Table. Predictors of MRSA Colonization at Entrance to a Large Inner-City Jail

	Univariate			Multivariate		
Epidemiologic Factor						
	OR	**95% CI**	**p value**	**OR**	**95% CI**	**p value**
Race/ethnicity						
African-American	1	0.5, 2.2	0.99			
Hispanic	1.2	0.5, 3.4	0.69			
Non-Hispanic white	reference					
History of illicit drug use	0.9	0.3, 2.2	0.74			
History of methamphetamine use	1.7	0.95, 3.0	0.07			
Men who have sex with men	1.3	0.8, 2.1	0.38			
History of incarceration in jail	1.6	0.5, 4.6	0.4			
Homeless or unstable housing	1.5	0.9, 2.5	0.09			
Current skin infection	3.7	1.5, 9.0	0.004	4	1.6, 9.9	0.002
HIV-infected	1.4	0.7, 2.7	0.35			
Not in HIV care	1.4	0.6, 3.2	0.42			
Care at Clinic A	3.2	1.4, 7.5	0.008	3.8	1.6, 9.1	0.003
Taking antiretrovirals	0.7	0.4, 1.3	0.26			

Note. A total of 70 variables were tested on univariate but are not shown as they were non-significant or had small numbers.

Disclosures. **M. K. Hayden**, Sage, Inc: Sage is contributing product to healthcare facilities participating in a regional collaborative on which I am a co-investigator. Neither I nor my hospital receive product., Sage is contributing product to healthcare facilities participating in a regional collaborative on which I am a co-investigator. Neither I nor my hospital receive product.; Clorox, Inc.: I have received funding from Clorox for an investigator-initiated clinical trial., Research support; CDC: Grant Investigator, Research grant

1700. Differences in Pre- and Post-dischcarge Methicillin-resistant Staphylococcus aureus (MRSA) infection rates by colonization status in US Department of Veterans Affairs (VA) hospitals

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Background. Little is known about how MRSA infection rates differ between patients who are colonized on admission compared with those who acquire colonization during an inpatient stay. In addition, most studies focus on MRSA infections that are diagnosed prior to discharge while ignoring those that are identified post-discharge. The VA implemented an active surveillance program for MRSA in 2007 in which all inpatients are tested for MRSA on admission. This surveillance data along with the ability to follow patients longitudinally allowed us to estimate the difference in infection rates for those who import vs. those who acquire MRSA colonization during their stay and to characterize post-discharge MRSA infections.

Methods. We constructed a dataset of 3,659,911 acute care inpatient admissions to 125 VA hospitals nationwide between January 1, 2008 and December 31/2015 who had surveillance tests performed for MRSA carriage. Admissions were restricted to individuals with at least 365 days of VA activity prior to admission. We categorized these admissions into 3 groups: no colonization, importation, and acquisition based on MRSA test results throughout the admission. We then captured MRSA infections in these individuals prior to discharge and at 30 and 90 days post-discharge. Infections were defined as positive MRSA cultures taken from sterile sites (including blood, catheter site, or bone).

Results. During the 8-year period, we identified 4,037 total pre-discharge MRSA infections, 2,793 MRSA infections at 30 days post-discharge, and 7,018 infections at 90 days post-discharge. During the pre-discharge time period, patients who acquired MRSA carriage were more likely to progress to an infection prior to discharge than those who imported the pathogen (RR = 2.6, $P < 0.001$). For patients who acquired MRSA carriage, the percentage who progressed to infection prior to discharge decreased from 2.0% in 2010 to 1.4% in 2015. The results from our analyses can be found in Figures 1–3.

Conclusion. We found that roughly half of post-discharge infections were in patients who acquired the organism pre-discharge. These may be preventable with optimal infection control. In addition, there were nearly twice as many post-discharge MRSA infections at 90 days than during the pre-discharge period.

Figure 1: Pre-discharge MRSA infections by admission year for inpatients with no MRSA colonization, importation, and acquisition

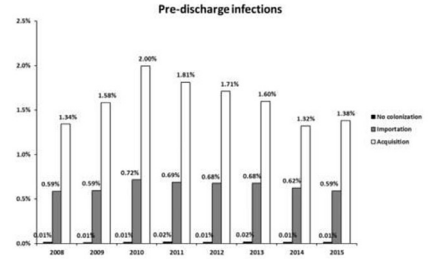


Figure 2: Post-discharge MRSA infections by admission year at 30 days for inpatients with no MRSA colonization, importation, and acquisition

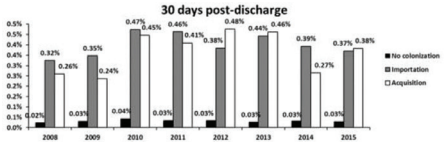
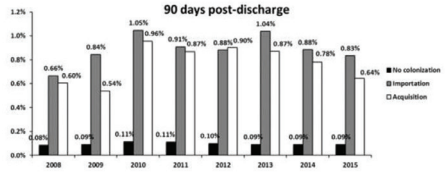


Figure 3: Post-discharge MRSA infections by admission year at 90 days for inpatients with no MRSA colonization, importation, and acquisition



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

1701. The Impact of active surveillance culture and decolonization programs on NICU MRSA transmission: A multicenter, mechanistic modeling approach.

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Background. Methicillin-resistant *Staphylococcus aureus* (MRSA) remains a major threat to patient safety in the neonatal intensive care unit (NICU). The aim of this study was to assess the effectiveness of active surveillance cultures (ASC) and decolonization in reducing MRSA transmission in the NICU.

Methods. Retrospective cohort data, including admission and discharge times, weekly surveillance culture results and mupirocin-administration information, were collected from three urban, tertiary care NICU in the US. The study period was 2007–2014, during which ASC and decolonization strategies were employed for MRSA control. We used Markov-Chain Monte Carlo methods to fit a probabilistic transmission model to the data. To account for the interval-censored nature of weekly surveillance screening, we used an integrated Bayesian framework to impute the date of conversion to MRSA-positive. We estimated the risk of MRSA acquisition associated with non-patient sources, undetected MRSA carriers, detected MRSA carriers on contact precautions, and MRSA carriers on contact precautions that also received decolonization treatment.

Results. Of the 12,677 neonates that were screened for MRSA colonization at study sites, 533 (4.2%) had a MRSA-positive surveillance culture. Neonates with undetected MRSA colonization were estimated to be the source of 67% (95% credible interval [CI]: 0.64–0.69) of MRSA acquisition. Compared with undetected MRSA carriers, detection and placement on contact precautions deceased the odds of transmission by 99.8% (odds ratio [OR]: 0.0016, 95% CI: 0.0000026–0.033), 99.6% (OR = 0.0036, 95% CI: 0.0000025–0.13), and 99.8% (OR = 0.0024; 95% CI: 0.00000042–0.043) at sites A, B, C, respectively. A 99.9% reduction in transmissibility was sustained among MRSA carriers who also received decolonization treatment (OR = 0.0014, 95% CI: 0.0000080–0.024).

Conclusion. In this multi-centered NICU cohort, ASC and decolonization programs were highly effective in reducing transmission risk from MRSA carriers. Detection of MRSA carriers and the use of contact precautions, alone, were associated with a near-complete reduction in transmission risk. Improving time-to-detection as well as prioritizing nonpatient reservoirs of MRSA could further reduce MRSA acquisition in the NICU.

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