



## Adult Surgical Antibiotic Prophylaxis Protocol (≥18 years)

**AUTHORIZATION IS GRANTED TO DISPENSE AND ADMINISTER AN ALTERNATE DRUG PRODUCT ACCEPTABLE TO THE MEDICAL STAFF'S PHARMACY COMMITTEE UNLESS THE DRUG PRODUCT IS SPECIFICALLY CIRCLED.**

- This protocol is used when provider orders surgical antibiotic prophylaxis per protocol. A provider can order antibiotics off of the protocol by specifying the antibiotic and dose on the boarding sheet.
- When cefazolin is the preferred antibiotic based on the surgery, the alternative antibiotic should only be chosen for one of the following reasons:
  1. Patient has an allergy listed to cefazolin, Ancef, or Kefzol.
  2. Patient has a generic "cephalosporin" allergy listed, and previous tolerance of cefazolin cannot be confirmed.
  3. Patient has a type II, III, or IV allergy to a penicillin (e.g. Pen G, amoxicillin, ampicillin, nafcillin) or cephalosporin (e.g. cephalexin, cefaclor, ceftriaxone, cefepime) antibiotic listed below:
    - Type II (cytotoxic): neutropenia, thrombocytopenia, hemolytic anemia,
    - Type III (immune complex): serum sickness, vasculitis, glomerulonephritis
    - Type IV (delayed, cell-mediated): Toxic epidermal necrolysis, Stevens-Johnson syndrome
- Timing of the first dose: Initial antibiotic dose for all drugs must be started within 60 minutes prior to incision except Vancomycin AND Fluoroquinolones, which must be started within 120 minutes prior to incision because of the prolonged infusion time required for these drugs.
- For patients currently receiving intravenous antibiotics for a remote infection prior to surgery: If the intravenous antibiotic is appropriate for the type of procedure and the time of surgery is known, the dose may be rescheduled to within the appropriate time frame prior to surgery if feasible. Otherwise, the preferred pre-op antibiotic prophylactic agent should be given within the appropriate timeframe prior to surgery unless the patient is currently receiving a fluoroquinolone, aminoglycoside, or vancomycin and an agent in the same class is preferred (in this case, an additional dose of a fluoroquinolone, aminoglycoside, or vancomycin should not be given). No post-operative antibiotics are indicated if all suspected pathogens are targeted by the scheduled antibiotic. See policy 061.033 for more information.
- Duration of surgical antimicrobial prophylaxis: In clean and clean-contaminated procedures, the CDC does not recommend prophylactic antibiotics after the surgical incision is closed in the operating room, even in the presence of a drain (Category IA—strong recommendation; high-quality evidence - Berrios-Torres 2017)<sup>1</sup>. If antibiotics are continued post-operatively, they should be discontinued after 24 hours even in the presence of a drain, and the post-op antibiotic should match the pre-op antibiotic.<sup>2</sup>
- Intra-operative redosing: Recommended if duration of procedure exceeds 2 half-lives of the antimicrobial OR if there is excessive blood loss (>1500 mL).
- See Pharmacy Website for Pediatric and Interventional Radiology Pre-Op/Pre-Procedure Antibiotic Dosing Protocol
- For patients with prosthetic joints in which the procedure listed below states "no antibiotic required", the surgeon may wish to consider antibiotic prophylaxis based on AAOS recommendations and individual patient risk factors. In these cases the surgeon should order the specific antibiotic desired.

**Antibiotic Dosing Considerations:**

- Cefazolin: 2 gm for patients less than 120 kg (ABW), 3 gm for patients greater than or equal to 120 kg (ABW)
- Vancomycin: Dosing based on Actual Body Weight (ABW). Round to the nearest 250 mg. Maximum dose is 2.5 gm. Infuse no faster than 1 gram/hour.
- Gentamicin: Dosing based on ABW (use DW if ABW is >30% IBW). Normal dosing = 5 mg/kg. For patients with CrCl < 20 mL/min, consider 2 mg/kg. Round to the nearest 20 mg. Maximum dose is 700 mg.

