

Clinical Practice Guideline (CPG) Open Fracture Management

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Orthopedic Trauma Liaison : 10/1/2025 B. Hobby, MD

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INITIAL ANTIMICROBIAL ADMINISTRATION
Administer antibiotics for open fractures within 60 minutes of patient arrival

****Antimicrobial administration post procedure**
Stop antibiotics at 24 hours after surgical procedure/s. In cases of severe contamination, antibiotics may be continued as long as 72 hours after surgical procedure/s.

Initial Trauma Survey
Resuscitation initiated and/or completed
Open Fracture Identified

Control external bleeding
Initiate Early Antibiotics
Update tetanus prophylaxis as indicated
Consult Orthopedics

***Tetanus prophylaxis recommendations**
Administer *Tetanus toxoid* if patient had an incomplete primary immunization, it has been > than 10 years since booster, or if last booster date unknown. *Tetanus Immunoglobulin* should be administered if it has been >5 years last booster dose or if pt has history of incomplete primary immunization

Gustilo type I open fracture (wound < 1cm)

- 1) Administer Cefazolin immediately. Continue until surgical management is performed.
> Clindamycin if allergic to Penicillin
- 1) Consult orthopedics (surgical management within 24 hours)
- 2) Update tetanus prophylaxis per recommendations*
- 3) Assess for signs/symptoms of compartment syndrome
- 4) Irrigate with normal saline and dress with gauze
- 5) Post surgical antimicrobial administration per recommendations**

***** Cefazolin Dosing:**
Wt < 40 kg: 1 gm
Wt 41kg-119 kg: 2 gms
Wt >120 kg :3 gms
Re-dose 6 hrs after initial dose

Gustilo type II open fracture (wound > 1cm)

- 1) Administer Cefazolin immediately. Continue until surgical management is performed.
> Clindamycin if allergic to Penicillin
- 2) Add Metronidazole if severe contamination or impaired vascularity. Continue until surgical management is performed.
- 3) Consult orthopedics (surgical management within 24 hours)
- 4) Update tetanus prophylaxis per recommendations*
- 5) Assess for signs/symptoms of compartment syndrome
- 6) Irrigate with normal saline and dress with gauze
- 7) Post surgical antimicrobial administration per recommendations**

Alternative to Cefazolin: Clindamycin 600 mg IV q8h or Vancomycin
Alternative to Vancomycin: Daptomycin 8 mg/kg q24h

Gustilo type IIIA, IIIB, and IIIC open fx (wound > 10 cm)

- 1) Consult orthopedics (surgical management within 24 hours)
- 2) Administer Ceftriaxone immediately (one dose) in addition to the following
> Clindamycin if allergic to Penicillin
- 3) Add Metronidazole if severe contamination or impaired vascularity.
- 4) Update tetanus prophylaxis per recommendations*
- 5) Assess for signs/symptoms of compartment syndrome
- 6) Post surgical antimicrobial administration per recommendations**

Metronidazole 500 mg IV/PO q8h
Ceftriaxone 2g IV q24h

Operative debridement & washout should be done <24h based on patient stability & wound contamination

Reference:
ACS TQIP Best practices in the management of orthopedic trauma 2015 American College of Surgeons Committee on Trauma <https://ota.org/sites/files/2021-06/General%20B2%20Open%20Fractures.pdf>
American College of Surgeons Committee on Trauma. (2022). Resources for optimal care of the injured patient (Vol. #7). DOI: bit.ly/3jwx8yC
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-fracturesprophylactic-antibiotic-use-in-update>
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.