

**Delegates:**  
**Pedowitz, David**

**Editor:**  
**Parvizi, Javad**

**Co-Author: Justin Stull**

## **F- 28 - OPTIMAL ABX FRX OR FUSION**

### **F- 28 - What is the optimal antibiotic (type, dose and route of administration) treatment for infections after foot/ankle fractures or fusion procedures?**

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

The optimal antibiotic treatment after foot/ankle fractures or fusion should be determined based on the result of culture. In the absence of culture results, administered antibiotics should include coverage against common pathogens such as *Staphylococcus aureus*.

**Strength of Recommendation:** Strong

#### **Rationale:**

The commonality in the literature when addressing infection following traumatic foot/ankle procedures or fusions is to target antibiotic therapy to the specific pathogen.<sup>1-6</sup> This is achieved by taking intraoperative cultures, often preceded by pre-operative joint aspiration. The majority of the literature suggests a 6-week course of IV antibiotics, however the range of recommended therapy is 5 days to 3 months.<sup>2,5,7</sup>

The second method for delivery of antibiotics is by incorporation of the antimicrobial agents into cement spacer, when surgical intervention is used.<sup>1-2,8</sup> Since conventional cultures used to identify the infecting organism are often obtained at the time of surgery, the offending pathogen is often not known preoperatively. In this situation, or when the culture results are negative, broad spectrum antibiotics should be administered. Vancomycin is most commonly used, not infrequently in conjunction with tobramycin, or gentamycin.<sup>1,5,9</sup>

Methicillin sensitive *Staphylococcus aureus* (MSSA) is the most common pathogen identified with post-traumatic/post-fusion foot and ankle infections.<sup>1,4,6, 10-11</sup> The second most common bacterial infections are *Staphylococcus epidermidis*.<sup>6,11</sup> Multi-drug resistant organisms, such as Methicillin resistant *Staphylococcus aureus* (MRSA), are also isolated in cultures with some regularity.<sup>6,12</sup> Diabetic patients have some increased risk of Pseudomonas infections as compared to non-diabetics.<sup>4</sup> Importantly, rare bacteria have been identified in case reports and polymicrobial infections have been regularly reported as well.<sup>5,13</sup>

There is great heterogeneity in those patients being treated for post-traumatic/post-fusion infection, so it is difficult to interpret outcomes with regard to recurrent infection, ambulatory status/functionality, and bony union.<sup>1,2</sup> Stability contributes to resolution of infection and it has been proposed that antibiotic coated retrograde nails can also provide local antibiotic delivery.<sup>14</sup> Even for those patients deemed inappropriate for return to operating room, treated definitively with antibiotic laden spacer, independent ambulation can be reliably achieved.<sup>3</sup>

In conclusion, we recommend that the treatment of any foot and ankle infections following fracture or fusion procedures should be based on the results of the culture, whenever available. In the absence of culture results broad spectrum antibiotics should be used.

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