

frontotemporal epilepsies. Although considerable work has been done to establish the minimum necessary resection distance from these sites to preserve language, no previous work has shown how these representations are affected by proximal resections. **METHODS:** Between 1967 and 2005, 22 patients [seizure onset (y): 11.5 (0.2–33); age at initial resection (y): 27.7 (10–39); time between operations (y): 8.4 (1–20.3); sex: 14 females; hemisphere: 21 left] underwent repeated perisylvian resective epilepsy surgeries of the language-dominant hemisphere. Each set of operations comprised intraoperative language mapping and cortical photographs. Using this data, a Bayesian hierarchical model was used to estimate the variability of language localization pre-resection Versus post-resection. **RESULTS:** The statistical model shows the posterior median difference in cortical location of language sites pre-resection Versus post-resection is 0.6 cm, with a posterior 95% CI of 0.4 cm, 0.9 cm. **CONCLUSION:** This work suggests permanence in cortical language centers following resection of infringing cortex, while providing a reasonable statistical method to impute unobserved sites during the mappings, and confirming the validity of using proximity sites defined by shortest distance in the current literature.

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### Coping strategies used by caregivers of newly diagnosed pediatric brain tumor patients

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**OBJECTIVES/SPECIFIC AIMS:** The goal of this study is to use patient-centered qualitative techniques to determine what strategies caregivers use to cope with the stress of a child having recently (ie, within the past month) undergone surgical removal of a brain tumor. Results will eventually be evaluated and compared with results of quantitative measures of psychosocial risk and distress as well as demographic and medical characteristics. **METHODS/STUDY POPULATION:** All caregivers of patients with a newly diagnosed brain tumor requiring neurosurgery admitted to Children's of Alabama (with English or Spanish-speaking parents) are eligible for enrollment. Participants are enrolled during their child's initial hospitalization for surgical removal of a brain tumor. Approximately 1 month after hospital discharge, during a routine follow-up clinic visit, caregivers participate in a semistructured interview with a research assistant. Interview questions are used to obtain information about parent and family coping by asking first broadly about stress management over the previous month and then specifically about individual coping strategies. Semistructured interviews are audio recorded, transcribed, and coded for common themes. Interviews are coded by using specific words or phrases to describe various domains of the experience from the caregiver's perspective. Each participant is given a study ID and study IDs are logged with each code word or phrase endorsed during the interview. **RESULTS/ANTICIPATED RESULTS:** To date, 22 caregivers have been enrolled and 15 have completed interviews. The most common coping mechanisms fall into the domains of active, avoidance, emotion-focused, and spiritual coping. Active coping consists of information seeking (eg, taking notes, internet research, asking questions), openly communicating emotions, celebrating small victories (eg, focusing on a good scan or test result, thinking that the diagnosis or treatment could have been worse), planning (eg, focusing on 1 d at a time), and maintaining normalcy (eg, maintaining extracurricular activities, returning to school if possible, continuing to see family and friends). Avoidance coping consists of evading discussions about emotions, withdrawal from family members, denial (eg, keeping a cancer diagnosis from the child), and avoiding seeing people or participating in activities. Emotion-focused coping consists of crying, laughing, and staying strong in front of the patient. In general, those who self-identify as coping poorly tend to be those who utilized more avoidance-focused coping strategies. Further, caregivers tended to identify active coping strategies (eg, taking notes, focusing on 1 appointment or treatment at a time) as the most helpful. **DISCUSSION/SIGNIFICANCE OF IMPACT:** It will be helpful for providers to more deeply understand the experience of caregivers whose children have recently undergone brain tumor resection and the strategies used to cope with the stress of the first month postsurgery. This information can be used to create standardized interventions for use during posthospitalization clinic visits. For example, if families continue to endorse that active coping mechanisms are the most helpful, providers can assist caregivers in developing these strategies (eg, uniformly provide notebooks and encourage caregivers to keep track of questions and appointment information, pair caregivers who are struggling with others who use more active coping strategies). Those utilizing more avoidance coping strategies may need more coaching and recommendations. A brief assessment could potentially be developed for caregivers dealing with this diagnosis, in order to quickly assess coping strategies and provide appropriate recommendations. Future analyses will determine whether initial coping strategies and adjustment are predicted by child age or medical information.