Type of Procedure	Preferred First Line		Alternative if allergy to preferred antibiotic	
	Pre-OP	Intra-op Re-dosing	Pre-OP	Intra-op Re-dosing
<b>Cardiac / Thoracic:</b>				
<ul style="list-style-type: none"> <li>• Open-heart surgery including mediastinal re-exploration</li> <li>• Collis Nissen</li> <li>• Non Cardiac Thoracotomy Procedures (Lobectomy / biopsy)</li> </ul>	Cefazolin 2 gm IVP	Cefazolin 2 gm IVP q 4 hrs	Vancomycin 15mg/kg IVPB & Gentamicin 5mg/kg IVPB	Not Recommended
<ul style="list-style-type: none"> <li>• TAVR or TAVI</li> </ul>	Cefazolin 2 gm IVP	Cefazolin 2 gm IVP q 4 hrs	Clindamycin 900mg IVPB	Clindamycin 900mg IVPB q 6 hrs
<ul style="list-style-type: none"> <li>• Pacemaker or defibrillator implant</li> <li>• Esophagectomy</li> <li>• Watchman device</li> <li>• MitraClip</li> <li>• Mediastinoscopy</li> </ul>	Cefazolin 2 gm IVP	Cefazolin 2 gm IVP q 4 hrs	Vancomycin 15mg/kg IVPB	Not Recommended
<ul style="list-style-type: none"> <li>• Temporary LVAD</li> </ul>	Cefepime 2 gm IVPB & Vancomycin 15mg/kg	Cefepime 2 gm IVPB q 4 hrs	Vancomycin 15mg/kg IVPB & Gentamicin 5mg/kg IVPB	Not Recommended
<ul style="list-style-type: none"> <li>• EP studies (afib ablation, ASD closures, perivalvular leak closures)</li> </ul>	No antibiotics required			
<b>Vascular:</b>				
<ul style="list-style-type: none"> <li>• AAA Procedure</li> <li>• Arterial surgery involving a prosthesis</li> <li>• Vein ligation</li> <li>• LE Bypass procedure or amputation</li> <li>• AV fistula – any surgical or radiologic manipulation</li> <li>• Dialysis Cath removal</li> <li>• Carotid endarterectomy</li> <li>• Embolectomy</li> <li>• Carotid Stent</li> <li>• Transcarotid artery revascularization (TCAR)</li> </ul>	Cefazolin 2 gm IVP	Cefazolin 2 gm IVP q 4 hrs	Clindamycin 900mg IVPB	Clindamycin 900mg IVPB q 6 hrs
<ul style="list-style-type: none"> <li>• Angiography procedure including stenting</li> <li>• Angioplasty</li> <li>• Aortogram</li> </ul>	No antibiotics required			

