



Perioperative Antibiotic Prophylaxis

Approved by antibiotic stewardship committee 8/17/2023

Prepared by the Antimicrobial Stewardship Program , Department of Pharmacy; approved by the Surgical Safety Committee. This tool is in compliance with national guidelines and regulatory guidance. ONLY THE MOST COMMON PROCEDURES FOR THE HEALTH SYSTEM ARE INCLUDED HERE.

This is a general guide. Use prior microbiology if available to help guide patient-specific antibiotic selection. If patients are at risk for multi-drug resistance, [Page ID/stewardship via intranet grid or page operator](#).

Surgical Procedures NOT Requiring Prophylactic Antibiotics (clean, sterile procedures; prophylaxis is beneficial only when prosthetic material is being inserted)

Clean procedures that do not routinely require prophylaxis

1. Breast biopsy
2. Circumcision
3. Elective rhinoplasty
4. Elective tonsillectomy
5. Elective low risk inguinal hernia repair
6. Low risk gallbladder surgery (e.g.-elective laparoscopic cholecystectomy)
7. Thyroidbiopsy/thyroidectomy/parathyroidectomy/lymph node biopsy
8. Uncomplicated tubal ligation
9. Others (colonoscopy, cardiac cath, permcath placement/removal)

Restriction Policy ([Page ID/stewardship via intranet grid or page operator for assistance](#))

- Most regimens are **NOT** restricted for timely delivery
- IV vancomycin may require **ID approval prior to the procedure** to avoid delays

Allergies: history must be obtained at pre-op visit when possible (e.g., before administration of anesthesia)

- **Non-severe, non-type I penicillin allergy (rash, GI upset) cephalosporin is accepted practice** (cross reactivity is low)
- **Severe, immediate, type-I, IgE mediated reactions (angioedema, anaphylaxis, bronchospasm, urticaria) an alternative regimen is recommended** (see below)
- Quinolones are NOT part of MMC routine prophylaxis regimens due to high rates of resistance and *C. difficile*

Timing, Re-dosing, and Duration

- Administer within 60 minutes prior to the first incision [**<30 minutes is ideal** except vancomycin and ciprofloxacin if used - both need to be infused over **>60 minutes**].
- **For longer procedures or for cases with large volume of estimate blood loss (i.e. EBL >1500 ml), beta-lactam antibiotics should be re-dosed (NOT vancomycin or gentamicin)**
- Redosing may not be warranted in patients in whom the half-life of the antimicrobial agent is prolonged (e.g., patients with renal insufficiency or renal failure)

Recommended Doses

- To ensure adequate serum and tissue antibiotic concentrations are achieved to prevent SSIs, see table below

Make Sure to Document ***JC/CMS measures require that documentation must reflect the prophylaxis choice (whether to give, what is given and the length of prophylaxis), and the reason.*

- Compliance is assessed by documentation in the EMR
- **Must document drug, dose, route, date and time**

Document rationale for:

1. No prophylaxis
 - Procedure doesn't require prophylaxis
 - Pt. already on IV antibiotics for known/suspected infection
 - TAH/GYN surgery after emergent OB condition/complication
2. Variation from MMC surgical prophylaxis guidelines
3. Other antibiotics for active infection (or asymptomatic bacteruria for urological procedures); culture/susceptibility used for antibiotic selection
4. Extending prophylaxis beyond peri-op period (i.e. CABG/ cardiac surgery > 48 hrs.):
 - Suspected/known surgical or other infection

***MRSA risk factors & Indications for IV Vancomycin in cardiothoracic, neurosurgical, orthopedic procedures:**

1. Severe penicillin, cephalosporin allergy
2. MRSA colonization/infection
3. Multiple prior hospitalizations
4. LTCF residence
5. Hemodialysis
6. Inpatient stay > 3 days (at MMC or transfer facility)

Notes:

1. The **Joint Commission** and other regulatory agencies state that medication compounding must be performed by pharmacists, not in the OR.
2. Because vancomycin, quinolones and aminoglycosides have long half-lives, no re-dosing is needed.
3. If infection (or asymptomatic bacteruria for urological procedure) use culture/susceptibility for antibiotic selection.
4. Gentamicin vials come in 80 mg; max dose 240 mg.

Antibiotic Wash*

- Because of increased bacterial resistance, Montefiore does not endorse washes, irrigations and soaks in the OR and procedure suites since there are no efficacy data to support their use. (CDC SSI guidelines. JAMA 2017)
- Antibiotic washes, irrigations, soaks are prohibited for wound cleaning and sterile device insertion (e.g., penile implant).

Antibiotic re-dosing for non-clean procedures (esp. contaminated or dirty)

- **Subsequent prophylactic doses of cefazolin or cefoxitin should be the same as initial dose;** frequency determined by patient age, renal function, EBL in OR (see below).
- Per 2017 CDC SSI guidelines, subsequent antibiotic doses may not be required after OR wound closure for clean and clean contaminated procedures.

