

Summary Sheet of Poster Presentations

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Addiction

Poster 18

Implementation of an Opioid Withdrawal Clinical Pathway on an inpatient medical service

Kimberly D. Williams, MPH; Beverly Wilson, MS; Jo Melson, MSN, RN, FNP-BC; Erin Booker, LPC; Sherry Hausman, MPH, CHES; Jeffrey Reitz, PharmD, MPH, BCPS, BCOP; Claudine Jurkovitz, MD, MPH; Terry Horton, MD

Abstract: Background: Opioid-related inpatient hospital stays are increasing at alarming rates. Unidentified and/or poorly treated opioid withdrawal may be associated with inpatients leaving against medical advice (AMA) and increased health care utilization. Objective: To better understand the prevalence of this issue while improving clinical outcomes, we developed and implemented an Opioid Withdrawal Clinical Pathway to screen and treat withdrawal in medical service inpatients. Methods: The Pathway is comprised of a screening instrument administered to all admitted medical patients to identify withdrawal risk; use of the Clinical Opiate Withdrawal Scale (COWS) to monitor withdrawal symptoms/severity; and a Suboxone-based treatment protocol. Pathway implementation involved programming changes to the EHR and physician order entry systems; provider education about the pathway and withdrawal; ongoing addiction medicine specialist consultation. Outcomes measured included withdrawal screening rates, identification of withdrawal risk, Suboxone prescriptions, leaving AMA, and hospital readmissions. Results: Between December 2016 and September 2017, 70% (30,084/42,952) of admitted patients were screened. Of those, 3% (990/30,084) were identified as at risk for withdrawal and 23% (262/990) as in active withdrawal (COWS score \geq 8). Of patients discharged with ICD10 opioid withdrawal diagnosis, 46% (90/196) received Suboxone; 12% (23/196) left the hospital AMA; 3% (12/196) and 6% (12/196) readmitted within seven and 30 days, respectively. Conclusions/Relevance: Our study demonstrates a process for successfully implementing a pathway to screen and treat medical inpatients for withdrawal. Lessons learned include the need to continuously assess fidelity to the process by monitoring screening rate, and the importance of a robust/automated continuous training for new staff.

Cancer

Poster 2

Investigating the Tumor Microenvironment of Triple Negative Breast Cancer

Nicole J. Flynn, Ugochukwu Amadi, Rajasekharan Somasundaram, Jennifer Sims-Mourtada

Abstract: Triple negative breast cancer (TNBC) is an aggressive form of breast cancer more likely to affect women of African American descent. African American women who develop TNBC also tend to have worse outcomes than women of other racial demographics. Currently, there is a need for improved, targeted therapy for TNBC. A hallmark of TNBC is high levels of infiltrating lymphocytes. Although high levels of infiltrating B lymphocytes are present in TNBC, their role in progression of this disease is unclear. IgG4 is a subclass of the IgG antibody and is the least abundant in healthy human serum, but is increased in cases of chronic inflammation. As IgG4 expressing B cells have been shown to be associated with poor outcomes in other aggressive cancers such melanoma, glioblastoma and pancreatic cancer, we sought to determine the expression of IgG4 in TNBC. We performed immunohistological staining of IgG4 on paraffin-embedded tissue microarrays from 75 treatment-naive TNBC specimens obtained from women who underwent surgical resection of their tumors at the Helen F Graham Cancer Center and Research Institute from 2006-2007. We found that 69% of TNBC cases contain IgG4+ cell infiltration. Moreover, the presence of IgG4+ cells is significantly correlated with poorer progression free (p<0.0003) and overall survival (p<0.0001) as determined by a Log-rank (Mantel-Cox) test. These findings indicate the presence of an immunosuppressive B cell population. Further investigation may lead to development of diagnostic tools or targeted therapy for the improvement of TNBC outcomes across all demographic backgrounds.

Poster 5

Informed Decision Making in Lung Cancer Screening

Heather Bittner Fagan, MD, MPH; Ronald Myers, PhD; Nicole Harrington, BS; Anett Petrich, RN, MSN; Claudine Jurkovitz, MD, MPH; Mauren Wood, LPN; Zugui Zhang, PhD; Nora Katurakes, RN, MSN, OCN; Cynthia Griffin, MS, RN, CPHQ, CCM

Abstract: Background: Lung cancer is the leading cancer killer in the United States. Based on the National Lung cancer Screening trial (NLST), the United States Preventive Task Force recommended use of low dose CT scans (LDCT) to screen for lung cancer in high risk individuals; high risk individuals are defined as people between the ages of 55 and 80 years old, with a 30 pack year history of smoking, who either currently smoke or quit less than 15 years ago. The Center for Medicare and Medicaid Services (CMS) includes lung cancer screening as a benefit but requires that 'a beneficiary must receive a written order for LDCT lung cancer screening during a lung cancer screening counseling and shared decision making visit.' Objective: To test the feasibility of a telephone-delivered decision intervention to facilitate shared decision making about lung cancer screening among primary care patients who were either current or former smokers. Community Engagement: Prior to implementation we conducted key informant interviews with patients describing the intervention. We also engaged the practice physicians in key decisions such as the method to communicate results and preferences related to referral to the lung health screening program. Methods: A research assistant contacted patients by telephone to assess eligibility for lung cancer screening. Eligible patients were consented and completed a baseline questionnaire. A trained decision counselor contacted participants by telephone and completed a decision counseling session using an online software application (Decision Counseling Program© (DCP)) to clarify preference for undergoing a LDCT screening. After 30 days, a research assistant contacted the enrolled participants to complete a post questionnaire and after 90 days, the research assistant implemented a chart audit of the enrolled participant's medical records to confirm screening status. Results: From a pool of 829 current and former smokers, we were able to enroll 28 participants, 19 current smokers and 9 former smokers. Participants who completed the DCP were more likely to complete LDCT screening ($p=0.03$). Smoking status was a significant indicator of DCP completion with former smokers being more likely to complete than current smokers ($p=0.02$). Conclusions: Case-finding, identifying eligible participants for lung cancer screening from primary care EMR data is challenging especially for former smokers. More efficient methods are needed to identify patients who are eligible for lung cancer screening. Using the DCP appears to be feasible for decision making in LDCT screening and promotes lung cancer screening but more research is needed to assess the impact of the DCP on screening use.

