Pediatric Perioperative/Surgical Antibiotic Prophylaxis

BETA-LACTAM ALLERGY TOOL

BETA-LACTAM ALLERGY RATIONALE

Important Notes Regarding Surgical Antibiotic Prophylaxis (SAP)

1. These recommendations may not be appropriate for all clinical situations. Decisions should be based on the clinician judgment and individual patient circumstances.
2. **Cefazolin is the drug of choice for MOST procedures** (see Surgical Prophylaxis Choices in House Staff Manual) **and is safe to use for most patients with allergies to penicillin, amoxicillin, amoxicillin-clavulanate, ampicillin, or cephalexin**. Specific delayed type IV hypersensitivities that are severe cutaneous adverse reactions to beta-lactams (penicillins or cephalosporins) such as SJS/TEN, DRESS, AGEP, etc, might be contraindications to cefazolin since the cross-reactivity is not well understood. For SAP with cephalosporins other than cefazolin (e.g., cefoxitin), evaluate for cross-reactivity to other beta-lactam antibiotics using the allergy tools.
3. The SAP dosages listed are NOT necessarily those used for routine administration. If the patient will continue antibiotics after leaving the OR, the dosing frequency should revert to STANDARD dosing intervals based on the timing of the last intraoperative dose.
4. With very FEW exceptions, SAP should be terminated within 24 hours of completion of the surgical procedure.
5. An additional dose of SAP can be CONSIDERED in the event of excessive blood loss (e.g., >25 mL/kg [30% blood volume] OR >1500 mL if >50 kg). NOTE: Vancomycin, gentamicin, and clindamycin should NOT be redosed for blood loss.
6. For patients receiving antibiotic therapy at the time of surgery, ensure the regimen covers likely surgical site infection pathogens and maintain current dosing intervals throughout the procedure.
7. Patients with a history of colonization or infection with a resistant organism not covered by the empiric recommendation may require antibiotics that target the resistant organism. Consult LPCH Pediatric Infectious Disease (ID) for recommendations.
8. Patients receiving SAP generally do NOT need additional antibiotics for endocarditis prophylaxis.
9. Antibiotics not listed in the table below should be re-dosed intraoperatively at the drug's standard dosing interval. Additional considerations include total dose given over 24 hours, drug's half-life, electrolyte disturbances (e.g., sodium load with piperacillin/tazobactam), and renal function. Contact the Pediatric ID physician with questions.

Antibiotic	Ampicillin	Ampicillin-sulbactam[b]	Cefazolin	Cefoxitin	Ceftriaxone	Ciprofloxacin	Clindamycin	Gentamicin[c]	Metronidazole	Vancomycin
Dose[a]	50 mg/kg	50 mg/kg	30 mg/kg	<1 mo: 30 mg/kg ≥1 mo: 40 mg/kg	50 mg/kg	10 mg/kg	≤1 mo: 5 mg/kg >1 mo: 10 mg/kg	<1 mo: 4 mg/kg 1 mo-17 yr: 2.5mg/kg ≥18 yr: 5 mg/kg	<1.2 kg: 7.5 mg/kg ≥1.2 kg: 15 mg/kg Appendicitis: 30 mg/kg	15 mg/kg
Maximum dose	2 g	2 g	<120 kg: 2 g ≥120 kg: 3 g	2 g	2 g	400 mg	900 mg	No maximum dose	500 mg Appendicitis: ≤80 kg: 1 g >80 kg: 1.5 g	1 g
Re-dose (OR ONLY)[a]										
Neonates ≤7 days OR ≤2 kg	6 hrs	Call pharmacy	6 hours	3 hours	NA	NA	12 hours	NO re-dose	NO re-dose	NO re-dose
Neonates >7 days AND >2 kg	8-14 days: 6 hrs ≥15 days: 3 hrs	Call pharmacy	3 hours	3 hours	NA	NA	6 hours	NO re-dose	NO re-dose	12 hours
Infants >1 mo, children, adolescents & adults	3 hours	3 hours	3 hours	2 hours	12 hours Appendicitis: NO Re-dose	8 hours	6 hours	NO re-dose	12 hours Appendicitis: NO re-dose	8 hours
Additional information										
Recommended max concentration	100 mg/mL	20 mg/mL[b]	100 mg/mL	100 mg/mL	40 mg/mL	2 mg/mL	18 mg/mL	10 mg/mL	5 mg/mL	5 mg/mL
IV Administration time	<1 g: 3-5 min ≥1 g: 10-15 min	15-30 min	3-5 min	3-5 min	15-30 min	60 min	30-60 min	<1 mo: 60 min 1 mo-17 yr: 30 min ≥18 yr: 60 min	60 min	60 min *Infusion syndrome[d]: 120 min*

NA: Not appropriate

[a] Assuming normal renal function.

[b] Dosing based on ampicillin component.

[c] Dose is based on actual body weight unless >20% above ideal body weight (IBW), then dosage requirement may best be estimated using a dosing weight = IBW + 0.4 (TBW - IBW).

[d] If a maculopapular rash appears on face/neck/trunk/upper extremities, slow the infusion rate to run over 2 hours. Be aware that infusion of vancomycin (even over 60 minutes) may cause hypotension, especially during induction of anesthesia; further slowing of the infusion and/or treatment with diphenhydramine may be necessary.

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