

patients for screening and/or decolonization and avoid human error; and introduction of a clinical nurse specialist to oversee the program and to provide iterative feedback. **Results:** At baseline, 21% of patients had *S. aureus* colonization, 20% of which was MRSA, and the MRSA bloodstream infection rate was 0.06 per 1,000 patient days. After program implementation, there was no change in *S. aureus* colonization and the MRSA bloodstream infection rate fell to 0.04 per 1,000 patient days. Screening compliance improved from 39% (N = 1,805) of eligible patients in the 6-month period before the introduction of the clinical nurse specialist to 52% (N = 2,024) after the introduction of the clinical nurse specialist. In the same periods, decolonization increased from 18.6% to 41% of eligible patients. **Conclusions:** We used 2 implementation frameworks to design our *S. aureus* screening and decolonization program and to make iterative changes to the program as it evolved to include new patient populations and different hospital settings. This resulted in a large-scale, sustainable, health system program for *S. aureus* control that avoids reliance on infection isolation precautions.

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#### Presentation Type:

Poster Presentation

#### Methicillin-Resistant *Staphylococcus aureus* (MRSA) Admission Screening in the Neonatal Intensive Care Unit (NICU): Algorithm for Hospital Transfers

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**Background:** Methicillin-resistant *Staphylococcus aureus* (MRSA) is a frequent source of infection in the neonatal intensive care unit (NICU). Due to the serious consequences associated with MRSA infections in neonates, much effort has been made to prevent and control epidemics in NICUs. Since 2006, our hospital has performed MRSA nasal surveillance screening of all newborns in the NICU in accordance with the recommendations of the Chicago-Area Neonatal MRSA Working Group. In 2017, a MRSA infection was identified in a newborn shortly after transfer from an outside hospital and who had an initial negative MRSA admission screen. As a result, we modified the admission screening process for all transfers from outside NICUs. **Methods:** The Evanston Hospital Infant Special Care Unit is a level 3 NICU in the northern suburbs of Chicago with 44 NICU beds and 450 admissions per year. Effective July 1, 2017, all NICU transfers have a nasal MRSA screen performed upon admission and after 48 hours. The transferred baby is placed on contact isolation until both screening results return negative. Nasal MRSA testing is performed using both PCR on the BD MAX MRSA Assay platform and is confirmed by culture using MRSA CHROMagar TM. **Results:** Between July 1, 2017, and October 31, 2019, 112 neonates were transferred from outside NICUs. Moreover, 105 (94%) had at least 1 MRSA screen completed and 99 (88%) had both MRSA screens completed. Of 99 with 2 screens, only 1 neonate had an initial positive nasal MRSA screen. Of the remaining 98 negative babies, none had a repeat positive nasal MRSA screen within 48 hours of admission. Of 99 neonates with 2 serial admission MRSA screens, 82 (83%) were transferred within 48 hours of birth. In addition, 17 neonates were transferred >48 hours after birth, including the 1 MRSA-positive

baby. **Conclusions:** In an attempt to identify all potential MRSA-positive neonates transferred to our NICU, we instituted a policy of 2 admission nares swabs. However, our data suggest that a single initial MRSA swab may be sufficient. If continued collection of a second screen is performed, it may be sufficient to screen babies who have been hospitalized for at least 48 hours prior to transfer, which eliminates 83% of admission testing and results in a cost savings.

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#### Methicillin-Resistant *Staphylococcus aureus* (MRSA) Risk Factors: Comparison Between Acute-Care, and Subacute- and Long-Term Care Facilities in a Healthcare Network

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**Background:** The risk factors for methicillin-resistant *Staphylococcus aureus* (MRSA) colonization can differ between acute-care, subacute-care, and long-term care facilities, but comparative information is lacking. We compared risk factors for MRSA colonization contemporaneously between an acute-care hospital (ACH) and its affiliated intermediate- and long-term care facilities (ILTCFs). **Methods:** Serial cross-sectional studies were conducted in a 1,600-bed tertiary-care ACH and its 6 affiliated ILTCFs in Singapore, in June–July 2014–2016. Separate nasal, axillary, and groin swabs were taken and cultured for MRSA. MRSA isolates were subject to whole-genome sequencing. Clinical and epidemiological data were obtained from medical records. To account for clustering, multivariable 2-level multinomial logistic regression models were constructed to assess factors associated with colonization of specific MRSA clones, in the ACH and ILTCFs, respectively. **Results:** In total, 8,873 samples from 2,985 patients in the ACH and 7,172 samples from 2,409 patients and residents in ILTCFs were included in the study. Patients and residents in the ILTCFs (29.7%) were more likely to be colonized with MRSA than patients in the ACH (12.6%) ( $P < .0001$ ). The predominant MRSA clones were clonal complexes (CC)22 ( $n = 692$ , 46.7%) and CC45 ( $n = 494$ , 33.4%), contributing to 80% of MRSA isolates. For ACH patients, after adjusting for age, gender, comorbidities, prior exposures to antibiotics and percutaneous devices, presence of wounds, and screening year, prior MRSA carriage in the preceding 12 months was the strongest predictor of colonization with all MRSA clones: CC22 (aOR, 14.71; 95% CI, 6.17–34.48); CC45 (aOR, 7.75; 95% CI, 2.70–22.22); and others (aOR, 22.22; 95% CI, 3.83–125.00). Hospital stay >14 days was also positively associated with colonization with MRSA CC22 (aOR, 2.67; 95% CI, 1.22–5.88), but not the other clones. For ILTCF patients and residents, after adjusting for age, comorbidities, prior exposure to antibiotics, presence of wounds, and screening year, prior MRSA carriage was a significant predictor of colonization with MRSA CC22 (aOR, 2.72; 95% CI, 1.35–5.46), and CC45 (aOR, 2.36; 95% CI, 1.06–5.24), but not with other clones. Additionally, prior exposure to a percutaneous device and being male were respectively positively associated with colonization by MRSA CC22 (aOR, 2.70; 95% CI, 1.19–6.17) and CC45 (aOR, 2.17; 95% CI, 1.11–4.26). **Conclusions:** Prior MRSA carriage was a common risk factor for colonization with the predominant