Cardiovascular

Poster 4

Cognitive screening in an outpatient heart failure clinic: Preliminary data

Alice V. Ely, Ph.D.; Kimberly Williams, MPH; Courtney Condiracci

Abstract: Background: Heart failure (HF) is a chronic condition and one of the leading causes of hospitalization and readmission. Research suggests that cognitive impairment is a prevalent characteristic of HF, and may contribute to early readmission as it is frequently unrecognized or underreported. Objective: To assess the cognitive function of HF patients in the outpatient setting. Methods: Patients completed the Montreal Cognitive Assessment (MoCA) and provided demographic and medical information during a routine outpatient visit to the Heart Failure Specialty Clinic at Christiana Hospital. Results: Data collection is underway. Analysis of preliminary data revealed that 72% (13/18) patients screened positively for possible cognitive impairment, with 44% (8/18) falling below recommended thresholds for HF patients. Controlling for age, left ventricle ejection fraction (EF%) was significantly associated with MoCA score ($F = 4.67$, $p = 0.047$) indicating that the lower a patient's EF%, the worse they scored on the MoCA. Conclusions & Relevance: Our preliminary findings suggest that cognitive impairment may be prevalent in outpatient HF patients, and that cognitive difficulties may be worse in those with more severe HF, as measured by a low EF%. If these trends persist with a larger sample size, our results will demonstrate the need for regular cognitive screening in the outpatient setting to facilitate early intervention by coordinated care teams that will support self-care management and decrease potential hospital admissions, thus providing a significant benefit to HF patients and their caregivers.

Poster 22

Family psychosocial care model for congenital heart disease: A crowdsourced study

Erica Sood, PhD, Sinai Zyblewski, MD, Stacey Lihn, Trent Neely, MEd, Cheryl Brosig, PhD, Abigail Demianczyk, PhD, Elizabeth Lucey Boyle, BSN, Conrad Williams, MD, Jena Tanem, MS, Emily Delaplane, MSW, Jennifer Christofferson, MS, Amy Randall, MS, Melanie Toth, Anne Kazak, PhD, ABPP

Abstract: Background: Following diagnosis of and surgical intervention for congenital heart disease (CHD), one-third of parents report post-traumatic stress, which further impact the developmental/behavioral trajectories for these vulnerable infants. Objective: This study applied online crowdsourcing methods to collaborate with stakeholders to develop a family-based psychosocial care model for CHD. Engagement Plan: We formed a stakeholder advisory council (SAC) consisting of four community stakeholders (parent leaders from three national CHD organizations) and six clinician stakeholders (interdisciplinary healthcare providers across four cardiac centers). The SAC meets by web-conference twice monthly. Decisions regarding study design, methodology, recruitment and retention are made collaboratively. Stakeholders partner in the interpretation of results. Methods: 'Crowds' of CHD parents (purposively selected for diversity) and community leaders were recruited through electronic word-of-mouth and social media. Queries on best practices, barriers, and opportunities in psychosocial care were posted to each crowd (37 to parents, 32 to leaders) over six months via Yammer social networking site. Queries were structured within nine domains (prevention/intervention of mental health problems, peer-to-peer support, etc.). Responses were coded and analyzed using qualitative methods to inform development of a psychosocial care model. Results: Parent participants (N = 106) were diverse with regard to gender (30% male), socioeconomic status (42% high school educated), race/ethnicity (17% minority), and US region. CHD leader participants (N = 16) represented five CHD community organizations. Consistent themes emerged across all nine domains. Parents desired enhanced preparation for the family impact of CHD, formalized processes for peer-to-peer connections, encouragement to partner in their child's hospital care, and increased mental health supports. CHD community leaders desired training/education on parent mental health issues and greater collaboration between CHD organizations, healthcare providers, and mental health providers to optimally support CHD parents. Conclusions/Relevance: A psychosocial care model for CHD that targets parent-reported needs and is acceptable/feasible to stakeholders could prevent or reduce parental traumatic stress and improve outcomes for these vulnerable infants. Through its community engaged methodology, this study demonstrates the importance of partnering with parents to improve care and outcomes for children with CHD and their families. Preliminary results have been disseminated to both academic and community audiences.

Community Health

Poster 6

Development of the Community Health Workforce in Delaware: Implementation of a Sustainable CHW Training and Certification Program

Carla P. Aponte, MS; Nicole A. Harrington, BS; Kathy Cannatelli, MS; Christopher Moore, BS, LSSGB

Abstract: The State of Delaware, through ongoing transformation work supported by the CMMI State Innovation Models and the Delaware Center for Health Innovation, has identified the creation of a sustainable Community Health Worker (CHW) training, certification, and workforce development as a priority. As such, Christiana Care Health System has made a commitment to this work by leading an effort to formalize, demonstrate and validate the CHW model through development and implementation of CHW training. Objectives for the CHW project include developing and implementing a CHW curriculum in alignment with the state recommendations; evaluating the curriculum's impact through improved self-efficacy, knowledge and confidence of participants; and, illustration of the impact of CHWs in systems across Delaware. A seven-session core competency training with practical application components were created and applied and follow-up education modules specific to community-defined topics will be shared. A pre/post-assessment has been conducted to measure content area knowledge and, community-engaged self-efficacy. Feedback on course content and instructor methods, along with qualitative analysis of common themes will be collected. Additionally, annual meetings with policymakers, community members, and system leaders will be assembled to get feedback on the impact of the CHWs in their community. Data will be presented on the outcomes of the curriculum on CHWs as well as their work for community members and organizations across the state. This presentation will illustrate the impact of this work so far, along with the value of meaningful partnerships and collaborations between community members, CHWs, and health delivery systems to improve population health.

