



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.
- If history of severe or life-threatening allergic reaction to penicillin, amoxicillin or related cephalosporins, and the patient has not tolerated any cephalosporins in the past, then give alternative antibiotic.
- 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)¹. If antibiotics are continued post-operatively, they should be discontinued after 24 hours even in the presence of a drain.²
- 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 AOS recommendations and individual patient risk factors. In these cases the surgeon should order the specific antibiotic desired.**

Antibiotic Dosing Considerations:

- 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 |
| Cardiac / Thoracic: | | | | |
| <ul style="list-style-type: none"> • Open-heart surgery including mediastinal re-exploration • Collis Nissen • Non Cardiac Thoracotomy Procedures (Lobectomy / biopsy) | 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"> • TAVR or TAVI | 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"> • Pacemaker or defibrillator implant • Esophagectomy • Watchman device • MitraClip | Cefazolin 2 gm IVP | Cefazolin 2 gm IVP q 4 hrs | Vancomycin 15mg/kg IVPB | Not Recommended |
| <ul style="list-style-type: none"> • EP studies (afib ablation, ASD closures, perivalvular leak closures) | No antibiotics required | | | |
| Vascular: | | | | |
| <ul style="list-style-type: none"> • AAA Procedure • Arterial surgery involving a prosthesis • Vein ligation • LE Bypass procedure or amputation • AV fistula – any surgical or radiologic manipulation • Dialysis Cath removal • Carotid endarterectomy | 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"> • Angiography procedure including stenting • Angioplasty • Aortogram | No antibiotics required | | | |
| Gastrointestinal / Intra-Abdominal / General Surgery: | | | | |
| <ul style="list-style-type: none"> • For major intra-abdominal surgery not listed below • Small bowel surgery with obstruction (laparoscopic or open) • Colorectal procedures (i.e. colostomy, colectomy, low anterior resection) • Appendectomy • Rectopex • I&D Perirectal abscess | Cefazolin 2 gm IVP & Metronidazole 500mg IVPB | Cefazolin 2 gm IVP q 4 hrs | Metronidazole 500mg IVPB & Gentamicin 5mg/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 |
| <ul style="list-style-type: none"> Esophageal procedure Gastroduodenal procedures Ileostomy Hernia, Laparotomy Enterolysis Lysis of Adhesions Percutaneous G-tube placement Mastectomy, Sentinel Node Biopsy Central venous access port placement and removal (i.e. Infusaport) Bariatric (Banding, bypass, sleeve gastrectomy) | 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"> ERCP with obstruction | 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"> ERCP without obstruction | No antibiotics required | | | |
| <ul style="list-style-type: none"> Nissen Fundoplication Open cholecystectomy Laparoscopic cholecystectomy Laparoscopic Splenectomy Adrenalectomy | Cefazolin 2 gm IVP | Cefazolin 2 gm IVP q 4 hrs | Clindamycin 900mg IVPB + Gentamicin 5mg/kg IVPB | Clindamycin 900mg IVPB q 6 hrs |
| General Surgery / Other: | | | | |
| <ul style="list-style-type: none"> Laparoscopy (other, not described above) Thyroidectomy Parathyroidectomy Wire Loc Breast Biopsy Lumpectomy Partial Mastectomy Simple Mastectomy Hemorrhoidectomy Pilonidal cyst removal Anal dilation | No antibiotics required | | | |
| Genitourinary: | | | | |
| <ul style="list-style-type: none"> Laparoscopic Procedures <ul style="list-style-type: none"> Robotic Prostatectomy Nephroureterectomy | Cefazolin 2 gm IVP | Cefazolin 2 gm IVP q 4 hrs | Ciprofloxacin 400mg IVPB | Not Recommended |
| <ul style="list-style-type: none"> Perineal Prostatectomy Procedures involving bowel Cystectomy | 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"> Prosthetic implants (penile, sphincter, etc.) | 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"> Nephrostolithotomy Percutaneous nephrostomy | 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"> Nephrectomy Brachytherapy Scrotal procedures <ul style="list-style-type: none"> Hydrocele Spermatocele Variocele Epididymal cystectomy Vasectomy Penile procedures (non-implants) | 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"> Cystoscopy Bladder Biopsy Retrograde pyelogram Hydrodistension TURP, TURBT Prostate Vaporization Ureteroscopy Lithotripsy | Cefazolin 2 gm IVP | Cefazolin 2 gm IVP q 4 hrs | Ciprofloxacin 400mg IVPB | Not Recommended |
| <ul style="list-style-type: none"> Transrectal Prostate Biopsy³ | Cefazolin 2 gm IVP | Not recommended | Ciprofloxacin 500mg PO | Not recommended |
| <ul style="list-style-type: none"> Bladder sling – see under Gynecologic AND Obstetric | See under Gynecologic / Obstetric | | | |