Type of Procedure	Preferred First Line		Alternative if allergy to preferred antibiotic	
	Pre-OP	Intra-op Re-dosing	Pre-OP	Intra-op Re-dosing
<b>Gastrointestinal / Intra-Abdominal / General Surgery:</b>				
<ul style="list-style-type: none"> <li>For major intra-abdominal surgery not listed below</li> <li>Small bowel surgery with obstruction (laparoscopic or open)</li> <li>Colorectal procedures (i.e. colostomy, colectomy, low anterior resection)</li> <li>Appendectomy</li> <li>Rectopex</li> <li>I&amp;D Perirectal abscess</li> </ul>	Cefazolin 2 gm IVP & Metronidazole 500mg IVPB	Cefazolin 2 gm IVP q 4 hrs	Metronidazole 500mg IVPB & Gentamicin 5mg/kg IVPB	Not Recommended
<ul style="list-style-type: none"> <li>Esophageal procedure</li> <li>Gastroduodenal procedures</li> <li>Ileostomy</li> <li>Hernia, Laparotomy</li> <li>Enterolysis</li> <li>Lysis of Adhesions</li> <li>Percutaneous G-tube placement</li> <li>Mastectomy, Sentinel Node Biopsy</li> <li>Partial Mastectomy</li> <li>Simple Mastectomy</li> <li>Central venous access port placement and removal (i.e. Infusaport)</li> <li>Bariatric (Banding, bypass, sleeve gastrectomy)</li> </ul>	Cefazolin 2 gm IVP	Cefazolin 2 gm IVP q 4 hrs	Clindamycin 900mg IVPB	Clindamycin 900mg IVPB q 6 hrs
<ul style="list-style-type: none"> <li>ERCP with obstruction</li> </ul>	Cefazolin 2 gm IVP	Cefazolin 2 gm IVP q 4 hrs	Vancomycin 15mg/kg IVPB & Gentamicin 5mg/kg IVPB	Not Recommended
<ul style="list-style-type: none"> <li>ERCP without obstruction</li> </ul>	No antibiotics required			
<ul style="list-style-type: none"> <li>Nissen Fundoplication</li> <li>Open cholecystectomy</li> <li>Laparoscopic cholecystectomy</li> <li>Laparoscopic Splenectomy</li> <li>Adrenalectomy</li> </ul>	Cefazolin 2 gm IVP	Cefazolin 2 gm IVP q 4 hrs	Clindamycin 900mg IVPB + Gentamicin 5mg/kg IVPB	Clindamycin 900mg IVPB q 6 hrs
<b>General Surgery / Other:</b>				
<ul style="list-style-type: none"> <li>Laparoscopy (other, not described above)</li> <li>Thyroidectomy</li> <li>Parathyroidectomy</li> <li>Wire Loc Breast Biopsy</li> <li>Breast Radar Guided Biopsy via Savi Scout</li> <li>Lumpectomy</li> <li>Hemorrhoidectomy</li> <li>Pilonidal cyst removal</li> <li>Anal dilation</li> <li>Incision &amp; Drainage (Up to surgeon's discretion to order pre-op abx)</li> <li>Wound vac application</li> </ul>	No antibiotics required			
<b>Genitourinary:</b>				
<ul style="list-style-type: none"> <li>Laparoscopic Procedures <ul style="list-style-type: none"> <li>Robotic Prostatectomy</li> <li>Nephroureterectomy</li> </ul> </li> </ul>	Cefazolin 2 gm IVP	Cefazolin 2 gm IVP q 4 hrs	Clindamycin 900mg IVPB & Gentamicin 5mg/kg IVPB	Not Recommended
<ul style="list-style-type: none"> <li>Perineal Prostatectomy</li> <li>Procedures involving bowel</li> <li>Cystectomy</li> </ul>	Cefazolin 2 gm IVP & Metronidazole 500mg IVPB	Cefazolin 2 gm IVP q 4 hrs	Metronidazole 500mg IVPB & Gentamicin 5mg/kg IVPB	Not Recommended
<ul style="list-style-type: none"> <li>Prosthetic implants (penile, sphincter, etc.)</li> </ul>	Cefazolin 2 gm IVP & Gentamicin 5mg/kg IVPB	Cefazolin 2 gm IVP q 4 hrs	Vancomycin 15mg/kg IVPB & Gentamicin 5mg/kg IVPB	Not Recommended
<ul style="list-style-type: none"> <li>Nephrostolithotomy</li> <li>Percutaneous nephrostomy</li> </ul>	Cefazolin 2 gm IVP	Cefazolin 2 gm IVP q 4 hrs	Clindamycin 900mg IVPB & Gentamicin 5mg/kg IVPB	Clindamycin 900mg IVPB q 6 hrs
<ul style="list-style-type: none"> <li>Nephrectomy</li> <li>Brachytherapy</li> <li>Scrotal procedures <ul style="list-style-type: none"> <li>Hydrocele</li> <li>Spermatocele</li> <li>Variocele</li> <li>Epididymal cystectomy</li> <li>Vasectomy</li> </ul> </li> <li>Penile procedures (non-implants)</li> </ul>	Cefazolin 2 gm IVP	Cefazolin 2 gm IVP q 4 hrs	Clindamycin 900mg IVPB	Clindamycin 900mg IVPB q 6 hrs
<ul style="list-style-type: none"> <li>Cystoscopy</li> <li>Bladder Biopsy</li> <li>Retrograde pyelogram</li> <li>Hydrodistension</li> <li>TURP, TURBT</li> </ul>	Cefazolin 2 gm IVP	Cefazolin 2 gm IVP q 4 hrs	Ciprofloxacin 400mg IVPB	Not Recommended

