

Parent Policy: <a href="#">Prophylactic Antibiotics Following Trauma</a>	Title: Long Bone Fractures- Shared	Standard Operating Procedure Effective Date: 05/30/2023
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### **WHO SHOULD READ THIS PROCEDURE:**

WakeMed General Surgery Raleigh and Cary

### **GUIDELINE STATEMENT:**

Injuries to the musculoskeletal system occur in many blunt trauma patients. Musculoskeletal injuries must be assessed and managed properly and appropriately to prevent jeopardy to life and/or limb. Hemorrhage from a long bone fracture, either open or closed, can result in significant blood loss. Femur fractures are the most important long bone fractures to address early. This is especially true in patients who have injury severity scores greater than or equal to 18. The incidence of fat embolism syndrome, ARDS, and pulmonary infection are significantly less if femur fractures are stabilized in the first 24 hours of injury in these patients.

### **CLOSED FRACTURES:**

- I. After a patient's injuries have been diagnosed and life-saving procedures addressed, patients should be transferred to the operating room for stabilization of femur fractures as soon as possible.
  1. Patients who are cold, coagulopathic, or hypotensive should not proceed to the operating room until these issues have been corrected.
  2. If there will be a delay to OR, patient should be placed in skeletal traction for a femur shaft fracture.
- II. The timing of long bone fixation in patients with severe closed head injuries is more controversial.
  1. If patients are properly resuscitated and stabilized prior to long bone fixation, there is no negative impact on the CNS injury.
  2. Early long bone fixation has also been shown to decrease the incidence of ICU stay, overall length of stay, and cost of hospitalization.
  3. Decision for surgical clearance to be made by trauma services with potential input from consulting services.
- III. If hemodynamically stable, a patient with multiple trauma should have as many long bone fractures stabilized within the first 24 hours as clinically feasible.

### **OPEN FRACTURES:**

- I. Follow ABC's. When patient is stable, examine the fracture and document distal neurovascular status of limb.
- II. Prophylactic antibiotics should be ordered for open fractures and administered within one hour of presentation, if not administered in field.
- III. For open fractures, remove all gross contamination using sterile saline and cover all wounds with sterile dressing soaked in normal saline.
- IV. Provide temporary stabilization eg splint or traction for grossly align limb or reduce dislocation.
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- V. Order radiographs in at least 2 planes, including joints above and below fracture.
- VI. Tetanus prophylaxis if indicated.
- VII. Operative I&D should occur within 24 hours of presentation or sooner whenever clinically feasible.

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**Approved by:** MED DIR, TRAUMA, PHYSICIAN, SURGEON

No: 4047



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## DEFINITIONS:

### I. ASSOCIATED DOCUMENTS

- a. Advanced Trauma Life Support ATLS: Student Course Manual. (2018). 10th ed. Chicago: American College of Surgeons.
- b. Gandhi, R., Overton, T., Haut, E., Lau, B., Vallier, H., Rohs, T., Hasenboehler, E., Lee, J., Alley, D., Watters, J., Rogers, F. and Shafi, S., 2014. Optimal timing of femur fracture stabilization in polytrauma patients. *Journal of Trauma and Acute Care Surgery*, 77(5), pp.787-795.
- c. Hoff, W., Bonadies, J., Cachecho, R. and Dorlac, W., 2011. East Practice Management Guidelines Work Group: Update to Practice Management Guidelines for Prophylactic Antibiotic Use in Open Fractures. *Journal of Trauma: Injury, Infection & Critical Care*, 70(3), pp.751-754.