| Type of Procedure | Preferred First Line | | Alternative if allergy to preferred antibiotic | |
|--|--|----------------------------|--|--------------------------------|
| | Pre-OP | Intra-op Re-dosing | Pre-OP | Intra-op Re-dosing |
| Gynecologic / Obstetric:⁴ | | | | |
| <ul style="list-style-type: none"> • Myomectomy • Colporrhaphy • C-Section • Bladder sling • Radical vulvectomy or radical vulvar excision | 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"> • Hysterectomy | 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"> • Dilation & Curettage (D&C) with suction • Induced abortion / Dilation & evacuation (D&E) | Doxycycline 100 mg IVPB | None | Metronidazole 500 mg IVPB | None |
| <ul style="list-style-type: none"> • Tubal ligation (any) • Cervical Cone Procedures • Loop Electrosurgical Excision Procedure (LEEP) • Laparoscopy (diagnostic, operative, tubal sterilization) • Laparotomy (unless vagina or GI tract is entered) • D&C without suction • Hysteroscopy (diagnostic, operative, essure, endometrial ablation) • Simple vulvar excision (radical requires antibiotics) • CO₂ Laser Procedures • Ring & tandem insertion • Salpingectomy • Oophorectomy • Laproscopic ovarian cystectomy | No antibiotics required | | | |
| Head / Neck Surgery: | | | | |
| <ul style="list-style-type: none"> • Placement of prosthetic material • Rhinoplasty • Septoplasty • Tympanoplasty | 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"> • Dental surgery • Incisions through oral or pharyngeal mucosa | 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"> • Head and neck procedures including : blepharoplasties, Mohs flap reconstruction, lymph node biopsies, tonsillectomy / adenoidectomy | No antibiotics required | | | |
| Neurosurgery: | | | | |
| <ul style="list-style-type: none"> • Cranial / Spinal / CSF shunt procedures | Cefazolin 2 gm IVP | Cefazolin 2 gm IVP q 4 hrs | Vancomycin 15mg/kg IVPB | Not Recommended |
| <ul style="list-style-type: none"> • Pain pump implant or spinal cord stimulator • Interstim device for Bladder Control | Cefazolin 2 gm IVP | Not Applicable | Clindamycin 900mg IVPB | Not Applicable |
| <ul style="list-style-type: none"> • Discogram / Kyphoplasty | Cefazolin 2 gm IVP | Not Applicable | Clindamycin 900mg IVPB | Not Applicable |
| Orthopedic: | | | | |
| <ul style="list-style-type: none"> • Total Hip & Knee Arthroplasty | <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 & Gentamicin 5mg/kg IVPB | Not Recommended |
| <ul style="list-style-type: none"> • Other hip, knee, & long bone procedures | Cefazolin 2 gm IVP | Cefazolin 2 gm IVP q 4 hrs | | |
| <ul style="list-style-type: none"> • Total Shoulder Arthroplasty | <u>MRSA nasal swab negative:</u> Cefazolin 2 gm IVP <u>MRSA nasal swab positive:</u> Vancomycin 15mg/kg IVPB | Cefazolin 2gm IVP q 4 hrs | Vancomycin 15mg/kg IVPB | Not Recommended |
| <ul style="list-style-type: none"> • Other shoulder procedures (including shoulder arthroscopy) | Cefazolin 2 gm IVP | Cefazolin 2 gm IVP q 4 hrs | Vancomycin 15mg/kg IVPB | Not Recommended |
| <ul style="list-style-type: none"> • 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 |
| <ul style="list-style-type: none"> • 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 |
| <ul style="list-style-type: none"> • Peripheral Nerve Transposition | No antibiotics required | | | |
| <ul style="list-style-type: none"> • Hardware Removal | Follow recommendation for specific joint as below | | | |

| Type of Procedure | Preferred First Line | | Alternative if allergy to preferred antibiotic | |
|---|------------------------------------|---------------------------------|--|-----------------------------------|
| | Pre-OP | Intra-op Re-dosing | Pre-OP | Intra-op Re-dosing |
| Plastic Surgery: | | | | |
| <ul style="list-style-type: none"> 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 |
| Subacute Bacterial Endocarditis (SBE) Prophylaxis: | | | | |
| 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 |
| GI/GU Procedures | SBE prophylaxis no longer required | | | |

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

Signature Date Time

References:

- Berrios-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.
- 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.
- Zani EL, Clark OA, Rodrigues Netto N Jr. Antibiotic prophylaxis for transrectal prostate biopsy. Cochrane Database Syst Rev. 2011 May 11;(5):CD006576.
- Antibiotic prophylaxis for gynecologic procedures. ACOG Practice Bulletin No. 104. American College of Obstetricians and Gynecologists. Obstet Gynecol 2009;113:1180-9.