Poster 10

Delaware Medical Orders for Scope of Treatment Initiative

Timothy E. Gibbs, MPH Kate Smith, MD, MPH John Goodill, MD Susan DelPescio, Esq. Kathleen McNicholas, MD, JD

Abstract: The Delaware Medical Orders for Scope of Treatment (DMOST) program is designed to improve the quality of care people receive at the end of life by translating patient/resident goals and preferences into medical orders. The DMOST form is based on communication between the patient/resident, Health Care Agent or other designated decision-maker and health care professionals that ensures informed medical decision-making. Honoring patient preferences is a critical element in providing quality end-of-life care. To enable physicians and other health care providers to discuss and convey a patient's wishes regarding cardiopulmonary resuscitation (CPR) and life-sustaining treatment, this coalition is working to create statute and regulations that can be used statewide by health care providers and facilities as the legal equivalent of an inpatient Do Not Resuscitate (DNR) form. DMOST provides a single document that functions as an actionable medical order and transitions with a patient through all health care settings in order that their wishes for life-sustaining treatment and CPR will be clearly indicated. The DMOST statute, House Bill 64 (sponsored by Representative Michael Barbieri and co-sponsored by Senator Bethany Hall-Long), was passed on May 7, 2015 and signed into law by Governor Jack Markell later that month on May 28, 2015. DHSS has tasked the Delaware Academy of Medicine (DAM) with developing and directing the implementation of the DMOST program in Delaware. Aspects of this program include: education of the public and providers; training of providers; a monitoring program and measurement of effect and impact of the form's use.

Poster 7

Intergenerational associations between parent's adverse childhood experiences and offspring child health outcomes

Pachter, LM, Wang, X, Boyle-Steed, KH, Le-Scherban, F

Abstract: Background: Adverse Childhood Experiences (ACEs) robustly predict future morbidity and mortality. Research is just beginning to investigate intergenerational effects. We hypothesize there are intergenerational associations between parent ACE exposure and worse child health, health behaviors, and health care access and utilization. Methods: We linked data from two population-based cross-sectional telephone surveys in Philadelphia, PA, that asked parents about their past exposure to ACEs (2012-2013 Philadelphia ACE Survey) and their child's health (2012 Southeastern Pennsylvania Household Health Survey). Participants were 350 parent-child dyads. Logistic regression models adjusted for parent and child characteristics. Parent ACE score summarized indicators of parents' childhood adversity. Child health outcomes were poor overall health status, asthma diagnosis, obesity, low fruit and vegetable consumption, any soda consumption, inadequate physical activity, excessive television watching, no health insurance, no usual source of health care, and no dental exam in past 12 months. Results: Of adult participants, 80% were female and 45% were non-Latino black. 85% of parents had experienced ≥ 1 ACE and 18% had experienced ≥ 6 ACEs. In adjusted models, each additional parent ACE was associated with higher odds of poor child overall health status (OR 1.19, 95% CI 1.07-1.32), asthma (OR 1.17, 1.05-1.30), and excessive television watching (OR 1.16, 1.05-1.28). Conclusions: Our results suggest that the full scope of the health effects of ACEs is not limited to the exposed individual, and point to the need for a two-generation approach to addressing the social determinants of child health.

Poster 20

Partnership for Research: Engaging Stakeholders to Identify Patient-Centered Research Questions

Holly Archinal, BA; Alexa Meinhardt, BA; Heather Bittner-Fagan, MD, MPH; Nancy Scott, MS; Shay Scott, MA; Steven Scott; William Murray; Joanne Smith, RN; Timothy Gibbs, MPH, NPMc; Kate Smith, MD, MPH; Nicole Harrington, BS; Sarahfaye Dolman, MPH; Claudine Jurkovitz, MD, MPH

Abstract: Research Objective: To identify patient-centered research questions and outcomes related to chronic Kidney Disease (CKD), we established a community partnership including patients, health care providers and researchers with a goal of learning and working together to define an impactful research agenda. Study Design: We formed a community-academic workgroup comprised of clinicians, CKD patients, and researchers focused on building a consensus about important questions and outcomes. Together, we organized a conference in 2016 with moderated workshops where approximately 80 stakeholders and community members proposed a total of 122 questions. Those were categorized into themes and their frequency analyzed. From our community-academic workgroup, a core team of 9 stakeholders participated in a 6-week research training course specifically designed to foster collaboration between academic and

community investigators. Through this course, we clarified our vision, mission, competencies and expectations. Didactic education advanced our knowledge in community-based participatory research, protection of human subjects, quantitative and qualitative analysis, and evaluation science. Following the research training, a series on monthly forum discussions was organized to enhance our understanding of patient-centered outcomes research, comparative effectiveness and security of data. Finally, we organized a second conference in 2017, based upon themes that were prioritized during the forum discussions. Principal Findings: From the 122 questions identified at the initial 2016 conference, 19 themes were identified, the top three being CKD education, communication/care coordination, and medication/treatment concerns. Using the top themes, our community-academic workgroup built and disseminated a questionnaire asking patients to rank 20 research questions. We collected 127 questionnaires but only 66 were completed appropriately and can be used for analysis. Conclusions: We were able to establish a network of stakeholders who are prepared to facilitate community engagement in research. Our efforts have identified a list of priority questions and outcomes, which will be a strong foundation for any patient-centered outcomes research, such as that funded by the Patient-Centered Outcomes Research Institute. Members of the community-academic workgroup were active participants in learning, community outreach, and study design and formed essential relationships for a longitudinal research agenda that will be salient and impactful to patients with CKD and their caregivers.

Poster 23

Promoting Health and Independence among Adults with Intellectual Disability Through Guided Exercise

