Surgical Antibiotic Prophylaxis - Pediatric

Disclaimer: *This algorithm has been developed for MD Anderson using a multidisciplinary approach considering circumstances particular to MD Anderson's specific patient population, services and structure, and clinical information. This is not intended to replace the independent medical or professional judgment of physicians or other health care providers in the context of individual clinical circumstances to determine a patient's care. This algorithm should not be used to treat pregnant women.*

Patients scheduled for surgery should have the following antibiotics administered prior to their procedure:

- Vancomycin and ciprofloxacin are to be initiated 60 to 120 minutes prior to incision and all other antibiotics are to be initiated within 60 minutes of incision
- Please carefully evaluate allergy histories before using alternative agents-the majority of patients with listed penicillin allergies can safely be given cephalosporins or carbapenems
- If the patient has multiple known antibiotic drug allergies, is colonized with or has a history of a recent multi-drug resistant infection, please administer antibiotics as indicated or consider an Infectious Diseases consultation
- Vancomycin prophylaxis 15 mg/kg IV (maximum 2,000 mg/dose) should be considered for patients with known MRSA colonization or at high risk for MRSA colonization in the absence of surveillance data (*e.g.*, patients with recent hospitalization, hemodialysis patients)
- Discontinue all antibiotics within 24 hours of first dose except for: 1) Treatment of established infection, 2) Prophylaxis of prosthesis in the setting of postoperative co-located percutaneous drains, 3) Intraoperative findings that raise the wound classification above 2 (*e.g.*, spillage of enteric contents, purulent fluid, etc.). All of these require appropriate documentation.
- See **Appendix A** for intraoperative re-dosing recommendations
- Doses listed are based on actual body weight

Disease Site	No Penicillin Allergy	Patients with Penicillin Allergy
Cardiac and Vascular Thoracic	Cefazolin 30 mg/kg (maximum 2,000 mg for patients < 120 kg, and 3,000 mg for patients ≥ 120 kg) IV	• Clindamycin 10 mg/kg (max 900 mg) IV or • Vancomycin 15 mg/kg (max 2,000 mg) IV
Head & Neck (ENT)	• **Clean:** Cefazolin 30 mg/kg (maximum 2,000 mg for patients < 120 kg, and 3,000 mg for patients ≥ 120 kg) IV • **Clean Contaminated:** Ampicillin/Sulbactam 50 mg/kg (maximum 2,000 mg) IV (dose based on ampicillin component)	• Clindamycin 10 mg/kg (max 900 mg) IV or • Vancomycin 15 mg/kg (max 2,000 mg) IV
Neurosurgery	Cefazolin 30 mg/kg (maximum 2,000 mg for patients < 120 kg, and 3,000 mg for patients ≥ 120 kg) IV	Vancomycin 15 mg/kg (max 2,000 mg) IV
Upper Gastrointestinal[1]	Cefazolin 30 mg/kg (maximum 2,000 mg for patients < 120 kg, and 3,000 mg for patients ≥ 120 kg) IV	• Clindamycin 10 mg/kg (max 900 mg) IV or • Vancomycin 15 mg/kg (max 2,000 mg) IV
Lower Gastrointestinal[2]	• Cefoxitin 40 mg/kg (maximum 2,000 mg) IV **or** • Cefazolin 30 mg/kg (maximum 2,000 mg for patients < 120 kg, and 3,000 mg for patients ≥ 120 kg) IV **plus** metronidazole 15 mg/kg (maximum 500 mg) IV	• Clindamycin 10 mg/kg (max 900 mg) IV **plus** gentamicin 2.5 mg/kg (max 80 mg) IV **or** • Clindamycin 10 mg/kg (max 900 mg) IV **plus** ciprofloxacin 10 mg/kg (max 500 mg) IV
Ophthalmology	• **Clean:** Cefazolin 30 mg/kg (maximum 2,000 mg for patients < 120 kg, and 3,000 mg for patients ≥ 120 kg) IV • **Clean Contaminated:** Ampicillin/Sulbactam 50 mg/kg (maximum 2,000 mg) IV (dose based on ampicillin component)	• Clindamycin 10 mg/kg (max 900 mg) IV or • Vancomycin 15 mg/kg (max 2,000 mg) IV
Orthopedics	• **Pelvic Surgery:** Cefoxitin 40 mg/kg (maximum 2,000 mg) IV • **Implanted Orthopedic Prosthesis:** Cefazolin 30 mg/kg (maximum 3,000 mg/dose) IV **plus** gentamicin 2.5 mg/kg (maximum 80 mg) IV • **All others:** Cefazolin 30 mg/kg (maximum 2,000 mg for patients < 120 kg, and 3,000 mg for patients ≥ 120 kg) IV	• Clindamycin 10 mg/kg (max 900 mg) IV or • Vancomycin 15 mg/kg (max 2,000 mg) IV
Plastic Surgery	• **Clean:** no preoperative antibiotics • **Clean Contaminated** (through oral cavity): Ampicillin/Sulbactam 50 mg/kg (maximum 2,000 mg) IV (dose based on ampicillin component) • **Orthopedic:** Refer to Orthopedic doses	Clindamycin 10 mg/kg (max 900 mg) IV

