# PEDIATRIC ANTIBIOTIC PROPHYLAXIS FOR SURGICAL PROCEDURES

## PEDIATRIC DOSING GUIDE

<table>
<thead>
<tr>
<th>Antibiotic</th>
<th>IV Dose</th>
<th>Maximum Dose</th>
<th>Normal Renal Function</th>
<th>Compromised Renal Function (CrCl &lt;30 mL/min)</th>
<th>Neutonal IV Dose</th>
<th>Intra-operative re-dosing interval</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ampicillin</td>
<td>50 mg/kg</td>
<td>2000 mg</td>
<td>4 hours</td>
<td>8 hours</td>
<td>50 mg/kg</td>
<td>12 hrs</td>
</tr>
<tr>
<td>Ampicillin/ Sulbactam (premixed 1g A / 0.5g S)</td>
<td>50 mg/kg (dose per ampicillin)</td>
<td>3.1 grams (3 grams of ampicillin)</td>
<td>4 hours</td>
<td>8 hours</td>
<td>50 mg/kg</td>
<td>12 hrs</td>
</tr>
<tr>
<td>Cefazolin</td>
<td>25 mg/kg</td>
<td>&lt; 80 kg: 1 gram ≥ 80 kg: 2 grams</td>
<td>4 hours</td>
<td>12 hours</td>
<td>25 mg/kg</td>
<td>12 hrs</td>
</tr>
<tr>
<td>Cefuroxime</td>
<td>50 mg/kg</td>
<td>1500 mg</td>
<td>4 hours</td>
<td>12 hours</td>
<td>50 mg/kg</td>
<td>12 hrs</td>
</tr>
<tr>
<td>Clindamycin</td>
<td>10 mg/kg</td>
<td>600 mg</td>
<td>8 hours</td>
<td>8 hours</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Ertapenem</td>
<td>15 mg/kg</td>
<td>1000 mg</td>
<td>12 hours</td>
<td>no re-dose</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Gentamicin**</td>
<td>2 mg/kg</td>
<td>No max</td>
<td>6 hours</td>
<td>12 hours</td>
<td>2.5 mg/kg (or defer to current regimen)</td>
<td>24 hrs (or defer to Neofax)</td>
</tr>
<tr>
<td>Levofloxacin</td>
<td>10 mg/kg</td>
<td>750 mg</td>
<td>16 hours</td>
<td>no re-dose</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Metronidazole</td>
<td>10 mg/kg</td>
<td>500 mg</td>
<td>8 hours</td>
<td>no re-dose</td>
<td>Initial: 15 mg/kg Maintenance: 7.5 mg/kg</td>
<td>24 hrs (or defer to current regimen)</td>
</tr>
<tr>
<td>Oxacillin</td>
<td>50 mg/kg</td>
<td>2000 mg</td>
<td>6 hours</td>
<td>no re-dose</td>
<td>25 mg/kg (or defer to current regimen)</td>
<td>12 hrs (or defer to current regimen)</td>
</tr>
<tr>
<td>Penicillin G</td>
<td>50,000 units/kg</td>
<td>1.2 million units</td>
<td>4 hours</td>
<td>no re-dose</td>
<td>25,000 units/kg</td>
<td>12 hrs (or defer to current regimen)</td>
</tr>
<tr>
<td>Piperacillin/ Tazobactam (premixed 1 g P / 0.125 g T)</td>
<td>50 mg/kg (dose per piperacillin)</td>
<td>3.375 grams (3 grams of piperacillin)</td>
<td>6 hours</td>
<td>8 hours</td>
<td>50 mg/kg</td>
<td>12 hrs</td>
</tr>
<tr>
<td>Vancomycin</td>
<td>15 mg/kg</td>
<td>2000 mg</td>
<td>12 hours</td>
<td>no re-dose</td>
<td>10 mg/kg</td>
<td>12 hrs</td>
</tr>
</tbody>
</table>

*PMA (Postmenstrual Age) = Gestational Age + postnatal age (Example: Born at 28 weeks and 21 days old = 31 weeks PMA)

