



What is the Benefit of Staphylococcal Screening and Treatment Prior to Elective Hip/Knee Arthroplasty?

Scott M. Sporer, MD, MS, Thea Rogers, MPH,
Linda Abella, RN, Wayne G. Paprosky, MD

Introduction: Deep infection following elective total joint arthroplasty is a devastating complication. Preoperative nasal screening for *Staphylococcus aureus* colonization and subsequent treatment of colonized patients is one proposed method to identify at-risk patients and decrease surgical site infections (SSI). The purpose of this study was to determine 1) if a preoperative Staphylococcal screening and treatment program would decrease the incidence of SSI in elective joint replacement patients and 2) if non-Staphylococcal infections would become more prominent among those patients who developed a SSI.

Methods: Beginning in January 2009, all patients having an elective joint replacement were screened prior to surgery for methicillin resistant *Staphylococcus aureus* (MRSA) and methicillin sensitive *Staphylococcus aureus* (MSSA) with nares swabbing. All patients with positive nares colonization for MSSA or MRSA were treated with mupirocin and chlorhexidine gluconate (CHG) showers for five days prior to surgery. All patients scheduled for elective joint replacement used CHG antiseptic cloths the evening prior to and the day of surgery. Perioperative infection rates were compared one year prior to five years post-implementation.

Results: 13,717 patients (4962 hips, 8755 knees) underwent primary joint replacement between January 2008 and December 2014. The SSI rates have decreased from 0.89% (pre-screening) to 0.27% (nasal screening) ($p < 0.05$) following initiation of the decolonization protocol. Staphylococcal species represented 91.7% of the infecting organisms prior to the routine screening, whereas, Staphylococcal species only characterized 42.7% of the infecting organisms following screening and decolonization ($p < 0.05$).

Conclusion: *Staphylococcus aureus* surveillance and treatment prior to elective hip/knee arthroplasty can reduce the incidence of SSI. Conversely, routine Staphylococcal screening and decolonization may result in a greater propensity to develop a non-Staphylococcal infection among those who develop a postoperative SSI.