

**Is Duration of External Fixation Associated with Positive Reaming Cultures?**

*Shrina Parikh, MD; Adeet Amin, MD; Ryan Tyler Anthony, MD; Timothy S. Achor, MD; Andrew Choo, MD; Jonathan Eastman, MD; John Munz, MD; Milton Routt, MD; Jacob Siahaan, MS; Stephen J. Warner, MD, PhD*

**Purpose:** Temporary stabilization of long bones with external fixators is commonly done prior to definitive fixation with an intramedullary nail (IMN), especially in a damage control setting. With prolonged time in external fixation, complications such as pin-site infections may occur that may increase the risk of future infections, nonunions, and further surgeries. However, there are no current data that define the length of external fixator application and resultant colonization of medullary canals, and subsequent infection risk after IMN fixation. Our study aims to determine if an association exists between the duration of external fixation and positive reaming cultures at the time of definitive fixation with intramedullary nailing.

**Methods:** Our study included all patients older than 16 years of age who underwent intramedullary nailing of the femur or tibia after external fixation between November 2021 to January 2023. Patients were excluded if their procedures were performed by outside surgeons or if reaming cultures were not sent during the definitive procedure. Patients with positive reaming cultures were given a short course of oral antibiotics.

**Results:** A total of 70 long bones in 56 patients were included in the study. There was no significant difference in the number of open (25) versus closed (45) fractures in the group. There were 7 positive reaming cultures and 63 were negative. There was no significant difference between duration of external fixator placement and positive reaming cultures. When categorized into subgroups by duration of external fixator placement, there was no significant difference in positive culture rates at less than 7 days, between 7 and 14 days, and greater than 14 days.

**Conclusion:** To date, our study has found no significant difference between positive reaming cultures and duration of external fixator application. This suggests that a “pin-site holiday” may be unnecessary prior to intramedullary nailing; however, further studies are needed to determine the clinical significance of positive reaming cultures. Future directions include studying whether patients with positive reaming cultures have an increased risk of complications such as infection or nonunion.