

# Surgical Prophylaxis Antibiotic Guidelines

## Rochester General Health System

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**Pre-Op Timing of Antibiotics:** Pre-operative antibiotics should be administered within 1 hour of the surgical incision. An exception is vancomycin, which requires a longer infusion time and therefore can be administered within 2 hours of the surgical incision. This should occur even if patient is receiving therapeutic antibiotics for an infection prior to the procedure to ensure tissue levels of the appropriate prophylactic agent at the time of incision.

**Duration of Post-Op Prophylaxis:** If post-op antibiotics are used, they should be discontinued within 24 hours after the end of anesthesia unless infection is strongly suspected or previously known.

### Intraoperative Redosing:

Redose antibiotics ONCE in the following situations:

- Prolonged cases (Redose Cefoxitin at 2 hours and Cefazolin at 3 hours while the wound is still open. Please refer to Appendix for other antibiotics)
- Excessive blood loss (>1.5L or 6 units of blood administered)
- For two procedures with two separate incisions –re –dose before 2<sup>nd</sup> incision or at 3 hours, whichever is first

**Endocarditis Prophylaxis:** For patients at risk of SBE (subacute bacterial endocarditis), continue to use the antibiotics specific for the surgery. There is no data to suggest that alternative antibiotics to prevent endocarditis are necessary.

**Weight Based Dosing:** For patients weighing more than 100kg or with BMI greater than 30 a dose of 2g should be used for cefazolin or cefoxitin.

**Route of Administration:** Prophylactic antibiotics for surgery must be given by intravenous (IV) route.

**ORSA/MRSA:** For patients with known ORSA/MRSA colonization or infection, add vancomycin to the recommended pre-op regimen if antibiotics are indicated. Note that cefazolin is **NOT** compatible with vancomycin so hang separately and flush the line between the two medications.

### Assessment of Penicillin Allergies:

1. Prescriber can assess the patient's penicillin allergy history according to the following:

(a) Did you ever have a **LIFE-THREATENING** reaction?

(b) Did you have an **IMMEDIATE** reaction?: i.e.

- **Anaphylaxis**: sudden lowering of blood pressure, wheezing.
- **Angioedema**: swelling of throat, tongue, lip or face
- **Urticaria** (also called hives): SWOLLEN, red bumps or patches that occur within 1 hour of the dose administered. Rashes or itching that appear few days into treatment are not hives and are not contraindications to cephalosporin.

2. If patient answers “no” to all questions, the patient does not meet criteria for true allergy and can be given a cephalosporin or carbapenem. **The prescriber should document that he/she is aware of the allergy by writing “Aware of penicillin sensitivity” directly in the medication order.** This communicates to the pharmacy and nursing staff that the patient is not at risk for cross reaction with related compounds.

DISCLAIMER: These guidelines are intended to serve as a general statement regarding appropriate patient care practices based upon the available medical literature, published guidelines, and clinical expertise at the time of development. They are not intended to replace clinical judgment or dictate care of patients.

