

matched healthy men without history of TBI. Temperature is assessed on a voxel-by-voxel basis throughout the entire brain. Cognitive ability is measured with the Repeatable Battery for the Assessment of Neuropsychological Status (RBANS). Information on pain, fatigue, and mood is collected through questionnaire. **RESULTS/ANTICIPATED RESULTS:** We anticipate that (1) average whole-brain temperature will be significantly higher in the TBI group than the healthy control group; (2) severity of (a) pain, (b) fatigue, and (c) mood symptoms will be correlated with brain temperature; and (3) severity of cognitive impairment will be correlated with brain temperature. **DISCUSSION/SIGNIFICANCE OF IMPACT:** If the hypotheses are confirmed, this tool will fill a need for objective tests of TBI pathology that can be used to improve diagnostic and treatment decisions and predict long-term functioning. This test would be the first completely noninvasive tool for detecting neuroinflammation, and will allow for safe and inexpensive longitudinal testing. Ultimately, we hope this noninvasive scanning technique will accurately track neuroinflammation in TBI, leading to more targeted and effective treatments.

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A path perspective on bio-psycho-social predictors of health status in peripheral arterial disease

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OBJECTIVES/SPECIFIC AIMS: To explore associations among bio-psycho-social factors predictive of overall physical and mental health status as assessed using the SF-12 Health Survey. **METHODS/STUDY POPULATION:** Community-dwelling, male and female elders with peripheral arterial disease (PAD) were administered an assessment battery to identify factors associated with self-assessed physical and mental health status using the SF-12 Health Survey. The battery included an assessment of pain, depressive symptoms, perceived social support, perceived psychological stress, physical function, as well as selected demographic variables. **RESULTS/ANTICIPATED RESULTS:** Preliminary linear regression analyses have identified several factors predictive of physical and mental health status including depressive symptoms, pain, perceived stress, and physical function. A more in-depth examination using path analysis is anticipated to reveal important mediational associations, wherein physical function is a strong mediator between bio-psycho-social factors and overall physical and mental health status. **DISCUSSION/SIGNIFICANCE OF IMPACT:** Aging is often associated with a reduction in physical and mental well-being, frequently exacerbated by the development and progression of chronic disease. PAD is a common chronic condition that places significant burden on the older patient and their family. Identifying and developing a more in-depth understanding of the factors that impact health status in PAD is an important and timely objective. We anticipate that our findings will inform development of more targeted and effective intervention strategies we can employ to improve the quality of life among elders struggling to manage PAD.

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“A clash of cultures”: Cervical cancer screening and Hispanic males

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OBJECTIVES/SPECIFIC AIMS: Focus groups are being conducted to describe and identify barriers and/or facilitators to Hispanic males' health literacy, culture, and language related to cervical cancer prevention practices. **METHODS/STUDY POPULATION:** A purposive convenience sample was recruited to participate in focus group sessions with English or Spanish speaking Hispanic males 21 years of age and older. Groups were segmented by age (21–29, 30–39, 40–49, and 50–65), and language (English or Spanish). Focus group discussions ($n=8$) were led by a bilingual/bicultural female researcher using a discussion guide that followed Zarcadoolas *et al.* (2005) health literacy model 6 as related to their partners' cervical cancer screening and prevention practices. All sessions were audio-recorded and transcribed verbatim. Participants completed standardized questionnaires regarding demographic data and their health literacy. Qualitative content analysis was used for analyzing focus group interviews. **RESULTS/ANTICIPATED RESULTS:** Preliminary qualitative analysis shows the struggle Hispanic males' face accepting cervical cancer screening for their female partners. One participant reported that it was “a clash of cultures.” A “clash of cultures” was described as a constant struggle and acceptance between science, personal knowledge, and Hispanic cultural taboos. **DISCUSSION/SIGNIFICANCE OF IMPACT:** Hispanic male's health literacy, communication, language preferences, and cervical cancer risks, will further enhance the knowledge needed to design intervention measures for cancer prevention among Hispanics. Understanding the factors that contribute

to the unequal burden of cervical cancer incidence and mortality among Hispanic women in South Texas is critical to prevent cervical cancer among this population.