Iva Obrusnikova, PhD Haley M. Novak, BS Albert R. Cavalier, PhD

Abstract: Persons with intellectual disabilities (ID) have significantly lower levels of physical fitness and physical activity (PA) (Barnes et al., 2013). This can affect their physical functioning and put them at a higher risk for obesity (Hsieh et al., 2014). Carefully structured progressive resistance training (PRT) has been shown to improve muscle strength and functional skills among adults with ID (Shields et al., 2008), which are both important for promoting PA. However, data on sustainability of the PRT benefits after withdrawal of the program are missing. Using the principles of self-efficacy (Bandura & Simon, 1977), we proposed to develop a systematic PRT program titled PRT-POWER (Progressive Resistance Training for EmPOWERment) that would not only promote participant's health outcomes but also their independence and personal empowerment (Zimmerman, 2000). The objective of the first phase of the PRT-POWER development was to create and validate the PRT-POWER Familiarization program for this population that promotes independent performance of commonly used PRT tasks. **Methods:** The program incorporates two technology-based instructional strategies: (a) iPad visual activity schedules and (b) systematic prompting that incorporates iPad video prompts to ensure consistency, independence, and visual feedback. The effectiveness of the strategies was tested in three separate single-subject studies collectively involving six adults with moderate ID and three adults with mild ID. **Results:** The data in the three studies demonstrated that, regardless of the severity of ID or the exercise setting, within only six and eight sessions, the participants with mild and moderate ID, respectively, were capable of mastering at least 90% of steps of five muscle strengthening exercises. Their performance was maintained two weeks after the intervention and was generalized into a different fitness setting. In all three studies, the program was considered very effective (effect sizes of .80-1.00) (Scruggs et al., 1987). **Conclusions/Relevance:** In the second phase of the development, the team implemented reinforcement strategies (e.g., goal setting) in the PRT-POWER and is testing the program's effectiveness on health outcomes, PA, independence, and personal empowerment in a clinical trial with 42 adults with ID. This project has allowed us to create community-research infrastructure in preparation for large-scale multi-site research.

Poster 24

Delaware Plan4Health

David Edgell, AICP; Delaware Office of State Planning Coordination; Michelle Eichinger, MS, MPA; Designing4Health; Tim Gibbs, MPH, NPM-c; Delaware Public Health Association; Mary Ellen Gray, AICP; Kent County Division of Planning; Patti Miller, MPP; Nemours Children's Health System, Delaware Coalition for Healthy Eating and Active Living; Bill Swiatek, AICP; Wilmington Area Planning Council; Ann Marie Townshend, AICP; City of Dover Planning

Abstract: Background: Plan4Health is a Centers for Disease Control and Prevention (CDC) funded partnership with the American Planning Association (APA) and the American Public Health Association (APHA). It seeks to advance public health through local and state coalitions by leveraging known skills and using evidence-based strategies. The initiative granted \$180,000 to Delaware to fund and implement a systems change approach to the way in which comprehensive plans are updated to include considerations for health and equity in Kent County and the City of Dover.

Objective: Using feedback from the community, the Plan4Health team sought to create land use, design, and policy guidelines for planners and public health professionals seeking to increase access to healthy food, and build spaces that encourage physical activity. **Data Collection:** The first phase of the Plan4Health project included data collection from household surveys, health equity assessments on land use and policies, oversampling in targeted zip codes within Kent County, and a county-wide mapping analysis of health data such as walkability, bike-ability, trail and sidewalk availability, and food desert locations. The team held stakeholder planning meetings in a rural area of Kent County, and an urban part of the City of Dover to discuss design and policy guidelines with public health and government officials, the public, and other interested parties. **Results:** The Plan4Health team assembled guidance documents for the City of Dover and Kent County's Comprehensive Plans, which included planning and policy priorities and design renderings of new public spaces taking into account these suggestions. The recommendations suggested incorporating public health issues like demographics, land use, community design, community facilities, transportation, economic development, housing, and agriculture into future comprehensive plans. **Dissemination:** These plans were made available to county and city officials, and to the public (find the Kent County Final Report at <http://deplan4health.org/wordpress/>). The information was disseminated by social media, in publications including the Delaware Journal of Public Health, and orally (2017 Active Living Research Conference).

Poster 25

Measuring Team Communication through the Application of the Team STEPPS® Framework

Surekha Bhamidipati, MD; Lisa Clayton, MBA, BSN, RN; Rick Caplan, PhD; Tze Chiam, PhD

Abstract: Background: In hospitalized medicine patients, Inter Disciplinary Rounds (IDR) have been described to improve outcomes by improving teamwork and communication. However, there is no consensus on measurement of team communication for feedback and improvement. **Objective:** Train IDR teams and unit leaders in the application of Team STEPPS® principles (Team Strategies and Tools to Enhance Performance and Patient Safety) and a modified Team STEPPS® survey to measure team performance. **Methods:** Four units were conducting IDR in our 900 bed tertiary medical center in DE. IDR largely had a clinical focus and included a free flowing, subjective discussion. To focus IDR on planning the hospital stay, we applied the Team STEPPS® principle of shared mental model; that is team leader (physician) stating what needs to be accomplished prior to discharge (goals) and an Anticipated Discharge Date (ADD). We trained over 25 unit leaders to observe, coach teams and rate team performance using a modified Team STEPPS survey. We measured team performance as effectiveness and efficiency. We utilized two measures of effectiveness. Discussion of goals and ADD; marked as "0" if not discussed or "1" if discussed. IDR was marked as complete for a score "1" for both measures, total of 2 and partial for a score of "1" in either measures, incomplete for a score of "0" in both measures. Efficiency was measured by amount of time spent per patient round. Effectiveness over time was assessed with Spearman's correlation. Linear regression was used to evaluate efficiency over the levels of effectiveness. **Results:** There were a total of 165 observations over a period of 6 months. 98 complete, 45 partial and 22 incomplete IDR. Effectiveness did not change significantly over time. There was a ½ minute decrease in time spent rounding going from incomplete to partial and partial to complete IDR. **Conclusions:** While IDR tends to default to a subjective, clinical conversation, it is possible to apply the framework of Team STEPPS® and objectively modify and measure IDR performance. While this sample size is small, it appears that improving team effectiveness through training may improve team efficiency as well.

Genetics

Poster 1

Human Gene Editing with Synthetic CRISPR/Cas9

Kelly Banas, Natalia Rivera-Torres, Eric B. Kmiec

Abstract: CRISPR/Cas9 and single-stranded DNA oligonucleotides (ssODNs) have been used to direct the repair of a single base mutation in human genes. Here, we design a novel method to increase the precision of RNA guided genome editing in human cells by utilizing a synthetic CRISPR/Cas9 ribonucleoprotein (RNP) complex. The RNP is assembled in vitro and used to induce a double-stranded break at a specific site surrounding the mutant base designated for correction by the ssODN. We have utilized a mutant eGFP gene, bearing a single base change rendering the expressed protein non-functional, as an integrated single copy target in HCT 116 cells. We observe significant gene correction activity of the mutant base, promoted by the RNP and single-stranded DNA oligonucleotide and validated by genotypic and phenotypic readouts. We demonstrate that all individual components of this gene editing system must be present to obtain successful gene editing. Sorted corrected and uncorrected cells were placed into 96-well plates to generate clonally expanded cell populations, which were then harvested for DNA analysis. The DNA sequence of both corrected and uncorrected

populations revealed that within the negative population, heterogeneity, in the form of insertions and deletions, is readily observable in approximately half the clones. This genetic variance is not seen in the positive population indicating that genetic surgery of the mutant base has taken place in a precise and efficient fashion. The appearance of DNA heterogeneity indicates that on site mutagenesis as a form of collateral damage of RNP/ single-stranded DNA directed gene editing is present in cells that do not exhibit the desired and selected phenotype. Our work indicates that this type of collateral damage exists in the population of cells targeted, specifically the genome alteration by CRISPR/Cas9 gene editing, even when catalyzed by an RNP complex.

