sham stimulation group, with all other study procedures being the same in both groups. Participants will completed 2 days of baseline testing, 5 consecutive days of brain stimulation during speech training, 2 days of post-testing, and a 1-month follow up. All outcome measures will be completed immediately before and after the 5 days of brain stimulation, as well as at follow-up. as of submission, 10 subjects have completed the study. Data collection is ongoing. RESULTS/ANTICIPATED RESULTS: Expected results. Questions this study aims to answer: 1) Does a more intensive training period lead to decreased stuttering? We expect that both groups will show improvements in speech fluency immediately after training. We expect that those in the active group will continue to exhibit improved speech fluency at 1 month follow up. 2) Does a more intensive training period lead to changes in brain activity? We expect that both groups will exhibit increased activity in auditory/motor regions immediately after training. We expect that the active group will continue to exhibit an increase in activity in these regions at 1 month follow up. DISCUSSION/SIGNIFICANCE OF IMPACT: This is the first RCT study involving brain stimulation in adults who stutter. We expect to provide preliminary evidence for the effectiveness of tDCS as an augmentative agent for increased speech fluency in adults who stutter during a brief, intensive training paradigm. We also expect to be able to provide information on the effects of tDCS on brain activity in speech and auditory-motor regions of the brain. The findings will add to the growing body of literature suggesting that developmental stuttering is a neurodevelopmental disorder with roots in timing and rhythmic aspects of speech motor control and auditory-motor integration.

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Estimation of the Prevalence of Cesarean Delivery for the Extremely Preterm Fetus in Breech Presentation

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OBJECTIVES/SPECIFIC AIMS: Cesarean delivery is typically performed in the extremely preterm period (23 to 28 weeks) when the fetus is in breech presentation to avoid the potential risk of head entrapment by an insufficiently dilated cervix during a vaginal delivery. Assessment of the prevalence of extremely preterm breech cesarean delivery would help to appropriately guide future clinical interventions designed to increase the feasibility of vaginal delivery for this sub-group of patients. METHODS/STUDY POPULATION: We performed a cross-sectional study of the 2106 U.S. National Vital Statistics birth certificate database to estimate the prevalence of cesarean deliveries performed during the period of gestation from 23 to 28 weeks with a fetus in breech presentation. RESULTS/ANTICIPATED RESULTS: An analysis of the total births in the 2016 registry (3,945,875) was performed. The gestational age was limited to the target range of 23 0/7 to 27 6/7 weeks. Multiple gestation deliveries were excluded. This yielded 16,092 births of which 4,849 were noted to have breech presentation. The proportion of cesarean deliveries performed for singleton breech fetuses at this gestational range was 87% (4,203/4,849). DISCUSSION/SIGNIFICANCE OF IMPACT: The probability of undergoing a cesarean delivery for an extremely preterm fetus in breech presentation is notably higher (87%) when compared to an overall cesarean delivery rate of 31.9%. Specific interventions to allow for vaginal delivery in this particular sub-group of the obstetric population would be useful to reduce maternal morbidity by increasing vaginal deliveries. Future work will attempt to address innovative solutions to prevent head entrapment by the cervix in this particular population and ultimately avoid cesarean delivery.

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Evaluation of risk factors for progression from carbapenem-resistant Enterobacteriaceae bacteriuria to an invasive infection

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OBJECTIVES/SPECIFIC AIMS: To describe the epidemiology of patients with carbapenem-resistant Enterobacteriaceae (CRE) bacteriuria in metropolitan Atlanta, GA and to identify risk factors associated with progression to an invasive CRE infection. We hypothesize that having an indwelling urinary catheter increases the risk of progression. METHODS/STUDY POPULATION: The Georgia Emerging Infections Program (EIP) performs active population- and laboratory-based surveillance to identify CRE isolated from a sterile site (e.g. blood) or urine among patients who reside in the 8-county metropolitan Atlanta area (population ~4 million). The Georgia EIP performs a chart review of each case to extract data on demographics, culture location, resistance patterns, healthcare exposures, and other underlying risk factors. We used a retrospective cohort study design to include all Georgia EIP cases with Escherichia coli, Klebsiella pneumoniae, Klebsiella oxytoca, Enterobacter cloacae, or Klebsiella (formerly Enterobacter) aerogenes, adapting the current EIP definition of resistance to only include isolates resistant to meropenem, imipenem or doripenem (minimum inhibitory concentration ≥ 4) first identified in a urine culture from 8/1/2011 to 7/31/2017. Patients with CRE identified in a sterile site culture prior to a urine culture will be excluded. Within this cohort, we will identify which patients had a subsequent similar CRE isolate identified from a sterile site between one day and one year after the original urine culture was identified (termed "progression"). CRE isolates will be defined as similar if they are the same species and have the same carbapenem susceptibility pattern. Univariable analyses using T-tests or other nonparametric tests for continuous variables, and Chi-square tests (or Fisher's exact tests as appropriate) for categorical variables will compare patient demographics, comorbidities and presence of invasive devices including urinary catheters between patients who had progression to an invasive infection and those who did not have progression. Covariates with a p-value of < 0.2 will be eligible for inclusion in the multivariable logistic regression model with progression to invasive infection as the primary outcome. All statistical analyses will be done in SAS 9.4. RESULTS/ANTICIPATED RESULTS: From 8/1/2011 to 7/31/2017 we have preliminarily identified 546 patients with CRE first identified in urine, representing an annual incidence rate of 1.1 cases per 100,000 population. Most cases were K. pneumoniae (352, 64%), followed by E. coli (117, 21%), E. cloacae (48, 9%), K. aerogenes (18, 3%), and K. oxytoca (11, 2%). The mean patient age was 64 +/− 18 years and the majority (308, 56%) were female. Clinical characterization through chart review was available for 507 patients. The majority of the patients were black (301, 59%), followed by white (166, 33%), Asian (12, 2%), and other or unknown race (28, 6%). 466 (92%) patients had at least one underlying comorbid condition with a median Charlson Comorbidity Index of 3 (IQR 1-5). 460 (91%) infections were considered healthcare-associated (366 community-onset

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