Parent Policy:	Title: Prophylactic Antibiotics Following Trauma	Standard Operating Procedure Effective Date: 01/19/2021

WAKEMED TRAUMA CENTER
PROPHYLACTIC ANTIBIOTICS FOLLOWING TRAUMA

PURPOSE: Define when prophylactic antibiotics should be used following trauma.

Contributing specialties: Trauma surgery, Orthopedic surgery, Neurosurgery, ENT, Pharmacy

I. Gunshot wound:
- a. None, in the absence of local signs of infection.
- b. Typically, these wounds are not closed.
- c. Irrigate thoroughly and debride as needed.

II. **Stab wound (superficial/extremity):**
- a. None, in the absence of local signs of infection.
- b. These wounds may be left open or closed.
- c. If closed, do so loosely following thorough irrigation.

III. Chest tube:
- a. Penetrating trauma: Cefazolin x1 dose (peri-procedural)
- b. Blunt trauma: None

IV. **Hollow viscus injury (blunt or penetrating, with rapid source control):**
- a. Perioperative x24 hours
  - i. Cefoxitin
  - ii. PNC allergy: Levaquin + metronidazole

V. **Animal bites:**
- a. Oral (typically no more than 5 days total treatment)
  - i. Amoxicillin-clavulanate
  - ii. PNC allergy: levaquin + metronidazole
- b. Parenteral (typically no more than 5 days total treatment)
  - i. Ampicillin-sulbactam
  - ii. PNC allergy: levaquin + metronidazole

VI. **Large/destructive/contaminated soft tissue injury without open fracture (including scalp):**
- **a.** Cefazolin x1 dose and thorough irrigation with debridement as needed.

VII. Open extremity fractures:
- a. Treat for 72 hours or 24 hours post-coverage, whichever comes first.
- b. Gustilo-Anderson I-II
  - i. No soil contamination: cefazolin (PNC allergy: clindamycin)
  - ii. Soil contamination: cefazolin + metronidazole (PNC allergy: clindamycin)
- c. Gustilo-Anderson ≥ III
  - i. Piperacillin-tazobactam (PNC allergy: aztreonam + clindamycin)

ii. Fresh water contamination: piperacillin-tazobactam (PNC allergy: meropenem)
iii. Saltwater contamination: piperacillin-tazobactam + doxycycline (PNC allergy: meropenem + doxycycline)

Gustilo-Anderson open fracture grading

Type	Wound size	Contamination	Fracture	Vascular injury requiring repair	Soft tissue coverage
I	Wound <1 cm	Minimal	Minimal comminution; no periosteal stripping	No	Adequate
II	Wound >1 cm	Moderate	Moderate comminution; minimal periosteal stripping	No	Adequate
IIIA	Any size	Severe	Severe comminution or segmental fractures; periosteal stripping	No	Adequate; may become inadequate with debridements
IIIB	Any size	Severe	Severe comminution or segmental fractures; periosteal stripping	No	Inadequate (rotation flap or free flap)
IIIC	Any size	Severe	Severe comminution or segmental fractures; periosteal stripping	Yes	Inadequate (rotation flap or free flap)

References:

1. *Gustilo RB, Anderson JT. 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.*
2. *Gustilo RB, Gruninger RP, Davis T. Classification of type III (severe) open fractures relative to treatment and results. Orthopedics 1987; 10:1781.*

Facial fractures:

I. Antibiotics of choice:
   a. IV: Ampicillin-sulbactam
   b. PO: Amoxicillin-clavulanate
   c. PNC allergy: Clindamycin

II. Fracture types
   a. Nasal fractures: No antibiotics
   b. Mid-face fractures: No antibiotics
   c. Closed mandible fractures: No antibiotics
   d. Open mandible fractures: Antibiotics until definitive surgical management.
      i. If definitive surgical management is >72 hours, discuss cessation of antibiotics with ENT.
   e. Inferior or medial orbital wall fracture ("blowout"): No consensus reached. There is no evidence available to support antibiotic use.
   f. Non-displaced frontal sinus fractures or displaced anterior table/frontal sinus fractures: No antibiotics
   g. Displaced posterior table/frontal sinus fractures: Antibiotic coverage in coordination with Neurosurgery

Skull fractures:

I. Penetrating brain injuries: ceftriaxone x7 days (PNC allergy: Meropenem)
II. Open depressed fractures: ceftriaxone x7 days (PNC allergy: Meropenem)
III. Basilar skull fractures: No antibiotics
IV. EVD and ICP monitors: No antibiotics (other than pre-procedure)
V. CSF leak: No antibiotics