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### Reperfusion strategies when non-stemi is misclassified as stemi myocardial infarction

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**OBJECTIVES/SPECIFIC AIMS:** A retrospective analysis was done at the Cardiovascular Center to evaluate reperfusion strategies, including stemi infarcts and non-stemi classified as stemi in a period of 2 years. **METHODS/STUDY POPULATION:** Review the records of stemi infarcts in a period of 2 years. **RESULTS/ANTICIPATED RESULTS:** In total, 101 cases were classified as stemi, but after strict analysis (time wise) 24 cases were non-stemi; 47% had inferior myocardial infarction and 38% an anterior myocardial infarction with a mean age of 65 years. All cases were immediately catheterized. Although the non-stemi, classified originally as stemi did not meet the time limit (<2 h) for cath. The stemi group (77 P.) 58 P. had angioplasty with stent implantation. 19 P. had an EF of 45% and remained that way during follow up. The rest of the P. the EF went up to 50% or more. The non-stemi group (24 P.) had angioplasty with stent implantation. The EF remained around 40% during follow up, which was the EF on admission. Fibrinolysis was given erratically. No changes were seen in the EF on follow up in the fibrinolytic group. **DISCUSSION/SIGNIFICANCE OF IMPACT:** This shows the importance of classifying the P. well between stemi and non-stemi. The time frame to catheterization should be kept as strict as possible, due to transmural infarcts, and catheterized in <2 hours to avoid deterioration of the left ventricular function and its consequences. This strict classification will save money to the institution when emergency catheterization is avoided in the non-stemi group.

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### Patient and household member colonization and environmental contamination with *Staphylococcus aureus* in a comparative effectiveness study of home-based interventions to reduce CA-MRSA recurrence and household transmission

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**OBJECTIVES/SPECIFIC AIMS:** Community-associated methicillin-resistant *Staphylococcus aureus* (CA-MRSA) skin and soft tissue infections (SSTIs) are commonly seen in primary care, with recurrence rates that range from 16% to 43%, and present significant challenges to clinicians, patients, and families. This comparative effectiveness research study aims to develop and evaluate a home-based intervention implemented by Community Health Workers (CHWs) or "promotoras" to prevent recurrence of CA-MRSA in patients presenting to primary care with SSTIs and transmission within their households. This presentation will examine associations between wound microbiology, clinical presentation, and housing characteristics, including housing density and household surfaces contamination. **METHODS/STUDY POPULATION:** In partnership with 3 Community Health Centers and 3 community hospitals in NYC, this study will recruit patients (n = 278) with confirmed MRSA SSTIs and their household members. Participants will be randomized to receive either a CHW/Promotora-delivered decolonization-decontamination intervention (based on the REDUCE MRSA trial) or usual care. The highly engaged stakeholder team finalized the intervention protocol, developed and implemented CHW and clinician training, and developed an online health portal application for data management and exchange. **RESULTS/ANTICIPATED RESULTS:** We have collected 923 isolates from 237 individuals, including 240 wound culture isolates and 683 surveillance culture isolates (nares, axilla, groin). MRSA and MSSA were found in 19% and 21.1% of wound cultures, respectively; 59.5% with MRSA + wound culture had 1 or more MRSA + surveillance culture; 67.8% with MSSA + wound culture had 1 or more MSSA + surveillance culture. Of those with MRSA or MSSA infections, 70% of subjects were male, with an average age of 37.9 (SD = 15.9 y). The most frequent sites of infection were the leg (20%), axilla (18%), buttock (17%), and abdomen/torso (12%). There was no association between the location and type of infection (MRSA/MSSA) (p-value = 0.09). The kitchen floor (14.05%) and bedroom floor (14%) were the most common surfaces contaminated with MRSA. These were also the most common surfaces contaminated with MSSA, which was recovered from 10.2% and 9.1% of kitchen floors and bedroom floors, respectively. For individuals with an MRSA or MSSA wound infection, there was an average number of 3.2 (SD = 1.6) co-residents per household, and 36.5% of household members were colonized with either MRSA or MSSA. There is no association between household density (number of co-residents)

and type of infection (MRSA/MSSA) (Fisher's  $p$ -values = 0.171 and 0.371, respectively). In households of participants with MSSA wound infections, the number of colonized sites is positively associated with the level of household MSSA contamination ( $p = 0.027$ ). Further analyses will examine the associations between molecular subtypes, wound location, household surface contamination and household member colonization and infection. **DISCUSSION/SIGNIFICANCE OF IMPACT:** This study aims to understand the patient-level and environmental-level factors associated with SSTI recurrence, surface contamination and household transmission, and to examine the interactions between bacterial genotypic and clinical/phenotypic factors on decontamination, decolonization, SSTI recurrence and household transmission. This study will evaluate the barriers and facilitators to implementation of home visits by CHWs in underserved populations, and aims to strengthen the evidence base for implementation of strategies to identify and reduce household reservoirs and then control SSTI recurrence and household transmission.

