

## Management of Open Tibia Fractures in Cuba

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**Purpose:** Musculoskeletal conditions, such as open tibia fractures, are a significant subset of the overall burden of trauma in Latin America, the region with the greatest proportion of road traffic fatalities per capita worldwide. Given Latin America's diverse resource settings, there is a need to examine country-specific characteristics that determine orthopaedic standards of care. In an effort to address potentially critical treatment questions facing specific patient populations in Latin America, regional preferences and differences for open tibia fractures in Cuba were examined. Cuba, a country with limited resources, is a unique country to evaluate given its standardized national health program, consistencies in education, and similarities across postgraduate training programs.

**Methods:** This cross-sectional study surveyed Cuban orthopaedic surgeons who treat open fractures. Treatment was evaluated across four domains: antibiotic prophylaxis, irrigation and debridement, fracture stabilization, and wound management. Management preferences were grouped by Gustilo Anderson fracture Type I and II (GA-I/II) and Gustilo Anderson fracture Type III (GA-III). Demographic information was also collected. A convenience sampling method was utilized to identify local surgeons through the national Cuban Orthopaedic and Traumatology Society (SCOT) and the academic Latin American orthopaedic research consortium, the Asociación de Cirujanos Traumatólogos de las Americas (ACTUAR). Data analysis was performed using the Fisher exact test ( $P < 0.05$ ).

**Results:** 67 orthopaedic surgeons completed the survey, representing 7 of 15 provinces in Cuba: Havana, Matanzas, Cienfuegos, Villa Clara, Sancti Spiritus, Camaguey, and Guantanamo. Open fracture postoperative antibiotics were administered for more than 72 hours for GA-I/II fractures (49%) and GA-III fractures (70%). Stratifying by Cuban province, surgeons practicing in Havana ( $n = 35$ ) utilized primary internal fixation more commonly for GA-I/II fractures than surgeons in the other 6 provinces ( $n = 32$ ) (64% vs 30%,  $P = 0.008$ ). Further, surgeons in the 6 provinces performed primary closure at the time of definitive fixation for GA-I/II fractures more commonly than those in Havana (63% vs 32%,  $P = 0.013$ ). For GA-III fractures, the surgeons in Havana (89%) and in the other 6 provinces (97%) preferred treating these injuries with delayed closure.

**Conclusion:** This study describes management characteristics of open tibia fractures in Cuba. Notably, there were some reported differences in fracture stabilization and wound management methods between the provinces, identifying an opportunity to evaluate whether these are a result of differences in surgical training or availability of resources. These findings can assist in addressing potential ways to optimize patient care, specifically through specialty training, resource allocation, and health-care policy priority setting.