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## **F- 5 - PREP FOOT FOR TAA**

### **F- 5 - During draping for TAA, should the foot be prepped into the surgical field or be covered?**

#### **Response/Recommendation:**

There is evidence demonstrating persistent rates of skin contamination even after surgical site preparation and therefore the foot should be prepped and covered during the procedure.

**Strength of Recommendation:** Consensus

#### **Rationale:**

.Multiple studies have shown increased rates of bacterial colonization in the toes after skin preparation.<sup>1,3,5,6</sup> Zacharias et al in reported the pre-procedural cultures in 12 patients who underwent lower extremity orthopedic surgery. They performed pre-procedural toe cultures, preparation of the extremity with povidine-Iodine, followed by coverage of the toes with coban, and a second set of cultures obtained at the end of the procedure. The authors found a 75% rate of positive pre-procedural and post-procedural cultures. They concluded that there is some benefit to wrapping the toes. However the major weaknesses of the latter study is the small sample size (12), lack of a control group, preparation of the surgical site being done by an OR nurse not aware of the study, as well as the use of povidine-iodine.<sup>6</sup>

Brooks et al in another study demonstrated that that there was significantly lower bacterial recolonization in patients who underwent standard antiseptic technique in combination with sliding a gauze swab soaked in topical antiseptic multiple times between the toes compared to standard antiseptic technique alone.<sup>1</sup>

Hort and DeOrio designed a study that assessed the amount of residual bacterial contamination after surgical preparation of the foot and ankle with or without the use of alcohol. In this study they analyzed 49 patients who were randomly assigned to a standard preparation with chlorhexidine gluconate home scrubs and preoperative povidone-iodine or standard preparation with addition of preoperative 70% alcohol. While there was a trend towards significance (p=0.12) they found no significant difference in colonization rates with or without the use of alcohol. However, they found high rates of residual colonization (35% in standard surgical group and 57% in standard preparation plus alcohol). Subsequently, the authors' conclusions included the recommendation of covering the toes during hindfoot and ankle surgery. No patient had any clinical evidence of infection or wound problems. It should be noted that this study did not specifically compare patients with their toes uncovered or covered however.<sup>3</sup>

However, despite the presence of many studies recommending covering the toes to decrease risk of contamination in lower extremity surgeries, there are limited studies assessing the rates of infection with the toes covered versus uncovered. Goucher et al performed a prospective, randomized study to assess the effect of covering the toes during hindfoot and ankle surgery. In this study, they performed three sets of cultures (before skin prep, immediately after skin prep, conclusion of the surgery) from the foot and toes from one group of patients with their toes covered and a second group of patients with their toes uncovered. Out of forty patients there were only two postoperative positive cultures and neither patient showed any signs of postoperative infection. Additionally, while seven patients showed signs of superficial infection (erythema, superficial dehiscence, or suture abscess), there was no difference between the two groups. Therefore the authors concluded that there were no benefits in covering the toes in hindfoot and ankle surgery.<sup>2</sup>

Recently, the order of skin preparation has also been investigated. Hunter et al performed a prospective, randomized control study to assess the order of skin preparation of foot and ankle orthopedic surgeries. They found that there were lower post-procedure culture positive rates in patients undergoing preparation with isopropyl alcohol follow by chlorhexidine compared to patients undergoing preparation with chlorhexidine followed by isoprophyl alcohol. However no assessment was performed comparing coverage of the toes versus uncoverage of the toes during the procedure.<sup>4</sup>

Although the data is inconclusive, there is ample evidence of persistence of bacterial colonization irrespective of skin preparation technique of the foot. Consideration should be given to covering the toes to limit the risk of contamination of the surgical cite and the potential for subsequent infection.

**References:**

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