# Antimicrobial Dosing Guidelines for Infants and Children > 1 Month of Age

**UCSF Benioff Children’s Hospital**

**Antimicrobial Stewardship Program**
Call M-F 8am-5pm for focused questions on antimicrobial selection, dose, monitoring, duration of therapy (Voalte: ID/ASP Pharmacists) 514-1275 (Voalte)

**Pediatric ID Consult Service**
For cases requiring in depth review and physician consultation 443-2384 (pager)

### Online Resources
Pediatric Empiric Antimicrobial Therapy Guidelines, Clinical Pathways, Detailed Guidelines, Antimicrobial Susceptibility Profiles [idmp.ucsf.edu](http://idmp.ucsf.edu)

Shaded boxes indicate ID-Restricted agents (ID-R). Other restricted agents are noted in APeX. To obtain approval for a restricted agent, call Pediatric ASP between 8am-5pm M-F. For off-hours approval (until 10pm) contact the Pediatric ID Consult Service. An approving clinician’s ID number is needed to order a restricted agent.

From 10pm-8am, use approval ID# 11111 for release of a single dose, then contact ASP for approval of subsequent doses.

Dosing recommendations are for usual doses to treat the most common conditions. For additional indication-specific dosing, or agents not included below, refer to the Pediatric Empiric Antimicrobial Therapy Guidelines (EATG) [idmp.ucsf.edu](http://idmp.ucsf.edu), or Lexi-Comp.

Consult pharmacist or kpnet.kdp.louisville.edu/drugbook/pediatric for renal dose adjustment.

IV-PO = High oral bioavailability – Consider IV to PO Switch; LD = loading dose; MD = maintenance dose

Cost estimates based on Average Wholesale Price for 20kg child at usual dose ($ ≤30/day; $30-100/day; $$$ >$100/day)

Cost estimates based on Average Wholesale Price for 20kg child at usual dose ($ ≤30/day; $30-100/day; $$$ >$100/day)

## Drug

<table>
<thead>
<tr>
<th>Drug</th>
<th>Usual Dose</th>
<th>Dose Adjustment</th>
<th>Maximum Dose</th>
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</thead>
<tbody>
<tr>
<td><strong>Acyclovir IV</strong> $</td>
<td>5mg/kg/dose q8h</td>
<td>Adjust for CrCl &lt; 50 ml/min/1.73m²</td>
<td>None</td>
</tr>
<tr>
<td><strong>Amphotericin B Liposomal IV</strong> $ (AmBisome®) $$$</td>
<td>5mg/kg/dose q24h</td>
<td><strong>Lower dose may be appropriate for certain infections – consult ID pharmacist</strong></td>
<td></td>
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<tr>
<td><strong>Amoxicillin IV</strong> $</td>
<td>50mg/kg/dose q6h</td>
<td>Adjust for CrCl &lt; 50 ml/min/1.73m²</td>
<td>Individual Dose 2g/dose</td>
</tr>
<tr>
<td><strong>Amoxicillin-Clavulanate PO</strong> (Augmentin®) $-$ $-$</td>
<td>25mg/kg/dose BID</td>
<td>Adjust for CrCl &lt; 50 ml/min/1.73m²</td>
<td>Daily Dose 12g/DAY</td>
</tr>
<tr>
<td><strong>Caspofungin IV</strong> $ (AmBisome®) $$$</td>
<td><strong>&lt;3 mo:</strong> 15mg amox/kg/dose BID (Use 125mg/5ml suspension) <strong>Standard Dose ≥3 mo:</strong> 22.5mg amox/kg/dose BID (Use 400mg/5ml suspension) <strong>High Dose (Pneumococcal):</strong> 45mg amox/kg/dose BID (Use 600mg/5ml suspension ≤40kg, 400mg/5ml suspension &gt;40kg)</td>
<td>Adjust for CrCl &lt; 50 ml/min/1.73m²</td>
<td>Usual Max for High Dose 1g BID</td>
</tr>
<tr>
<td><strong>Cefazolin IV</strong> $</td>
<td><strong>Mild-Moderate Infection:</strong> 25mg/kg/dose q8h</td>
<td>Adjust for CrCl &lt; 70 ml/min/1.73m²</td>
<td>Severe 2g q8h</td>
</tr>
<tr>
<td><strong>Cephalaxin PO</strong> $</td>
<td><strong>Mild Infection (e.g. Cellulitis)</strong> 25mg/kg/dose BID</td>
<td>Mild-Moderate 1g q8h</td>
<td><strong>Moderate Infection (e.g. Cellulitis)</strong> 25mg/kg/dose TID</td>
</tr>
</tbody>
</table>

