

UCDMC Adult Antibiotic Guidelines for the Treatment of Open Fractures

The first dose of antibiotics **must** be given as soon as possible - goal is within 1 hour from ED arrival!

Initial Antibiotic Management for Open Fractures

Duration is from time of the first dose in the ED

Antibiotic	Grade 1	Grade 2	Grade 3
Cefazolin			
40-69 kg	2 gm IV x 1, then 1 gm q 8 hrs x 24 hrs	2 gm IV x 1, then 1 gm q 8 hrs x 24 hrs	2 gm IV x 1, then 1 gm q 8 hrs x 24-72 hrs
70-120 kg	2 gm IV x 1, then 2 gm q 8 hrs x 24 hrs	2 gm IV x 1, then 2 gm q 8 hrs x 24 hrs	2 gm IV x1, then 2 gm q 8 hrs x 24-72 hrs
> 120 kg	3 gm IV x 1, then 2 gm q 8 hrs x 24 hrs	3 gm IV x 1, then 2 gm q 8 hrs x 24 hrs	3 gm IV x1, then 2 gm q 8 hrs x 24-72 hrs
Gentamicin	xxx	xxx	5 mg/kg IV q24 hrs x 24-72 hrs
Penicillin G: originally dirty or contaminated (<i>Clostridium</i> spp.)	xxx	xxx	2 million units IV q4h x24-72 hrs
If allergic to PCN/cephalosporin			
Clindamycin x1 followed by Vancomycin	Clindamycin 900 mg IV x1 f/b Vancomycin 15 mg/kg q8-12h* x 24 hrs	Clindamycin 900 mg IV x1 f/b Vancomycin 15 mg/kg q8-12h* x 24 hrs	Clindamycin 900 mg IV x1 f/b Vancomycin 15 mg/kg q8-12h* x24-72 hrs
Fresh water exposure (<i>Aeromonas and Pseudomonas</i>)			
Cefepime	XXX	XXX	2g IV q8h* x24-72 hrs

*Must dose adjust with poor renal function and obesity - pharmacist assistance (3-6120 OR pharmacy, 3-4026 ID pharmacist)

Maximum duration of antibiotics (Timed from initial ED dose): Grades 1 and 2: 24 hours, Grade 3: 72 hours

Peri-operative Antibiotic Dosing

Peri-operative antibiotics allowed for procedures occurring past above maximums

Antibiotic Dosing for Procedures during the Initial Antibiotic Time Period		
Antibiotic	Pre-op dosing	Repeat dosing for cases >4 hours or > 1500ml blood loss
Cefazolin (if > 4 hrs from previous dose)		
40-120 kg	2 gm IV x1	2gm IV - at 4 hours or blood loss
> 120 kg	3 gm IV x 1	2gm IV - at 4 hours or blood loss
Vancomycin (Only give as Pre-Op Dose)		
< 70 kg	1000 mg IV	500mg for blood loss only
≥ 70 kg	1500 mg IV	1000mg for blood loss only
Gentamicin (if >24hrs since previous dose)	5mg/kg x 1	2.5mg/kg IV for blood loss only
Penicillin G: If Grade 3 and originally dirty, contaminated with soil (if > 8 hrs from previous dose)	2 million units x1	2 million units at 4 hours or blood loss
If allergic to PCN/cephalosporin		
Clindamycin (if >6hrs from previous)	900 mg IV	600mg IV for blood loss only
Antibiotic Dosing for Procedures AFTER the Initial Antibiotic Time Period		
*Cefazolin (Give for total of 24 hours)		
40-120 kg	2 gm IV x1	2gm IV - at 4 hours or blood loss
> 120 kg	3 gm IV x 1	2gm IV - at 4 hours or blood loss
*Vancomycin (Only give as Pre-Op Dose)		

< 70 kg	1000 mg IV	500mg for blood loss only
≥ 70 kg	1500 mg IV	1000mg for blood loss only
If allergic to PCN/cephalosporin		
Clindamycin	900 mg IV	600mg IV for blood loss only

***Only cefazolin or clindamycin should be continued post-op, for no more than 24 hours, vancomycin is given as one dose pre-operatively**

Much of the long term morbidity of open fractures is secondary to deep fracture-site infections that can lead to chronic osteomyelitis, non-union, loss of function, or even limb loss. The use of antibiotic treatment/prophylaxis for open fractures in an attempt to diminish the rate of infective complications has been considered standard for over 30 years. It is clear that administration of prolonged antibiotics predisposes to subsequent colonization and infection by resistant nosocomial organisms and direct antibiotic-related complications. A recent report in Bone & Joint Journal found that infection in open fractures is related to the extent of tissue damage but not to the duration of antibiotic therapy.

The data support that a short course of first-generation cephalosporins, begun as soon as possible after injury, significantly lowers the risk of infection when used in combination with prompt, modern orthopedic fracture wound management. There is insufficient evidence to support prolonged courses or repeated short courses of antibiotics, the use of antibiotic coverage extending to gram-negative bacilli or *Clostridial* species or the use of local antibiotic therapies such as beads. Until large, randomized, blinded trials are performed to evaluate these questions, expert consensus will determine the current UCDMC guideline.

References:

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Approved by UCDHS Pharmacy and Therapeutics Committee 12/2021