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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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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Poster Presentation

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

MRSA clones in both the ACH and ILTCFs. Hospital stay >14 days and exposure to percutaneous devices were additional risk factors for CC22 colonization in the ACH and ILTCFs, respectively. Preemptive contact precautions for prior MRSA-carriers on admission and active screening for long-stayers in the ACH could prevent intra- and interinstitutional MRSA transmission.

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Multidisciplinary Central-Line Bundle Audit Rounding: A Strategy to Reduce CLABSIs

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Background: Central venous catheter (CVC) maintenance bundle elements, including labeling IV tubing and dressings, consistently changing them, intact dressings, and dry healthy insertion sites, together have been shown to reduce risks of developing central-line–associated bloodstream infections (CLABSIs).[1,2] CLABSIs are a significant, but preventable, cause of mortality among critically ill patients.[3] In the last 12 months, the 16-bed medical intensive care unit (MICU) at a large, urban, academic facility had 2,621 central-line days, presenting many opportunities for CLABSI prevention. During that time, weekly observations assessed compliance with CVC maintenance bundle elements. **Interventions:** Multidisciplinary rounds were conducted to monitor nursing staff adherence to CVC maintenance bundle elements. The following bundle elements observed during rounds: (1) Is central-line dressing occlusive/intact? (2) Is CVC insertion site healthy with no redness/drainage? (3) Is CVC dressing labeled with insertion date? (4) Date/time of last dressing change adheres to policy? (4) All CVC tubing is labeled with date/time? (5) All CVC tubing dates adhere to policy? (6) If stopcock is present, is cap present over unused port? "Just-in-time" staff coaching was employed when noncompliance was observed. Findings were sent to leadership for manager follow-up. Staff were informed about products available within the hospital, which can improve dressing adherence and mitigate insertion-site bleeding. Education was provided to staff defining exact requirements for CVC dressings. The acronym "IDOL" was used to help remind staff of these fundamentals: (1) Intact dressing borders are well adhered, with <50% of the white border detached. (2) Drainage should be within the chlorhexidine square. (3) Occlusive means no bubbles, kinks, or wrinkles in the dressing. (4) Labeling is required and must include insertion date, date/time of change, and initials. **Results:** In the first 2 months of rounds, overall compliance averaged 85%. Compliance increased to an average of 91% during the subsequent 10 months. Early on, most fallouts were found with dressings not occlusive or intact and excessive drainage from insertion sites. Initially, 71% of sites were without excess drainage, and 57% of dressings were occlusive or intact. These measures increased to 83% and 89%, respectively, after the interventions. A 50% decrease in the number of CLABSIs was observed during the observation period, compared to the previous 12-month period. **Conclusions:** Consistent use

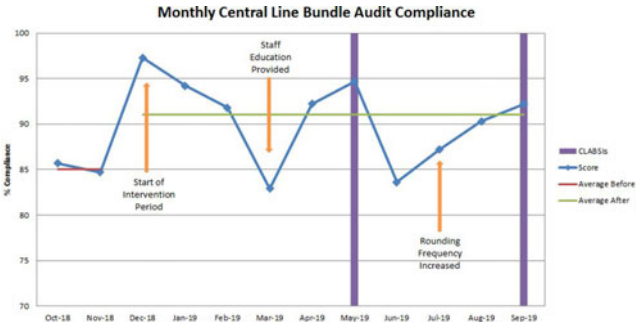

Fig. 1.

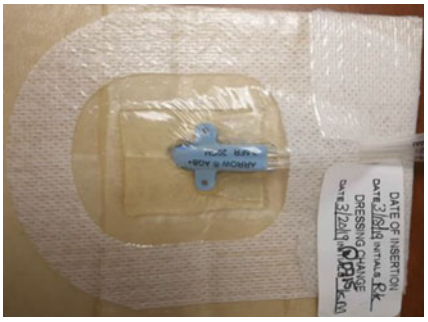

Fig. 2.

of bundles has been shown to significantly improve patient outcomes with regard to hospital-acquired infections (HAIs).[3] Frequent observations, education to define staff expectations, and holding staff accountable have all helped improve compliance with maintenance bundle elements. Preventing CLABSIs is not only important for patient safety and quality of care. Regulatory and accrediting agencies are now increasing their focus on infections and are tying them to reimbursement.

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Multi-Facility Reduction in Hospital-Acquired Infections (HAIs) Through Real-Time Feedback and Individual Accountability

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