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Psychosocial risk factors mental health symptoms, and intervention preferences of Latino immigrant parents presenting to a pediatric clinic

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OBJECTIVES/SPECIFIC AIMS: (1) To assess the prevalence of mental health symptomatology (depressive symptoms, anxiety symptoms, PTSD symptoms, and problematic alcohol use) and psychosocial risk factors for mental health disorders (low social support, immigration stress, acculturation, and marital/partner discord), and their association with immigration status, health care access and contextual risk factors in Spanish-speaking parents of young children (ages 0–5) who attended a well-child visit. (2) To explore acceptability of screening for and discussing parental distress in the pediatric primary care setting, and parental acceptability of a group well-visit format to address both psychosocial risk factors and mental health symptoms in this population. **METHODS/STUDY POPULATION:** Latino immigrant parents ($n=100$) of children ages 0–5 attending well-child visits at Johns Hopkins Bayview Children's Medical Practice were surveyed between October 2015 and February 2016. The verbally administered survey included the Woman Abuse Screening Tool (WAST), AUDIT-C, Primary Care Post-Traumatic Stress Disorder (PC-PTSD) Screener, California Health Interview Survey (CHIS), National Latino and Asian American Study (NLAAS), Appraisal Support Subscale from Interpersonal Support Evaluation List (ISEL), Personal Health Questionnaire Depression Scale (PHQ-8), and Generalized Anxiety Disorder Scale (GAD-2). These questionnaires have been used in large regional or national surveys and most have been validated with US Latino populations. Positive screens were defined as PHQ-8 > 5 (mild depression or greater), GAD-2 > 3, AUDIT-C > 3 for women and > 4 for men, and PC-PTSD > 3. Descriptive information and comparisons were obtained by χ^2 and Student *t*-test. Study protocol will allow review of children's pediatric records ($n=100$). From this sample, parents were separately recruited to participate in in-depth interviews ($n=11$ of 20 planned have been completed) further exploring both sources of parental distress, acceptability of screening for parental mental health symptoms in the primary care pediatric setting, and acceptability of a potential group-based well-visit model in the pediatric setting. **RESULTS/ANTICIPATED RESULTS:** Survey participants were 93.0% women, and predominantly < 35 years of age. The vast majority (94.0%) were undocumented, recently arrived (< 15 years ago) and reported poor or very poor English proficiency (75.0%). Most (84.7%) reported living with a partner or spouse (84.7%), and 58% reported partner relationship strain. In all, 71% reported poor social support. The prevalence of “screen positive” mental health symptoms was highest for depression (55%) and PTSD (35%), followed by anxiety (29%) and alcohol risk use (25%). Having depression was significantly higher (68.4%) ($p < 0.02$) in participants with less education (< 6 grade). Partner relationship strain was associated with a higher prevalence of depressive symptoms (59.3%) ($p < 0.03$). Immigration stress (feeling guilty for leaving family and friends) was also significantly associated with depressive symptoms (58.1%) and PTSD (43.5%) ($p < 0.03$). More than half of the participants (60.0%) with depression were not covered by any health insurance and 56.3% of those with depression reported not having been seen by a health care provider in the past 12 months. A high prevalence of symptoms was found in those with poor appraised social support: alcohol risk use (76.0%), depression (69.1%), anxiety (69.0%), and PTSD (68.6%). Among participants, those aged < 30 years old and those with more children reported poorer appraised social support. Data from child medical records (including BMI, presence of feeding problems, referrals for social work, or mental health services) has been extracted but not yet linked to parent survey or interview results. Preliminary review of In Depth Interviews suggests that the most common reported source of stress among participants was related to finances, followed by documentation/legal status difficulties, access to childcare, and limited English proficiency. Some mothers also mentioned interpersonal violence and lack of access to healthcare as stressors. All mothers expressed an interest in a pediatric primary care based parent focused the majority of which indicated that a group based intervention would be acceptable, some mothers indicated they preferred a one-to-one intervention if mental health were to be discussed. Mothers seem preferential to social worker-led interventions compared with pediatrician-led, but most mothers were indifferent. Finally, mothers expressed low support from the Latino community in Baltimore. **DISCUSSION/SIGNIFICANCE OF IMPACT:** Results from this study suggest that this population of parents is experiencing a relatively high rate of mental health symptoms, low perceived social support, and limited access to their own source of care. This suggests that an intervention delivered within a primary care pediatric setting would have the potential to reach parents who might not otherwise interact with