Geriatrics/Rehabilitation

Poster 8

Development of a Multispecialty Comprehensive Community Falls Prevention Program- SAFE STEPS

Lydney Brandt, MD, PharmD Margaret Guest, DO Angel Godek, MSN, RN, ONC Elaine 'Pip' Concklin, MS Michelle Ritona, CRNP James Ellison, MD, MPH

Abstract: Background: Falls are the leading cause of death from injury among people over 65, accounting for approximately 9,500 deaths annually. Non-fatal falls lead to serious injuries such as hip fractures, themselves associated with a high mortality rate. Fall-related injuries and fear of falling compromise the independence of older adults. Despite this epidemic, there are no multispecialty physician practices in the tristate area providing a community-based fall prevention program. Objective: To determine whether a multispecialty program (Safe Steps) could decrease the reported incidence of falls in community dwellers by 50% within an 8-week period. Methods: We implemented a multispecialty program involving physicians from physical medicine and rehabilitation and geriatrics. The team also included a nurse practitioner, nurse navigator, exercise physiologist, social worker, medical assistant, and office assistant. Utilizing the Center for Disease Control's evidence-based Stop Elderly Accidents, Death and Injury-STEADI- initiative, we developed a comprehensive and collaborative office evaluation to identify and treat modifiable risk factors for patients in the community. During the collaborative appointment, patients are evaluated by a geriatrician, a physiatrist, and other members of the Safe Steps team. The assessment includes a detailed history and physical, reviewing and managing medications, assessing postural hypotension, vision, home safety, cognition, bone health, fear of falling, gait, strength, and balance. Results: We observed a greater than 50% decrease in total repeated falls in a population of 55 patients. The number of total falls decreased from 276 to 20 within an 8-week time frame. Patients expressed satisfaction with their experience in the Safe Steps program. Conclusions/ Relevance: A multispecialty visit provides an innovative health care experience with exceptional patient satisfaction and desired outcomes. There is a tremendous need and value for this multispecialty physician collaborative approach for this population in our community. We need to focus our attention and expertise on fall prevention within our community before patients reach our hospital doors. Our next step is to establish a pathway for both hospital-based and community partners to identify at risk individuals and to intervene with the Safe Steps Program. As the program expands, our community population health impact will be substantial.

Poster 19

Evaluation of a homebound patient cohort to determine the relation of advance care planning, and interest in palliative care, to functional status and quality of life

Linsey O'Donnell, Leslie Stalnaker, Amanda Taylor

Abstract: Background: Palliative care (PC) is specialized medical care for patients with serious illness that focuses on a patient's quality of life and goals of care. Options for PC in the community are limited, especially for patients who are homebound. Understanding more about patients' needs relating to palliative care is essential in determining programs and services that can be offered to best meet the needs and wishes of the community. Engagement Plan: A partnership was formed with the Visiting Nurse Association (VNA) of Christiana Care Health System (CCHS). The employees of the VNA are trusted community ambassadors that serve the homebound patient population in Delaware by providing nursing, social work, and therapeutic services. Objective: The goals of this survey are to identify the prevalence of AD in a homebound population in Delaware, to compare patient's quality of life to functional status, and to understand the attitudes and knowledge of palliative care in the community and if these variables relate to quality of life. Methods: All VNA patients who reside in New Castle County, Delaware, were eligible to participate. Patients were contacted by phone to complete the survey or to schedule a home visit for the survey which could be completed by the patient or a caregiver. It measured patient knowledge about palliative care and the prevalence of advance directives and advance care planning. Patients also completed the Missoula-VITAS® Quality of Life Index, a validated measure of the patient's quality of life.

This index will be compared to the Karnofsky Performance Status Scale, a clinical assessment of illness burden and functional status. **Results:** Three-hundred and thirty one patients completed the survey, with a mean age of 71. Of these only 17% knew what palliative care was, but when described, 80% were interested in this type of service. Only 42% of patients had an advance directive, but 77% had identified a POA or decision maker, and 80% had talked to a loved one or doctor about their wishes. There was no statistical difference between patient's reported quality of life and functional status. Patients with a higher QOL score had more discussions with physicians and loved ones about their care plans and more had named a decision maker. **Conclusions/Relevance:** It is unclear if patients had an improved quality of life because of talking with their family about their end of life decisions, further study will be necessary to determine causation. However, it is known that palliative care can change the experience of chronic illness for patients and their families, and advance care planning is an important tool for patients to ensure that they receive the medical care consistent with their goals. Both of these initiatives work to provide the right care, at the right time, in the right way for each individual patient. Engaging the community through research efforts plays a key role in understanding the care wishes of our neighbors and can guide future program development and identify knowledge gaps and areas for community education.

