

Open fracture guideline	
Effective Date: 3/2021	Replaces Policy: (Open Fracture Policy 8/18/15)
Initial Effective Date: 8/2015	Policy Owner: Orthopedics/Trauma

Introduction:

This policy describes the initial care of an open fracture in the Emergency Department. These criteria are used by Emergency Department Healthcare professionals and Healthcare providers from Emergency, Orthopedic, and Trauma Departments to provide initial stabilization and wound care.

Scope:

- I. Suspected open fractures will be immediately stabilized in the emergency department (ED) with a splint or traction with orthopedic consultation obtained.
- II. Grossly contaminated wounds will be irrigated in the ED at bedside.
- III. The open wound will be covered with moist saline soaked 4x4's with sterile dressing applied.
- IV. Tetanus status will be assessed by the ED and tetanus prophylaxis administered per ED protocol.
- V. Antibiotics will be administered based upon **SUSPECTED OPEN FRACTURE WITHIN 1 HOUR** Type according to the Gustillio Anderson Classification as follows:
 - Type I Open Fractures (open fracture with a skin wound less than 1 cm long and clean) – 1st generation cephalosporin until 24 hours post-operative debridement
Alternative for Severe beta-lactam allergy: Clindamycin 900 mg IV q8h
 - Type II Open Fractures (Open fracture with a laceration more than 1 cm long without extensive soft tissue damage, flaps, or avulsions) - 1st generation cephalosporin until 24 hours post-operative debridement
 - Type III Open Fractures (Either an open segmental fracture, an open fracture with extensive soft tissue damage, or a traumatic amputation) - 1st generation cephalosporin and aminoglycoside antibiotic until 24 hours post-operative debridement

Alternative for Severe Beta-lactam allergy: Clindamycin 900 mg IV q8h + levofloxacin 500 mg IV q24h

-Farm yard injuries (severe contamination with soil or fecal matter) - 1st generation cephalosporin, aminoglycoside and penicillin until 24 hours post-operative debridement

-In cases of **severe contamination**, antibiotics may be continued for as long as **72 hours** after a surgical procedure

VI. Open fractures without gross contamination will receive operative debridement **within 24 hours of initial presentation to the ED** whenever possible.

VII. Patients with severe fracture associated with gross wound contamination should be brought to the OR **within 8 hours**, if clinically feasible based on patient condition and resources available.

VIII. Whenever possible skin defects overlying open fractures should be closed at the time of initial debridement. Whenever possible, soft tissue coverage should be completed within seven days of injury for open fractures associated with wounds requiring skin grafting or soft tissue transfers. Antibiotics should be continued until skin deficits are closed.

Gustilo-Anderson Classification System

Type I fracture Open fracture with clean wound <1 cm

Type II Open fracture with laceration 1 cm long without extensive soft tissue damage

Type III fracture Open segmental fracture, open fracture with extensive soft tissue damage, or traumatic amputation

References:

1. American College of Surgeons (2014) Resources for the optimal care of the injured patient. Retrieved from: <http://www.facs.org/>
2. Eastern Association for the Surgery of Trauma (2011) Update to practice management guidelines for prophylactic antibiotic use in open fractures. Retrieved from: <https://www.east.org/education/practice-management-guidelines/open-fractures-prophylactic-antibiotic-use-in-update>
3. Gustilo RB, Anderson. Prevention of infection in the treatment of one thousand and twenty-five open fractures of long bones: retrospective and prospective analyses. J Bone Joint Surg Am 1976 58:453–458
4. Srour, M et al. Prospective evaluation of treatment of open fractures: effect of time to irrigation and debridement. JAMA Surg 2015 Apr;150(4):332-6.

