerclage or cervical length screening. The primary outcome was preterm delivery <37 weeks gestation. Secondary outcomes included gestational age at delivery, spontaneous preterm birth <37 weeks, spontaneous preterm birth <34 weeks, preterm premature rupture of membranes, cesarean delivery, birthweight, and neonatal intensive care (NICU) admissions. Adjusted odds ratios (aOR) with 95th confidence intervals (95%CI) were calculated, controlling for confounders. **Results:** Of 376 pregnancies 177 (47.1%) patients underwent history-indicated cerclage, and 199 (52.9%) underwent cervical length screening. Of 199 who underwent cervical length screening, 92 (46%) underwent ultrasound-indicated or physical exam-indicated cerclage. Compared to cervical length screening, history-indicated cerclage was not associated with increased odds of preterm delivery less than 37 weeks (37.7% vs. 29.4%; aOR 0.75 [95%CI 0.48-1.18]). However, compared to cervical length screening, history-indicated cerclage was associated with decreased odds of spontaneous preterm delivery less than 34 weeks (18.1% vs. 9.0%; aOR 0.47 [95%CI 0.23-0.97]). **Conclusions:** History-indicated cerclage compared with cervical length screening was associated with decreased odds of spontaneous preterm delivery less than 34 weeks. Given that approximately half of the patients undergoing cervical length screening required cerclage, history-indicated cerclage should be considered for patients with a history of cervical insufficiency. However, when it came to deliveries between 34 and 37 weeks, there were no major differences between pregnancies monitored with transvaginal ultrasound and patients who received cerclage for cervical insufficiency.

Utilization of a stepped care model in CHKD Mental Health

Zachary Holmes BS, Mary Margaret Gleason MD

Introduction: In the US, our system includes a critical gap between the need for pediatric mental healthcare and an adequate workforce. Fewer than two-thirds of patients referred to mental health will attend an appointment. Only one-third of those patients will receive follow-up care. CHKD has implemented a Stepped Care Model (SCM) approach to outpatient care to match a child's level of symptoms to appropriate intervention in a timely manner. A key element of SCM is a brief triage assessment after which most patients with lower acuity are offered low intensity group support instead of a passive waitlist. Patients with higher needs receive priority status for more rapid access to individual care. Compared to traditional care models, SCM approaches show both non-inferior results and cost-effectiveness. This study explores SCM at CHKD to examine interval duration between care components, the rate at which patients receive recommended treatments, and identify any disparities in accessing care. **Methods:** A chart review of patients who received a Brief Childhood Needs Assessment (BCNA) with CHKD Mental Health, extracting documented treatment plans and dates and types of clinical encounters. 120 randomly selected patients seen for BCNA from four different time periods (July 2021, Jan 2022, July 2022, January 2023) were included. **Results:** Overall, the wait time after BCNA for group therapy was 8.4 weeks (SD 6.0). However, out of the 78 patients with a recommended treatment plan of group, only 26 attended (33.3%). On average, patients waited 15.21 weeks (SD 15.66) to reach any mental health service (including group) following their BCNA, with this number falling to 8.8 weeks (SD 8.7) in the most recent cohort. Analyses related to disparities and comparison with pre-SCM care are ongoing. **Conclusions:** In the current national child mental health crisis, wait times for MH services from BCNA to definitive care exceed optimal durations, although a decrease in nearly 50% wait time in the most recent cohort is promising. Limited engagement in low intensity support will be an important target for improvement, possibly expanding options to include app-based support. Examination of differences in wait times by provider discipline and child and family characteristics will provide additional opportunities for improvement

Individual and Synergistic Effects of Space Radiation and Social Isolation on the Sensorimotor Function of Female Rats

Jackie J Hwang, Alea F Boden, Riley S Heerbrandt, Zachary N Luyo, Larry D Sanford PhD, Laurie L Wellman PhD

Introduction: Astronauts on future Mars missions will experience space radiation (SR) and social isolation (SI), which can impair sensorimotor functions in male rats. However, little is known about the potential effects of these stressors on sensorimotor function of female rats. We examined the individual and synergistic effects of SR and SI on sensorimotor performance of female rats during balance beam (BB) and bilateral tactile adhesive removal (BTAR) tasks, which assess gross and fine motor function, respectively. **Methods:** Female, Wistar strain rats (retired breeders) were obtained from Hilltop Lab Animals, Inc. Two subgroups were either

individually housed without visual barriers (CONT; n=10) or with visual barriers (SI; n=13) between cages. Two other subgroups were subjected to 15cGy galactic cosmic radiation and either individually housed alone (SR; n=12) or received SR + SI (dual flight stressor, DFS; n=12). Behavioral tasks began 90 days after irradiation. BB ran for five trials a day across seven consecutive days. BTAR ran for four trials a day across four consecutive days. Two-way mixed-factor ANOVA with post-hoc tests were used for analyses. **Results:** During BB, there was a main effect of time but not of group. Specifically, there was increased success rates ($p < 0.001$), decreased exploratory and disequilibrium behaviors ($p < 0.001$ for both), and decreased failures due to time-out ($p = 0.012$) and falls ($p < 0.001$) over time. During BTAR, there was a main effect of group with the DFS ($p = 0.006$) and SI ($p = 0.036$) groups having longer average removal times than the SR group. There was also a main effect of group on behavior with the DFS and SI groups having significantly greater fear behavior than the control ($p = 0.001$ and $p = 0.021$, respectively) and SR ($p = 0.001$ and $p = 0.001$, respectively) groups. Moreover, there was a main effect of time with fear behaviors increasing on day 2 ($p < 0.001$) and day 3 ($p = 0.015$). **Conclusion:** Female rats showed fear and fine motor deficits after SI and DFS. This contrasted with male rats which showed greater gross motor deficits after SR. Should similar differences occur in humans, multiple mitigation strategies may be needed to support male and female astronauts' differential abilities to withstand mission related stressors.

Glycosylation of Extracellular Vesicles in Breast Cancer Subtypes

Benjamin Johnson and Dr. Lifang Yang

Introduction: Extracellular vesicles (EVs) are small, membrane enclosed vessels that have recently gained interest as a mode of cell-cell communication in both pathologic and physiological conditions. Glycosylation of vesicle cargo proteins has been shown to play a role in the sorting of proteins into EVs and cell targeting and recognition. As aberrant protein glycosylation is a hallmark of cancer cells, and recent evidence has shown that cancer cells secrete significantly higher amounts of EVs compared to non-malignant cells, we set out to examine the glycosylation signatures across different breast cancer cell lines and their respective EVs.

Methods: Breast cancer cell lines representing luminal type, HER2 enriched, and triple negative subtypes were cultured in appropriate cell media. Cell protein lysates were collected and microvesicles (MVs) and small extracellular vesicles (sEVs) were isolated via the differential ultracentrifugation approach. The concentration and size of isolated EVs were determined utilizing the NanoSight NS300. The EV purity was assessed by Western blotting with a panel of positive and negative specific markers. Lectin blots were performed to examine and compare the glycosylation patterns of specific carbohydrate moieties (sialylation, fucosylation, and N-glycan branching) in the protein lysates from EVs and their parent cells. **Results:** Extracellular Vesicle size distributions for MVs and sEVs were within the expected ranges and samples were of ample purity based on the results of the western blot utilizing EV specific markers. Lectin blots revealed unique protein glycosylation patterns of breast cells representing different subtypes. Additionally, sialylation of sEVs secreted by the luminal type cell were distinct from their perspective parent cells, with regard to degree and pattern. **Conclusion:** These results confirm that there are subtype-specific glycosylation patterns existing at both cell and sEV levels. This exploratory work combined with our previous EV data obtained via metabolic glycoengineering provides a foundation to develop innovative EV glycosylation-based methods to improve breast cancer diagnosis and subtyping.

