

clinical, and surgical factors associated with thrombosis in infants with single ventricle CHD. In addition, I will compare the rates of thrombotic complications between the 2 most commonly used approaches for stage I palliation for the group of patients with hypoplastic left heart type of anatomy (MBTS vs. RVPAS) and will test the hypothesis that the risk of thrombotic complications is associated with the stage of palliative surgery (stage I vs. stage II). Specific Aim 2: We will test identified demographic, clinical, surgical, and newly identified variables in a univariable and multivariable analysis and study their potential interactions to construct a novel risk predictive model specific for single ventricle CHD. RESULTS/ANTICIPATED RESULTS: To determine feasibility for adequate numbers to be able to address the research aims, a preliminary analysis dataset was performed using a dataset from the Pediatric Heart Network. The PHN is a collaborative group of hospitals that participates in clinical research studies in children with CHD. For the SVR clinical trial, the PHN conducted a randomized clinical trial at 15 centers in North America between 2005 and 2009, prospectively enrolling infants with HLHS or single right ventricle anomalies who were to undergo the Stage I Norwood procedure. A total of 920 newborns were screened; 664 were medically eligible and 549 patients were randomized. The primary aim of the trial was to compare survival of infants randomized to receive either the Norwood procedure with the MBTS or the RVPAS. These patients were followed at specific time points, including from baseline (pre-Norwood), at the time of the Norwood procedure, between stage I and II, following stage II reconstruction, and at 14 months of age. At these time points, data were collected that includes demographic, radiologic, clinical, and surgical outcomes. Included in the clinical outcomes are complications, such as thrombosis. There was no screening process to assess for asymptomatic thromboses, suggesting that most, if not all, discovered thromboses were due to clinically relevant effects. A newer iteration of this study (SVRIII) expands the monitoring of this cohort until the Fontan stage at 2–6 years of age, but these data have not yet been released in the public use data set. A descriptive analysis of the frequency of thrombotic complications was assessed at each time point, as well as in aggregate. Data were extracted from the specific time periods of interest, identified as Pre-Norwood, during Norwood Hospitalization, in-between visits, and during Stage II Hospitalization. There were 549 infants who were randomized with available data to analyze. During the Norwood hospitalization, 37 infants had a thrombotic complication. Between Stage I and Stage II outpatient visits, 8 infants had a thrombotic complication. During Stage II hospitalization, 16 infants had a thrombus. Overall, 61 individual patients (11%) had a thrombotic complication. DISCUSSION/SIGNIFICANCE OF IMPACT: This study utilizing data from the Pediatric Heart will be the largest cohort ever utilized for characterizing thrombotic complications and determining the factors associated with thrombosis across the first and second stages of surgical reconstruction. More than 500 ( $n=549$ ) subject's data will be analyzed through the first two stages of reconstruction, while the largest analysis before this proposed analysis only included a total of 195 children. Notably, these prior studies did not include a comparison between the 2 shunt types in stage I reconstruction, leaving a gap in knowledge regarding the incidence of thrombosis comparing these groups. The analysis will be the first to address this gap and update the current literature. Preliminary data show that the overall incidence of thrombosis across the first 2 stages of surgical reconstruction was 11%, which is lower than the previously reported overall rates of 40%–50%. Despite the continued lack of evidence-based guidelines for thromboprophylaxis methods, the decreased overall rate is most likely due to more widespread practice of anticoagulation in general. Determining the factors associated with thrombosis across the first and second stages of surgical reconstruction will help identify those at risk. An innovative aspect of this analysis will be the use of disease-specific factors to develop a model to predict thrombosis. Unique factors include cardiac variables like ejection fraction, baseline oxygen saturation, shunt type (MBTS vs. RVPAS), and other echocardiographic parameters. While the use of thromboprophylaxis has been associated with decreased risk of thrombosis, there is no general consensus to guide thromboprophylaxis in this population, which can be burdensome and costly. Determining which subset of infants with single ventricle CHD are at increased risk of developing thrombotic complications will allow for the development of a prediction model to predict those at highest risk of developing a thrombotic complication. Developing a predictive model will be a novel way to identify patients at risk for thrombosis and will set the stage for targeted prevention of thrombosis.