Type of Procedure	Preferred First Line		Alternative if allergy to preferred antibiotic	
	Pre-OP	Intra-op Re-dosing	Pre-OP	Intra-op Re-dosing
<ul style="list-style-type: none"> <li>Prostate Vaporization</li> <li>Ureteroscopy</li> <li>Lithotripsy</li> </ul>	Cefazolin 2 gm IVP	Cefazolin 2 gm IVP q 4 hrs	Ciprofloxacin 400mg IVPB	Not recommended
<ul style="list-style-type: none"> <li>Transrectal Prostate Biopsy<sup>3</sup></li> </ul>	Cefazolin 2 gm IVP	Not recommended	Ciprofloxacin 500mg PO	Not recommended
<ul style="list-style-type: none"> <li>Bladder sling – see under Gynecologic AND Obstetric</li> </ul>	See under Gynecologic / Obstetric			
<b>Gynecologic / Obstetric:<sup>4</sup></b>				
<ul style="list-style-type: none"> <li>Myomectomy</li> <li>Colporrhaphy</li> <li>C-Section</li> <li>Bladder sling</li> <li>Radical vulvectomy or radical vulvar excision</li> <li>Fibroid removal</li> <li>Vaginal wall repair</li> <li>Pelvic mass removal</li> </ul>	Cefazolin 2 gm IVP	Cefazolin 2 gm IVP q 4 hrs	Clindamycin 900mg IVPB & Gentamicin 5mg/kg IVPB	Clindamycin 900mg IVPB q 6 hrs
<ul style="list-style-type: none"> <li>Hysterectomy</li> <li>Trachelectomy</li> </ul>	Cefazolin 2 gm IVP & Metronidazole 500mg IVPB	Cefazolin 2 gm IVP q 4 hrs	Clindamycin 900mg IVPB & Gentamicin 5mg/kg IVPB	Clindamycin 900mg IVPB q 6 hrs
<ul style="list-style-type: none"> <li>Dilation &amp; Curettage (D&amp;C) with suction</li> <li>Induced abortion / Dilation &amp; evacuation (D&amp;E)</li> </ul>	Doxycycline 100 mg IVPB, or Doxycycline 200 mg PO x 1	None	Metronidazole 500 mg IVPB	None
<ul style="list-style-type: none"> <li>Tubal ligation (any)</li> <li>Cervical Cone Procedures</li> <li>Loop Electrosurgical Excision Procedure (LEEP)</li> <li>Laparoscopy (diagnostic, operative, tubal sterilization)</li> <li>Laparotomy (unless vagina or GI tract is entered)</li> <li>D&amp;C without suction</li> <li>Hysteroscopy (diagnostic, operative, essure, endometrial ablation)</li> <li>Simple vulvar excision (radical requires antibiotics)</li> <li>CO<sub>2</sub> Laser Procedures</li> <li>Ring &amp; tandem insertion</li> <li>Salpingectomy</li> <li>Oophorectomy</li> <li>Laprosopic ovarian cystectomy</li> </ul>	No antibiotics required			
<b>Head / Neck Surgery:</b>				
<ul style="list-style-type: none"> <li>Placement of prosthetic material</li> <li>Rhinoplasty</li> <li>Septoplasty</li> <li>Tympanoplasty</li> </ul>	Cefazolin 2 gm IVP	Cefazolin 2 gm IVP q 4 hrs	Clindamycin 900mg IVPB	Clindamycin 900mg IVPB q 6 hrs
<ul style="list-style-type: none"> <li>Dental surgery</li> <li>Incisions through oral or pharyngeal mucosa</li> </ul>	Unasyn 3 gm IVPB	Unasyn 3 gm IVPB q 2 hrs	Clindamycin 900mg IVPB	Clindamycin 900mg IVPB q 6 hrs
<ul style="list-style-type: none"> <li>Head and neck procedures including : blepharoplasties, Mohs flap reconstruction, lymph node biopsies, tonsillectomy / adenoidectomy</li> </ul>	No antibiotics required			
<b>Neurosurgery:</b>				
<ul style="list-style-type: none"> <li>Cranial / Spinal / CSF shunt procedures</li> </ul>	Cefazolin 2 gm IVP	Cefazolin 2 gm IVP q 4 hrs	Vancomycin 15mg/kg IVPB	Not Recommended
<ul style="list-style-type: none"> <li>Pain pump implant or spinal cord stimulator</li> <li>Interstim device for Bladder Control</li> </ul>	Cefazolin 2 gm IVP	Not Applicable	Clindamycin 900mg IVPB	Not Applicable
<ul style="list-style-type: none"> <li>Discogram / Kyphoplasty</li> </ul>	Cefazolin 2 gm IVP	Not Applicable	Clindamycin 900mg IVPB	Not Applicable
<b>Orthopedic:</b>				
<ul style="list-style-type: none"> <li>Total Hip &amp; Knee Arthroplasty</li> </ul>	<u>MRSA nasal swab negative:</u> Cefazolin 2 gm IVP  <u>MRSA nasal swab positive:</u> Cefazolin 2 gm IVP & Vancomycin 15mg/kg IVPB	Cefazolin 2 gm IVP q 4 hrs	Vancomycin 15mg/kg IVPB	Not Recommended
<ul style="list-style-type: none"> <li>Other hip, knee, &amp; long bone procedures</li> </ul>	Cefazolin 2 gm IVP	Cefazolin 2 gm IVP q 4 hrs		
<ul style="list-style-type: none"> <li>Total Shoulder Arthroplasty</li> <li>Total Elbow Arthroplasty</li> </ul>	<u>MRSA nasal swab negative:</u> Cefazolin 2 gm IVP  <u>MRSA nasal swab positive:</u> Vancomycin 15mg/kg IVPB	Cefazolin 2gm IVP q4 hrs	Vancomycin 15mg/kg IVPB	Not Recommended
<ul style="list-style-type: none"> <li>Other shoulder procedures (including shoulder arthroscopy)</li> </ul>	Cefazolin 2 gm IVP	Cefazolin 2 gm IVP q 4 hrs	Vancomycin 15mg/kg IVPB	Not Recommended

