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.

2423

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

Scott Cohen, Jasmine Mack, Catherine Striley and Linda Cottler

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.

2424

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

Brianna M. D'Orazio, Joel Correa da Rosa and Jonathan N. Tobin

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 publically 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.

2443

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

Tara Rhine, Ting Sa, Nanhua Zhang, Shari Wade and Rachel P. Berger

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 ± 13 and 39 ± 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 ± 1.8 and 5.8 ± 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.

2447

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

Akachimere C. Uzosike, Venkata K. Byrapogu, Alim F. Ramji, Richard L. Skolasky and Brian J. Neuman

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

https://doi.org/10.1017/cts.2017.277 Published online by Cambridge University Press

symptomatic sequelae. We sought to assess whether fusion extension past the cervicothoracic junction reduces the risk of distal ASD after multilevel fusions ending at C7-T3. METHODS/STUDY POPULATION: We retrospectively reviewed all first-time patients undergoing instrumented cervical fusion of at least 2 spinal levels and whose distal level of fusion ranged from C7-T3, at the Johns Hopkins Medical Institutions, from 1999 to 2013. The primary outcome was reoperation for distal ASD. Using multiple logistic regression, ANOVA, and χ^2 analysis, we determined the odds of ASD due to age, gender, distal level of fusion, surgical approach (anterior, posterior, or combined), smoking status, and race. RESULTS/ANTICIPATED RESULTS: Of the 158 patients who met the selection criteria, the mean age was 58.7 ± 13.8 years, and 95 (60.1%) were female. Ten patients (6.3%) underwent reoperation for ASD. Patients whose fusions ended at C7 were significantly more likely to develop ASD and undergo reoperation (70%, $p = 0.007$) than those whose fusions ended at T1. There were no differences in age, proximal fusion level, smoking status, BMI, gender, and patient-reported race between the reoperation and non-reoperation groups. Following a multivariable analysis, extending the distal fusion to T1 was again found to be protective against reoperation (OR = 0.07, $p = 0.020$). DISCUSSION/SIGNIFICANCE OF IMPACT: Our study shows that for multilevel instrumented cervical fusions that terminate within the cervicothoracic junction, fusion distal to the C7 vertebra is associated with decreased odds of reoperation for symptomatic ASD. Therefore, this study provides clinical evidence that may help surgeons determine the optimal distal fusion segment for multilevel fusions ending at C7-T3.

2450

Factors associated with urban youth and parent perceptions of the preventability of their emergency department visit for an assault-related injury

Antony Gatebe Kironji, Tina Cheng, Vanya Jones, Sarah Lindstrom Johnson, Joel Fein and Leticia Ryan

OBJECTIVES/SPECIFIC AIMS: To identify factors associated with urban youth and parent perceptions of the preventability (PoP) of the youth's medically attended assault injuries in order to guide future violence prevention strategies. METHODS/STUDY POPULATION: Assault-injured youth (n = 180; ages 10–15; 60% male; 96% African-American) and their parents were recruited from 2 pediatric emergency departments (EDs) in Baltimore and Philadelphia between June 2014 and June 2016. Data on demographics, circumstances of injury, injury severity, and perceptions of the injury were collected from chart review and in-person interviews with youth and parents using previously validated instruments. Within youth and parent groups, we compared those who reported "definitely true" when asked if the event that brought them to the ED could have been prevented to those who reported "maybe true" or "unlikely" using χ^2 testing. RESULTS/ANTICIPATED RESULTS: In total, 68 (37.8%) youth and 123 parents (68.3%) reported that the injury was definitely preventable. Youth who were injured indoors [OR 2.13 (95% CI 1.17, 3.88), $p = 0.013$] or considered their injury not serious [OR 4.82 (95% CI 1.78, 13.11), $p = 0.002$] were more likely to perceive injury preventability and those who reported being the victim were less likely to perceive injury preventability [OR 0.26 (95% CI 0.01, 0.67), $p = 0.005$]. Bullying and use of weapons were not associated with youth PoP. Parents were significantly more likely to perceive preventability when the person/people involved were known by the youth [OR 1.94 (95% CI 1.04, 3.62), $p = 0.037$] and when the injury occurred indoors [OR 1.96 (95% CI 1.04, 3.69), $p = 0.038$]. Similar to youth, parental report of bullying was not associated with parent PoP. Injury severity, and victim role of their child were also not associated with parent PoP. DISCUSSION/SIGNIFICANCE OF IMPACT: A prior violent injury is a major risk factor for future injuries and homicides. Through our work we were able to identify factors associated with youth and parent perception of preventability of injuries in a high risk population. Youth who felt victimized were less likely to perceive their injury as preventable. In addition, parents were more likely to perceive the injury as preventable when their injured child knew those involved in the incident. This work can inform violence prevention strategies and potentially identify opportunities to reduce intentional injuries in urban youth.

