

**Incidence and Factors Associated with Infection on Patients' SIGN Nail Done for Long Bone Fractures in Tibebe Ghion Specialized Hospital, Bahir Dar, Ethiopia**

*Misganaw Alemu Adimass, MD; Gedefaw Abeje Fekadu, PhD  
Bahirdar University, Bahirdar, Ethiopia*

**Purpose:** Our objective was to estimate the incidence and to identify factors associated with surgical site infection after intramedullary nailing of long bone fractures in patients operated with Surgical Implant Generation Network (SIGN) nails in Tibebe Ghion Specialized Hospital.

**Methods:** The study was conducted using a retrospective cross-sectional study in patients who were admitted and operated with a SIGN nail from January 2018 to September 30, 2020 who fulfill the inclusion criteria. Cases with SIGN nails were reviewed and cases with infection were analyzed in particular. The data were entered and analyzed using SPSS windows version 23 software. Descriptive statistics like frequency tables and descriptive summaries were used to describe the variables. Binary logistic regression model was used to analyze the association between variables. Bivariable and multivariable logistic regression analysis was used and the results were presented in tables and charts. Odds ratios (ORs) were used to compare associations between dependent and independent variables.

**Results:** The overall incidence of infection was 5.2%. It varies with the nature and severity of injury, which is 10.7% in open fractures and 1.7% in closed fractures. In open injuries, infection rate increases as severity increases, accounting for 1.33%, 2.67%, and 10.67% for grade I, grade II and grade IIIA fractures, respectively.

**Conclusion:** The present study showed overall incidence of infection is comparable to lower middle-income countries but higher than developed countries. Time from injury to surgery, nature of fracture, pattern of fracture, and previous use of external fixator were found to be significantly associated with occurrence of surgical site infection. We recommend that more attention should be given to patients on SIGN nails for complaints around the surgical wound. Open and complex fractures are at risk of infection and we need to have appropriate measures to prevent infection. It is good to be cautious and look at predisposing factors for infection while doing nailing early and using external fixation.