TITLE: OPEN FRACTURE GUIDELINE

PURPOSE: To provide a guideline and treatment goals for patients presenting with open fractures.

GUIDELINES/PROCEDURES STATEMENT:

The need for peri-operative antibiotics for facial fractures has been well established and accepted as demonstrated by authors Chole and Yee.[1] However, there isn't clear evidence that supports the appropriate duration of antibiotics for these patients post-operatively. Considering the use of long-term or inappropriate antibiotics can lead to resistant strains of bacteria and/or serious adverse effects, the goal of this guideline is to standardize antibiotics for all trauma patients with facial fractures.

I. GUIDELINES/ RATIONALE:

Treatment Goals

- **Antibiotic therapy initiated within 1 hour of arrival**
- **Operative debridement within 6-24 hours**
- **When necessary, soft tissue coverage within 7 days of injury**

Prophylactic Antibiotics

Low Grade (I/II)	Ancef	48 hours from presentation 24 hours after subsequent intervention
High Grade (IIIA/B/C)	Vancomycin / Cefepime	48 hours from presentation 24 hours after subsequent intervention
Soil Contamination	Penicillin	Single Dose
Marine Contamination	Levaquin	Single Dose
Gunshot Injury with fracture	Vancomycin / Cefepime	48 hours from presentation, 24 hours after subsequent intervention
Transcolonic gunshot injury to the spine	Vancomycin / Cefepime / Flagyl	7 days from presentation, 24 hours after subsequent intervention

Emergency Room Management

- Prophylactic antibiotics (see above)
- Radiographs, irrigation and removal of gross contamination from wound, reduce fracture and loosely approximate skin, splint
- NPO, obtain general surgery clearance, and notify the chief resident

Operative Management

- Prewash with chlorohexidine scrub / alcohol; Prep with chlorohexadine
- Sharp excisional debridement of nonviable tissue and foreign material
- Irrigation with plain NS and GU tubing
    - Low Grade (I-II) 3-6 L; High Grade (III) = 9 L
- Vancomycin / Tobramycin – 1g/1.3g per 20g cement (1 vial of each and a half bag of cement) beads when staged treatment planned and soft tissue allows
- Grade IIIB – call plastic surgery preoperatively and intraoperatively for assessment of the wound
- Apply external fixation versus definitive fixation dependent upon type of injury, location, and grade

Specific Fractures

- Upper extremities – often treated definitively at initial debridement
- Pelvic ring – almost always treated without internal fixation in the front
- Femur shaft and SC femur - often treated definitively at initial debridement
- Periarticular fractures in the leg - staged treatment with exfix followed by definitive treatment
- Low Grade (I-II) tibia shaft – definitive treatment at initial debridement with with reamed IMN
- High Grade (III) tibia fractures – exfix followed by unreamed nail or Ilizarov
- **IIIB fractures**
    - repeat debridements / antibiotic bead placement by Orthopedic service
    - Plastic surgery presence in the OR at initial and final debridement prior to coverage
- Ankle fractures - definitive treatment at initial debridement when soft tissues permit
- Calcaneus fractures – often treated with debridement alone
- Spine Fractures
    - Non-transcolonic injuries will be treated the same as a grade III fracture 2/2 GSW
    - Transcolonic injuries will require 7 days of Vancomycin / Cefepime / Flagyl

REFERENCES/BIBLIOGRAPHY:

DEPARTMENT OF PRIMARY RESPONSIBILITY:

Trauma Services

REVISION HISTORY:

Effective Date	Version # (If Applicable)	Review or Revision Date (Indicate Reviewed or Revised)	Reviewed or Approved by: (Directors, Committees, Managers, and Stakeholders etc.)
	1		Trauma Protocol Committee
		1/24/17	Trauma PI/Program Committee