**this does not apply to antibiotic cement for infected joints, ophthalmology procedures, or mupirocin decolonization for CT surgery where data exists.*

*References available upon request

Type of Surgery	Antibiotic and Dose	Severe Penicillin Allergy	Re-Dosing Schedule (based on normal renal function); Same as initial dose; Re-dose for any case with EBL >1.5L;
Cardiothoracic Prosthetic valve insertion, CABG, other open-heart surgery, or pacemaker insertion	<p>Adult: Cefazolin 2 g IV (1 g if <60kg; 3 g if >120kg) Pediatric: Cefazolin 30 mg/kg IV</p> <p><i>*if MRSA risk factors (see above), give IV Vancomycin 15mg/kg x 1 periop dose in addition to Cefazolin</i></p>	<p>Adult: Vancomycin 15mg/kg IV</p> <p>Pediatric: Vancomycin 15 mg/kg IV</p>	<p>Cefazolin: 4 hours</p> <p>Vancomycin: only 1 peri-operative dose even for long procedures (long half life)</p>
Vascular Arterial surgery involving the abdominal aorta, a prosthesis, or a groin incision; leg amputation for ischemia			
Orthopedic Hip and knee joint replacement, fracture repair/implantation of internal fixation devices, spinal surgery, and tendon repair			
Neurologic Craniotomy, spinal surgery, VP shunt placement and other devices	<p>Adult: Oxacillin 2 g (<i>for device placement procedures requiring CSF penetration</i>) OR Cefazolin 2 g IV (1 g if <60kg; 3 g if >120 kg) Pediatric: Oxacillin 50 mg/kg IV</p> <p><i>*if MRSA risk factors (see above), give IV Vancomycin 15mg/kg x 1 periop dose in addition to Cefazolin</i></p>	<p>Adult: Vancomycin 15mg/kg IV</p> <p>Pediatric: Vancomycin 15 mg/kg IV</p>	<p>Oxacillin or Cefazolin: 4 hours</p> <p>Vancomycin: only 1 peri-operative dose (long half life)</p>
Urologic Transurethral surgery (e.g. TURP), transrectal biopsy (<1hr before), urologic procedure with history prosthetic joint	<p>Adult: Cefoxitin 2 g IV OR Gentamicin** 3mg/kg IV or IM (1.5 mg/kg IV or IM if CrCl <30 or HD, OR age ≥80) Pediatric: Cefazolin 30 mg/kg IV</p>	Gentamicin **3mg/kg IV or IM (1.5 mg/kg IV or IM if CrCl <30 or HD, OR age ≥80)	<p>Cefoxitin: 2 hours</p> <p>Gentamicin: only 1 peri-operative dose (long half life)</p>
Penile Implant	Gentamicin IV 1.5-3mg/kg (see above) + Cefazolin 2 g IV (1g if <60kg; 3 g if > 120kg)	Gentamicin IV 1.5-3mg/kg (see above) + Clindamycin 10 mg/kg IV	Clindamycin: 6 hours
Plastic Surgery Implementation of permanent prosthetic material, or entering the oral cavity of pharynx	<p>Adult (Clean with Foreign Body): Cefazolin 2 g IV (1g if <60kg; 3 g if > 120kg) Adult (Head & Neck Cancer OR Clean Contaminated): Cefoxitin 2 g IV OR [Cefazolin 2 g IV + Flagyl 500 mg IV] (Cefazolin 1g if <60kg; 3 g if > 120kg) Pediatric: Cefazolin 30 mg/kg IV</p>	<p>Adult (Clean with Foreign Body): Clindamycin 600 mg IV Adult (Head & Neck Cancer OR Clean Contaminated): Clindamycin 600 mg IV +/- Gentamicin** 5mg/kg IV (1.5 mg/kg IV if CrCl <30 or HD, OR age ≥80). Pediatric: Clindamycin 10 mg/kg IV + Gentamicin 2 mg/kg IV</p>	<p>Cefazolin: 4 hours</p> <p>Cefoxitin: 2 hours</p> <p>Gentamicin: only 1 peri-operative dose (long half life)</p> <p>Clindamycin: 6 hours</p>
Head & Neck/ENT Involving oropharynx			
Abdominal and Gynecological High-risk gastroduodenal, high-risk biliary tract, colorectal, appendectomy, bariatric surgery, hysterectomy, etc.	<p>Adult: GYN: Cefazolin 2 g (1 g if <60kg; 3 g if >120 kg) OR Cefoxitin 2 g IV Abdomnial: <i>Cefoxitin only for any GI surgery</i> Pediatric Abdominal: Ampicillin/sulbactam 50 mg/kg IV (dose based on ampicillin component)</p>	<p>Adult: Metronidazole 500 mg IV + Gentamicin** 5mg/kg IV (1.5 mg/kg IV if CrCl <30 or HD, OR age ≥80) Pediatric: : Ciprofloxacin 15 mg/kg IV + Metronidazole 10mg/kg IV</p>	<p>Cefazolin: 4 hours</p> <p>Cefoxitin: 2 hours</p> <p>Gentamicin: only 1 peri-operative dose (long half life)</p> <p>Metronidazole: 8 hours</p>

***For LVAD, liver, kidney, lung and heart transplant, please see service specific protocols on Intranet.**

****Consult with Infection Prevention service-specific SSI prevention bundles**

****Dose gentamicin by IBW** (use ADJUSTED BODY WEIGHT if actual body weight is 120% of IBW; use ACTUAL BODY WEIGHT if actual body weight less than IBW). Epic calculates IBW and ADJUSTED WEIGHT automatically, please see Epic patient profile screen for the appropriate weight.

➤ Remember to page Antimicrobial Stewardship via intranet grid or page operator for any assistance 24/7 at MMC campuses