Nutrition

Poster 9

Tastimals Cartoon Characters and Healthy Food Choices at the Brandywine Zoo

Allison Karpyn, PhD; Michael Allen, MBA; Nicole Filion; Sara Grajeda, PhD ; Dreisen Heath; D. Layne Humphrey, MEd; Amanda O'Keeffe; Katherine Tilley; Tara Tracy

Abstract: **Background.** Settings (e.g., schools) that can influence food choices are generally a focus of public health interventions that address high obesity rates. Recreational venues' concession stands have not been tested, although they provide convenient access to affordable food, and can affect food choices. Zoos in particular 'represent a major opportunity to engage children with live animals, biological science, and conservation.' **Engagement Plan.** The Tastimals project represented an innovative opportunity to create a logical connection among fun at zoos, animal care, and children's health. Brandywine Zoo staff were equal and willing partners from the project's start, assisting with program development, survey design, research implementation, and results publication. Zoo Executive Director Mike Allen presented the poster, 'Tastimals: Connecting Healthy Foods to Healthy Delawareans' at the 2017 Association of Zoos and Aquariums (AZA) conference. **Objective.** The Tastimals project evaluated the effects of the Brandywine Zoo's concession stand offerings on healthy food choices and assessed the impact of the pairing of Tastimals animal characters with healthy food choices. **Methods.** Previously tested Tastimals animal cartoons promoted healthy concession items at the Brandywine Zoo (average annual visitation: 85,000) through alternate-week pairing with healthy foods on the menu board. Additional Tastimals marketing included A-frame signs and window clings. Surveys and concession sales data facilitated evaluation of the intervention on total sales, visitor perceptions of the Zoo, and purchase of specific healthier snack and meal items. **Results.** Over 400 healthy food items were sold during the eight-week intervention. Quantities of healthy food choices were significantly higher during the weeks Tastimals characters were displayed. Overall, healthy foods represented 10% of food items and 5% of sales. **Conclusions/Relevance.** The Tastimals project is one of many solutions that integrate modern techniques into efforts to increase demand for healthy foods. Twelve million children participate annually in educational activities at the US' 229 AZA-accredited zoos and aquariums, a unique and potentially powerful mechanism to affect healthy food choices. Further recognition of this positive healthy food - animal character relationship is evidenced by inclusion of Tastimals in the pending funding application to USDA, 'Realizing a Community's Collective Impact to Improve Fruit and Vegetable Consumption.'

Women's Health

Poster 11

Acceptance of LARC Immediately Postpartum after Medicaid Reimbursement Policy Change

Nathalie Torres, BS; Dominique Medaglio, PharmD, MS; Steve Martin, MSc, MA; Michael Rendall, PhD; Karen Antell, MD, MPH; Siri Holton, MD; Matthew Hoffman, MD, MPH, FACOG; Susan Wilson, MD

Abstract: **Background:** Long acting reversible contraception (LARC) is first-line for contraception and has been shown to be safe and effective when inserted immediately post-partum (IPP). Barriers to LARC utilization however are common,

including access and cost. Following a recent Delaware policy change, women with Medicaid are now able to receive an IUD or implant immediately postpartum at no cost. **Objective:** The primary aim was to describe the rate of uptake of LARC in the immediate post-partum setting after the recent Delaware Medicaid policy change.

Methods: This is a prospective cohort study of post-partum women with Medicaid coverage. Participants needed to be 18 years or older in age, within 7 days of delivery, and able to consent in English or Spanish. Surveys were given to participants in person. **Results:** A total of 518 women were included for study, with the majority of women being black/African American, aged 25 or under, and their most recent pregnancy was unplanned. 215 (42%) received a LARC device prior to discharge. Etonogestrel implants were the most common selection of LARC. Women who accepted LARC had a higher average count of previous pregnancies. They also stated at a higher rate that they would not be happy if they became pregnant in the next 12 months. **Conclusions/Relevance:** This is one of the first studies to estimate the uptake of LARC IPP in the Medicaid population. Presently, this Medicaid policy is actively implemented in one hospital. These promising findings support expanded policy implementation at all Delaware hospitals where deliveries occur.

Pediatrics/Adolescents

Poster 12

Geographic and socioeconomic determinants of pediatric asthma encounter rates in Delaware

Sam Stubblefield, MD

Abstract: **Background:** Asthma is the most common non-infectious cause of pediatric hospital admission and a common cause of pediatric morbidity. While genetic and epigenetic factors modify asthma severity, geographic, demographic, and social factors likely play a role as well. **Objective:** We sought to create a novel way of targeting asthma prevention interventions to populations at high risk for excess asthma-related healthcare use (ARHU) through the use of geographic information services (GIS) methods combined with data from the American Community Survey (ACS) and the National Emissions Inventory (NEI). **Methods:** Using the EMR of our hospital we identified patients with pediatric emergency department (ED) visits or asthma hospitalizations during 2013. We used the NEI to identify emitters for 3 pollutants associated with asthma severity. We calculated rate of asthma encounters and used regression analysis to examine the top quintile of asthma encounter rates and ACS estimates for several socio-economic and demographic markers. **Results:** Asthma encounter rate ranged from 0-100 per thousand. In multivariate analysis we found no correlation between the socio-economic markers and encounter rate. We found no correlation between total emissions or presence of an emitter in a census tract and encounter rate. **Conclusions/ Relevance:** We found no relation between emissions as identified in the NEI or socio-economic factors and ARHU. We will incorporate state Medicaid data, making our dataset more robust. If we find areas of increased ARHU, they could be areas for targeted interventions.

Poster 13

Real Talk: How a Small Sex-Ed Program Reaches Teens Through SBHCs Across the State of Delaware

Christopher C. Moore, BA, LSSGB, Nicole A. Harrington, BS, Kelly Marra-Conner, Delsy Morales, BS, Terry Casson-Ferguson, MS, Paul Braden

Abstract: Delaware may be the second smallest state in the U.S.; however, it is currently dealing with some big issues. According to the 2015 Youth Risk Behavior Survey, teens in the state are more likely to have sex at a younger age, with more partners and with less protection. The Alliance for Adolescent Pregnancy Prevention (AAPP), a small, but mighty band of sexual health educators, works to reduce the number of Delaware teenagers who are sexually active, become pregnant and become teen parents. In collaboration with the state's School-Based Health Centers (SBHC), AAPP coordinates and implements consistent, message-driven educational programs statewide for young people and their families. This partnership is a direct result of implementing programming in-school; and, while this may not seem unique, it is an essential component in addressing the sexual health needs of the adolescent population. This illustrates the importance of public health partnerships in the community, which is especially important in a state as geographically diverse as Delaware. The state, divided into 3 counties ranges from urban to rural, and the needs of each county differ dramatically. In spite of this adversity, AAPP works collaboratively with more than 2 dozen SBHS to leverage resources in order to facilitate programming. AAPP addresses sexual health through two evidence-based programs: Be Proud! Be Responsible! and Making Proud Choices! In addition, AAPP implements the male responsibility curriculum Wise Guys, categorized as 'promising' by the Centers for Disease Control. Through community partnerships like AAPP and the SBHCs, teens are empowered to make healthier sexual choices.

