### Optimal Perioperative Antibiotic Prophylaxis (10.20.2019)

#### Type of Surgery

**Cardiovascular**
- Prosthetic valve insertion, CABG, other open heart surgery, or pacemaker insertion

**Vascular**
- Arterial surgery involving the abdominal aorta, a prostheses, 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**
- Cranial surgery, spine surgery, VP shunt placement, and other devices

**Urologic**
- Transurethral surgery (e.g., TURP), transrectal biopsy (<1hr before), or ureteroscopic procedure with history of prostatitis

**Penile Implant**
- Prosthesis

**Plastic Surgery**
- Implementation of permanent prosthetic material, or entering the oral cavity of a patient with history of prosthetic joint

**Abdominal and Gynecological**
- High-risk gynecologic, high-risk biliary tract, colorectal, appendectomy, bariatric surgery, hysterectomy, etc.

**Contributors:**
- Use Infection Control and Prevention services-Surgical site infection prevention bundles
- Use IV antibiotic prophylaxis in the ER to ensure that prophylaxis is given within 1-2 hours of incision

### Antibiotic and Dose

<table>
<thead>
<tr>
<th>Type of Surgery</th>
<th>Antibiotic and Dose</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adult: Cefazolin 2 g IV (if &gt;60kg, CrCl &gt;30 or HD, OR age ≥80)</td>
<td>Cefazolin 30 mg/kg IV</td>
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<tr>
<td>Pediatric: Cefazolin 30 mg/kg IV</td>
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<tr>
<td>If MRSA risk factors (see above), give IV Vancomycin 15 mg/kg IV per dose in addition to Cefazolin</td>
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### Severe Penicillin Allergy

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<td>Adult: Vancomycin 15 mg/kg IV</td>
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<td>Pediatric: Vancomycin 15 mg/kg IV</td>
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### Re-Dosing Schedule (based on normal renal function):

- Same as initial dose; Re-dose for any case with EBL >1.5L
- Cefazolin: 4 hours
- Vancomycin: only 1 peri-operative dose even for long procedures (long half life)
- Gentamicin: only 1 peri-operative dose (long half life) + Cefazolin 10 mg/kg IV
- Cefazolin: 4 hours
- Vancomycin: only 1 peri-operative dose (long half life)
- Cefoxitin: 4 hours
- Gentamicin: only 1 peri-operative dose (long half life) + Cefoxitin 2 g IV

- **JC/CMS measures require that documentation must reflect the antibiotic 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:

1. **ASA**
   - Procedure doesn’t require prophylaxis
   - Pt. already on IV antibiotics for a known/suspected infection
   - Vancomycin or Clindamycin used after emergent OR condition/compliation

2. **Variation from MMC surgical prophylaxis guidelines:**
   - *MRSA risk factors & Indications for IV Vancomycin in cardiothoracic, neurosurgical, orthopaedic procedures:
     - 1. Severe penicillin, cephalosporin allergy
     - 2. MRSA colonization/infection
     - 3. Multiple prior hospitalizations
     - 4. LTF & non-contaminated surgery
     - 5. Inpatient stay > 3 days (at MMC or transfer facility)
   - Other antibiotics for active infection (asymptomatic bacteriuria for urologic procedures); culture/susceptibility used for antibiotic selection

### Antibiotic re-dosing for non-clean procedures (spec. 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), and other factors

- 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 coverage for infectious joints, orthopedic procedures, or implant decontamination for CT surgery where data exists.

- *Only administered upon site request

### 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 [asymptomatic bacteriuria for urological procedures] use culture/susceptibility for antibiotic selection.

4. Gentamicin: 4 hours
   - 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.

- Antibiotic washes, irrigations, soaks are prohibited for wound cleaning and sterile device insertion (e.g., perineal implant).

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### Restriction Policy (Page 1/2)

- All regimens are approved by the Surgical Safety Committee.

- Clean procedures that do not routinely require prophylaxis
  - clean, sterile procedures

- Prophylaxis is beneficial only when prosthetic material is being inserted

- Clean procedures that do not routinely require prophylaxis
  - clean, sterile procedures

- Non-severe, non-type I penicillin allergy (rash, GI upset)
  - *for LVAD, liver, kidney, lung and heart transplant, please see service specific protocols on Intranet.

- Higher dose is needed to ensure adequate serum concentration of antibiotic during surgery

- Recommended weight is the adjusted body weight if actual body weight is 120% of IBW; use actual body weight if actual body weight less than 120% of IBW (see above) to calculate IBW and ADJUSTED WEIGHT automatically, please see Epic patient profile screen for the appropriate weight.

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### 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 allergy** (cross-reactivity is low)

- **Quinolones** are NOT part of MMC routine prophylaxis regimens due to high rates of resistance and adverse events

- **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.**

- **The antibiotic dose given must be charted in the medication record**

- **If procedures are >5 hours or there is large volume of expected blood loss (EVB >1500 ml), beta-lactam antibiotics should be re-dosed (NOT vancomycin or gentamicin)**

- **Dose for >60kg**

  - Higher dose is needed to ensure adequate serum concentration of antibiotic during surgery (see table)