Understanding Practice Processes for Postpartum Care Visits

Nikia Johnson, Mia Platt, Amy Paulson MPH, Takemia Cornegy-Hawks, Lindsay Robbins MD, MPH, Natasha Sriraman MD

Introduction: Proper care for infants and mothers post-birth is essential to reducing maternal mortality rates and the disparities that exist within them. It is less likely for Black, Hispanic, and Native American mothers to survive birth with their babies than their white counterparts. In many cases, these deaths can be prevented with early intervention. However, postpartum visit attendance rates are variable (5-95%), with these groups being less likely to attend a postpartum follow up appointment than their white counterparts. Assessing practice processes surrounding the postpartum visit has the potential to uncover trends about the racial disparities that exist in maternal and postpartum care. **Methods:** A ten question telephonic interview was conducted with six obstetric practices in the Hampton Roads region regarding their processes surrounding postpartum follow up appointments. Questions about scheduling, racial demographics, and demographics relating to insurance coverage are included. Questions are also included about postpartum visit attendance data and how frequently

the practice monitors it. **Results:** Of the 21 practices that were identified in this study, six chose to participate in the study. Representatives of the practices were primarily office/clinic managers. While all practices recommended a postpartum appointment around the six week mark in a standard full term pregnancy, half of the respondents reported that patients are responsible for scheduling their own visits. All of these practices reported the majority of their patients were covered by Medicaid or Tricare insurance. Two also indicated that they do not routinely look at postpartum data and have no way of tracking who attends/misses their appointment. **Conclusions:** The vast differences in responses about postpartum practice processes reflects the variability in postpartum attendance rates. The findings suggest positive links between postpartum visit attendance rates and a practice calling to schedule their patient's appointment(s). Additionally, practices who reported not routinely looking at their postpartum data had lower visit attendance rates than other practices surveyed.

Effect of HIV-TAT on Lipid Metabolism in Microglia

Jaekeun Jung, Ming-lei Guo PhD, Yan Chen, Rachel Dempsey, Soheil Kazemi Roodsari

Introduction: HIV infection remains a major public health concern in the era of combined antiretroviral therapy (ART) and human immunodeficiency virus (HIV)-associated neurocognitive disorder (HAND), characterized by cognitive and memory impairment, continues to be prevalent. Microglia (Mg), the brain resident macrophages, can be activated by HIV infection and abnormal Mg activation has been believed as the driving force promoting HAND pathogenesis. However, the mechanisms underlying Mg activation in chronic HIV infected individuals remain much elusive. Metabolism dysregulation has inherent roles in immune responses in Mg. Whether HIV/HIV proteins could dysregulate metabolism process leading to Mg activation has not been explored before. Thus in this study, we aimed to explore the effects of HIV protein transactivator of transcription (TAT) on lipid metabolism in Mg using multiple in vitro and in vivo approaches. **Method:** BV2 microglial cells were cultured in vitro and primary Mg (PM) were isolated from new-born pups and cultured in vitro. The cells were then exposed to HIV-TAT with different doses (25 – 100 ng/ml) for different time periods (3 – 24 hours). Followed, the cells were collected for protein extraction. Also, HIV-TAT negative and positive mice were fed with doxycycline (DOX)-inducible food in vivo for three weeks for TAT expression. The mice were then sacrificed for the brain removal. Different brain regions were dissected followed by protein extraction. Western blots were performed to determine the levels of various molecules belonging to lipid metabolism pathways, including HMG-CoA reductase (HMGR), SREBP-1, SREBP-2, and PLIN2. Meanwhile, the colocalization of lipid droplet (LD) with Mg were determined by double Immunofluorescence approach. **Results:** HIV-TAT increases the levels of HMGR, SREBP-1, SREBP-2, and PLIN2 in both BV2 and PM in time-dependent and dose-dependent manners. HIV-TAT elevates LD levels in Mg and SREBP-2 levels in the brain hippocampus. **Conclusion:** HIV-TAT can dysregulate lipid metabolism in vitro and in vivo. More experiments have been planned to reveal whether HIV-TAT mediated lipid dysregulation is responsible for Mg activation.

Validation of Child-Reported Quality of Life Instrument in Children with Sleep Apnea

Christiana King MS, Cristina Baldassari MD, Daniel Heshmatipour MS

Introduction: Obstructive sleep apnea (OSA) is a sleep-related breathing disorder characterized by episodes of upper airway collapse. It has been increasingly acknowledged that children with OSA may experience negative impacts on their quality of life (QOL) including behavioral problems, poor attention, cognitive deficits, and impaired family interactions. The gold standard for diagnosis of OSA is in-laboratory nocturnal polysomnography (PSG). PSG measures the presence of OSA and provides an objective scale for OSA severity. However, PSG fails to quantify the impact of OSA on a child's general well-being. Thus, QOL instruments such as the OSA-18 are increasingly being used to assess symptom burden in children. Currently, all disease-specific QOL surveys for pediatric OSA patients are designed for caregiver completion. An instrument to assess the child's perception of OSA impact on their QOL is currently lacking. Prior research in other chronic pediatric medical conditions has demonstrated a lack of correlation between caregiver- and child-reported QOL. Thus, our primary objective will be to develop and validate a child-reported, disease-specific QOL survey. **Methods:** Children aged 5 to 16 years presenting to pediatric otolaryngology clinics for OSA

evaluation are enrolled in concordance with the IRB-approved protocol. At baseline, children complete a modified OSA-18 that was developed during a focus group, while parents/caregivers complete the previously validated, standard OSA-18 survey and the Sleep Related Breathing Disorder section of Pediatric Sleep Questionnaire (PSQ-SRBD). The child-reported OSA-18 is readministered 7 days following baseline via telephone call, email, text messaging, or secure zoom encounter. **Results:** There are currently 85 subjects enrolled with a mean age of 8 years and an obesity prevalence of 48.2%. At baseline, 23.5% had total caregiver OSA-18 and child-reported OSA-18 scores within the same severity category. A subset of 30 subjects have completed the 7-day follow-up child-reported OSA-18. Of those, 66.7% had total survey scores within the same severity category between baseline and follow-up for OSA impact on QOL. **Conclusion:** When validated, the child-reported OSA-18 survey will enable determination of symptom burden experienced by children and adolescents. This may be a valuable tool for future guidance of management decisions for children and adolescents with OSA.

Quality Improvement in Pediatric Blood Cultures

Ryan Krafty BS, Trevor DiGerolamo BS, John Harrington MD

Background: In the era of modern blood culturing, virtually all blood culture contamination occurs during the collection phase. At Children's Hospital of The King's Daughters (CHKD), 70% of the contaminated blood cultures come from the emergency department (ED). Nationwide, 60% of patients received unnecessary treatment as a result of contaminated blood cultures. This results in increased pharmacy charges from \$210-\$12,611 and laboratory charges ranging between \$2,397-\$11,152 per patient. In addition, unnecessary medical treatment due to contaminated blood cultures leads to patients' discomfort, decreased hospital reputation, and increased selective antibiotic pressure leading to resistant organisms. In this study, observation of blood cultures being drawn in the ED will be done, with the goal of identifying where in the drawing process contamination could be occurring. **Methods:** We learned the standard job instructions provided by CHKD for blood culture collection via peripheral venipuncture. This included proper hand hygiene, maintaining an aseptic field, and proper collection of the blood. After learning the procedure and acceptable variations, we went to the ED and observed blood cultures as the ED techs completed them. As they were performing them, we noted any deviations or incorrect protocols performed during the collection process and compiled the data after our observations. **Results:** Of the 5 observed blood cultures, 4 were performed incorrectly. In all 4 incorrect collections, at least 2 of the steps were performed incorrectly. In 3 of them, sterile gloves were not worn which immediately compromises the sterile field and its contents. Another consistent point of failure was the lack of alcohol prep before cleaning the site with CHG or betadine. **Conclusion:** These findings suggest that the ED may be seeing an increase in contamination of pediatric blood cultures due to poor maintenance of the sterile field during the collection process and poor adherence to the job instruction sheet. Reinforcement of the job instruction sheet and aseptic techniques should improve the collection and help reduce contamination during collection.

Triggers for Palliative Care Consultation in Advanced Head and Neck Cancer: A Quality Improvement Project

Nina Li MS, Asheema Pruthi MD, Jonathan Mark MD

Introduction: Advanced head and neck cancer (HNC) is associated with high levels of physical, mental, emotional, and financial hardship on patients and caregivers. Advanced HNC is also associated with high healthcare utilization. These factors indicate poor quality of life and inadequate end-of-life care for patients. Palliative care (PC) offers many benefits to HNC patients by decreasing levels of patient and family distress, improved perceptions of care, and lower rates of ICU readmissions. At EVMS, there is no current set guidelines for palliative care consultation. While patients are admitted, PC is often engaged in symptom management, goals of care, etc. However, there is no set timeline for PC referrals. **Methods:** After IRB approval, a retrospective chart review was conducted on patients presented to the EVMS multidisciplinary Head and Neck tumor board between 2021 to 2023 who received recommendations for palliative treatment. Adults ages 18-99 years old were included. **Results:** 115 patient charts were reviewed. The average age of HNC patients was 69.5 years. The average length of time between initial tumor board evaluation and PC consult was 62.5 days. 60.9% of patients received a palliative care consult and 39.1% of patients did not. Patients more often received an inpatient PC consult (77.1%) than outpatient (28.6%). Of the patients who received PC consults, a majority had advanced stage III and IV disease with primary tumor T4 stage (64.3%).

