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## Statistical Analysis

Multiple statistical methods were used. For simplification, we list the statistical methods in the precise sequence they are reported in the results.

The Fisher exact test was used to compare patient and procedural demographic information for treatment vs control groups and for cases involving *S aureus* transmission. Similarly, the distribution of patients by ASA scores greater than 2 and by sex for enrolled vs eligible patients were compared by surgeon using the Mantel-Haenszel test.

The Fisher exact test was also used to examine the potential association of each of the covariates mentioned earlier with *S aureus* transmission. None were associated.

A 2-sided Wilcoxon-Mann-Whitney test was used to examine the association of treatment assignment with the number of transmitted *S aureus* isolates. Poisson regression was used to estimate the incidence risk ratio (IRR) of *S aureus* transmission for the independent variable of treatment. Poisson regression was used to estimate the IRR because the incidence of transmission was so large (ie, much greater than 10%) that the odds ratio estimated using logistic regression would be a biased estimator of the relative risk.<sup>24</sup> We repeated the analysis using multilevel Poisson regression clustering by surgeon or specialty.

The Fisher exact test was used to compare the proportion of patients in the treatment group with transmission events before vs after surveillance feedback and the proportion of patients with SSI with and without documented *S aureus* transmission. Poisson regression was used to compare the proportion of patients with SSI with and without documented *S aureus* transmission, clustered by surgeon.

The proportion of patients with SSIs was compared with the Fisher exact test. Time to infection was evaluated by Cox proportional hazard modeling. We repeated the analysis using multilevel Poisson regression clustering by surgeon and specialty.

There were no missing data for the primary and secondary outcomes. Calculations were performed using Stata version 16.1 (StataCorp). All *P* values were 2-sided, and *P* < .05 was taken to indicate statistical significance.