

### Timely Antibiotic in Femur/Tibia Open Fractures

Harper, K. D., Quinn, C., Eccles, J., Ramsey, F., & Rehman, S. (2018). Administration of intravenous antibiotics in patients with open fractures is dependent on emergency room triaging. *PLoS ONE*, *13*(8), e0202013. This is a retrospective single center cohort study from January 2013 to March 2015 where 117 patients with open fractures were evaluated for timeliness to antibiotic administration and compared by triaging discipline. Patients receive IV cefazolin significantly faster when trauma surgeons evaluate the patient rather than emergency medicine. Delays in gentamicin administration were noted across disciplines due to weight-based dosing requirements precluding a readily available stocked standard dose.

Lack, W. D., Karunakar, M. A., Angerame, M. R., Seymour, R. B., Sims, S., Kellam, J. F., & Bosse, M. J. (2015). Type III open tibia fractures: Immediate antibiotic prophylaxis minimizes infection. *Journal of Orthopaedic Trauma*, *29*(1), 1-6. This is a single center observational study of antibiotic timing in type III open tibia fractures. Time from injury to antibiotics and to wound coverage independently predict infection of type III open tibia fractures. Both should be achieved as early as possible, with coverage being dependent on the condition of the wound. Given the relatively short therapeutic window for antibiotic prophylaxis (within an hour of injury), prehospital antibiotics may be warranted.

Collinge, C. A., McWilliam-Ross, K., Kelly, K. C., & Dombroski, D. (2014). Substantial improvement in prophylactic antibiotic administration for open fracture patients: Results of a performance improvement program. *Journal of Orthopaedic Trauma*, *28*(11), 620-625. This single center retrospective comparative cohort study of open fracture patients compared before and after implementation of a QI effort concentrating on education, accountability, and antibiotic availability to improve timeliness of IV antibiotic administration. Significant improvement in the timing and reproducibility of antibiotic administration was noted. One hour is an appropriate benchmark for antibiotics to be administered to open fracture patients at a busy trauma center.

Hoff, W. S., Bonadies, J. A., Cachecho, R., & Dorlac, W. C. (2011). EAST Practice Management Guidelines Work Group: Update to practice management guidelines for prophylactic antibiotic use in open fractures. *Journal of Trauma*, *70*(3), 751-754. Based on a review of the literature this EAST guideline notes that antibiotics are an important adjunct to the management of open fractures and should be initiated as soon as possible. Gram-positive coverage is recommended for type I and type II fractures. Broader antimicrobial coverage is recommended for type III fractures.