

Principles of Perioperative Surgical Antimicrobial Prophylaxis

Antimicrobial choice – The determinants of choice are based on type of procedure and likelihood of infection, most likely pathogens for region of body being operated, and patient factors (i.e. allergies, co-morbid conditions, etc.)

Timing – Administer all prophylactic antimicrobials within 60 minutes prior to surgical incision (exception: vancomycin & fluoroquinolones within 120 minutes) so that drug concentration is at adequate tissue levels, thus maximizing effectiveness.

Initial Dose – See table below

Redosing – If the surgery is prolonged beyond 2 half-lives of the antimicrobial(s) or there is major blood loss (> **1500 mL**), re-administration of the antimicrobial(s) is advised – see table for specific redosing timing

Duration – If prophylaxis is extended beyond the operative period, antimicrobial(s) should be discontinued within 24 hours (within 48 hours for cardiac surgery cases) of the surgery end time due to lack of benefit and increased risk of acquisition of antibiotic resistant pathogens. To meet SCIP metrics, please limit post-operative prophylaxis dosing to:

- Three doses for antimicrobials given every 6 hours
- Two doses for antimicrobials given every 8 hours
- One dose for antimicrobials given every 12 hours

Antimicrobial	Recommended Dose (Adults)	IV Push Time - min	IV Infusion Time - min	Half-life in Adults – hr (normal renal function)	Recommended <u>Intra-Operative</u> Redosing Interval (hr) From Initiation of Previous Dose	
					FIRST REDOSE	SUBSEQUENT REDOSE
Ampicillin-sulbactam	3g	N/A	15-30	0.8-1.3	2	6
Ampicillin	2g	N/A	15-30	1-1.9	2	4
Aztreonam	2g	5-10	20-60	1.3-2.4	4	8
Cefazolin (based on actual wt)	< 120 kg - 2g ≥ 120 kg - 3g	5-10 10-15	30-60	1.2-2.2	4	8
Cefepime	2g	5	30	2	4	8
Cefotaxime	1g	5	30	0.9-1.7	3	8
Cefotetan	2g	5	30	2.8-4.6	6	12
Cefoxitin	2g	5	10-60	0.7-1.1	2	6
Ceftriaxone	2g	10-15	30	5.4-10.9	12	24
Cefuroxime	1.5g	5	15-30	1-2	4	8
Ciprofloxacin	400mg	N/A	60	3-7	6	24
Clindamycin	900mg	N/A	30-60	2-4	6	8
Ertapenem	1g	N/A	30	3-5	8	24
Fluconazole	400mg	N/A	120	30	24	
Gentamicin (based on dosing wt)	5 mg/kg (max 500mg) *	N/A	30	2-3	24	
Levofloxacin	500mg	N/A	60	6-8	24	
Metronidazole	500mg	N/A	30-60	6-8	8	
Piperacillin/tazobactam	3.375g	N/A	30 [@]	0.7-1.2	2	8
Vancomycin	15 mg/kg actual wt. (max 2g)	N/A	60-120 (based on dose)	4-8	call pharmacy if surgery is longer than 8 hrs	

* Dosing weight for **gentamicin**: If actual weight is > 20% above ideal body weight (IBW), use dosing weight (DW):

- IBW: male = 50 + (2.3 x ht. in inches over 5 feet)
female = 45.5 + (2.3 x ht. in inches over 5 feet)
- DW: IBW + 0.4 (actual weight – IBW)

[@] Piperacillin/tazobactam infusion time for perioperative use can be shortened to 30 minutes, for intermittent dosing in patients already on therapy and for intraoperative redosing, use extended-infusion protocol (4 hour infusion)

Bratzler DW, Dellinger EP, Olsen KM, et al. Clinical practice guidelines for antimicrobial prophylaxis in surgery. Surg Infect (Larchmt) 2013; 14:73.

Lexicomp Online [Internet]. Hudson (OH) : Lexi-Comp, Inc. 1978-2013 [cited 2013 Jul 25]. Available from: <http://online.lexi.com/crlsql/servlet/crlonline>.

PLEASE CALL THE OR PHARMACY (2-4897) IF YOU HAVE ANY QUESTIONS