

Universal Surveillance for Methicillin-Resistant *Staphylococcus aureus* in 3 Affiliated Hospitals

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Background: The effect of large-scale expanded surveillance for methicillin-resistant *Staphylococcus aureus* (MRSA) on health care–associated MRSA disease is not known.

Objective: To examine the effect of 2 expanded surveillance interventions on MRSA disease.

Design: Observational study comparing rates of MRSA clinical disease during and after hospital admission in 3 consecutive periods: baseline (12 months), MRSA surveillance for all admissions to the intensive care unit (ICU) (12 months), and universal MRSA surveillance for all hospital admissions (21 months).

Setting: A 3-hospital, 850-bed organization with approximately 40 000 annual admissions.

Intervention: Polymerase chain reaction–based nasal surveillance for MRSA followed by topical decolonization therapy and contact isolation of patients who tested positive for MRSA.

Measurements: Poisson and segmented regression models were used to compare prevalence density of hospital-associated clinical MRSA disease (bloodstream, respiratory, urinary tract, and surgical site) in each period. Rates of bloodstream disease with methicillin-susceptible *S. aureus* were used as a control.

Results: The prevalence density of aggregate hospital-associated MRSA disease (all body sites) per 10 000 patient-days at baseline, during ICU surveillance, and during universal surveillance was 8.9 (95% CI, 7.6 to 10.4), 7.4 (CI, 6.1 to 9.0; $P = 0.15$ compared with baseline), and 3.9 (CI, 3.2 to 4.7; $P < 0.001$ compared with baseline and ICU surveillance), respectively. During universal surveillance, the prevalence density of MRSA infection at each body site had a statistically significant decrease compared with baseline. The methicillin-susceptible *S. aureus* bacteremia rate did not statistically significantly change during the 3 periods. In a segmented regression model, the aggregate hospital-associated MRSA disease prevalence density changed by -36.2% (CI, -65.4% to 9.8% ; $P = 0.17$) from baseline to ICU surveillance and by -69.6% (CI, -89.2% to -19.6%); $P = 0.03$) from baseline to universal surveillance. During universal surveillance, the MRSA disease rate decreased during hospitalization and in the 30 days after discharge; no further reduction occurred thereafter. Surveillance with clinical cultures would have identified 17.8% of actual MRSA patient-days, and ICU-based surveillance with polymerase chain reaction would have identified 33.3%.

Limitation: The findings rely on observational data.

Conclusion: The introduction of universal admission surveillance for MRSA was associated with a large reduction in MRSA disease during admission and 30 days after discharge