Poster 14

Partnering with the Community to Improve Pediatric Dental Care: A Collaboration between Reeds Refuge and Christiana Care

Linda Brittingham ACM, CCM, CCMHC, LCSW, Bette Rybinski, CDA, Linda Brennan-Jones, BA, BLS, Susan Pugliese, DDS, Lynn M Collins, DDS, Helene McHale, Cora Reed, Fred Reed, Elizabeth Bridwell

Abstract: Reeds Refuge is a community agency providing daycare plus a safe and positive outlet for inner city children of all ages in the 19802 zip code. Carelink Community met Reed's Refuge through community based events. A tour of the Wilmington Hospital was offered. During the tour, it was noted that the children they serve were not receiving dental care. It was identified that although the children had insurance coverage for dental and CCHS Oral Maxi-facial and Hospital Dentistry had the ability to care for more children, there was a care access issue. After collaboration between Reeds Refuge and Christiana Care, a process was created to link the children served at Reeds Refuge to CCHS dental care. Reeds Refuge obtains consent to act as the child's Decision Maker for dental services plus medical history and parental consent for dental treatment. Transportation is provided by Reeds Refuge and their staff member stays with the child during the procedure. Communication is facilitated between Reeds Refuge, the CCHS dental office, and the child's parent so all have the same understanding on services given and the treatment plan. Parents are kept engaged and provide consent at all points in the process. In the seven weeks Reeds Refuge has brought children for dental care, they have filled 21 appointment slots. The children seen have ranged in age from one to fourteen years old. All were receiving dental care for the first time Dental education is provided to teach the children how to care for their oral health and this education is brought back to the parents. Some of the children's dental issues were severe enough to require oral surgery and those surgeries were scheduled. Once care is established, ongoing treatment or preventative care appointments are made at the end of each visit. This is a positive collaboration for all involved as the children receive dental services, dental residents receive training in pediatric dentistry, and parents are able to obtain dental care for their child without missing work. Childhood dental care is critical to lifelong oral health, preventing many associated health issues and improving quality of life.

Poster 15

Comparing fNIRS-Based Cortical Activation Patterns during Interpersonal Synchrony Tasks Between Children with and without Autism Spectrum Disorder (ASD)

W.C. Su, M. Culotta, and A.N. Bhat

Abstract: Background: Children with ASD show impairments in imitation/interpersonal synchrony (IPS). Previous fMRI studies found abnormal activations over mirror neuron system (MNS) of children with ASD. By using functional near-infrared spectroscopy (fNIRS) we were able to investigate cortical activation during natural social interactions. Objectives: Our aim was to compare MNS activation between children with and without ASD during IPS tasks. Our long-term goal is to identify neurobiomarkers for ASD and to develop interventions targeting such neurological impairments. Methods: Sixteen children with ASD, and 17 typically developing children (TD) were included. Each child wore a cap embedded with two 3x3 fNIRS probe sets that covered the bilateral MNS regions, including inferior frontal gyrus (IFG), superior temporal sulcus (STS), and inferior parietal lobe (IPL). The children were seated face-to-face with an adult social partner. The task involved cleaning up blocks into a container in 3 conditions: a) Watch (W): observed the adult cleaning up blocks, b) Do (D): cleaned up the blocks on their own, and c) Together (T): cleaned up the blocks along with the adult by matching the block location/color/shape. Eighteen trials (6 per condition) were collected in a random order. The oxy-hemoglobin response of the fNIRS signal was analyzed to study differences activation patterns between groups, conditions, hemispheres, and MNS regions. Results: Both groups showed greater activations in D and T compared to the W condition. By collapsing across groups, there was greater activation in T than the D condition in the left but not the right hemisphere suggesting the right hemisphere is more sensitive to the social component of the movements. The between-group difference was only found in certain brain regions. TD showed greater activation in IFG and STS than IPL, whereas children with ASD had similar activation across three regions suggesting impaired selective activation in ASD. Lastly, children with ASD has decreased activation in the IFG and STS regions compared to TD. Conclusions: Our findings support MNS impairments in ASD. Although children with ASD were able to modify the level of activation across conditions similar to TD; they showed decreased and impaired selective activation across MNS regions.

Poster 16

Comparing fNIRS-Based Cortical Activation Patterns during Communicative Gestures Between Children with and without Autism Spectrum Disorder (ASD)

McKenzie Culotta, Wan-Chun Su, Anjana Bhat

Abstract: Background: Children with ASD have difficulty using communicative gestures and also show concurrent abnormal activation in the Mirror Neuron Systems (MNS). Functional near-infrared spectroscopy (fNIRS) is a neuroimaging tool that allows for naturalistic gestural communication between people. Objectives: We compared MNS activation between children with and without ASD as they performed communicative gestures with an adult partner. Methods: 16 TD and 15 ASD children (ages 6-12) wore an fNIRS cap embedded with 3x3 probe sets covering bilateral MNS regions including the inferior parietal, superior temporal and inferior frontal cortical gyri. Each child sat before a partner. The gestural task involved 3 conditions: a) Watch (W): child observed adult's gestures, b) Do (D): child performed a gesture on their own c) Together (T): child performed the gesture in synchrony with the adult. 18 trials were collected, 6 per condition using a randomized block design. The oxy-hemoglobin response was analyzed to study differences between groups, tasks, hemispheres, and regions. Results: TD and ASD groups have different patterns of activation across conditions and regions. For condition differences, the TD group had highest activation in the Do, followed by Together, and lastly, Watch. The ASD group had the highest activation in the Together compared to the Do and Watch. Children with ASD showed greater activation than TD controls in the social conditions (W and T) but not during solo movement execution (D) suggesting that social contexts were challenging for them. As to regional differences, the TD group had highest activation in the superior temporal gyri or the social observation regions. In contrast, the ASD group showed highest activation in the precentral/inferior frontal gyri or the motor control/goal-related regions and not the social observation regions. Inferior frontal activation was greater in the ASD group. Conclusions: Children with ASD had higher cortical demands during social observation/synchrony and higher activation in motor/goal-related compared to TD controls. In contrast, TD controls had greater activation in social regions. These findings may explain why communicative gestures can be challenging for children with ASD.

