

## Orthoplastic Treatment of Open Lower Limb Fractures Improves Outcomes: A 12-Year Review

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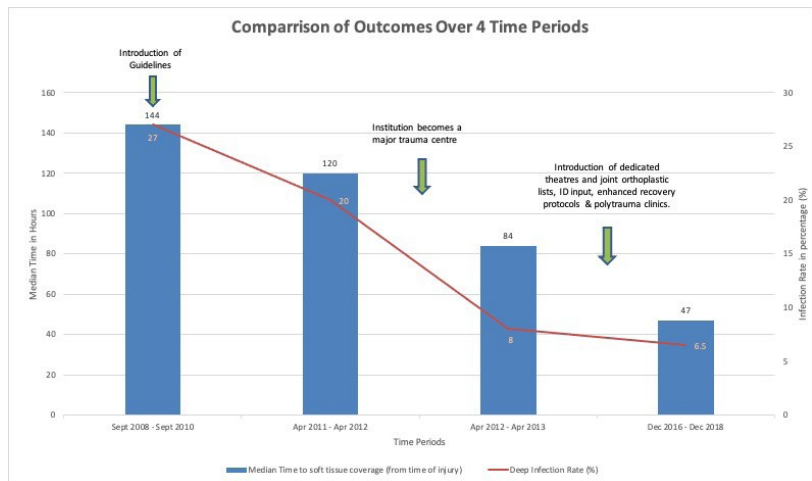
**Purpose:** Standards to improve the management of open lower limb injuries were developed over a decade ago. These mandate wound excision and skeletal stabilization within 24 hours and definitive soft-tissue coverage within 72 hours. Deep infection rate is considered a marker of performance in open fracture management. This paper is the fourth audit of all Gustilo-Anderson IIB/IIC open lower limb fractures presenting to a major trauma center, establishing improvements in care over 12 years.

**Methods:** All patients presenting between December 2016 and December 2018 with Gustilo-Anderson IIB/IIC open lower limb fractures were assessed against national guidelines. Time to debridement, skeletal stabilization, and definitive soft-tissue coverage were evaluated. Primary end point was the rate of deep infection.

**Results:** 42 of 61 patients (69%) were compliant, compared to 38% in the previous audit. Median time to stabilization was 14.2 hours; 90% of patients underwent debridement and stabilization within 24 hours. The median time to definitive soft-tissue coverage and microsurgical reconstruction was 47 hours, with 71% of patients meeting the standards. The overall deep infection rate was 6.5% within this cohort, compared to 8% in the previous cycle. The rate of deep infection in national standard-compliant patients was 2%; the rate of deep infection in non-compliant patients was 16% ( $P = 0.05$ ).

**Conclusion:** Improvements in deep infection rates have correlated with improvements in standard of care adherence over the last 8 years, in conjunction with the systematic introduction of service changes. These changes include the initiation of a polytrauma clinic, infectious disease specialty input, and an enhanced recovery protocol. Compared to internationally published deep infection rates in open fractures of 10% to 52%, our rate of infection represents excellent treatment.

This is strong evidence that these key performance indicators are significant in achieving good outcomes, supporting a joint orthoplastic approach for optimal management of these complex injuries.



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