Results. MSSA BSI decreased from 0.37 per 1,000 hospital days (n = 15) to 0.00 (n = 0), P = 0.0092. All MSSA infections decreased from 0.62 (n = 25) to 0.11 (n = 2), P = 0.0078. Of 694 eligible neonates, 98.8% were screened at least once for MSSA colonization, which was detected in 92 (13.4%) infants. Median weekly prevalence of colonization was 6.7%. Median length of stay of neonates after initial detection of colonization was 30 days. Of colonized neonates, 92% received mupirocin treatment, with a median of 1 course of mupirocin treatment per patient (range, 1–7 courses). Of 54 isolates tested, all were mupirocin-susceptible. In contrast, there was no significant change in the rates of either MRSA (P = 0.71) or Gram-negative (P = 0.45) BSIs. In the comparison NICU, there was no significant change in rate of MSSA BSIs (P = 0.34).

Conclusion. Despite a substantial burden of MSSA-colonized neonates, the intervention was associated with elimination of MSSA BSI and an 82% reduction in rate of MSSA infections. A potential confounding factor was the occurrence of a cluster of mupirocin-resistant MRSA during the intervention period with the associated intensified infection prevention measures.

Disclosures. **All authors:** No reported disclosures.

2305. *Staphylococcus aureus* Screening and Decolonization for Pediatric Patients Undergoing Cardiovascular Surgery at Texas Children's Hospital (TCH): A Trainee Quality Improvement Initiative

Catherine Foster, MD; Daniel Ruderfer, MD; Gabriella Lamb, MD; Juri Boguniewicz, MD; Ryan Rochat, MD PhD GEMS; Lucila Marquez, MD, MPH; Debra Palazzi, MD and Claire E. Bocchini, MD; Baylor College of Medicine and Texas Children's Hospital, Houston, Texas

Session: 246. Pediatric Healthcare Associated Infections
Saturday, October 6, 2018: 12:30 PM

Background. Colonization with *Staphylococcus aureus* increases the risk of developing healthcare-associated infections (HAIs) in adults, but its role in pediatrics remains unclear. We hypothesized that use of a *S. aureus* screening and decolonization protocol for pediatric patients undergoing cardiovascular (CV) surgery would result in a reduction of invasive *S. aureus* infections.

Methods. A *S. aureus* screening and decolonization protocol (Table 1) was implemented for patients undergoing CV surgery at TCH on January 1, 2018. We retrospectively identified and reviewed charts of pediatric patients with *S. aureus* infections following CV surgery pre-protocol (2017) and post-protocol (January 1, 2018–March 31, 2018). We defined invasive *S. aureus* infections as: bacteremia, mediastinitis, superficial and deep surgical site infections (SSIs) and ventilator-associated pneumonias (VAPs). A subset of charts were reviewed pre- and post-protocol for methicillin-resistant *S. aureus* (MRSA) polymerase chain reaction (PCR) result, use of mupirocin and chlorhexidine gluconate (CHG), and choice of intraoperative antibiotic. Data were analyzed with Fisher's exact.

Results. Of 694 pediatric CV surgery patients in 2017, we identified 13 patients with 15 invasive *S. aureus* infections: bacteremia (5), VAP (4), and SSI (6). Twelve of these infections were caused by methicillin-susceptible *S. aureus* (MSSA) and 3 were MRSA. The median time to infection was 19 days. In the first 3 month post-protocol period, there were 175 pediatric CV surgery patients with 0 invasive *S. aureus* infections. Seventy-five charts each were reviewed pre- and post-protocol to assess protocol adherence (Figure 1). Post-protocol MRSA screening peaked at 64%, which increased further to 70% when excluding infants <30 days. Of 40 patients screened with a MRSA PCR, only 1 (2.5%) was positive. Cefazolin use remained high pre- and post-protocol (72/75 vs. 73/75 respectively).

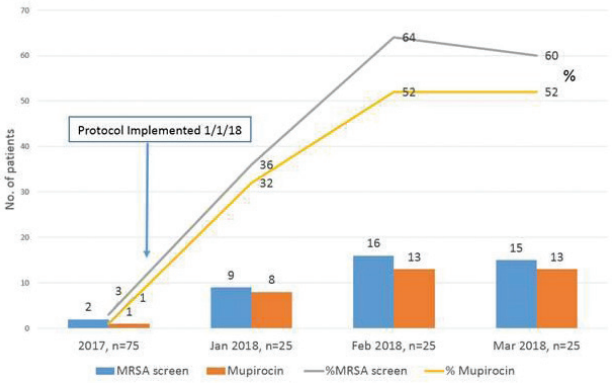
Conclusion. Most pediatric invasive *S. aureus* infections are caused by MSSA. Following protocol implementation, we observed a decrease in invasive *S. aureus* infections in CV surgery patients at TCH (P = 0.05), though continued monitoring for protocol compliance and development of *S. aureus* and other bacterial infections are needed.

