

**Tibial Pilon Fractures: Is the Risk for Wound Complications and Infection Still High?***Matthew Hogue, MD; Nicholas Bedard, MD; David Demik, MD; J. Lawrence Marsh, MD;**Michael Willey, MD**University of Iowa, Iowa City, Iowa, USA*

**Purpose:** Single center case series indicate that the use of staged protocols, less invasive surgical techniques, and low-profile implants have significantly decreased the rate and severity of soft-tissue complications and infection associated with the treatment of tibial pilon fractures. The goal of this study was to determine if these improvements in techniques are reflected in similarly decreased complications in a much broader and larger series of patients more reflective of the entire population of patients that sustain these injuries. To accomplish this goal we accessed a national database with mid-term follow-up to provide a large series of patients with these fractures, including high and low-volume centers. We assessed the incidence and risk factors for postoperative wound complications. These data come closer to representing the population of patients with these injuries and can be used as a benchmark to stratify patient risk factors and predict rates of wound complications and return to the operating room for these injuries.

**Methods:** The PearlDiver Research Program was used to query the Humana administrative claims database from 2007 to the third quarter of 2015. The program was used to identify patients who underwent operative fixation of a tibial pilon fracture and any associated complications. Subgroup analysis was performed to investigate patient risk factors for surgical site infection (SSI) including obesity, diabetes, and smoking.

**Results:** 2330 patients were identified who underwent operative fixation of a tibial pilon fracture during the study period. 296 fractures (12.7%) were open. The overall rate of wound complications was 15.5% (361 of 2330) and return to the operating room for SSI was 9.3% (217 of 2330) at 1 year. Patients with open tibial pilon fractures had the highest rate of return to the operating room for SSI at 19.6% (58 of 296), compared to 7.8% (34 of 2034) in closed injuries. 30.1% (89 of 296 patients) with open fractures experienced a wound complication within the first year after operative fixation. Patients with open fractures (odds ratio [OR], 2.87 [2.06-3.99];  $P < 0.0001$ ) were at a statistically significant higher risk for SSI. Overall, 539 patients (23.1%) were diabetic, 402 (17.3%) were obese, and 389 (16.7%) were smokers. Rates of obesity and smoking were similar among patients with open and closed injuries ( $P < 0.05$ ).

**Conclusion:** These data suggests that operative fixation of tibial pilon fractures is still associated with significant rates of wound complications and return to the operating room for SSI, especially when the fracture is open.