Surgical Antibiotic Prophylaxis - Adult

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
- 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 infection, administer antibiotics as indicated or consider an outpatient Infectious Diseases consultation
- 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 redosing recommendations

Disease Site	No Penicillin Allergy	Patients with Penicillin Allergy
Breast / Melanoma / Plastics	• Less than 120 kg: cefazolin 2 grams IV • Greater than or equal to 120 kg: cefazolin 3 grams IV	• Less than 70 kg: clindamycin 600 mg IV • Greater than or equal to 70 kg: clindamycin 900 mg IV
Head / Neck (ENT – Clean)	• Less than 120 kg: cefazolin 2 grams IV • Greater than or equal to 120 kg: cefazolin 3 grams IV	• Less than 70 kg: clindamycin 600 mg IV • Greater than or equal to 70 kg: clindamycin 900 mg IV
Head / Neck (ENT – Clean Contaminated)	• Ampicillin and sulbactam 3 grams IV	• Levofloxacin 500 mg IV **and** • Less than 70 kg: clindamycin 600 mg IV • Greater than or equal to 70 kg: clindamycin 900 mg IV
Neurosurgery	Skull base ONLY: • Ampicillin and sulbactam 3 grams IV All other types: • Less than 120 kg: cefazolin 2 grams IV • Greater than or equal to 120 kg: cefazolin 3 grams IV	• Less than or equal to 70 kg: vancomycin 1 gram IV • Between 70 kg and 100 kg: vancomycin 1.5 grams IV • Greater than or equal to 100 kg: vancomycin 2 grams IV **or** • Less than 70 kg: clindamycin 600 mg IV • Greater than or equal to 70 kg: clindamycin 900 mg IV
Vascular	• Less than 120 kg: cefazolin 2 grams IV • Greater than or equal to 120 kg: cefazolin 3 grams IV	• Less than or equal to 70 kg: vancomycin 1 gram IV • Between 70 kg and 100 kg: vancomycin 1.5 grams IV • Greater than or equal to 100 kg: vancomycin 2 grams IV **or** • Less than 70 kg: clindamycin 600 mg IV • Greater than or equal to 70 kg: clindamycin 900 mg IV
Orthopedics	Pelvic surgery ONLY: • Ceftriaxone 2 grams IV All other types: • Less than 120 kg: cefazolin 2 grams IV • Greater than or equal to 120 kg: cefazolin 3 grams IV	• Less than or equal to 70 kg: vancomycin 1 gram IV • Between 70 kg and 100 kg: vancomycin 1.5 grams IV • Greater than or equal to 100 kg: vancomycin 2 grams IV **or** • Less than 70 kg: clindamycin 600 mg IV • Greater than or equal to 70 kg: clindamycin 900 mg IV

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, nursing-home residents, hemodialysis patients). *ASHP guidelines*

Department of Clinical Effectiveness V7
Approved by The Executive Committee of the Medical Staff 11/27/2018

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GI (Clean)	• Less than 120 kg: cefazolin 2 grams IV • Greater than or equal to 120 kg: cefazolin 3 grams IV	• Less than 70 kg: clindamycin 600 mg IV • Greater than or equal to 70 kg: clindamycin 900 mg IV
GI	Gastric, Pancreas, or Liver: • Cefoxitin 2 grams IV **or** • Ertapenem 1 gram IV Colorectal: • Ertapenem 1 gram IV **and** preoperative bowel preparation[1]	Gastric, Pancreas, or Liver: • Ciprofloxacin 400 mg IV **and** metronidazole 500 mg IV Colorectal: • Ciprofloxacin 400 mg IV **and** metronidazole 500 mg IV **and** pre-operative bowel preparation[1]
Gynecologic	GI procedures unlikely[2]: • Less than 120 kg: cefazolin 2 grams IV **or** • Greater than or equal to 120 kg: cefazolin 3 grams IV GI procedures likely: • Ertapenem 1 gram IV **and** preoperative bowel preparation[1]	GI procedure unlikely: • Ciprofloxacin 400 mg IV **and** metronidazole 500 mg IV GI procedure likely: • Ciprofloxacin 400 mg IV **and** metronidazole 500 mg IV **and** pre-operative bowel preparation[1]
Thoracic / Pulmonary / Esophageal	Ampicillin and sulbactam 3 grams IV	• Less than or equal to 70 kg: vancomycin 1 gram IV • Between 70 kg and 100 kg: vancomycin 1.5 grams IV • Greater than or equal to 100 kg: vancomycin 2 grams IV **and** • Ciprofloxacin 400 mg IV