Table 1. *Staphylococcus aureus* Infection Prevention Protocol for Pediatric Patients Undergoing Cardiovascular Surgery at Texas Children's Hospital

Recommendation	Description
Universal Decolonization	• Population: All patients undergoing CV Surgery • Action: Apply topical mupirocin to anterior nares BID for 5 days AND use 2% chlorhexidine gluconate antiseptic wipes as directed according to patient weight daily for 5 days[a] • Timing: Start 5 days prior to surgical procedure date
MRSA Screening	• Population: All patients undergoing CV Surgery • Action: Using a single swab, swab the nares, axilla, and groin of the patient for MRSA PCR testing • Timing: Perform at least 3-4 hours prior to surgical procedure
Screening-Directed Preoperative Antibiotic	• Population: All patients undergoing CV Surgery • Action: Administer cefazolin[b] • Timing: 0-60 minutes prior to incision; re-dose every 4 hours • Population: MRSA-positive patients undergoing CV surgery should receive cefazolin in addition to the following: • Action: Administer vancomycin • Timing: 0-120 minutes prior to incision; no re-dosing

[a]At preoperative visit, patients are given packets containing: chlorhexidine wipes, an instruction sheet, and a prescription for mupirocin.
[b]Cefazolin was the first-line agent for intraoperative prophylaxis at our institution pre protocol. In patients with a documented β-lactam allergy, may refer to A&I for penicillin allergy testing. If β-lactam allergy confirmed, administer clindamycin and re-dose every 6 hours or a one-time dose of vancomycin for gram-positive coverage.

Figure 1. *Staphylococcus aureus* Infection Prevention Protocol Use



Disclosures. **All authors:** No reported disclosures.

2306. Molecular Epidemiology of and Risk Factors for *Staphyloccus aureus* (SA) Colonization in a Chinese Neonatal Intensive Care Unit (NICU)

Wenjing Geng, MD, PhD[1,2]; Thomas McConville, MD[2]; Alexandra Hill-Ricciuti, MPH[3]; Yujie Qi, MD[1]; Lisa Saiman, MD, MPH[3,4] and Anne-Catrin Uhlemann, MD, PhD[2]; [1]Beijing Children's Hospital, Beijing, China, [2]Columbia University Medical Center, New York, New York, [3]Pediatrics, Columbia University Medical Center, New York, New York, [4]New York Presbyterian Hospital, New York, New York

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Saturday, October 6, 2018: 12:30 PM

Background. SA infections place a significant burden on NICUs worldwide. However, little is known about the burden of SA in Chinese NICUs. In this study, we describe the molecular epidemiology of SA in the tertiary care 50-bed NICU of Beijing Children's Hospital and examine risk factors (RFs) for SA colonization in neonates.

Methods. From May 2015 to March 2016, we prospectively collected nasal swabs from 536 neonates <28 days of age admitted from the community, perinatal services, or other hospitals. SA isolates were characterized by multilocus sequence type (MLST), staphylococcal chromosomal cassette *mec* (*SCCmec*) type, *agr*, spa-type, cytotoxicity and superantigen (*SAg*) genes. The characteristics of MRSA vs. MSSA and infecting vs. colonizing isolates were compared using Mann–Whitney U and Fisher's tests. Logistic regression was used to compare characteristics of infants colonized vs. uncolonized with SA.

Results. We identified 96 (18%) and 23 (4%) neonates with SA colonization and/or infection on admission. Among the 96 colonized infants, 28 had MRSA and 68 had MSSA. ST59-SCCmecIVa-t437-agr-1 (20/28, 71%) and ST188-t189-agr-1 (11/68, 16%) were the common colonizing MRSA and MSSA clones, respectively. Among 23 isolates associated with infection, 17 were MRSA and ST59-SCCmecIVa-t437-agr-1 (6/17, 35%) was also the most common clone. Of the 119 SA isolates, 108 (91%) contained at least one *SAg* gene; however, none carried *sasX*. Cytotoxicity was significantly different among the main clones (P = 0.04). While MRSA and MSSA had similar cytotoxicity (83.7% vs. 85.9%, P = 0.45), infecting isolates had higher cytotoxicity than colonizing isolates (87.6% vs. 84.5%, P < 0.01). Female sex (OR_{ADJ} = 2.05, P < 0.01), age >7 days (OR_{ADJ} = 7.14, P < 0.01), and vaginal delivery (OR_{ADJ} = 2.16, P < 0.01) were RFs for SA colonization, while antibiotic use was protective (OR_{ADJ} = 0.25, P < 0.01).

Conclusion. SA colonization was common in infants admitted to our NICU and 2 clones predominated. MRSA and MSSA did not differ in cytotoxicity, although infecting isolates had higher cytotoxicity. Several non-modifiable risk factors for SA colonization were identified. Our results suggest that screening infants for SA is useful and interventions to target cytotoxic clones should be explored.

Disclosures. **A. C. Uhlemann**, Merck: Investigator, Grant recipient.

2307. Use of Whole-Genome Sequencing to Determine Adhesin and Biofilm-Associated Gene Profiles Among Pediatric *Staphylococcus aureus* Device-Related Infection Isolates Compared With Skin and Soft-Tissue Infection Isolates

Catherine Foster, MD[1]; Melissa Kok, BS[1]; Anthony Flores, MD, MPH, PhD[2]; Ruth Ann Luna, PhD[1]; Sheldon L. Kaplan, MD, FIDSA[1] and Kristina G. Hulten, PhD[1]; [1]Baylor College of Medicine and Texas Children's Hospital, Houston, Texas, [2]University of Texas Health Science Center, Houston, Texas

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Background. Adhesins or microbial surface component recognizing adhesive matrix molecules (MSCRAMMs) and the *ica* locus help mediate *S. aureus* adherence to host tissue and biofilm formation and are thought to play important roles in the