their own providers, and that there are an array of problems that could be targeted. Intervening with parents of young children has the potential to affect multiple child outcomes. A group intervention may target poor social support, though this format is not universally preferred. Next steps for this project include assessing the acceptability of and preference for various content components (ie, depression, parenting stress, legal issues) and linking parent data with child data (including developmental screening results, weight, feeding problems, and behavior problems).

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Community engagement in clinical and translational research: A framework for research institutions

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OBJECTIVES/SPECIFIC AIMS: Community engagement is a commonly used term, but is complex in both meaning and application. In order to help academic institutions and administrators develop infrastructure to promote and support community engagement and to help investigators work productively with communities, this analysis discusses the major components of community engagement in research on both the institutional and individual project levels as well as the interplay between them. **METHODS/STUDY POPULATION:** A literature synthesis conducted by a community engagement in research committee at 1 CTSA institution that examined the myriad factors related to effective community engagement in research identified across multiple disciplines was used to distill the major factors identified, assesses the interplay of the identified factors, and produce a conceptual model to help administrators and investigators apply best practices in engaging communities in clinical and translational research. **RESULTS/ANTICIPATED RESULTS:** This work takes a concept—community engagement in research—that is often stated and discussed, but is highly complex and challenging to implement—and identifies and discusses the multiple, interrelated factors germane to it. The model illustrates that while community engagement in research is implemented in the context of individual projects, a deep and continual interplay between individual projects and the goals, capacity, and policies of research institutions is needed for rigorous, ethical, and effective community engagement. **DISCUSSION/SIGNIFICANCE OF IMPACT:** Results are presented through a conceptual framework which displays the major components needed for rigorous, ethical, and effective community engagement in clinical and translational research. In addition, the conceptual framework presented will provide assistance to those developing approaches to measure and evaluate institutional readiness for community engagement in research as well as the effectiveness of individual community engagement efforts.

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Examination of barriers and facilitators to sexual healthcare access among adolescent Latinas in Alabama

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OBJECTIVES/SPECIFIC AIMS: Alabama (AL) experienced a 145% increase in its Latino population between 2000 and 2010; making it the state with the second fastest growing Latino population in the United States (US) during that time. Adolescent Latinas in the US and in AL are disproportionately affected by sexual health disparities as evidenced by the disproportionate burden of HIV, STIs and early pregnancy compared with their non-Hispanic, White counterparts. Empirical data with adult Latinas in the southeast suggest significant barriers to sexual healthcare access. However, to our knowledge, no other researchers have examined barriers and facilitators to sexual healthcare access for this subpopulation. Therefore, the purpose of this study is to examine adolescent Latinas' sexual healthcare needs through in-depth qualitative interviews. These qualitative interviews (phase 1 of a 3-phase study) will inform the development of community-driven, theory-based, culturally-relevant, multi-level intervention strategies to reduce sexual health disparities and increase sexual healthcare access for this group. Community-based participatory research (CBPR), which ensures equitable participation of stakeholder groups through partnerships, and the socioecological model of health, which conceptualizes the individual as nested within a set of social structures, provide the philosophical and theoretical frameworks for the work. **METHODS/STUDY POPULATION:** Between January and March of 2017, we will conduct 30 qualitative interviews with eligible adolescents who: self-identify as Latina, are between 15 and 19 years old, have been in the US for over 5 years, and live west AL. We will use venue-