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### Social determinants of health and comorbidity in individuals with type 2 diabetes at HealthStreet, a community engagement initiative

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**OBJECTIVES/SPECIFIC AIMS:** Research on social determinants of health (SDHs) in type 2 diabetes have largely examined disease etiology rather than severity. To find factors associated with complications, we investigated socio-demographics, healthcare access, and healthcare utilization in individuals with type 2 diabetes with respect to related comorbidity. **METHODS/STUDY POPULATION:** Community health workers assessed 8494 participants for type 2 diabetes ( $n = 939$ ; 11%) through HealthStreet, a community-engagement model implemented in North Central Florida. Comorbidities were defined as neuropathy, retinopathy, high cholesterol, hypertension, and kidney failure. We conducted multivariate analyses to test the association of socio-demographic factors and comorbidity status. **RESULTS/ANTICIPATED RESULTS:** Of 939 members with type 2 diabetes, 164 (17%), 272 (29%), 370 (39%), and 133 (14%) reported having 0, 1, 2, and 3+ comorbidities, respectively. There is a smaller proportion of African-Americans reporting 3+ comorbidities compared with other comorbidity groups ( $p = 0.003$ ). Those with more comorbidity are less employed ( $p < 0.0001$ ) and are more likely to have Medicare/Medicaid ( $p = 0.03$ ) than those without comorbidity. Those with no comorbidity are more likely to be uninsured compared to those with comorbidity ( $p = 0.0297$ ). Adjusting for age, race, gender, and BMI, those that have at least 1 comorbidity are 1.4 times more likely to be food insecure ( $p = 0.004$ ) and are 1.9 times more likely to have seen a doctor in the past 12 months ( $p = 0.002$ ) compared to those without comorbidity. **DISCUSSION/SIGNIFICANCE OF IMPACT:** Although there is complexity among the relationships between SDHs and diabetic comorbidity, results suggest significant sociodemographic and healthcare-related disparities among individuals living with type 2 diabetes. Members with more comorbidity utilize healthcare, but are more likely to be food insecure among other factors. Those with no comorbidity are least likely to see a physician, which could imply a gap in the care continuum. This analysis gives insight into the importance of efficient diabetes management, focused on disparities in economic stability and healthcare access and utilization.

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### National trends in ambulatory Versus emergency department visits for low-income patients with skin and soft tissue infections

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**OBJECTIVES/SPECIFIC AIMS:** Community-associated methicillin-resistant *Staphylococcus aureus* (CA-MRSA) skin and soft tissue infections (SSTIs) recurrence ranges from 16% to 43% and presents significant challenges to clinicians, patients, and families. The number of emergency department visits for SSTIs increased from 1993 to 2005 from 0.48 to 1.16 ED visits per 100 US residents (95% CI 0.94 to 1.39;  $p < 0.001$ ); high safety-net status EDs saw a 4-fold increase in visits. The CA-MRSA Project (CAMP2) comparative effectiveness research (CER) study aims to evaluate a home-based intervention implemented by Community Health Workers (CHWs) or "promotoras" to prevent recurrence and transmission of CA-MRSA in primarily low-income, minority patients presenting to primary care with SSTIs. The intervention disseminates and implements methods found effective in the REDUCE MRSA trial. The present analysis was conducted using publicly available data set to characterize the national patterns of healthcare utilization for treatment of SSTIs. **METHODS/STUDY POPULATION:** An analysis was conducted using data

