

2022 Pediatric Open Fracture Evaluation Clinical Guideline

PED-ED

Start

Overlying break in the skin or concern for open fracture?

YES

Hemodynamically Stable

YES

Stabilize and Observe

YES

- Neurovascular assessment
- Check tetanus immunization status and order vaccine and/or immunoglobulin as needed

Obtain images

Is bedside orthopedic consult available within 60 min?

YES

Orthopedic Surgery Consult

NO

Transfer to PED+ or PED1

Start antibiotics prior to transfer**

NO

Transfer to PED1

While awaiting transfer, important to assess and initiate resuscitation

- Fluid resuscitation
- Packed RBCs if indicated
- Assess for other causes of bleeding
- Start antibiotics prior to transfer**

Don't delay transport to obtain imaging

Time Goal: Identify open fractures within 30 min of arrival

Time Goal: Start antibiotics within 60 min of arrival

This algorithm does not replace clinical judgment and is not intended to be prescriptive for all patients

****See table 1 and 2 for classification and recommendation)**

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Table 1: Gustilo Classification

Gustilo Grade	Definition
I	Open fracture, clean wound, wound < 1 cm in length
II	Open fracture, wound > 1 cm but < 10 cm in length without extensive soft-tissue damage, flaps or avulsions
III	Open fracture with extensive soft-tissue laceration (>10 cm), damage, or loss or an open segmental fracture. This type also includes open fractures caused by farm injuries, fractures requiring vascular repair, or fractures that have been open for 8 hours prior to treatment
IIIA	Type III fracture with adequate periosteal coverage of the fracture bone despite the extensive soft-tissue laceration or damage
IIIB	Type III fracture with extensive soft-tissue loss and periosteal stripping and bone damage. Usually associated with massive contamination. Will often need further soft-tissue coverage procedure (i.e. free or rotational flap)
IIIC	Type III fracture associated with an arterial injury requiring repair, irrespective of degree of soft-tissue injury

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Fracture Classification	Initial Antibiotic/Dose
Gustilo Grade I or II	Cefazolin 50mg/kg (max 2000 mg)
Gustilo Grade III	Cefazolin 50mg/kg (max 2000 mg) PLUS Gentamicin 5mg/kg*
Open Extremity Fracture With Suspected Fecal/Clostridal Contamination (Farm-Related Injury)	Cefazolin 50mg/kg (max 2000 mg) PLUS Gentamicin 5mg/kg* PLUS Clindamycin 13mg/kg (max 600 mg)
Alternatives if Patient Has Severe Allergy to Above Antibiotics	<i>Beta-lactam Allergy:</i> Clindamycin 13mg/kg (max 600 mg) <i>Beta-lactam/Gentamicin Allergy:</i> Ertapenem 15mg/kg (max 1000 mg)

*Consult ED Pharmacist for Appropriate Dosing Using Actual or Ideal Body Weights