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| Type of Procedure<br>(CMS procedures in grey)   | Pre-Op   | Post-Op          | Allergy to 1st Line Regimen   | If Severe Intolerance or<br>Allergy to Both<br>1 <sup>st</sup> and 2 <sup>nd</sup> Choices                                       |
|---|--|------------------|---|--|
| <b>OB-Gyn Surgery</b>   |  |                  |   |  |
| Hysterectomy<br>(vaginal, abdominal, or supracervical)  | Cefazolin 1-2g* OR<br>CeFOXitin 1-2g* in<br>procedures that may involve<br>bowel penetration | No post-op doses | Pre-op:<br>Clindamycin 600-900 mg + Gentamicin<br>1.5mg/kg (max 240 mg) (C)   | Metronidazole 500 mg +<br>Gentamicin 1.5 mg/kg (max 240<br>mg) (C)   |
| C-section   | Cefazolin 1-2g*  | No post-op doses | Pre-op:<br>Clindamycin 600-900 mg + Gentamicin<br>1.5mg/kg (max 240 mg) (C)   | Vancomycin 1 g + Gentamicin 1.5<br>mg/kg (max 240 mg) (C)  |
| Pubovaginal sling   | Cefazolin 1-2g*  | No post-op doses | Pre-op:<br>Clindamycin 600-900 mg + Gentamicin<br>1.5mg/kg (max 240 mg) (C) OR<br>Metronidazole 500mg + Gentamicin<br>1.5mg/kg (max 240 mg) (C) | Aztreonam 1-2 g (if renal<br>insufficiency) + Metronidazole<br>500 mg (NC) OR<br>Aztreonam 1-2 g + Clindamycin<br>600 mg (C)     |
| <b>Genitourinary Surgery</b>  |  |                  |   |  |
| Trans-urethral procedures (TURP,<br>TURBT, lithotripsy)   | Ciprofloxacin 400 mg   | No post-op doses | Pre-op:<br>Gentamicin 1.5 mg/kg (max 240 mg) +<br>Ampicillin 1-2 g (NC)   | Aztreonam 1-2 g (if renal<br>insufficiency) + Ampicillin 1-2 g<br>(NC)   |
| Scrotal cases (hydrocele,<br>orchidopexy, etc.)   | Cefazolin 1-2 g*   | No post-op doses | Pre-op: Clindamycin 600-900 mg  | Vancomycin 1 g   |
| Additional Open, Robotic or<br>Laparoscopic procedures without<br>entry into intestine                    | Cefazolin 1-2g*  | No post-op doses | Pre-op:<br>Clindamycin 600-900mg + Gentamicin<br>1.5mg/kg (max 240 mg) (C) OR<br>Metronidazole 500mg + Gentamicin<br>1.5mg/kg (max 240 mg) (C)  | Aztreonam 1-2 g (if renal<br>insufficiency) + Metronidazole<br>500 mg (NC) OR<br>Aztreonam 1-2 g + Clindamycin<br>600-900 mg (C) |
| Additional Open, Robotic or<br>Laparoscopic procedures with entry<br>into intestine                       | CeFOXitin 1-2g*  | No post-op doses | Pre-op:<br>Clindamycin 600-900mg + Gentamicin<br>1.5mg/kg (max 240 mg) (C) OR<br>Metronidazole 500mg + Gentamicin<br>1.5mg/kg (max 240 mg) (C)  | Aztreonam 1-2 g (if renal<br>insufficiency) + Metronidazole<br>500 mg (NC) OR<br>Aztreonam 1-2 g + Clindamycin<br>600-900 mg (C) |
| Prostate biopsy   | Ciprofloxacin 400 mg   | No post-op doses | Pre-op:<br>Clindamycin 600-900mg + Gentamicin<br>1.5mg/kg (max 240 mg) (C)  | Aztreonam 1-2 g (if renal<br>insufficiency) + Metronidazole<br>500 mg (NC) OR<br>Aztreonam 1-2 g + Clindamycin<br>600-900 mg (C) |
| Prosthetic device<br>(Insertion, removal, or revision of<br>penile prosthesis or artificial<br>sphincter) | Cefazolin 1-2g* +<br>Gentamicin 1.5mg/kg<br>(NC)   | No post-op doses | Pre-op:<br>Vancomycin 1g + Gentamicin 1.5mg/kg<br>(max 240 mg) (NC)   | Aztreonam 1-2 g (if renal<br>insufficiency) + Vancomycin 1 g<br>(NC) OR Aztreonam 1-2 g +<br>Clindamycin 600-900 mg (C)          |

\*Use 2g dose of cefazolin or cefoxitin for obese patients – i.e. Weight greater than 100kg or BMI greater than 30

(C) – Combination is compatible at a Y-site – HANG TOGETHER

(NC) – Combination is NOT compatible at a Y-site – HANG SEPARATELY and flush line in between

