Rapid screening and decolonizing of *Staphylococcus aureus* nasal carriers on admission reduces hospital-acquired, surgical-site *S aureus* infections, according to the results of a double-blind, placebo-controlled, multicenter trial reported in the January 7 issue of the *New England Journal of Medicine*.

"Nasal carriers of *Staphylococcus aureus* are at increased risk for health careï associated infections with this organism," write Lonneke G.M. Bode, MD, from Erasmus University Medical Center in Rotterdam, the Netherlands, and colleagues. "Decolonization of nasal and extranasal sites on hospital admission may reduce this risk."

The goal of the study was to determine whether using a real-time polymerase-chain-reaction (PCR) assay to rapidly identify *S aureus* nasal carriers, followed by treatment with mupirocin nasal ointment and chlorhexidine soap, would lower the risk for hospital-associated *S aureus* infection.

From October 2005 through June 2007, the investigators screened 6771 patients on admission and identified 1270 nasal swabs from 1251 patients that were positive for *S aureus*. Of 917 of these patients enrolled in the intent-to-treat analysis, 808 (88.1%) underwent a surgical procedure.

All of the *S aureus* strains identified with PCR assay were susceptible to methicillin and mupirocin. In the mupirocin-chlorhexidine group, 17 (3.4%) of 504 patients developed *S aureus* infections vs 32 (7.7%) of 413 patients in the placebo group. Therefore, relative risk for infection was 0.42 (95% confidence interval [CI], 0.23 - 0.75).

For deep surgical-site infections, mupirocin-chlorhexidine treatment had an even greater effect (relative risk, 0.21; 95% CI, 0.07 - 0.62). All-cause in-hospital mortality rate did not differ significantly between groups. Compared with the mupirocin-chlorhexidine group, the placebo group had shorter time to onset of nosocomial infection (*P* = .005).

"The number of surgical-site *S. aureus* infections acquired in the hospital can be reduced by rapid screening and decolonizing of nasal carriers of *S. aureus* on admission," the study authors write. "This intervention also significantly reduced the mean hospital stay by almost 2 days."

Limitations of this study include needed modification in the study design because of a perceived change in the overall cumulative incidence of *S aureus* infections and difficulty making inferences about nonsurgical patients.

"Mupirocin and chlorhexidine are considered to be relatively safe," the study authors conclude. "However, since *S. aureus* strains can become resistant to mupirocin, we recommend restricting the use of this agent to known carriers who are at risk for infection."

In an accompanying editorial, Richard P. Wenzel, MD, from Virginia Commonwealth University in Richmond, discusses minimizing surgical-site infections, based on this study and a second study evaluating preoperative surgical scrubs.

"The weight of evidence suggests that chlorhexidineï alcohol should replace povidoneï iodine as the standard for preoperative surgical scrubs," Dr. Wenzel writes. "The use of intranasal mupirocin and chlorhexidine baths for carriers of *S. aureus* who have been identified preoperatively by means of a real-time [PCR] assay could be reserved primarily for patients who are undergoing cardiac surgery, all patients receiving an implant, and all immunosuppressed surgical candidates. Currently, the incremental value of preoperative baths with chlorhexidine alone for all surgical patients is unclear, but this relatively straightforward procedure could be examined critically in future studies."

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