Palliative care consults were placed for goals of care discussion (52.7%), clarify goals (40.5%), symptom management (27.0%), patient/family support (35.1%), and pain management (16.2%). Additionally, more patients with previous HNC malignancy received PC consults (67.4%) than did not (32.6%). **Conclusion:** Appropriate and timely palliative care services in advanced HNC cancer has the potential to improve patient quality of life and reduce healthcare costs. This quality improvement project characterizes our institution's current utilization of PC to identify triggers that can be implemented for standardized PC consults. Future research should include a prospective cohort to compare patients' quality of life and healthcare utilization after standardizing PC consults. Goals include providing PC referrals within 8 weeks of diagnosis in agreement with American Society of Clinical Oncology guidelines.

Exploring the role of monoacylglycerol lipase (MAGL) in nitrogen mustard induced lung injury

My Boi Ly, Gregory Nicholson, B.S., Janette Lockett, M.S. Nagaraja Nagre, Ph.D

Background: Sulfur mustard (SM) and nitrogen mustard (NM) are cytotoxic vesicants developed as chemical warfare agents, causing severe respiratory damage with significant morbidity and mortality. The known stockpiles of these vesicants, along with its familiar simplicity of synthesis raises concerns over its intentional misuse and accidental exposure. NM-induced acute lung injury (ALI) and acute respiratory distress syndrome (ARDS) can lead to fibrosis with pathological changes including inflammatory cell accumulation, epithelial and endothelial cell damage. Despite advances in understanding the biological effects, effective therapies are still needed. The endocannabinoid system is known to play diverse physiological functions, one of them being its natural mechanism to control aberrant inflammatory responses. Our preliminary study showed that acute exposure of mice lungs to NM resulted in an increased expression of monoacylglycerol lipase (MAGL), a component of the endocannabinoid system. In this study, we aimed to examine the effect of MAGL inhibition on NM-induced acute lung injury and inflammation via a selective MAGL inhibitor, JZL184. **Methods:** We administered NM via the intratracheal route into the lungs of mice. JZL184 (10mg/kg) was administered via the intraperitoneal route 1h prior to NM exposure and every 24h thereafter. At 72h of post-NM exposure, we collected Bronchoalveolar lavage fluid (BALF) and lung tissues. The MAGL enzyme activity was measured in the lung. We measured the amount of the immune cells and cytokine levels in the BALF was measured by using ELISA. NM-induced lung injury was examined by lung histology, and the inflammatory signaling was examined by immunohistochemistry. **Results:** Acute exposure of mice lungs to NM resulted in an increase in MAGL activity. Inhibition of MAGL by JZL184 significantly reduced the immune cell infiltration into the lung that was elevated in response to NM exposure. JZL184-treated mice had lower BALF levels of IL-6 and CXCL1/KC. Lung histologic analysis revealed lowered immune cell infiltration and injury in JZL184-treated mice. MAGL inhibition resulted in reduced iNOS expression as revealed by immunofluorescence. **Conclusion:** Inhibition of MAGL by JZL184 ameliorated the NM-induced ALI and inflammation in mice. Inhibition of endocannabinoid metabolism could promote anti-inflammatory effects in protection against NM-induced lung injury.

Differing Outcomes of Cleft Lip and Palate Repair Based on Patient Race, Ethnic Background, and Preferred Spoken Language

Olivia Markert, Celia Aldrete, Yifan Guo MD

Introduction: Orofacial clefts are a common congenital craniofacial malformation that occur when the facial prominences fail to fuse during the early weeks of development. Cleft palate and lip repair outcomes vary substantially in terms of feeding ability, speech ability, social skills, and aesthetics. Prior studies have noted increased lag time in the preoperative period in minority, non-English speaking populations as well as disordered speech outcomes for adopted children that undergo late palatoplasty. Thus, language and/or racial barriers could potentially contribute to these variable outcomes. Thus, this study aims to analyze differing outcomes of cleft lip and palate repair. **Methods:** A retrospective review of cleft lip and palate patient care notes written prior to 4/23/2021 was completed. Variable repair outcomes were analyzed based on speech therapy attendance and compliance rate, feeding difficulties, behavioral difficulties, and educational difficulties. T-tests, ANOVA analyses, and logistic regression analyses were used to examine repair outcomes based on differential demographic features (race, ethnic background, and spoken language of patients) compared to a white, English-speaking control population. **Results:** 337 patients that underwent cleft lip or palate repair met inclusion criteria. 53% attended speech therapy, signifying some form of speech delay. The only demographic feature found to be significantly associated with speech therapy attendance was race ($p < 0.001$). Specifically, Asians were 7.191 times more likely (95% CI 3.084, 16.767, $p < 0.001$) to attend speech therapy compared to

the control group. Additionally, 10% exhibited behavioral delays, 6% exhibited educational delays, and 9% of patients experienced feeding difficulties. No statistically significant associations were found between these outcomes and race, ethnic background, or spoken language. 90 patients received speech therapy directly through CHKD. Asian patients had the highest mean compliance rate of 97.49% (95% CI 95.47, 99.52, $p < 0.05$), and Black/African American patients had lowest mean compliance rate of 81.51% (95% CI 70.38, 92.63, $p < 0.05$). Ethnic background ($p = 0.1455$) and spoken language of patients ($p = 0.5496$) was not associated with speech therapy compliance rate. **Conclusion/Discussion:** Tangible discrepancies in cleft lip and palate repair outcomes exist regarding different patient demographics.

The Effect of Chemotherapy on Olfactory and Gustatory Function in Pediatric Patients

Alim Osman MS, Asheema Pruthi MD; David Darrow MD DDS

Background: Side effects from chemotherapy have been thoroughly studied in the literature, with reports of nausea, fatigue, among many other symptoms. Additionally, very few studies have analyzed the effects of chemotherapeutic agents on olfactory and gustatory function. To date, no study has looked at the effects of chemotherapy on gustatory and olfactory function in the pediatric population. The purpose of our study is multifaceted in its approach: (1) To investigate the effect on gustatory and olfactory function of pediatric patients. (2) To understand the association between gustatory/olfactory dysfunction on the overall nutritional status of pediatric patients. **Methods:** Pediatric patients undergoing chemotherapy will be subjected to three tests analyzing olfactory and gustatory function. The Sniffin' Stick identification test and the Snap and Sniff Threshold test will be used to gather olfactory function. Furthermore, Burghart Odofin Taste Strips will be utilized to test the gustatory function of the participants. To analyze nutritional status, patients will be given questionnaires in the beginning and at the end of the study. An ANOVA test will be used to compare the effects of the various chemotherapeutic agents on olfactory and gustatory function. **Results:** Upon IRB approval, we hope to begin testing on the pediatric patient population at CHKD. We anticipate that there will be a statistically significant difference in the results based on the chemotherapeutic agent used. Furthermore, we anticipate the same trend in gustatory function due to the close relationship of olfaction and gustation. **Conclusion:** As pediatric cancer continues to significantly impact patients across the globe, further research is warranted to better counsel the patient population regarding the adverse events of treatment. This study will provide more information regarding the adverse events of chemotherapeutic agents given to children. Furthermore, it will help researchers better understand the olfactory and gustatory system and how it is impacted by pharmacology.