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### Trends in anogenital warts incidence: Potential impact of human papillomavirus vaccination, TennCare 2006–2015

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OBJECTIVES/SPECIFIC AIMS: We aimed to assess trends in incidence of genital warts across human papillomavirus (HPV) vaccine-eligible and

nonvaccine-eligible age groups to determine the impact of the HPV vaccine among Medicaid enrollees in the state of Tennessee. METHODS/STUDY POPULATION: We analyzed 2006–2014 medical and pharmaceutical claims data from TennCare (Tennessee's Medicaid program) enrollees aged 15–64 years. Incident cases of genital warts were defined as persons 12 months disease free and: (1) a diagnosis of condyloma acuminatum, or (2) a diagnosis of viral warts and genital-specific procedure, or (3) a prescription for genital warts medication and genital-specific procedure. Mann-Kendall trend tests were performed to assess for significant trends in incidence of genital warts by sex and age group; average annual percent changes were calculated to quantify these trends. RESULTS/ANTICIPATED RESULTS: Our analysis is in progress. We hypothesize that we will observe declines in genital warts among younger, vaccine-eligible age groups and no changes in older, nonvaccine-eligible age groups, with largest declines among females aged 15–19 years from 2006 to 2014. We also expect to see declines among younger males due to herd protection, with greater declines after 2011, when the vaccine was approved for males. DISCUSSION/SIGNIFICANCE OF IMPACT: Significant declines among younger compared with older age groups would suggest HPV vaccine effectiveness for preventing genital warts.

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### Understanding care delivered to patients with a possible concussion at an urban level I trauma center

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OBJECTIVES/SPECIFIC AIMS: Background: Annually, 2.5 million traumatic brain injuries (TBI) occur with nearly 75% classified as mild TBI (mTBI), also known as a concussion. Mild TBI can be subtle and detection requires a high index of suspicion and a regimented evaluation process. This study was done to define the proportion of patients with a possible mTBI evaluated for concussion at a high volume urban trauma center. METHODS/STUDY POPULATION: Methods: A prospective cohort of patients was identified using a 3-question screen at the time of triage: did an injury occur; was the mechanism consistent with mTBI; was there a period of altered mental status. Patients who screened positive were thought to meet a minimum threshold for the evaluation of mTBI. Information about mTBI specific evaluation, management, and education was obtained from the patient's charts. RESULTS/ANTICIPATED RESULTS: Results: 38,484 patients were screened over 16 weeks, of whom 453 (1.18%) screened positive for a possible mTBI and did not meet exclusion criteria. In total, 198 patients had documented loss of consciousness, 101 were diagnosed with mTBI, and 49 received mTBI discharge instructions. Overall, 32.5% of included patients had mTBI listed in the differential or as a diagnosis and 32.3% with loss of consciousness received a mTBI diagnosis. DISCUSSION/SIGNIFICANCE OF IMPACT: Conclusions: Many patients with a possible mTBI were not evaluated, managed, or educated for their potential injury. Changes in physicians' approach to mTBI must occur to increase the proportion of patients receiving appropriate evaluation, management, and education. These results define the current reality of mTBI treatment in the Emergency Department and show the need for further experimental studies targeted at physician decision support interventions to improve mTBI care.

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### Utilization of ClinicalTrials.gov registry to demonstrate the extent of dissemination bias in anesthesiology

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OBJECTIVES/SPECIFIC AIMS: The purpose of this study is to evaluate the extent of publication bias in anesthesia and to evaluate the characteristics of studies that are registered and unpublished. METHODS/STUDY POPULATION: We used the advanced search option and the key word "anesthesia" to identify anesthesia related studies in the ClinicalTrials.gov registry. For