downloaded from the CDC National Ambulatory Medical Care Survey (NAMCS) and the CDC National Hospital Ambulatory Medical Care Survey (NHAMCS) from 2012 (most recent data available) to evaluate the addition of Emergency Departments (EDs) as compared to Ambulatory Care as recruitment sources for a clinical trial to reduce CA-MRSA SSTI recurrence and household transmission. "Low-income" population was defined using "Expected Source of Payment" categories "Medicaid" and "Uninsured," and ICD-9-CM dermatologic diagnosis codes for SSTIs and ICD-9-CM Procedure Codes for Incision and Drainage (I&D) were used to define a visit for SSTI treatment. **RESULTS/ANTICIPATED RESULTS:** In all patients, I&D was performed at a higher rate in EDs as compared with the ambulatory care setting (49.57 vs. 1.44 per 10,000 US residents in Medicaid and Uninsured; 44.48 vs. 5.24 per 10,000 US residents in all other insurance types). Nationally, low-income patients are 4 times more likely to have I&D procedure performed (OR 4.05, 95% CI 0.614–26.759,  $p < 0.0001$ ) and 5 times more likely to be diagnosed with an SSTI (OR 5.10, 95% CI 2.987–8.707,  $p < 0.001$ ) in the ED setting. **DISCUSSION/SIGNIFICANCE OF IMPACT:** These results confirm that low income patients seek primary care for SSTIs in both EDs and ambulatory care, such as Federally Qualified Health Centers (FQHCs). This also confirms the trend we have experienced in FQHCs in NYC, many of whom refer patients to the ED for the I&D procedure, and those patients return to the FQHC for follow-up. Thus, the most comprehensive test of using CHWs to disseminate and implement the findings from the REDUCE MRSA trial would engage both EDs and Ambulatory Care/FQHCs for patient identification and recruitment.

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### Investigating markers of early traumatic brain injury (iMet): An interim analysis

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**OBJECTIVES/SPECIFIC AIMS:** Analyze data from the first 30 children enrolled in a prospective cohort study evaluating the ability of specific serum biomarkers to distinguish children with traumatic brain injuries (TBI) from children with orthopedic injuries (OI). **METHODS/STUDY POPULATION:** Children ages 0 < 5 years were eligible if they presented to the emergency department within 6 hours of injury. Children were identified as having a TBI if they sustained a head injury and were found to have an acute injury on head CT. Children were identified as having an OI if they sustained a musculoskeletal injury significant enough to necessitate radiography per clinical care. Individual (eg, age) and clinical (eg, radiography findings) factors, as well as serum biomarkers [eg, ubiquitin C-terminal hydrolase L1 (UCH-L1), glial fibrillary acidic protein (GFAP)] were collected at time of enrollment. TBI and OI groups were compared using Wilcoxon rank-sum and Kruskal-Wallis tests. **RESULTS/ANTICIPATED RESULTS:** This cohort consisted of 13 children with TBI (7 with isolated skull fractures, 1 with intracranial injury, and 5 with both a skull fracture and an intracranial injury) and 17 with OI (12 with fractures). Most patients were male (67%) and White (67%), and this did not differ between groups ( $p > 0.1$ ). Children with TBI were significantly younger than children with OI, with an average ( $\pm$  standard deviation) age of 15  $\pm$  13 and 39  $\pm$  13 months, respectively ( $p < 0.01$ ). There was not a significant difference in time from injury to biomarker collection between TBI and OI patients at 4.1  $\pm$  1.8 and 5.8  $\pm$  2.6 hours, respectively ( $p = 0.07$ ). Median (IQR) levels of GFAP were significantly higher ( $p < 0.01$ ) in children with TBI, relative to children with OI: 220 (67–421) pg/mL Versus 37 (25–74) pg/mL, respectively. Median (IQR) levels of UCH-L1 were also significantly higher ( $p < 0.01$ ) in the TBI group, relative to children with OI: 444 (377–449) pg/mL Versus 248 (140–417) pg/mL, respectively. In a subanalysis comparing median biomarker levels across three study groups (ie, TBI with an isolated skull fracture, TBI with an intracranial injury, and OI), group differences remained significant for both biomarkers with TBI patients having higher levels, relative to OI patients, of both GFAP ( $p < 0.01$ ) and UCH-L1 ( $p = 0.02$ ). **DISCUSSION/SIGNIFICANCE OF IMPACT:** GFAP and UCH-L1 hold promise to improve the diagnosis of TBI in very young children. Identification of a marker of TBI that can be done in the acute care setting would advance the diagnosis of TBI in very young children, a vulnerable population for whom identification of neurological symptoms can be challenging.

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### Risk of adjacent segment breakdown at the cervico-thoracic junction: Where should we stop?

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**OBJECTIVES/SPECIFIC AIMS:** Cervical fusion is commonly performed for the management of degenerative disc disease, which can cause spinal stenosis and radiculopathy. Adjacent segment disease (ASD) is an adverse postsurgical outcome experienced by some patients as new radiculopathy, stenosis, or other