[1] Patients undergoing colorectal resection should be considered for preoperative mechanical and oral antibiotic bowel preparation

[2] Patients with unanticipated GI procedures should receive ertapenem 1 gram IV intraoperatively as soon as need is identified

MRSA screening should be performed on patients hospitalized within 30 days of procedure, transferred from skilled nursing facilities, with percutaneous lines/catheters, or with HIV. Any surgical patient with a history of MRSA infection or positive MRSA screening should receive vancomycin 1 gram IV as part of surgical prophylaxis. If vancomycin is being ordered based on standard disease site recommendations, a second dose is not necessary. 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, nursing-home residents, hemodialysis patients). *ASHP guidelines.*

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Disease Site	No Penicillin Allergy	Patients with Penicillin Allergy
Genitourinary	For Endoscopy/Transurethral Resection of Bladder Tumor (TURBT): Ciprofloxacin 500 mg PO twice a day (or equivalent based on renal function/ allergies) to start 1 day prior to procedure (prescription given in clinic). Endoscopy or procedures: • Less than 120 kg: Cefazolin 2 grams IV • Greater than or equal to 120 kg: Cefazolin 3 grams IV or • Cefoxitin 2 grams IV or • Ciprofloxacin 400 mg IV and metronidazole 500 mg IV Or • Gentamicin 1.5 mg/kg IV and metronidazole 500 mg IV	Extended coverage (Option 1) • Less than 70 kg: Clindamycin 600 mg IV • Greater than or equal to 70 kg: Clindamycin 900 mg IV and • Gentamicin 1.5 mg/kg IV or ciprofloxacin 400 mg IV Limited coverage (Option 2) • Ciprofloxacin 400 mg IV or 500 mg PO
	Implanted prosthesis: • Less than 120 kg: Cefazolin 2 grams IV • Greater than or equal to 120 kg: Cefazolin 3 grams IV	• Less than or equal to 70 kg: Vancomycin 1 gram IV • Between 70 kg and 100 kg: Vancomycin 1.5 grams IV • Greater than or equal to 100 kg: Vancomycin 2 grams IV **and** • Gentamicin 1.5 mg/kg IV

MRSA screening should be performed on patients hospitalized within 30 days of procedure, transferred from skilled nursing facilities, with percutaneous lines/catheters, or with HIV. Any surgical patient with a history of MRSA infection or positive MRSA screening should receive Vancomycin 1 gram IV as part of surgical prophylaxis. If Vancomycin is being ordered based on standard disease site recommendations, a second dose is not necessary. 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, nursing-home residents, hemodialysis patients). *ASHP guidelines.*

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

Antimicrobial	Half-life (hour)	Recommended Redosing Interval[2] From Initiation of Preoperative Dose (hour)
Ampicillin-sulbactam	0.8 - 1.3	4
Cefazolin	1.2 - 2.2	4
Cefoxitin	0.7 - 1.1	4
Ciprofloxacin[3]	3 - 7	N/A
Clindamycin	2 - 4	6
Ertapenem	3 - 5	N/A
Gentamicin[4]	2 - 3	N/A
Levofloxacin[3]	6 - 8	N/A
Metronidazole	6 - 8	N/A
Vancomycin[5]	4 - 8	N/A

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

[2] For antimicrobials with a short half-life (*e.g.*, cefazolin, cefoxitin) used before long procedures, re-dosing 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. Recommended re-dosing intervals marked as "not applicable" (NA) are based on typical case length; for unusually long procedures, re-dosing 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. If the patient's actual weight is more than 20% above ideal body weight (IBW), the dosing weight (DW) can be determined as follows: DW = IBW with 0.4 (actual weight – IBW).

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

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