Identifying Characteristics Associated with Repeat Visits for Pediatric Asthma Exacerbations

Joseph Peluso, Kristina Roth MD, Ashlee Law PA-C, William Tredwell MD, Turaj Vazifedan, DHSc, Angela Hogan MD, Kelly Maples MD

Background: Half of children with asthma experience at least one asthma exacerbation each year. Some require repeat treatments due to ongoing or worsening asthma. Some research exists exploring dexamethasone vs. prednisone/prednisolone outcomes showing equally efficacy, but limitations include exclusion of severe asthma, use of lower prednisone doses, and outcomes based on subjective reporting. Some studies report reduced risk of vomiting with dexamethasone. Clinicians from this group have anecdotally noted that some patients initially treated with dexamethasone end up requiring a course of oral prednisone/prednisolone. Little data exists on characteristics that predict the need for a second or longer course of steroids. **Methods:** We performed a retrospective chart review of pediatric patients who had a visit to the CHKD emergency department in 2022 for asthma exacerbation/wheezing based on ICD-10 codes and who received a systemic steroid. Data collected included symptoms, exam, treatments, testing, and disposition. Charts were reviewed one month after the initial visit to assess for return visits where subsequent systemic steroids were prescribed for ongoing asthma exacerbation. **Results:** The majority of patients were under 6 years of age. Patients classed with more severe asthma ($p < 0.001$), prior admission ($p < 0.001$), or previously seen by a subspecialist for asthma ($p = 0.024$) were significantly more likely to be admitted. The likelihood of positive RP2 testing, for Human rhinovirus/enterovirus ($p = 0.029$) and Parainfluenza ($p = 0.025$), were significantly higher among admitted patients. No association with vomiting was identified. **Discussion:** Factors like asthma severity, past admissions, and previous specialist visits were significant for patients needing to be admitted. Dexamethasone was the most frequently used systemic steroid. More data is needed to make a statistically significant comparison with prednisone/prednisolone/methylprednisolone. Patients who received

prednisone/methyl prednisone in the ER had a higher rate of admission, however a confounding variable is that this subset of patients had more severe asthma classifications. Viral illnesses were significant for admission. They were also associated with repeat visits, but this was not statistically significant. These factors could be considered as a part of a comprehensive assessment by clinicians when considering disposition and follow-up plans. More data is needed on factors associated with repeat visits.

Triple-Negative Breast Cancer (TNBC) Racial Disparity and High Mortality at Hampton Roads Virginia

Claire Piatak, Taylor N. Drake, Caroline Dasom Lee MD, Emily L. Breeding MD, Janet S. Winston MD, Billur Samli MD, Rick J. Jansen PhD, Michael Danso MD, Richard A. Hoefler DO FACS, and Amy H. Tang PhD
Background: While high-resolution imaging and advancements in therapies have significantly improved breast cancer survival rates, 43,170 breast cancer patients will die in the United States in 2023 alone. Triple-negative breast cancer (TNBC) is the most aggressive breast cancer subtype and disproportionately affects BRCA1 mutation carriers and young black women. Black/African American (AA) patients have the highest mortality and the shortest survival of any racial/ethnic group in the US. Persistent cancer racial disparity remains due to a variety of risk factors. The SEER/CDC data show an 8% lower breast cancer incidence rate but a 41% higher mortality rate in Black/AA patients compared to their white counterparts. **Methods:** Chart review was conducted using Sentara MD Office/EPIC and VOA iKnowMedicine portals to update tumor relapse, metastasis, and survival in 577 TNBC patients. Supported by strong evidence in developmental, evolutionary, and cancer biology, we hypothesize that persistent EGFR/K-RAS/SIAH pathway activation is a major driving force of TNBC malignancy, racial disparity, early relapse, and high mortality. We propose to integrate SIAH expression to augment the existing clinicopathological parameters to improve patient risk stratification, therapy quantification, and relapse/survival prediction at the 1st-line neoadjuvant settings. **Results:** We report that cancer disparity and high mortality rates are even more pronounced in our racially-diverse communities in Hampton Roads Virginia. We discovered that SIAH is a tumor-specific, therapy-responsive, and prognostic biomarker in TNBC. High SIAH expression in residual tumors reflects tumor-driving EGFR/K-RAS/SIAH pathway activation (ON) that will predict cancer disparity, treatment resistance, early relapse, and poor survival. Low SIAH expression in residual tumors reflect EGFR/K-RAS/SIAH pathway inactivation (OFF) that will predict tumor remission and prolonged survival. **Conclusion:** We detect a major racial disparity of TNBC patients at Sentara-EVMS-VOA. Our local Black/AA TNBC patients have a 1.6-fold higher mortality rate than their White counterparts. Encouraged by our preliminary data, we aim to develop a SIAH-centered biomarker panel by measuring the EGFR/K-RAS/SIAH pathway activation (ON)/inactivation (OFF), and use SIAH as a new prognostic biomarker to risk stratify patients, detect cancer racial disparities, forecast tumor relapse, and predict patient survival at 1st-line neoadjuvant settings.

A Quality Improvement Project to Improve Productivity at CHKD Urgent Care Centers

Emma Pierce, MS; Benjamin Klick, MD

Urgent care service lines have become an important point of access to healthcare that help decrease workload on Emergency Departments. The Children's Hospital of the Kings Daughters has three urgent care centers (UCCs) in the Hampton Roads area that provide a range of services for non-emergent pediatric patients who are unable to see their PCP. CHKD UCC goals are to keep the average patient length of stay (LOS) under 60 minutes, but current averages are consistently above 60 minutes. Longer LOS has been shown to correlate with lower patient satisfaction¹ and has also led to increased costs due to urgent care staff staying after hours. Longer average LOS also leads to an increased workload and a lower work-life balance for staff, which has been shown to increase burnout and decrease motivation to stay in the profession^{2,3}. To improve LOS, a large quality improvement project (QI) project is currently being developed. In order to decide where to focus QI efforts, there is a need to determine the highest time costs for the highest number of patients. A power BI dashboard was created to collect various time points from all patient visits through March, April, and May 2023. The interventions studied were strep tests, urine analyses, X-rays, splints, albuterol inhalers, and ear flushes. Strep tests, urine analyses, and X-rays had two time points: order placed to order/image collected, and then image/ sample collected to test resulted. All other interventions were measured by time ordered to order completed. A pareto analysis of average time of intervention multiplied by the percent of patients who received that intervention was done. The pareto analysis showed that the highest amount of time during patient stay is spend on strep test collection, followed by x-ray image collected to completed and x-ray collection. This conclusion allows a focused intervention on those specific tasks to help decrease patient LOS.

Understanding Practice Processes for 6 Week Postpartum Care

Mia Platt, Nikia Johnson, Takemia Cornegy-Hawks, Amy Paulson MPH Lindsay Robbins MD

Introduction: Maternal mortality and morbidity rates in the United States are the highest of any developed nation in the world. During the postpartum period, there is a shift in the focus of care from the mother to the baby. However, it is during the period from delivery to about a year postpartum that most mothers experience complications and unfortunately death. When considering race, ethnicity and socioeconomic background, black persons who give birth have the highest rates of postpartum mortality and morbidity. In the recent years, these statistics and health equity concerns have gathered national and worldwide attention resulting in an earnest push to find adequate solutions. **Methods:** This study examined local practice protocols and statistics surrounding postpartum visit attendance. A survey was created that investigated how the practice conducted scheduling of postpartum visits for different scenarios, such as premature delivery or high-risk delivery. We also sought statistical information on attendance rates, no-show rates, and payer mix/patient demographic. Each survey was administered orally over the phone with a practice representative. **Results:** We identified thirty-one separate practices in the cities and counties surrounding Sentara Norfolk General. Of these 31, six practices completed the survey, four practices declined participation in the survey and the other 21 practices neither declined nor completed the survey. Three of the six practices who completed the survey reported they completed postpartum visit scheduling either at the last prenatal visit or by calling the patient after delivery. The other half required the patient call and schedule their own appointment. The practices that reported higher attendance rates also reported adequate availability of statistical data regarding these appointments. These practices also had a higher commercial payer population. For the other practices who either did not know the data or reported low attendance rates, the patient population was generally majority Medicaid users. **Conclusions:** Moving forward the formation of better protocols surrounding scheduling and follow-up with patients, as well as increased availability of statistical data regarding postpartum visit attendance is a necessity.

Understanding, Improving & Tracking of Diabetes Care in the Western Tidewater Region of Virginia

Andrew Poirier, Swara Chokshi, Abby McMillan, MS, EP-C, Carolina Casellini, MD, David Lieb, MD, FACE, FACP, and Henri Parson, PhD

Introduction: The Western Tidewater (WT) region consists of Franklin, Suffolk, Isle of Wight, Southampton, Surry, and Sussex, Virginia, as well as Gates County, North Carolina. In each locality, the prevalence of Diabetes is higher than the state average. This study aims to gain a better understanding of the demographics and social determinants of health (SDoH) in WT to develop interventions to bridge this gap. **Methods:** Demographics, SDoH, blood pressure, weight, BMI and point-of-care HbA1c were collected through widespread community-based events in WT from April 2022 to June 2023. Data was entered into REDCap and analyzed using JMP Pro10. Analysis of variance (ANOVA) was used for continuous variables to compare mean differences between groups, with post hoc analysis (Tukey-Kramer). ChiSquare was used for categorical variables. **Results:** 192 patients were screened. 28.64% had diabetes and 18.23% had pre-diabetes. Black participants were more than twice as likely to have diabetes than white respondents. (33.57% vs 15.22%; $p = 0.0484$). Diabetic and pre-diabetic participants were older, (mean age: diabetes: 63.36, pre-diabetes: 63.74 vs non-diabetes 52.64; $p < 0.0001$), had a higher BMI (mean BMI: 34.84, 35.38 vs. 30.91 kg/m², $p=0.0066$), and had higher rates of hypertension, hyperlipidemia, and heart disease. Higher rates of diabetes also existed among lower income and less educated groups. No significant differences existed among the groups in other SDoH measures. **Discussion:** This study shows that income, education, age, BMI, and race are all risk factors for diabetes. Therefore, future interventions should focus on these more vulnerable groups. With WT being an underserved area, we expected there would be more respondents with barriers to care, such as difficulty finding a PCP and getting to appointments, but this was not observed. This could be explained by sampling bias, as people that experience these barriers likely have difficulty attending screenings. It is also important to note there was a disproportionate number of women and black participants (~75%, each group). A future goal is to seek a more representative sample, with efforts to target more underserved areas of WT and male participants

Prevalence of Concurrent Use of Controlled Substances in Opioid Use Disorder Patients During Hospitalization

Megan Ralston M.S., Kallen Hager, David Spiegel M.D.