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| Type of Procedure<br>(CMS procedures in grey)                               | Pre-Op  | Post-Op  | Allergy to 1st Line Regimen  | If Severe Intolerance or<br>Allergy to Both<br>1 <sup>st</sup> and 2 <sup>nd</sup> Choices  |
|---|---|--|--|---|
| <b>Cardiothoracic Surgery</b>   |   |  |  |   |
| <b>CABG or valve replacement, or other thoracic procedures</b>              | <b>Cefazolin 1-2g*</b><br>(MRSA Reduction Protocol for additional guidance)           | <b>Cefazolin 1g q8h x3 doses</b><br>(D/C within 24 hours after end of anesthesia)  | <u>Pre-op:</u> Vancomycin 1g<br><u>Post-op:</u> Vancomycin 1g q12h x2doses                                       | Clindamycin 600-900 mg  |
| <b>Insertion of AICD or implantable pacemaker</b>                           | <b>Cefazolin 1-2g*</b><br>(MRSA Reduction Protocol for additional guidance)           | <b>No post-op doses</b>  | <u>Pre-op:</u> Vancomycin 1g   | Clindamycin 600-900 mg  |
| <b>Insertion of tunneled catheters (Mediport, Hickman, Permcath)</b>        | <b>No antibiotics</b>   | <b>No post op doses</b>  | <b>No antibiotics</b>  | No antibiotics  |
| <b>Vascular Surgery</b>   |   |  |  |   |
| <b>Bypass Graft, AAA, Carotid endarterectomy, Thrombectomy, Embolectomy</b> | <b>Cefazolin 1-2g*</b>  | <b>No post-op doses</b>  | <u>Pre-op:</u> Vancomycin 1g<br><u>Post-op:</u> No post-op doses   | Clindamycin 600-900 mg  |
| <b>AV Fistula creation</b>  | <b>Cefazolin 1-2g*</b>  | <b>No post-op doses</b>  | <u>Pre-op:</u> Vancomycin 1g   | Clindamycin 600-900 mg  |
| <b>General Surgery</b>  |   |  |  |   |
| <b>Exploratory Laparoscopy</b>  | <b>CeFOXitin 1-2g*</b>  | Post-op antibiotics are not indicated for prophylaxis. If infection known or suspected treat as appropriate.   | Metronidazole 500mg + Ciprofloxacin 400mg <b>(C)</b>   | Ciprofloxacin 400 mg + Clindamycin 600-900 mg <b>(NC)</b><br><u>OR</u><br>Metronidazole 500 mg + Gentamicin 1.5 mg/kg (max 240 mg) <b>(C)</b> |
| <b>Appendectomy</b><br>(laparoscopic or open)                               |   |  |  |   |
| <b>Colon Procedures</b>   | <b>CeFOXitin 1-2g* OR Ertapenem 1g OR Cefazolin 1-2g* AND Metronidazole 500mg (C)</b> | Post-op doses of ertapenem are not used at RGH per guidelines.<br><br>Post-op antibiotics are not indicated for prophylaxis. If infection known or suspected treat as appropriate. | <u>Pre-op:</u><br>Clindamycin 900mg + Gentamicin 1.5mg/kg (max 240 mg) <b>(C)</b>                                | Ciprofloxacin 400mg + Clindamycin 600-900mg <b>(NC)</b><br><u>OR</u><br>Ciprofloxacin 400mg + Metronidazole 500mg <b>(C)</b>                  |
| <b>Bariatric Surgery with gastroduodenal involvement</b>                    | <b>Cefazolin 2 g</b><br>(higher dose of 3 g may be considered for BMI > 50)           | <b>Cefazolin 2 g q8h x2 doses</b><br>(D/C within 24 hours after end of anesthesia)   | <u>Pre-op:</u><br>Clindamycin 900mg + Gentamicin 1.5 mg/kg based on adjusted body weight (max 240 mg) <b>(C)</b> | Clindamycin 600-900 mg + Ciprofloxacin 400 mg <b>(NC)</b>   |
| <b>Bariatric Surgery with ileal involvement</b>                             | <b>CeFOXitin 2g</b><br>(higher dose of 3 g may be considered for BMI > 50)            | <b>CeFOXitin 2 g q6h x2 doses</b> (D/C within 24 hours after end of anesthesia)  | <u>Pre-op:</u><br>Metronidazole 500 mg + Ciprofloxacin 400 mg <b>(C)</b>   | Clindamycin 600-900 mg + Aztreonam 2-3 g + Metronidazole 500 mg <b>(NC)</b>   |
| <b>Hernia Repair</b><br>(antibiotic are optional for non-mesh procedure)    | <b>Cefazolin 1-2 g*</b>   | <b>No post-op doses</b>  | Vancomycin 1 g   | Clindamycin 600-900 mg  |
| <b>PEG placement or revision</b>  | <b>Cefazolin 1-2g*</b>  | <b>No post-op doses</b>  | <u>Pre-op:</u> Vancomycin 1g   | Clindamycin 600-900 mg  |

