

## AB156. Incidence of complications in intramedullary nailing of open tibial shaft fractures—a systematic review

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**Background:** Open tibial shaft fractures comprise almost 45% of all open fractures and are frequently the result of high energy trauma. Due to contamination, limited soft tissue coverage of the tibial shaft, and poor tibial blood supply, open tibial shaft fractures are associated with high rates of complication including malunion, non-union and infection. Intramedullary nailing (IMN) has been a mainstay of treatment. This study aims to determine the incidence rate of the various complications in this population.

**Methods:** A systematic review and meta-analysis of papers published on Embase, PubMed, and Cochrane databases pertaining to the use of IMN in open tibial shaft fractures

were included. The available evidence was collated to delineate the incidence of union, malunion, non-union and infection seen in this cohort.

**Results:** A total of 2,169 citations were reviewed. Ultimately, 15 studies comprising 1,626 patients were included in the analysis. There was a delayed union rate of 22.4%, a malunion rate of 8%, a non-union rate of 10% and an overall infection rate of 12% in this patient cohort. Subgroup analysis showed a 2-fold increase in non-union, and a 4-fold increase in deep infection among Gustilo III injuries compared to Gustilo I&II.

**Conclusions:** IMN for open tibial shaft fractures results in high rates of union and low rates of infection, comparable to figures seen in closed injuries and superior to those seen with alternative methods of fixation. There is an increased risk of complication associated with Gustilo III injuries, reinforcing the significance of the soft tissue component in these patients.

**Keywords:** Intramedullary nailing; open fractures; trauma

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