Background: The opioid epidemic in the United States has led to widespread substance abuse disorders and fatalities. Patients with opioid use disorder (OUD) who self-medicate with other substances while hospitalized for opiate detoxification or acute pain treatment face potentially severe consequences. This study aims to assess the prevalence of concurrent use of controlled substances among hospitalized OUD patients.

Methods: A retrospective cohort study will be conducted at SNGH patients prescribed opioids from January 1st, 2022, to December 31st, 2022. Patients were included if they had treatment plan which included opiates for opiate detoxification, maintenance, or acute pain management will be included. Exclusion criteria will account for valid prescription use and false-positive drug screens. Data will be collected through EPIC EMR and analyzed using SPSS Statistical Subscription Service. **Results:** Results pending. Baseline and demographic characteristics will be summarized using descriptive statistics. The prevalence of patients on admittance acute hospitalization with positive drug screens for non-prescribed substances will be determined. Secondary objective will assess the prevalence of positive screening any time following hospital admission.

Conclusion: This study will shed light on the concurrent use of controlled substances in hospitalized OUD patients. The findings will be crucial in guiding physicians and clinicians to make informed decisions regarding opiate treatment and health directives for this vulnerable patient population. Keywords: opioid use disorder, controlled substances, hospitalization, retrospective cohort study, prevalence, patient care

Assessing the Current State of Clinical Practice Guidelines and Order Sets in the CHKD Health System: A Step Towards Establishing a Centralized Program

Noor Rana BS, Joanne Mendoza MD

Introduction: Clinical Practice Guidelines (CPGs) and Order Sets are standardized, evidence-based tools that assist clinicians with patient care. They improve patient outcomes and lower the total cost of care by reducing unnecessary variability in treatment and decreasing medical errors. This project aims to generate a report on the current landscape of CPGs and Order Sets at the Children's Hospital of The King's Daughters (CHKD) that would inform the establishment of a centralized program to optimize their management. **Methods:** Faculty members across CHKD departments were interviewed virtually using two surveys that assessed factors including accessibility, tracking, and revision of CPGs and Order Sets, respectively. The scholar conducted both internal and external interviews to evaluate the current state of CHKD and to gather insights from peer institutions with established programs. REDCap was used to input survey results and descriptive statistical analysis was performed. **Results:** Analysis of responses (n=11/27) demonstrated that 72.7% of the interviewed departments do not have a designated time interval for reviewing and revising their Order Sets while 60.0% do not have one for their CPGs. 90.0% of responses indicate not tracking the creation and expiration of their Order Sets; 66.7% indicate the same for CPGs. 90.0% of interviewed departments do not monitor use of CPGs and 90.9% of Order Sets. Accessibility, particularly for CPGs, was also found to be largely inconsistent across departments, with mixed responses for where they can be accessed and who can access them. External interviews detailed the benefits of a centralized program and strategies for successful implementation.

Discussion: These findings highlight a need for a centralized program to establish consistent revision, monitoring, and expanding accessibility of CPGs and Order Sets at CHKD. External interviews revealed a significant disparity between CHKD and its sister institutions, underscoring significant areas for improvement at CHKD. With a response rate of 40.7%, limitations include a lack of responses, including "don't know" answers and restrictive schedules of clinicians. A report will be presented to hospital administration in the fall as part of strategic planning for program development in patient safety and quality.

Assessing Access to Care for Sleep Apnea Oral Appliance Therapy

Alisa Rendina, Sara Rothenberg, MPH

Introduction: Obstructive sleep apnea (OSA) is a sleep-related breathing disorder in which the airways become blocked. The standard treatment for OSA is a CPAP, however, while effective, patient compliance with CPAP is very low. An alternative to CPAP is oral appliance therapy (OAT) that can be managed by a dentist and has higher patient compliance rates. For OAT to be successful, collaboration between dentists and sleep physicians is essential to provide the best care for their patients. Unfortunately, many dentists lack proper training and education in OAT, creating barriers to care for patients. This study aims to obtain a deeper

understanding of access to OAT, cost, and quality of care for OSA patients seeking a CPAP alternative in the Hampton Roads region. **Methods:** A secret shopper style call script was developed to assess access, cost, and quality of OAT for sleep apnea within the Hampton Roads area. Using an existing database of general dentistry practices in Hampton, Norfolk, Virginia Beach, Newport News, Suffolk, Portsmouth, and Chesapeake, a random sampling of 50% from each city was selected for inclusion in the study. Quantitative and qualitative data was collected and analyzed in REDCap. **Results:** Regarding access, 44% of practices studied offer OAT. Of the practices that don't, 35% refer patients to a practice that does offer OAT. Of the practices that do, 54% require a referral from a sleep physician, and 44% require proof of diagnosis. The average cost of OAT is \$1,628, ranging from \$470-\$3,000. Unfortunately, only 55% of practices report taking insurance, but most commented that insurance typically doesn't cover much. Regarding quality, 88% of practices that offer OAT take baseline measurements, and 45% include follow-ups in the treatment. **Discussion:** This study uncovered barriers that impact OSA patients in the Hampton Roads area seeking quality OAT, including a limited number of practices offering OAT, lack of knowledge of where to refer patients to for OAT, high costs with limited insurance coverage, and lack of follow-ups included in treatment plans. Future research should focus on further understanding and addressing these barriers to help improve quality of care.

Discovering New Inflammatory Pathways in Benign Prostatic Hyperplasia

Chunghwan Ro, Samara Silver, Petra Popovics, PhD

Introduction: Benign prostatic hyperplasia (BPH) is a significant health concern in the geriatric male population, primarily due to its effect on the quality of life through urinary symptoms, encompassing increased frequency and hesitancy. Furthermore, BPH introduces the potential for medical complications, including urinary tract infections and nephropathy. BPH pathology is influenced by steroid hormonal imbalance, which is depicted by the testosterone and 17 β -estradiol (T+E2) mouse model. This model showcases enlarged bladders, narrowed urethral lumens, and increased prostate mass – all hallmarks of human BPH, making this model a valuable platform for exploring disease mechanisms. Recent studies in our lab have highlighted that macrophages infiltrating the glandular lumen due to steroid hormone imbalance accumulate lipid droplets, adopting a foam cell phenotype. We hypothesized that foam cells secrete cytokines that contribute to BPH. Accordingly, this study focused on validating the expressional alterations of foam-cell derived cytokines, Tgfb1, Ccl6, and Cxcl16, previously identified via single-cell RNA sequencing. **Methods:** Male C57BL/6J mice were subcutaneously implanted with pellets containing 25 mg testosterone (T), and 2.5 mg estradiol (E2), and their prostates were collected after two weeks. Paraffin-embedded tissues from the ventral prostate were subjected to in-situ hybridization (RNAScopeTM) using probes targeting Tgfb1, Ccl6, and Cxcl16. Tissue samples were analyzed using a Mantra II. Pathological Workstation and InForm software. Student's t-test and one-way ANOVA or their non-parametric equivalent were used for statistical analysis. **Results:** We found increased expressional changes of Tgfb1, Ccl6, and Cxcl16 in foam cells in T+E2 tissues. Furthermore, when quantifying the expressional changes in the tissue, Tgfb1 expression was dramatically upregulated by 10.07-fold in T+E2 tissues compared to the control group. Likewise, Ccl6 and Cxcl16 -positive cells, likely macrophages, demonstrated a 3.21 and 1.96-fold increase in T+E2 tissues compared to the controls, respectively. **Conclusion:** This study corroborates prior scRNA sequencing studies, affirming the elevated expression of Tgfb1, Ccl6, and Cxcl16 in foam cells. The pronounced expression of these factors suggests an active role of foam-cell-derived cytokines in stimulating an inflammatory response in the prostate, consequently contributing to BPH