**Tobramycin dosing is equivalent to gentamicin; may be substituted during drug shortages

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## Operation

<table>
<thead>
<tr>
<th>Operation</th>
<th>Recommended Antibiotic Prophylaxis</th>
<th>Re-dosing Schedule for Prolonged Surgery** (Hours)</th>
</tr>
</thead>
</table>
| Dental, Oral, Respiratory Tract or Esophageal Procedures | Preferred: Ampicillin OR Cefazolin  
Alternatives: Clindamycin 20 mg/kg IV/PO (Max Dose 600 mg) OR Ceftriaxone | 4 / 8 / 16 |
| Cardiothoracic | Preferred: Cefuroxime OR Cefazolin  
Alternatives: Clindamycin +/- Gentamicin OR Vancomycin +/- Gentamicin | 4 / 8 / 12 |
| Gastroduodenal, Esophageal (High Risk Only: open procedures, biliary tract) | Preferred: Cefazolin  
Alternatives: Clindamycin + Gentamicin | 4 / 8 |
| Colorectal | Preferred: Ertapenem OR Cefazolin + Metronidazole  
Alternatives: Clindamycin + Gentamicin | 12 / 4 / 8 / 8 |
| Appendectomy (Non-perforated, non-infected) | Preferred: Ampicillin/Sublactam  
Alternatives: Cefazolin Metronidazole | 4 / 8 |
| Appendectomy (Suspected perforation or suspected or documented infection) | Preferred: Piperclillin/Tazobactam  
Alternatives: Metronidazole + Gentamicin + Ampicillin | 6 / 8 / 4 |
| Orthopedic Implantation of Joint Devices | Preferred: Cefazolin  
Alternatives: Clindamycin OR Vancomycin | 4 / 8 / 12 |
| Genitourinary (High-Risk Patients Only) | Preferred: Cefazolin  
Alternatives: Gentamicin + Metronidazole (or Clindamycin) OR Ampicillin/Sublactam | 4 / 6 / 8 / 8 |
| Head and Neck (Hardware Placement or Clean/Contaminated) | Preferred: Cefazolin 30 - 40 mg/kg (Max Dose 2 grams) +/- Metronidazole OR Oxacillin  
Alternatives: Cefazolin 15 mg/kg (Max Dose 600 mg) +/- Gentamicin | 4 / 8 / 6 |
| Neurosurgery (Elective Craniotomy or CSF shunting) | Preferred: Cefazolin OR Oxacillin  
Alternatives: Vancomycin | 4 / 12 |
| Transplantation (Heart, Lung or Heart & Lung) | Preferred: Cefazolin OR Cefuroxime  
Alternatives: Vancomycin +/- Gentamicin | 4 / 12 / 6 |
| Transplantation (Liver) | Preferred: Ampicillin/Sublactam  
Alternatives: Clindamycin + Gentamicin | 4 / 8 / 6 |
| Transplantation (Kidney or Kidney & Pancreas) | Preferred: Cefazolin  
Alternatives: Clindamycin | 4 / 8 |

### Timing of first dose:
Antibiotics should be initiated no earlier than 60 minutes prior to incision (with the exception of vancomycin doses > 2 grams); if the patient is on chronic antibiotic therapy then no first doses are needed.

### Antibiotic re-dosing:
Re-dosing should occur if the operation is still in process 2 half-lives after the first dose was administered or if the patient experiences major blood loss. If a patient is on chronic antibiotic therapy then send any scheduled doses to the OR with the patient.

### Patients with penicillin/cephalosporin allergies:
Verify it is a true allergy (e.g. urticaria, pruritus, angioedema, bronchospasm, hypotension or arrhythmia) or serious adverse drug reaction (drug-induced hypersensitivity, drug fever or toxic epidermal necrolysis). Cephalosporins may be an appropriate option due to limited cross-reactivity with the penicillin class. In case of true allergy, vancomycin or clindamycin may be appropriate alternatives.

### Endocarditis prophylaxis:
Only for dental procedures and patients at high risk:

1. Prosthetic cardiac valve or prosthetic material used for cardiac valve repair;
2. Previous infective endocarditis;
3. Unrepaired cyanotic congenital heart disease (CHD), including palliative shunts and conduits; completely repaired congenital heart defect with prosthetic material or device, during the first six months after the procedure; repaired CHD with residual defects at the site of a prosthetic patch or prosthetic device (which inhibit endothelialization); cardiac transplantation recipients who develop cardiac valvulopathy.

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