Refer to Pediatric EATG [idmp.ucsf.edu](http://idmp.ucsf.edu) for dosing specific to indication, and maximum dosing by indication.
<table>
<thead>
<tr>
<th>Drug</th>
<th>Usual Dose</th>
<th>Dose Adjustment</th>
<th>Maximum Dose</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cefepime IV $</td>
<td>50mg/kg/dose q12h</td>
<td>Adjust for CrCl &lt; 50 ml/min/1.73m$</td>
<td>2g q12h</td>
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<tr>
<td></td>
<td><strong>CF/Pseudomonas/ Febrile Neutropenia/Meningitis</strong> 50mg/kg/dose q8h</td>
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<tr>
<td>Ceftazidime IV $$</td>
<td>50mg/kg/dose q8h</td>
<td>Adjust for CrCl &lt; 50 ml/min/1.73m$</td>
<td>2g q8h</td>
</tr>
<tr>
<td>Ceftriaxone IV $</td>
<td>50mg/kg/dose q24h</td>
<td>No adjustment</td>
<td>1g q24h</td>
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<tr>
<td></td>
<td><strong>Endocarditis</strong> 100mg/kg/dose q24h</td>
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<td><strong>Meningitis</strong> 50mg/kg/dose q12h</td>
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<tr>
<td>Ciprofloxacin IV/PO$</td>
<td>15mg/kg/dose q12h</td>
<td>Adjust for CrCl &lt; 50 ml/min/1.73m$</td>
<td>750mg PO q12h 400mg IV q8h</td>
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<tr>
<td></td>
<td><strong>Cystic Fibrosis</strong> 20mg/kg/dose PO q12h</td>
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<tr>
<td></td>
<td><strong>Cystic Fibrosis</strong> 15mg/kg/dose IV q12h</td>
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<tr>
<td>Clindamycin IV/PO$</td>
<td>10mg/kg/dose q8h</td>
<td>No adjustment</td>
<td>PO: 600mg q8h IV: 900mg q8h</td>
</tr>
<tr>
<td>Fluconazole IV/PO$</td>
<td>12mg/kg/dose q24h</td>
<td>Adjust for CrCl &lt; 50 ml/min/1.73m$</td>
<td>800mgq24h</td>
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<td></td>
<td><strong>Bone/Joint Infection</strong> 13 mg/kg/dose q8h</td>
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<tr>
<td>Gentamicin IV $</td>
<td>2.5mg/kg/dose q8h</td>
<td>Adjust for CrCl &lt; 50 ml/min/1.73m$</td>
<td>None</td>
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<tr>
<td></td>
<td><strong>Cystic Fibrosis</strong> 2.5mg/kg/dose q8h</td>
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<tr>
<td></td>
<td><strong>Cystic Fibrosis</strong> 10mg/kg/dose q8h</td>
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<tr>
<td>Levofoxacin IV/PO$</td>
<td>6 mo &lt;3 yo: 10mg/kg/dose q12h</td>
<td>Adjust for CrCl &lt; 50 ml/min/1.73m$</td>
<td>750mg q24h</td>
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<td></td>
<td>≥5 yo: 10mg/kg/dose q24h</td>
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<tr>
<td>Meropenem IV $$</td>
<td>20mg/kg/dose q8h</td>
<td>Adjust for CrCl &lt; 50 ml/min/1.73m$</td>
<td>1g q8h</td>
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<tr>
<td></td>
<td><strong>Cystic Fibrosis/Meningitis</strong> 40mg/kg/dose q8h</td>
<td></td>
<td><strong>CF/Meningitis</strong> 2g q8h</td>
</tr>
<tr>
<td>Metronidazole IV/PO$</td>
<td>10mg/kg/dose q8h</td>
<td>Adjust for CrCl &lt; 50 ml/min/1.73m$</td>
<td>500mg q6h</td>
</tr>
<tr>
<td>Nafcillin IV $$</td>
<td>50mg/kg/dose q6h</td>
<td>Adjust for concurrent hepatic and renal dysfunction</td>
<td>Individual Dose 2g/dose Daily Dose 12g/DAY</td>
</tr>
<tr>
<td>Piperacillin/ Tazobactam IV (Zosyn®) $$</td>
<td>80mg piperacillin/kg/dose q6h</td>
<td>Adjust for CrCl &lt; 50 ml/min/1.73m$</td>
<td>4g piperacillin q6h</td>
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<td></td>
<td><strong>CF/Pseudomonas/Serious Infection</strong> 100mg piperacillin/kg/dose q6h</td>
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<tr>
<td>Tobramycin IV $</td>
<td>2.5mg/kg/dose q8h</td>
<td>Adjust for CrCl &lt; 50 ml/min/1.73m$</td>
<td>None</td>
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<tr>
<td></td>
<td><strong>Cystic Fibrosis</strong> 10mg/kg/dose q24h</td>
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<tr>
