



## 2022 TOA Annual Conference Abstract Submission

**PRESENTATION TITLE:**

Increased Compliance and Cost Savings with Universal Preoperative Povidone-Iodine Nasal Decolonization Versus PCR Testing and Mupirocin Treatment in Total Joint Patients

**AUTHOR:**

Alexis Rounds MD

**DEGREE:**

DO

**INSTITUTION:**

TTUHSC

**CO-AUTHORS:**

Alexis Rounds MD  
John Fisher MD  
Erin Choi BS

**IF NOT ACCEPTED FOR PODIUM PRESENTATION, IS POSTER PRESENTATION ACCEPTABLE?**

Yes

**LIST ANY DEVICES NOT CURRENTLY APPROVED FOR USE BY THE FDA:**

n/a

**STRUCTURED ABSTRACT (PURPOSE, METHODS, RESULTS, AND CONCLUSIONS) IN LESS THAN 400 WORDS:**

**PURPOSE:**

Staphylococcus aureus colonization is an independent risk factor for surgical site infection in total joint arthroplasty (TJA). Historical decolonization protocols have included preoperative chlorhexidine gluconate baths as well as polymerase chain reaction (PCR) testing for Staphylococcus aureus colonization with intranasal mupirocin for colonized patients. We aimed to compare the compliance and cost-effectiveness of the historical decolonization protocol and a universal preoperative nasal application of povidone-iodine in TJA patients.

**METHODS:**

We retrospectively reviewed all primary hip and knee arthroplasties between January 2015 and June 2018 at a single institution. Patients were separated into two cohorts: 1. universal povidone-iodine nasal swab treatment without PCR testing or 2. PCR colonization testing and subsequent mupirocin treatment and PCR eradication testing if colonized. Cost analysis was then performed based on the average cost at our institution.

**RESULTS:**

We identified 742 consecutive primary hip or knee arthroplasties in 660 patients with an average age 62.6±12.1 years old and 44% male. There were 324 (44%) patients in the PCR-mupirocin cohort and 418 (56%) in the povidone-iodine cohort. There were no significant differences in demographics or comorbidities between groups. In the PCR-mupirocin group, 83 (26%) patients were positive carriers. Of these carriers, compliance with completing the preoperative mupirocin treatment course was 76% (n=63 patients). All 418 patients in the povidone-iodine universal protocol received preoperative nasal swab treatment. The mean cost per patient in the mupirocin cohort was \$351.58±154.58 (range 261.00-614.58) compared to \$28.18



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in the povidone-iodine group ( $p < 0.01$ ). Total savings to the healthcare system was \$102,131.90, with an average cost savings of \$323.40 per patient. Overall, we had 34 (4.6%) infections, of which 8 (24%) were *Staphylococcus aureus*, 4 (12%) were other *Staphylococcus* sp., 5 (15%) *Streptococcus* sp., and 2 (6%) of each *Escherichia Coli*, *Enterococcus cloacae*, and *Cutibacterium acnes*, the other 11 were various other bacteria. 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.

### **CONCLUSION:**

A universal preoperative treatment protocol with povidone-iodine intranasal swab for TJA patients resulted in 100% compliance and an estimated \$102,131.90 savings compared to the PCR-mupirocin protocol over an 18-month treatment protocol with differences in complications or surgical site infections.