Enhancing Pediatric Resident Wellness: Unveiling the Impact of Virtual Reality

Kai Roszbach MS, Emily Egress MD, Haree Pallera, CW Gowen MD

Introduction: Pediatric residents' demanding workloads and long hours have been associated with increased physical and emotional fatigue, raising concerns about patient care and resident well-being. This study addresses the urgent need for interventions to enhance the wellness of pediatric residents. With advancements in technology, virtual reality (VR) and artificial intelligence (AI) are gaining prominence in medicine, holding the potential to positively impact the well-being of pediatric residents and faculty. **Methods:** Pediatric residents were surveyed to rank wellness categories of most importance: emotional, financial, environmental, skills, occupational, physical, social, and spiritual. Survey results were compared to a previous wellness survey (July 2022) of Virginia AAP pediatricians. Subsequently, residents were asked to participate in

a VR emotional intervention based on survey results. The intervention featured a serene beach scene complemented by an AI-generated wellness script voiceover through an Oculus headset or computer. Pre- and post-intervention surveys were administered to all residents, assessing subjective stress levels, using a Likert scale (1: minimal stress to 5: severe stress). Comments and time each resident spent watching the video were collected. Comments included residents' thoughts about the VR experience and ways to improve it. **Results:** The initial survey findings aligned with the wellness survey of 79 Virginia AAP pediatricians conducted in July 2022, wherein emotional and physical wellness received the highest rankings. Among the 30 residents who participated in the VR intervention, results included: before VR intervention, stress level averaged 2.83 (SD = 1.15). Following VR intervention, stress level averaged 1.50 (SD = 0.63) (p-value <0.001). Residents watched the video for an average of 6 minutes (range 2 to 15 minutes). Comments (11) about the VR experience were 100% favorable. **Conclusion:** The substantial decrease in stress levels after the VR intervention reflects the favorable use of VR to decrease resident stress. While limitations, such as the small sample size and potential biases require consideration, this research provides valuable insights into the potential impact of virtual reality on wellness. The study also reflects favorably on the use of AI in constructing VR experiences for residents. Future studies will hope to include VR experiences for faculty and address physical wellness.

Sunscreen Urinary Metabolites & Money Matters: Exploring the Relationship (The SUMMER Study)

Nargiza Sadr, M2; Rehan Qayyum, MD, MHS, SFHM, FAHA

Introduction: Benzophenone-3 (BP3), an ingredient in sunscreens, is absorbed through the skin, excreted in the urine, and causes hormone disruptions. Conversely, as BP3 leaves a minimal white cast on the skin, is less greasy, and is more water-resistant, it is widely used in high-quality costly sunscreens. Household income influences sunscreen purchase and use. Because the relationship between BP3-containing sunscreen use and household income is not well-studied, we examined this relationship in a large cohort of the US population.

Methods: We used the continuous NHANES data from 2003-2016. Creatinine-normalized urinary BP3 (CnBP3) levels were calculated from urinary BP3 and creatinine to account for urinary dilution/concentration. The household income to poverty threshold ratio (HIPR) was used to account for the effect of inflation. To examine the relationship between CnBP3 and HIPR, we used generalized linear models (GLMs) with log-link and gamma distributions to account for the long right-hand tail of the CnBP3 distribution. Missing data were imputed using multiple imputations by chained equations with a Gibbs-like algorithm. Models were adjusted for age, gender, race, education level, season, and sunscreen use. **Results:** Of the 16691 study participants, 8404 (50.3%) were females, 6561 (39.3%) were Whites, and 3949 (23.7%) were Blacks. The mean (SD) age was 36.6 (22.7) years, and median (IQR) CnBP-3 were 12.2 (44.9) $\mu\text{g}/\text{gm}$. In unadjusted GLMs, CnBP3 levels were 54% lower in the 16-25 age-group than the 6-15 age-group (95%CI=-0.82%, -0.25%; P<0.001); there was no significant difference between 6-15 and rest of the age-groups. Females had 2.2-times higher CnBP-3 than males (95%CI=1.57, 3.00; P<0.0001). Blacks had 67% lower (95%CI=-0.76%, -0.55%; P<0.001) and Hispanics had 44% lower (95%CI=-0.56%, -0.28%; P<0.001) CnBP-3 than Whites. Sunscreen-users had 5.9-times higher CnBP3 than non-users (95%CI=4.67, 7.48; P<0.001). Finally, in unadjusted models, participants with HIPR >4, had over 4.23-times higher CnBP3 than those with HIPR <1 (95%CI=3.10, 5.78; P<0.001) and this association remained significant after adjustment; participants with HIPR >4 had 2.06-times higher CnBP-3 than those with HIPR <1 (95%CI=1.53, 2.77; P<0.001). **Conclusion:** We found a statistically significant association between HIPR categories and CnBP3. This association may allow the study of the most effective strategies to reduce BP3 exposure and protect the health of high-exposure populations.

The Effects of Toll-Like Receptor-4 Stimulation on B Cell Anergy

Evelyn Schendler, Shelby Ma, Evan Smith, Robin Bai, Elena Galkina PhD

Introduction: Atherosclerosis is a lipid-driven inflammatory disease caused by plaque buildup in blood vessel linings. Both innate and adaptive immune responses are involved in the development and progression of atherosclerosis. Previously, atheroprotective and pro-atherogenic functions of B cell subsets have been observed. Anergy, a state of unresponsiveness to antigens, is responsible for silencing many self-reactive B cells to prevent autoimmune-associated immune responses. Currently, it is not known how B cell anergy is affected in atherosclerosis. To date, it is also not quite clear to what extent anergic B cells can respond to stimuli other than the BCR engagement. It has been recently shown that TLR4 engagement induces B1a cell differentiation into innate response activator (IRA) B cells that play a pro-atherogenic role. The goal of this

study was to test to what extent anergic B cells can respond to TLR4 activation using a model of IRA- B cell differentiation under homeostatic conditions. **Methods:** Ars/A1 transgenic model, where anergic B cells express a dual-reactive antigen receptor that binds, in addition to a self-antigen, the hapten p-azophenylarsonate (Ars) and control C57BL/6 mice were used in this study. Additionally, as an additional BCR-transgenic mouse model (not anergic B cells), we used the MD4 transgenic mice that express a BCR that recognize hen egg lysozyme (HEL). Mice were administered 10 µg of LPS daily by intraperitoneal injection (i.p.) for 4 days. Controls received PBS alone. After 4 days of injections, the mice were euthanized and immune cells from the peritoneum and spleen were isolated, stained with Abs for B1 and IRA B cells and analyzed by Flow Cytometry. **Results:** Our data demonstrates that i.p. injection of LPS induced a significant differentiation of IRA+ B cells in the spleen of C57BL/6 mice. Interestingly, LPS injection into MD4 transgenic mice induced similar levels of IRA+ B cells in the MD4-transgenic mice, suggesting that MD4 B cells respond normally to TLR4 stimulation. In contrast, i.p. injection of LPS into ARS/A1 recipients did not induce generation of IRA+ B cells in the spleen or peritoneal cavity of the ARS/A1 mice. **Conclusion:** Several reports suggested that ARS/ A1 anergic B cells respond normally to a TLR stimulation in vitro. Our experiments further tested this important question using in vivo assays of the generation of IRA+ B cells. The obtained results demonstrate that peritoneal ARS/A1 B cells do not respond to TLR4 stimulation in vivo and do not develop IRA+B cells. Further studies will be focused on testing effects of TLR stimulations on antibody production and release of pro-inflammatory cytokines in the in vivo assays.