based, purposeful convenience sampling to recruit participants. We will manage and analyze the data with the qualitative software NVivo 10. We will use a multi-step, consensus-based process to code and analyze the interviews in the language in which they were conducted (ie, Spanish or English). We will maintain detailed audit trails during the analysis process and seek an inter-rater reliability of 0.85. **RESULTS/ANTICIPATED RESULTS:** We expect to identify barriers and facilitators to sexual healthcare services at distinct levels of the socioecological model of health. Study results and implications for practice in clinical settings will be discussed in detail. **DISCUSSION/SIGNIFICANCE OF IMPACT:** The proposed research is significant because (1) the state of AL experienced a dramatic increase in its Latino/a population over the last 15 years and adolescent Latinas in AL are disproportionately affected by sexual health disparities; (2) to our knowledge, this will be the first study to examine the multi-level factors associated with sexual healthcare access for adolescent Latinas in the South and inform intervention strategies to promote sexual healthcare access in this population; (3) the work will be conducted under the philosophical lens of CBPR such that community members will be involved in every step of the research process, resulting in culturally relevant intervention strategies.

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How interruptions affect the triage process in the emergency department

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OBJECTIVES/SPECIFIC AIMS: The aim of this study was to determine how interruptions affect the triage process. **METHODS/STUDY POPULATION:** Prospective, observational study, where 118 triage interviews were observed. **RESULTS/ANTICIPATED RESULTS:** In total, 57% of triage interviews were interrupted. The most common interruption was by other nurses; however, 7% of the interruptions were by the triage nurse themselves. When an interruption occurred during the triage process, 67% of the time the triage nurse would stop the triage assessment and attend to the interrupter. In the interrupted interviews, 17% of the entire triage time was dedicated to addressing interruptions. Some interruptions (ie, additionally staff entering to conduct ECG) had a positive impact by expediting care during the triage process; where other interruptions delayed patient care. **DISCUSSION/SIGNIFICANCE OF IMPACT:** Interruptions increased the total triage time and contributed to patient treatment delays, as well as led to errors in nursing assessment. Understanding the classifications of triage interruptions and the impact on patient outcomes will allow researchers to develop interventions to mitigate the impact of these interruptions.

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Development of a Pediatric Hydrocephalus Severity Index to predict long-term clinical outcomes

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OBJECTIVES/SPECIFIC AIMS: To create a composite index, referred to as the Pediatric Hydrocephalus Severity Index (PHSI), to classify the severity of disease at baseline and predict outcomes among children treated for hydrocephalus. **METHODS/STUDY POPULATION:** The Hydrocephalus Outcome Questionnaire will be administered in person or online to the parents of 150 patients between the ages of 5 and 18 years who are followed at the Neurosurgery Clinic at St. Louis Children's Hospital for hydrocephalus. Patients must have been diagnosed and treated for hydrocephalus at least 6 months prior to the survey date. Potential participants are excluded if their health status changed during the 4 weeks prior to survey date, as determined by the child's parents. Potential risk factors (see anticipated results) will be identified on retrospective medical record review. We will create a clinical prediction rule, called the PHSI, to stratify patients on likelihood of experiencing a poor long-term outcome after surgical treatment. Participants will be classified as "good" or "poor" outcome based on thresholds set for questionnaire results. We will use a combination of bivariate analysis and clinical reasoning to restrict the number of factors for further analysis, and multivariate logistic regression to build a predictive model for poor outcome. Creation of the PHSI will involve assigning integer values to adjusted odds ratios for significant risk factors at a 95% confidence level. **RESULTS/ANTICIPATED RESULTS:** Risk factors that we anticipate will be predictive of long-term clinical outcome include signs and symptoms at onset (bulging fontanel, splayed sutures, papilledema, up-gaze palsy, headache, vomiting, lethargy), head circumference above the 97th percentile, frontal-occipital horn ratio greater than 0.4, etiology of meningitis or neonatal intraventricular hemorrhage, central nervous system comorbidities (seizures, Chiari malformation, scoliosis, periventricular leukomalacia), pre-operative infection or sepsis, and frequent shunt revisions or infections. We