To the Editor—Staphylococcus aureus is a leading pathogen in infants in a neonatal intensive care unit (NICU). colonization is an important risk factor for methicillin-susceptible (MSSA) and methicillin-resistant (MRSA) infections in the NICU and identifying and decolonizing infants may reduce S. aureus infections. Weekly active surveillance cultures of the anterior nares, umbilicus and inguinal region for S. aureus was implemented, contact precautions were used for MRSA colonized infants, and S. aureus—colonized neonates were treated with mupirocin ointment applied to both nares, the umbilicus and any abraded skin, twice daily for 10 doses. Thereafter, we reported a significant 43% reduction in rate of NICU-wide S. aureus infection per 1,000 hospital days over an observation period of 23 months. The study was conducted in a 57-bed, level IV NICU. S. aureus infection was defined as recovery of S. aureus from a normally sterile site or nonsterile site (excluding respiratory) if the patient was treated with 5 or more days of systemic antibiotics. Infections with an onset within 48 hours or more after admission to the NICU were included. Infection rates in NICUs that can be affected by this intervention.2,4,7,8

The Northwell Health Institutional Review Board approved this study with a waiver of informed consent.

Infection rates were compared using the incidence density ratio method. In this method, the null hypothesis is that the proportion of nosocomial infections will be proportional to the number of inpatient days at risk for each period.

Compared to the 27-month preintervention period, the rates of clinical S. aureus infection during intervention period 2 decreased by 54% (P = 0.086), including 46% (P = 0.068) and 72% (P = 0.039) decreases in the rates of MSSA and MRSA infections, respectively (Table 1). During the preintervention period and intervention periods 1 and 2, bacteremia was detected in 67%, 53%, and 63% of infections, respectively. The proportion of S. aureus infections caused by MRSA during the preintervention, intervention 1, and intervention 2 periods were 31%, 61%, and 19%, respectively. During the last 2 months of the preintervention period and during intervention period 1, there was a prolonged outbreak of infection with clonally related isolates of mupirocin-resistant MRSA.

At an affiliated level III NICU where the interventions were not implemented, there were no significant changes in the rates of S. aureus infections or MSSA infections during intervention periods 1 and 2 or in the rate of MRSA infections during intervention period 1. The rate of MRSA infection was significantly reduced during intervention period 2 (Table 1).

The principal finding of this study is that weekly surveillance cultures and topical mupirocin-based decolonization for S. aureus in a NICU along with contact isolation precautions for infants colonized with MRSA was associated with a significant unitwide decrease in S. aureus clinical infections with an effect that persisted for 4 years after implementation. Although this was a single-center study, the sustained reduction in the rate of S. aureus infection during an additional follow-up period without a significant change in the S. aureus infection rate at the comparison NICU further supports the effectiveness of the intervention and indicates that a secular trend in infection rate is an unlikely explanation for the lower rates during the intervention periods. This observed rate reduction is relevant to the entire NICU population and provides “real world” data because infections occurring in all infants were included in the infection rate calculation without regard to whether they underwent surveillance cultures and decolonization. An intervention program should target both MSSA and MRSA because both are important pathogens in NICUs that can be affected by this intervention.

The lack of a significant impact of the intervention on MRSA rate during intervention period 1 can likely be explained by an outbreak of infection with a mupirocin-resistant clone during that period and the lack of effectiveness of mupirocin-based decolonization. The rates of MSSA infection tended to be lower during periods with higher MRSA infection rates and higher during periods of lower MRSA infection rates. These findings are consistent with a competition between MSSA and MRSA for colonization in the nares and may explain the apparent inverse relationship between the rates of MRSA and MSSA infections during each study period (Table 1).

A limitation of this study is the before-and-after design because confounding factors or regression to the mean could have accounted for the observed differences in rates, but the extended follow-up period and the inclusion of a control NICU where the intervention was not implemented help mitigate this limitation. The comparison

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Cite this article: Rubin LG, Balamohan A, Kohn N. The continued effect of routine surveillance and targeted decolonization on the rate of Staphylococcus aureus infection in a level IV neonatal intensive care unit. Infect Control Hosp Epidemiol 2023. doi: 10.1017/ice.2023.108
NICU was not equivalent to the intervention NICU because it is a lower-acuity NICU and had lower baseline rates of *S. aureus* infection. However, the absence of change in the rates of *S. aureus* infection in the comparison NICU provides supportive evidence that the rate reduction in the intervention NICU was not related to a secular trend. This was a single-center study, and these findings may not be applicable to other centers. In conclusion, a screening and decolonization program was associated with sustained reduction in *S. aureus* infections over a 4-year period.

**Acknowledgements.** We thank the staff of the microbiology laboratory of the Long Island Jewish Medical Center, New Hyde Park, New York, for their support and cooperation.

**Financial support.** No financial support was provided relevant to this article.

**Competing interests.** All authors report no conflicts of interest relevant to this article.

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