Anergic B-Cells in Atherosclerosis

Evan Smith, Cassandra Kirk, Shelby Ma, Alina Moriarty, Tayab Waseem, Marion Mussbacher, and Elena Galkina

Background: Atherosclerosis is a disease of large/medium sized vessels characterized by accumulation of cholesterol-rich LDL within the vessel, chronic immune response, and activation of vascular cells, leading to formation of plaques and necrotic cores. While not a classical autoimmune disease, previous studies have shown the role of chronic inflammation that persists during progression of atherosclerosis. Anergy is characterized as a state of unresponsiveness to self-antigens and occurs via intrinsic biochemical and gene-expression changes. While anergy break plays a critical role in autoimmune diseases, evidence suggests an existence of various forms of anergic autoreactive B-cells that may not necessarily induce classical autoimmune pathologies, but rather support low grade chronic inflammation that is driven by different mechanisms. This study seeks to understand the extent to which atherosclerosis changes the responsiveness of anergic B-cells. **Methods:** We used the p-azophenylarsonate (ARS)-specific mouse model (ARS/A1) which encodes a dual-reactive the B-cell receptor (BCR) that binds to ARS and self-antigens. These mice have only anergic B-cells in circulation and can serve an excellent model to study pathogen mimicry of self-antigens in atherosclerosis. We also used MD4 transgenic mice in which BCR only recognizes hen-egg lysosome and thus unable to respond to any other stimuli. C57BL/6, ARS/A1, and MD4 mice were injected with an adenovirus vector containing PCSK9 to induce hyperlipidemia. After high fat diet (HFD) feeding for 12 weeks, plaque burden and stability in collected aortas and hearts were analyzed using ImageJ. The number of peripheral blood anergic B-cells and their functions were also examined in healthy and atherosclerotic *ApoE*^{-/-} mice.

Results: Histological analysis of en face Oil Red O-stained aortas showed MD4 had no significant differences compared to control C57BL/6 mice. In contrast, ARS/A1 mice had a significant overall higher atherosclerotic lesion burden throughout the aorta of anergic ARS/A1 mice vs control C57BL/6 mice. Additionally, ARS/A1 mice had a significantly higher aortic lesion burden compared to age- and diet-matched MD4 mice. Histological analysis of picrosirius red-stained aortic valves showed an increase in red birefringence indicating an increase in type I collagen and plaque stability in ARS/A1 mice compared to C57BL/6 mice. **Conclusions:** The lack of differences in atheroprogession in MD4 vs control suggests that the BCR may not play a critical role in the low-grade chronic inflammation that is seen in atherosclerosis. Alternatively, the abolishment of BCR-signaling in both anti-atherogenic and pro-atherogenic B-cell subsets results in minimal effects in the regulation of plaque burden. The mechanism that drives a higher lesion development in ARS/A1 mice with anergic B-cells compared to BCR-transgenic MD4 mice or C57BL/6 is unclear but could potentially be due to the increased low-level activation of anergic B-cells in the ARS/A1 mice. Further work is needed to examine effects by which atherosclerosis may change the responsiveness of anergic B-cells and identify specific mechanisms responsible for accelerated plaque burden in ARS/A1 mice.

Patterns and Correlates of Depression, Anxiety and Coping Strategies among Asian Americans and Pacific Islanders in Eastern Virginia During the COVID-19 Pandemic

Pavan Suryadevara; Jaime Luis D. Almirante; Caitlyn F. Ling; Spencer G. Chee, Tracy Dien, B.S.; and Cynthia C. Romero; and Hongyun “Tracy” Fu

Background: Although the health impacts of racial discrimination for immigrants has been widely acknowledged in major US cities, little is known about the effect of the anti-Asian racism on Asian Americans and Pacific Islanders (AAPI) during the COVID-19 pandemic. This study examined the patterns and correlates of depression, anxiety, and coping strategies, using mixed-methods data collected in Eastern Virginia in April/August 2022. **Methods:** We analyzed data from online surveys (N=1,795) and semi-structured in-depth interviews (N=48) collected among AAPI recruited via social media channels and in-person events using three sampling criteria: 1) decedents of Asian and Pacific Islanders; 2) ages 18-85 years, and 3) residents of Hampton Roads and the Eastern Shore. Descriptive statistics and multivariable regressions were performed, using survey data. Thematic analysis was performed to identify key themes, guided by the grounded theory and the Creswell method. **Results:** Around 8% of AAPI ever had a diagnosis of mental health problems, 16% had symptoms of anxiety, and 14% had depression, and 40% experienced more than 10 S&D (stigma and discrimination) items. Adjusting for confounding factors, receiving a mental health diagnosis was associated with experiencing high levels of S&D (AOR:1.52, 95% CI:1.01-1.52), being females (AOR:1.66; 95% CI:1.05-2.64); having private insurance (AOR:0.49; 95% CI:0.24-0.98) 1.01: 2.35), receiving college education (AOR:0.47; 95% CI:0.27-0.85), and higher incomes (AOR:0.54; 95% CI:0.29-0.99). Furthermore, having symptoms of anxiety was associated with being female (AOR:1.41; 95% CI:1.05-1.89) and U.S born (AOR:4.23; 95% CI:2.55-7.02); and having religious belief (AOR:1.72; 95% CI:1.22-2.44). Common stress coping strategies included talking with friends/families (44%), engaging in a game/sport (31.2%), and increased screen time (TV program or social media). Qualitative interviews revealed higher mental health risks among AAPI who worked in blue-collar professions and had an English language barrier and significant buffering effects of receiving strong family/community support. **Conclusions:** Findings revealed high rates of depression/anxiety among AAPI and elevated mental health risk among AAPIs who were socially and economically disadvantaged and who had higher exposure to anti-Asian S&D. Findings highlighted highlighting the needs for targeted interventions to combat racism against AAPI and improving mental health among AAPIs living in smaller cities in the U.S.

Attendance of the Postpartum Visit: What are the Barriers?

Madison Wagner, M2, Asma Azam, M4, Natasha Sriraman, MD MPH, Takemia Cornegy-Hawks

Background: The postpartum period is an important period to diagnose and treat both physical and mental health conditions. The initial postpartum appointment is vital to diagnose postpartum mood and anxiety disorders (PMADs) as they are the most common obstetric complication, with maternal suicide being the number one cause of death within the first year postpartum. However, due to insurance guidelines, women are only seen 1-2 times postpartum, with most not being seen until 6 weeks after delivery. Lack of postpartum follow up is dangerous, especially for women of color, because it can lead to higher rates of untreated mental and physical health issues, leading to higher rates of maternal morbidity and mortality. **Methods:** We surveyed moms when they brought their baby into the General Academic Pediatrics Clinic at CHKD for well child checks from 2-6 months of age. We collected information about their birthing experience and barriers to attendance of postpartum visits. **Results:** Forty percent of mothers did not attend a postpartum visit (71.4% Black/AA, 35.7% Hispanic). Over 21% of mothers did not have a postpartum visit scheduled before they left the hospital after delivery. Reasons for not attending the initial postpartum visits included: postpartum visit was not important (36%), no active concerns (29%), forgot to attend appointment (21%), work/school schedule (21%), lack of insurance coverage (14%). **Discussion:** When mothers do not attend their postpartum visit, it is a missed opportunity to screen, diagnose and address health issues. Topics such as contraception, breastfeeding, and PMADs can be addressed. Education on these topics has been shown to improve birth spacing and reduce risk of preterm birth and birthing complications, which disproportionately affect women of color. Having systems in place where barriers are reduced for mothers to receive the postpartum care they need is essential in reducing maternal morbidity and mortality.

Comparing Patient Response to Biologic Therapies Used in Moderate to Severe Difficult to Control Pediatric Asthma

Trenton Wetsel, BS, Philip Mendez, DO, MPH, William Tredwell, MD, Sarah Abernathy, BS, Maripaz Morales, MD, FAAP, Lindsey Moore, DO

Introduction: Among pediatric patients with moderate to severe persistent asthma, a subset of children continues experiencing poorly controlled asthma symptoms despite receiving standard treatment. Such patients may be eligible to receive biologic therapies for add-on asthma control; however, research on their real-world use and outcomes in the pediatric population is lacking. This study aims to assess pediatric patient responses to biologic therapy, reasons for discontinuing therapy, and changes in symptom control for patients who switched biologics. **Methods:** Retrospective chart review of pediatric patients on omalizumab, mepolizumab, and dupilumab for moderate or severe persistent asthma was performed. Spirometry (FEV1) and quality of life (ACT) measures, as well as the number of ED visits, urgent care visits, hospitalizations, asthma exacerbations, and oral corticosteroids used were collected from 12 months before to 12 months after the start of biologic therapy. **Results:** 115 patients were included in the study, with the majority (91%) diagnosed with severe asthma. Among participants with severe asthma, FEV1 measures and ACT scores increased significantly by 6 months post-therapy from baseline ($p=0.014$ and $p=0.036$, respectively). Additionally, the number of asthma exacerbations, ED visits, and oral steroids received significantly decreased from 12 months prior to 12 months after starting therapy among severe asthmatics ($p<0.001$). Among those with moderate asthma, there was no significant difference in FEV1 measures; ACT scores; or the number of exacerbations, ED visits, or oral steroids received before starting therapy and 12 months post-therapy (all $p>0.05$). There was no significant difference in the number of urgent care visits or hospitalizations overtime among moderate (all $p>0.05$) or severe (all $p>0.05$) asthmatics. Of the 115 patients enrolled, 30 patients (26.1%) stopped after at least one year of treatment for varying reasons (adverse effects, transportation or cost barriers, lack of improvement). **Conclusion:** Biologic therapy shows benefits in pediatric patients with severe asthma, demonstrating improvements in spirometry and quality of life and reductions in ED visits, asthma exacerbations, and oral steroid use within a year of starting therapy.