Poster 17

Heart Rate Variability Descriptions and Associations in Children with Severe Brain Impairment

Dodds, C.B., Gellert-Jones, M., Cormack, C., Mensah, N.

Abstract: Background: Approximately 4% (n=400,000) of the 13 to 18% of children having special healthcare care needs are children with severe brain damage.¹⁻⁴ In addition to multiple central nervous system impairments such as seizure, movement restrictions, spasticity, pain, visual impairment, and/or cognitive deficits⁵⁻¹⁰, indications are that these children display autonomic nervous system impairments characterized by greater sympathetic dominance. This is associated with chronic 'fight or flight' behaviors and decreased heart rate variability (HRV).^{11,12} Associations also seem to exist between HRV values and scores on cognitive awareness assessments. Objective: To describe resting HRV and compare associations between resting HRV values and 1) total scores of the Pediatric Glasgow Coma Scale and 2) total scores of the Pediatric Awareness and Sensory Motor Assessment (PASMA) in children with severe brain impairment. Methods: As part of the PASMA validation study and over 10 days, HRV data was collected on 36 children with severe brain impairment during administration of 5 PASMA, a newly developed cognitive awareness assessment under study for validation. Scores for 5 Pediatric Glasgow Coma Scale (PGCA) were also collected. Using root mean square of successive differences (RMSSD), which is a time-domain HRV component and reflects HRV-robustness by capturing vagal-cardiac outflow¹³, descriptive statistics will be analyzed. Correlational statistics will analyze associations between RMSSD values and total scores of the PGCS and PASMA. Results: It is expected that children with severe brain impairment will display lower resting HRV values than published values for children without disability. Associations between RMSSD and PGCS and PASMA total scores are expected to demonstrate a strong positive correlation. Conclusion: Limited information concerning HRV values in children with severe brain impairments exist. If preliminary evidence exists that HRV is lower in this population of children, then further exploration and comparisons with children of typical development may be warranted. Evaluation of gender and age difference in children with severe brain impairment may also be informative. Information gained from correlations between HRV and cognitive awareness assessments may offer preliminary prognostic evidence that could be further examined.

Poster 21

Geography seems to be a factor that determines the outcome of transition for children with sickle cell disease into adult programs

Nina Anderson, RN, DNP., Samir Ballas, MD, FACP.,

Abstract: The transition of patients with sickle cell disease (SCD) from pediatric to adult care providers represents a milestone in their lives. Major concerns among adolescents and young adults about transition include taking responsibility for self, making own decisions, cost of medical care, fear of suboptimal pain management, and reluctance to leave known providers. The reasons that cause this surge in mortality after transition are not well known. The role of geographical variations in the same country that affect the outcome of transition is examined in two major metropolitan cities include Philadelphia, PA¹⁰ and Atlanta, GA.¹¹ In Philadelphia, 90 adolescents and young adults with SCD were followed prospectively for 10 years (1994-2004) after transition from the pediatric sickle cell program at St. Christopher Hospital to the adult sickle cell center at Thomas Jefferson University Hospital. The rate of death in Philadelphia was highest in patients with SCD-SS type where 17 out of 65 patients (26%) died within the 10 years after transition. Complications of SCD after transition included stroke, acute chest syndrome, avascular necrosis, leg ulcers, anxiety, depression, priapism and multi-organ failure. About one-third of the patients developed persistent pain between vaso-occlusive crises. In Atlanta, 387 adolescents and young adults records were reviewed retrospectively for 10 years (1996-2006). Most important among these is that the rate of death in Atlanta was overall much lower than that in Philadelphia: 5.8% in Atlanta versus 22.2% in Philadelphia during the 10 years after transition. The major cause of death in Atlanta was iron overload due chronic organ damage. The care systems available to the youth in the two cities differ because the Georgia Comprehensive Sickle Center at Grady provides emergency care 24 h a day 7 days a week and has had an active transition program since 1985. Other possible causes include the warmer weather in Atlanta, the cultural and psychosocial community fabric in Atlanta may be more attentive to the problems associated with SCD and the genetic types of SCD in Atlanta may include those that are known to be associated with milder disease. These types include the Senegalese haplotype that is more common in Southern USA. In the Philadelphia area the Benin haplotype, known to be associated with more severe disease, is most common.

Violence Prevention

Poster 3

Measuring the Efficacy of Violence Prevention using Hospital-based Resuscitation Re-enactment: YOLO (You Only Live Once)

Deena Chisholm, Chaz Molins, Richard Caplan, Peter Lodato

Abstract: Background: Victims of gun violence treated at Christiana Care Health System's (CCHS) Level One Trauma Center have more than tripled since 2000. In 2017 alone, there have been an unprecedented 32 homicides and 166 victims of firearm violence in Wilmington. 'You Only Live Once: YOLO' is a hospital-based violence prevention program that is a re-enactment of a trauma resuscitation inside CCHS's Virtual Education and Simulation Training Center designed to offer young people an honest and unrestricted look at the consequences of gun violence. There is a paucity of evidence on the impact of hospital based violence prevention programs such as YOLO and young people's attitudes are currently unknown. Objective: To implement and evaluate an evidence-based program designed to measure the attitudes about firearms and violence in students that attended Christiana Care's YOLO. Methods: For the 2016-2017 schoolyear, a pre and post-test was administered to students from schools that participated in a YOLO session. With appropriate consent prior to YOLO session and ~4-weeks post YOLO sessions, a total of 234 pretests and 136 posttests were completed using a REDCap version of the Attitudes Towards Gun and Violence Questionnaire (AVGQ), a reliable and validated assessment tool. Results: An interim statistical analysis on this ongoing program was conducted on the 102 valid matched pairs. Participants both male and female were equally split; 63% were African American, 14% Hispanic, 12% White, 2% Native American and 9% 'Other.' Most students were 7th and 8th graders (80%), with a mean age of 13.85 years old. The data did not show any significant change in student's attitudes toward firearms and violence post intervention. Conclusion/Relevance: As currently evaluated we see no significant change in attitude. As the study evolves we will use a mixed method approach to enrich and enhance the data. Current tools may not be appropriate for post millennial youth.