<td>TEMP/SMX (IV:PO$</td>
<td><strong>Consult pharmacist for dose adjustment/level assessment</strong></td>
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<tr>
<td>(Bactrim®, Septtra®)</td>
<td><strong>Mild to Moderate Infection</strong> 5mg/kg/dose TMP BID</td>
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<td>Mild-Moderate 160mg TMP/dose (no max for severe)</td>
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<tr>
<td></td>
<td><strong>CF/Serious Infection/PCP</strong> 5mg/kg/dose TMP q8h</td>
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<tr>
<td>Vancomycin IV $</td>
<td>15mg/kg/dose q6-8h*</td>
<td>*Consider q8-12h interval for <strong>Cardiac Dysfunction/CICU</strong></td>
<td>Initial Max 1g/dose</td>
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<tr>
<td></td>
<td><strong>Consult pharmacist for dose adjustment/level assessment</strong></td>
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<tr>
<td>Voriconazole IV $$$</td>
<td>2~&lt;12 yo OR 12-14 yo and &lt; 50kg: LD: 9mg/kg/dose q12h x 2, then MD: 8mg/kg/dose q12h</td>
<td>No adjustment for renal dysfunction but avoid IV formulation if CrCl &lt; 50 ml/min/1.73m$</td>
<td>IV: No max PO Initial Maintenance Dose 2~&lt;12 yo OR 12-14yo and &lt; 50kg: 350mg/dose</td>
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<td>&gt;14 yo OR 12-14 yo and ≥ 50kg: LD: 6mg/kg/dose q12h x 2, then MD: 4mg/kg/dose q12h</td>
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<tr>
<td>Voriconazole PO $$</td>
<td><strong>Consult pharmacist for dose adjustment/level assessment</strong></td>
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<tr>
<td></td>
<td>2~&lt;12 yo OR 12-14 yo and &lt; 50kg: 9mg/dose BID</td>
<td>Avoid if severe hepatic dysfunction, decrease MD by 50% for mild-moderate hepatic dysfunction</td>
<td>PO Initial Max Maintenance Dose &gt;14 yo OR 12-14 yo and ≤ 50kg: 200mg/dose</td>
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<tr>
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<td>&gt;14 yo OR 12-14 yo and ≥ 50kg: LD: 400mg/dose BID x 2, then 200mg/dose BID</td>
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<tr>
<td><strong>For IV and PO, therapeutic drug monitoring recommended with trough level after 5 days on stable dose – consult ID/ASP pharmacist for guidance</strong></td>
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</table>
# Antibiotic Spectrum Guide

This is a simplified table that does not apply to all scenarios. See khp.usc.edu for hospital-specific susceptibilities.

<table>
<thead>
<tr>
<th>Organism/Condition</th>
<th>Pathogen 1</th>
<th>Pathogen 2</th>
<th>Pathogen 3</th>
<th>Pathogen 4</th>
<th>Pathogen 5</th>
<th>Pathogen 6</th>
<th>Pathogen 7</th>
<th>Pathogen 8</th>
<th>Pathogen 9</th>
<th>Pathogen 10</th>
<th>Pathogen 11</th>
<th>Pathogen 12</th>
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<tbody>
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<td>Enterococcus</td>
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<td>Staphylococcus pneumoniae</td>
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<td>β-hemolytic strep (e.g. GAS, GBS)</td>
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<td>Gram negatives: community</td>
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<td>Gram negatives: hospital</td>
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<td>Enterobacter, other AmpC-producers</td>
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<td>Pseudomonas</td>
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<td>ESBL-producers</td>
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<td>Mouth anaerobes</td>
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<td>Gut anaerobes</td>
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<td>Atypicals</td>
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</tbody>
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**Shading Key:**
- White: good to excellent activity
- Light Gray: some activity
- Dark Gray: little to no activity