Impact of a Culturally Sensitive, AI Powered, Personalized Nutrition Platform in Improving Metabolic Health to Reduce the Gap in Health Disparities in the Hampton Roads Community.

Meagan N Wilkins, Jordan Pettaway MS, Henri Parson PhD, Elias Siraj MD and Carolina Casellini MD.

Background: Obesity is a global health problem with 42% prevalence in the US, leading to multiple comorbidities such as heart disease and diabetes. It disproportionately affects African Americans (AA) who have the highest prevalence of obesity (49.6%). Lifestyle interventions are key to manage obesity and use of smartphone apps to deliver these have gained popularity. However, the acceptance and adherence of these programs in minority groups are less known. The aim of this study is to assess the efficacy of a culturally sensitive smartphone-based lifestyle intervention in local AA communities, in comparison with standard of care. Here we are presenting results of recruitment efforts and baseline characteristics of the study population.

Methods: Pilot, single-center, randomized, open-label, 20-week lifestyle intervention vs standard of care study. Efficacy assessments at baseline and 12 weeks included: weight, BMI, percent body fat (Bioimpedance), blood pressure, HbA1C, lipid profiles, and quality of life. All participants underwent group cooking demo kickoff sessions at baseline and were randomized in a 1:1 allocation ratio. As part of recruitment plan, widespread community outreach events in Hampton Roads were held to assess blood pressure, and glycated hemoglobin (HbA1c). **Results:** A total of 163 people participated in community screening events. Mean age of individuals was 50.77 years (95% CI: 47.77-53.77), 78% were female and 60% were AA. AA were significantly more obese and had higher prevalence of hypertension, pre-diabetes and diabetes than non-African Americans. Of these, 49 subjects were recruited and screened for the study, and 43 were randomized into control or intervention groups. Mean age was 59.4 years (56.04-62.7), 85% were female. Mean BMI was 34.4% (32.9-35.9), waist circumference was 47.26 inches (41.3-53.2) and HbA1c was 6.1% (5.9-6.3). Intervention and control groups were well balanced for all demographic characteristics, BMI, HbA1C and quality of life measures except for triglyceride level which were significantly higher on the intervention group (111.6 ± 9.8 vs 79.8 ± 9.9 , $p=0.028$). To date, 10 subjects has completed the study. **Conclusion:** Recruitment efforts revealed that AA in the Hampton Roads area have higher HbA1c levels blood pressure and prediabetes or diabetes consistent with the previous national findings. Stratified randomization resulted in a good balance between intervention vs standard of care. Although the results are of the baseline, the goal is to compare the effectiveness of the intervention.

Standardization of Prenatal Care Guidelines

Alexandria Woods, Renee Morales MD, Gloria Too MD

Background: Medical care is continuously changing as we have an increased knowledge base. As these changes occur, they need to be implemented across the whole department to give patients the best form of care. Currently, Eastern Virginia Medical School (EVMS) Ob-Gyn department protocols and evidence-based recommendations are poorly accessible, and some are out of date. **Methods:** Clinical American College of Obstetrics and Gynecology (ACOG), the Royal College of Obstetrics and Gynecology (RCOG) guidelines and ambulatory EVMS guidelines were sourced and organized. Microsoft word was used to compile the information in one concise document using the Michigan Medicine Prenatal Care Guidelines as a model. The information will be placed onto Blackboard to be used as the database to access the updated guidelines. **Results:** Comprehensive, evidence-based ambulatory guidelines were produced to standardize OB/GYN outpatient prenatal care. **Conclusion:** The resulting document will improve the organization and standardization of the EVMS and ACOG guidelines. The document will make it easier to access relevant information reliably and efficiently.

A Risk-Tailored Approach to Connecting Youth with Vaping Prevention and Cessation Resources

Jeik Yoon MS, Hannah Savage BS, Ann Edwards MS, Kelli England PhD, Amy Paulson MPH, Natasha Sriraman MD, Noah Meester BS, Paul Harrell PhD

Introduction: Previous studies have revealed that youth-serving stakeholders, including health providers, educators, and parents, face challenges in possessing the necessary knowledge and resources to effectively address adolescents who are either vulnerable to or currently involved in e-cigarette usage. Despite the existence of evidence-based resources, their utilization remains restricted. The objective of this qualitative study is to interview youth-serving stakeholders, and through thematic analysis coding, collect and evaluate the appropriateness of various nicotine prevention and cessation resources. **Methods:** Stakeholder interviews (N=25) were conducted with youth-serving professionals (e.g., public middle and high school guidance counselors, health and PE teachers, nurses, administrative staff) working in the Hampton Roads community to understand specific concerns, barriers, and thoughts on the appropriateness of nicotine prevention and/or cessation resources using 3 example vignettes containing individuals of differing risk classifications. Transcripts from stakeholder interviews were imported into NVIVO 12 for qualitative analysis, and major themes were identified using a thematic analysis framework. Subsequently, an inductive coding process identified common codes and subthemes. **Results:** Most participants (24 stakeholders) identified barriers and had concerns about the prevention/cessation resources contained within the clinical vignettes. Most commonly, participants (22 stakeholders) cited a lack of incentivization to complete nicotine prevention/cessation resources among adolescents as a major concern. We identified 9 specific barriers and concerns including a lack of access to technology (e.g., lack of cellular device access for nicotine cessation program that messages participants with information about vaping cessation and social support), the need for stronger cessation resources (e.g., text messaging cessation program coupled with in-person counseling), social and peer influence, and family and parental involvement. In addition to these findings, stakeholder interviews revealed the lack of nicotine prevention/cessation resources that currently exist for adolescents. Participants highlighted current school policy disciplinary nature (most commonly school suspension) for adolescents caught vaping. **Conclusion:** Our findings reaffirm the need to identify and develop tailored resources to assist youth-serving professionals in better supporting teens with differing prevention/cessation needs. Stakeholder input identified appropriate resources to match with different risk tiers, as well as appropriate implementation outcomes that ultimately decrease the use of e-cigarettes in adolescents.

Promoting Healthy Family Behaviors in Pediatric Primary Care: Little Steps 4 Health, a Community CQI Project

Nadia Zia BS, Aishwarya Rajendran MS, Amy Paulson MPH.

Introduction: More than 14.4 million children in the United States are affected by obesity. This problem partially arises from the gap in care between follow-up appointments between families and providers, as parents are unaware of how to start lifestyle changes. LittleSteps4Health (LS4H) is a local solution to this gap in care, as it is an early stage 1 obesity intervention program to provide parents guidance on how to make these changes. The aim of this project is to determine if LS4H is a feasible program to successfully change behavior among families. **Methods:** Families in LS4H independently completed 1 module per week for 6

weeks that focused on movement, nutrition, or a new healthy behavior. Individual interviews were conducted weekly to assess family acceptance of the program and materials, impact on knowledge, changes in awareness or behaviors, and collect feedback on specific modules. Qualitative data analysis on 84 family responses were recorded using Qualtrics and themed into categories using spreadsheet software. Themes and patterns were identified from interviewer notes with multiple coders to ensure inter-coder reliability.

Results: Of 66 families registered, 25 families completed at least one module including 13 families who completed all 6 or are still active. Major themes included changes in knowledge, awareness, and behavior for each module topic. The majority of families reported that they had met their “little step” module goal, but some acknowledged room for continued improvement. Across all 6 modules, 100% of families reported continuing the respective module behavioral goal as a new habit moving forward. Families also reported enjoying and engaging in the family activities guided by the modules. **Conclusion:** The results of this program demonstrated that the initial feasibility pilot was well received by families and majority were successfully able to change behaviors related to small goals. Ultimately, these small steps towards behavior change can gradually progress towards childhood weight loss. Future phases include collecting feedback on subsequent modules, assessing physician acceptability, and performing an efficacy/health outcome trial. If successful, the LS4H program can be integrated into the electronic medical record for physicians to provide families guidance in between follow-up care.