\*Use 2g dose of cefazolin or cefoxitin for obese patients – i.e. Weight greater than 100kg or BMI greater than 30

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|--|--|---|--|--|
| Esophageal/Duodenal  | Cefazolin 1-2g*<br>(antibiotics optional)  | No post-op doses  | Pre-op:<br>Clindamycin 900mg +/- Gentamicin<br>1.5mg/kg (C)  | Vancomycin 1 g + Ciprofloxacin<br>400mg (NC)   |
| Plastic Surgery  | Cefazolin 1-2g*  | No post-op doses  | Pre-op: Vancomycin 1g  | Clindamycin 600-900 mg   |
| Biliary surgery  | Cefazolin 1-2g*<br>(antibiotics optional in simple<br>elective laparoscopic cases) | No post-op doses  | Pre-op:<br>Clindamycin 900mg +/- Ciprofloxacin<br>400mg (NC) | Metronidazole 500mg +<br>Gentamicin 1.5mg/kg (max 240<br>mg) (C)                           |
| Breast Surgery   | Cefazolin 1-2g*  | No post-op doses  | Pre-op: Vancomycin 1g  | Clindamycin 600-900 mg   |
| <b>Head and Neck</b>   |  |   |  |  |
| Tonsillectomy/adenoidectomy or<br>routine dental, ear/sinus procedures               | No antibiotics   | No post op doses  | No antibiotics   | No antibiotics   |
| Other head and neck procedures   | Cefazolin 1-2g*  | No post-op doses  | Pre-op: Clindamycin 600- 900mg                               | Vancomycin 1 g   |
| <b>Neurosurgery</b>  |  |   |  |  |
| Craniotomy or other instrumented<br>neurosurgical cases<br>(elective, non-traumatic) | Cefazolin 1-2g*<br>(MRSA Reduction Protocol<br>for additional guidance)            | Cefazolin 1g q8h x2 doses<br>(D/C within 24 hours<br>after end of anesthesia) | Pre-op: Vancomycin 1g<br>Post-op: Vancomycin 1g q12h x1 dose | Clindamycin 600-900 mg   |
| Non-instrumented cases   | Cefazolin 1-2g*<br>(MRSA Reduction Protocol<br>for additional guidance)            | No post op doses  | Pre-op: Vancomycin 1g  | Clindamycin 600-900 mg   |
| <b>Orthopedic or Podiatric Surgery</b>   |  |   |  |  |
| Total joint replacement or insertion<br>of any prosthetic material                   | Cefazolin 1-2g*<br>(MRSA Reduction Protocol<br>for additional guidance)            | Cefazolin 1g q8h x2 doses<br>(D/C within 24 hours<br>after end of anesthesia) | Pre-op: Vancomycin 1g<br>Post-op: Vancomycin 1g q12h x1 dose | Clindamycin 600-900 mg   |
| Other orthopedic or podiatric<br>procedure   | Cefazolin 1-2g*<br>(MRSA Reduction Protocol<br>for additional guidance)            | No post-op doses  | Pre-op: Vancomycin 1g  | Clindamycin 600-900 mg   |

## Appendix: Intraoperative Antibiotics Redosing Chart

| Antibiotics   | Redosing Interval (hr)** | Antibiotics   | Redosing Interval (hr)** |
|---------------|--------------------------|---------------|--------------------------|
| Aztreonam     | 3                        | Clindamycin   | 3                        |
| Cefazolin     | 3                        | Gentamicin    | 6                        |
| CeFOXitin     | 2                        | Metronidazole | 6                        |
| Ciprofloxacin | 6                        | Vancomycin    | 12                       |

\*\*The intervals are for patients with normal renal function

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