

## **<a>Nasal Decolonization with Universal Povidone-Iodine versus Polymerase Chain Reaction Testing and Mupirocin in Joint Reconstruction</a>**

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**INTRODUCTION:** *Staphylococcus aureus* colonization is an independent risk factor for periprosthetic joint infection (PJI). Preoperative decolonization can be performed with a “screen and treat” protocol or with universal intranasal povidone–iodine. We aimed to compare the compliance, cost–effectiveness, and infection rates between these two protocols.

**METHODS:** We retrospectively reviewed 742 consecutive primary hip and knee arthroplasties in 660 patients between June 2015 and June 2018 at a single institution. The first cohort underwent polymerase chain reaction (PCR) colonization testing and subsequent mupirocin treatment if positive. The entire second cohort received intranasal povidone–iodine. Cost analysis was performed based on the average cost at our institution.

**RESULTS:** There were 324 (44%) patients in the PCR-mupirocin cohort and 418 (56%) in the povidone–iodine cohort without significant differences in demographics or comorbidities between groups. The PCR–mupirocin group has 83 (26%) carriers, of which 76% (n=63) were compliant with completing the preoperative mupirocin treatment course vs. 100% in the povidone-iodine cohort (p<0.01). The mean cost per patient in the mupirocin cohort was \$308.47±82.09 (range 261.00-614.58) compared to \$28.18 in the povidone–iodine group (p<0.01). Total savings to the healthcare system was \$88,165.49, with an average cost savings of \$280.29 per patient. Overall, we had 34 (4%) infections, of which 8 (24%) were *Staphylococcus aureus*, 4 (12%) were another *Staphylococcus* sp., and 5 (15%) *Streptococcus* sp. Three (9%) infections were polymicrobial, all of which occurred in the mupirocin group. There was no significant difference in rates of complications (p=0.83), revision (p=0.37), surgical site infection (p=0.51), or bacteria type (p=0.82) between the treatment protocols.

**DISCUSSION AND CONCLUSION:** A universal preoperative treatment protocol with povidone–iodine intranasal swab for total joint arthroplasty patients resulted in 100% compliance and an estimated \$280.29 savings per patient to the PCR-mupirocin protocol without differences in complications or surgical site infections.