[1] Upper gastrointestinal disease site is defined as esophagus through duodenum

[2] Lower gastrointestinal disease site is defined as jejunum through colon

Department of Clinical Effectiveness V5
Approved by The Executive Committee of the Medical Staff 08/27/2019

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APPENDIX A: Recommended IntraOp Redosing Intervals for Commonly Used Antimicrobials for Surgical Prophylaxis for Patients with Normal Renal Function[1]

Antimicrobial	Recommended Redosing Interval (From initiation of Preoperative Dose), hour[2]
Ampicillin-sulbactam	2
Cefazolin	4
Cefoxitin	2
Ciprofloxacin[3]	N/A
Clindamycin	6
Gentamicin[4]	N/A
Metronidazole	N/A
Vancomycin[5]	N/A

[1] Patients with impaired renal function need individualized initial and secondary antibiotic dosing based on glomerular filtration rate (GFR) and case type

[2] For antimicrobials with a short half-life (*e.g.*, ampicillin-sulbactam, cefoxitin) used before long procedures, redosing in the operating room is recommended at an interval of approximately two times the half-life of the agent in patients with normal renal function and is at the discretion of the surgeon based on the clinical scenario. Recommended redosing intervals marked as "not applicable" (NA) are based on typical case length; for unusually long procedures, redosing may be needed.

[3] While fluoroquinolones have been associated with an increased risk of tendinitis/tendon rupture in all ages, use of these agents for single-dose prophylaxis is generally safe

[4] In general, gentamicin for surgical antibiotic prophylaxis should be limited to a single dose given preoperatively. Dosing is based on the patient's actual body weight.

[5] Vancomycin prophylaxis should be considered for patients with known MRSA colonization or at high risk for MRSA colonization in the absence of surveillance data (*e.g.*, patients with recent hospitalization, hemodialysis patients)

SUGGESTED READINGS

Bratzler, D. W., Dellinger, E. P., Olsen, K. M., Perl, T. M., Auwaerter, P. G., Bolon, M. K., . . . Weinstein, A. (2013). Clinical practice guidelines for antimicrobial prophylaxis in surgery. *American Journal of Health-System Pharmacy, 70*(3), 195-283. https://doi.org/10.2146/ajhp120568

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DEVELOPMENT CREDITS

This practice consensus statement is based on majority opinion of the Pediatric Surgical Antibiotic Prophylaxis workgroup at the University of Texas MD Anderson Cancer Center for the patient population. These experts included:

Samuel Aitken, PharmD (Pharmacy Clinical Programs)
Mary Austin, MD (Surgical Oncology)[Ŧ]
Dan Gombos, MD (Ophthalmology)
Natalie J.M. Dailey Garnes, MD (Infectious Diseases)
Valerae Lewis, MD (Orthopaedic Oncology)
Lauren Mayon, PA-C (Surgical Oncology)
Sonal P. Yang, PharmD[♦]
Acsa M. Zavala, MD (Anesthesiology & PeriOperative Medicine)

[Ŧ] Core Development Team
[♦] Clinical Effectiveness Development Team