2452

Artificial urinary sphincter failure: Characterizing the causes of failure and individual device component survival

Arnav Srivastava, Gregory Joice, Madeline Manka, Nikolai Sopko and Edward Jamie Wright

Johns Hopkins University School of Medicine, Baltimore, MD, USA

OBJECTIVES/SPECIFIC AIMS: Stress urinary incontinence (SUI) significantly affects quality of life and occurs in 60% of men after radical prostatectomy, with 5% requiring surgical treatment. The artificial urinary sphincter (AUS) offers these patients excellent control of their post-prostatectomy SUI. The device contains 3 parts: the pump, urethral cuff, and pressure regulating balloon. Despite the effectiveness of AUS, up to 50% of patients require surgical revision after initial placement due to recurring SUI. Thus far, literature is heterogeneous regarding the causes of mechanical AUS failure and appropriate surgical management. Our study aims to characterize the most common reasons of AUS failure requiring surgical revision and the survival of each AUS component. METHODS/STUDY POPULATION: We report a series of 48 patients who received AUS placement and/or revision by 1 surgeon from 2010 to 2013. Upon presenting for revision, intraoperatively, the surgeon systematically evaluated the device for failure of the balloon, cuff and pump as well as urethral erosion and atrophy. In patients not requiring revision all device components were presumed functional. We conducted retrospective chart review to collect baseline characteristics, intraoperative findings, and postoperative outcomes. Using Kaplan-Meier estimates, we calculated incidence rates of component failure for the cuff, pump, and balloon. To identify risk factors for AUS failure, Cox regression was performed for univariate and multivariable testing. Multivariable modeling included those variables considered biologically plausible and significant in univariate testing. RESULTS/ANTICIPATED RESULTS: In total, 48 patients were studied with median follow up of 4.25 years. All patients received an AMS 800 device with a 61–70 mL balloon filled with 27 cc of isotonic contrast. Cuff sizes ranged from 3.5 to 5.5 cm, with 4.5 cm selected in 33/48 cases (68.8%); 19 of the patients required AUS correction (41.7%). Balloon leak constituted 57.9% (11/19) of failures, followed by cuff failure/urethral atrophy (21.1%), urethral erosion (10.5%), and individual cases of infection and pump failure. Median time to mechanical failure due to balloon leak was 3.67 years (IQR 2.17, 5.33); median time to failure for nonballoon causes was 0.54 years (IQR 0.25, 1.83). Survival of the balloon, cuff, and pump was 100%, 95.7%, and 97.9% at 1 year and 76.9%, 91.0%, and 97.9% at 5 years, respectively. DISCUSSION/SIGNIFICANCE OF IMPACT: Our study identifies fluid leakage from the balloon as the most common cause of AUS failure, particularly in patients presenting between 1 and 5 years after initial placement. For such patients, interrogating the balloon first can decrease infection risk and surgical morbidity as it can avoid manipulation of the urethral cuff. Furthermore, simply replacing lost fluid saves cost and allows for immediate reactivation of the AUS device.

2460

Change in duration of postoperative antibiotic prophylaxis in esophagectomy patients: Outcomes in a single academic institution

Sue Wang, Gavitt A. Woodard, Calixto-Hope Lucas, Stanley J. Rogers and David M. Jablons

OBJECTIVES/SPECIFIC AIMS: Ivor-Lewis esophagectomy (ILE) is an invasive surgical procedure with a high incidence of postoperative pneumonia. Antibiotic prophylaxis could reduce respiratory infections but increase *Clostridium difficile* and antibiotic resistance. Our institution reduced the duration of piperacillin-tazobactam prophylaxis following ILE from 4 to 1 day or less in January 2015. We evaluated short-term outcomes in ILE patients before and after this institutional change. METHODS/STUDY POPULATION: Retrospective cohort study of all ILE patients from 2012 to 2016. We confirmed antibiotic duration directly from nursing medication administration records. The primary outcomes of this study were rates of *C. difficile* and postoperative pneumonia. Secondary outcomes include other infection, length of hospital stay, and readmission within 30 days. We used logistic regression to analyze impact of days of antibiotics and χ^2 or Fischer exact tests for categorical variables. RESULTS/ANTICIPATED RESULTS: Of 104 ILE patients, 40.4% (n = 42) were after January 2015, 11.5% developed pneumonia and 5.8% developed *C. difficile* colitis. ILE patients received more days of antibiotics before the institutional change compared with after (6.1 vs. 2.9 d, $p < 0.01$). For a 1-day increase in antibiotic duration, the odds of acquiring *C. difficile* increased significantly by 1.2 ($p = 0.03$). Before compared with after the institutional change, rates of *C. difficile* were 8.1% Versus 2.4% ($p > 0.2$), rates of pneumonia were 11.3% Versus 11.9% ($p > 0.2$), and length of stay was 10.9 Versus 10.5 days ($p > 0.2$), respectively. DISCUSSION/SIGNIFICANCE OF IMPACT: Institutional policy can have an impact on patient outcomes. Antibiotic stewardship is associated with reduced rates of inpatient *C. difficile*. Our study suggests reduced antibiotics are not associated with pneumonia, although larger studies are necessary to confirm this finding. Surgeons should consider the benefit of decreased rates of *C. difficile* before administering prolonged antibiotic prophylaxis following esophagectomies.

https://doi.org/10.1017/cts.2017.277 Published online by Cambridge University Press