Type of Procedure	Preferred First Line		Alternative if allergy to preferred antibiotic	
	Pre-OP	Intra-op Re-dosing	Pre-OP	Intra-op Re-dosing
• Hand & Foot procedures	Cefazolin 2 gm IVP	Cefazolin 2 gm IVP q 4 hrs	Clindamycin 900mg IVPB & Gentamicin 5mg/kg IVPB	Clindamycin 900mg IVPB q 6 hrs
• Orthopedic procedures not using implanted device • Arthroscopic Procedures (excluding shoulder)	Cefazolin 2 gm IVP	Cefazolin 2 gm IVP q 4 hrs	Clindamycin 900mg IVPB	Clindamycin 900mg IVPB q 6 hrs
• Peripheral Nerve Transposition	No antibiotics required			
• Hardware Removal	Follow recommendation for specific joint as below			
<b>Plastic Surgery:</b>				
• All plastic surgery procedures • Breast Reconstruction Surgery with implants	Cefazolin 2 gm IVP	Cefazolin 2 gm IVP q 4 hrs	Clindamycin 900mg IVPB	Clindamycin 900mg IVPB q 6 hrs
<b>Subacute Bacterial Endocarditis (SBE) Prophylaxis:</b>				
Dental Procedures: Infective endocarditis prophylaxis is reasonable only for patients with underlying cardiac conditions associated with the highest risk of adverse outcomes from infective endocarditis (e.g. prosthetic cardiac valves or prosthetic material used for cardiac valve repair, previous infective endocarditis, congenital heart disease, cardiac transplant recipients with valve regurgitation due to structurally abnormal valve)	Ampicillin 2 gm IVPB	Ampicillin 2 gm IVPB q 2 hrs	Clindamycin 900mg IVPB	Clindamycin 900mg IVPB q 6 hrs
<b>GI/GU Procedures</b>	SBE prophylaxis no longer required			

**The physician's full signature is to follow the order- Abbreviations for names are not acceptable.**

\_\_\_\_\_  
**PROVIDER SIGNATURE**

\_\_\_\_\_  
**DATE**

\_\_\_\_\_  
**TIME**

**References:**

1. Berríos-Torres SI, Umscheid CA, Bratzler DW, et al; Healthcare Infection Control Practices Advisory Committee. Centers for Disease Control and Prevention Guideline for the Prevention of Surgical Site Infection, 2017. JAMA Surg. 2017 Aug 1;152(8):784-791.
2. Bratzler DW, Dellinger EP, Olsen KM, et al; ASHP.; IDSA.; SIS.; SHEA.. Clinical practice guidelines for antimicrobial prophylaxis in surgery. Am J Health Syst Pharm. 2013 Feb 1;70(3):195-283.
3. Zani EL, Clark OA, Rodrigues Netto N Jr. Antibiotic prophylaxis for transrectal prostate biopsy. Cochrane Database Syst Rev. 2011 May 11;(5):CD006576.
4. Antibiotic prophylaxis for gynecologic procedures. ACOG Practice Bulletin No. 104. American College of Obstetricians and Gynecologists. Obstet Gynecol 2009;113:1180-9.
5. Khan DA, Banerji A, Blumenthal KG, et al. Drug allergy: A 2022 practice parameter update. J Allergy Clin Immunol. 2022 Sep 17:S0091-6749(22)01186-1