contacting the primary team. Twenty-five patient encounters were timed with a mean of 4.7 minutes documented per encounter. Over a 9-month period after initiation of the automated time-based resolution, the monthly mean number of patients with CP for MRSA and VRE which were automatically discontinued was 247 and 100, respectively. Projected IP time savings over the same 9-month period for MRSA and VRE were 174.1 and 70.5 hours, respectively. Over a 5-month period after initiation of automated ordering of MRSA polymerase chain reaction (PCR)/culture, as well as VRE culture for test-based evaluation, the monthly mean number of MRSA culture, MRSA PCR, and VRE culture automatically ordered for patients on CP for MRSA and VRE were 176, 24, and 145, respectively. Projected IP time savings over the same 5-month period for MRSA and VRE were 78.3 and 56.8 hours, respectively.
Conclusion: Healthcare systems that enhance their EHR with CDSS to automate CP evaluations may improve frontline clinician workflow, patient flow and bed capacity, while optimizing use of IP resources.

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Assessing Mupirocin Resistance in MRSA Isolates in Hospitals in Cleveland, OH and Detroit, MI

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Background: Methicillin-resistant Staphylococcus aureus (MRSA) is a common pathogen responsible for nosocomial and community-acquired infections with high morbidity and mortality1. MRSA nasal colonization is a major risk factor for developing infection in the hospital setting2,3. Decolonization of MRSA carriers is a strategy to decrease recurrence or to prevent new MRSA infections3,4. Decolonization with nasal mupirocin 2% and chlorhexidine baths has been shown to decrease the risk of MRSA infection after hospital discharge3. Mupirocin is an RNA synthetase inhibitor with activity against MRSA5. Resistance of MRSA isolates to mupirocin has been described previously6. As topical disinfectants play a crucial role in prevention of MRSA infection in a variety of settings, it is important to monitor the emergence of resistance. The goal of this study was to determine the prevalence of mupirocin resistance among MRSA samples isolated from two different regions in the United States (U.S). **Methods:** Our study had a total of 474 MRSA samples that were obtained from hospitals in Detroit, MI (287 samples) and Cleveland, OH (187 samples). After whole genome sequencing using NextSeq (Illumina Inc., CA) platform the data was analyzed using ResFinder 4.1, to identify antimicrobial resistance which can be either acquired or chromosomally mediated mutations. To visualize the presence of genes of interest the resistance genes were tallied on a spread sheet. **Results:** Mupirocin resistance gene was detected in five of 287 (1.74%) MRSA samples from the Detroit hospitals, all of which were associated with the mupA gene. Samples collected from the Cleveland area hospital demonstrated mupirocin resistance in seven samples of 187 (3.74%), all associated again with the mupA gene. One sample from the Detroit group showed resistance to both mupirocin and chlorhexidine. **Conclusions:** Prevalence of mupirocin resistance gene varied between the two hospital locations. Resistance to mupirocin has been documented in association with mutations in the mupA gene as well as chromosomal point mutations that can lead to either low or high-level resistance7,8. Although the mechanisms are not fully clear, mupA gene has been associated with high-level resistance9. Mupirocin resistance among MRSA isolates has increased over time9. MRSA infections remain an important etiology of nosocomial and community-acquired infections and common practice to combat this issue is universal decolonization with mupirocin10. It is critical to understand and monitor for development of mupirocin resistance as mupirocin remains one of the most effective tools to prevent invasive infection with MRSA in many patient populations.

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S. aureus Surveillance and Decolonization Associated with Decreased MRSA, but not MSSA, Infections in the Neonatal ICU

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Background: Invasive Staphylococcus aureus infections cause significant morbidity and mortality in neonatal intensive care unit (NICU) infants.1 Colonization (asymptomatic carriage in the nose, skin, or gut) is a risk factor for subsequent invasive infection (e.g., pneumonia, bone infections, bloodstream infections, etc.). Active surveillance and decolonization measures for S. aureus-colonized infants have been associated with decreased invasive infection rates. 2-4 **Methods:** A methicillin-resistant S. aureus (MRSA) surveillance and decolonization program, consisting of admission and weekly MRSA nasal cultures followed by intranasal mupirocin plus chlorhexidine baths for colonized infants, was implemented in our level IV NICU with 150 beds in 2006.5 Due to poor compliance with decolonization protocols5, existing practices were reviewed and multiple interventions to increase compliance were implemented in 2018. These renewed efforts included revision of the existing MRSA decolonization protocol, updating the associated electronic medical record order set, re-education of unit staff, and weekly review by the Infection Prevention (IP) and NICU leadership teams to ensure the decolonization protocol was followed for newly colonized infants. Mean MRSA bloodstream infection (BSI) rates were calculated quarterly pre- (January 2014-December 2017) and post- (January 2018-December 2023) implementation of renewed efforts and compared via unpaired t-test. In July 2020 a similar methicillin-susceptible S. aureus (MSSA) surveillance and decolonization program was implemented with an associated revision of existing documents, education campaign, and weekly review of infants with new MSSA colonization. Mean MSSA BSI rates pre- (July 2018-June 2020) and post- (July 2020-December 2023) implementation were compared via unpaired t-test. **Results:** Renewed implementation of MRSA surveillance and decolonization was associated with a sustained decrease in the mean MRSA BSI rate (Figure 1): 0.10 per 1000 patient-days pre-implementation, 0.03

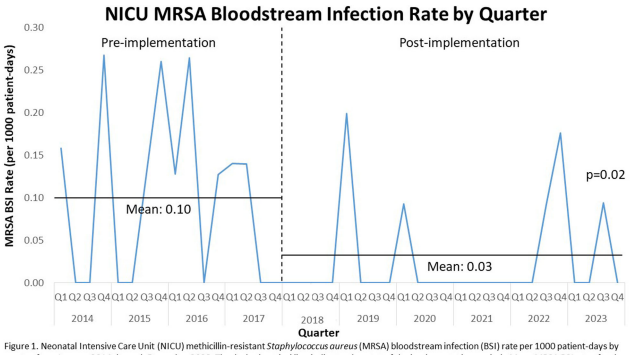

Figure 1. Neonatal Intensive Care Unit (NICU) methicillin-resistant *Staphylococcus aureus* (MRSA) bloodstream infection (BSI) rate per 1000 patient-days by quarter from January 2014 through December 2023. The dashed vertical line indicates the start of the implementation period. Mean MRSA BSI rates for the pre- and post-implementation periods are indicated by the horizontal lines.