

UCSF Benioff Children's Hospital
Antimicrobial Dosing Guideline for Infants and Children > 1 Month of Age

Approved by Pharmacy and Therapeutics Committee (11/98) Last Update 7/2016

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

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), or **Lexi-Comp**.

Consult pharmacist or kdpnet.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)

Drug	Usual Dose	Dose Adjustment	Maximum Dose
Acyclovir IV \$	Mucocutaneous HSV Infection Immunocompetent Host ≥3 mo 5mg/kg/dose q8h	Adjust for CrCl < 50 ml/min/1.73m ²	None
	CNS HSV Infection ≥3 mo <12 yo 15mg/kg/dose q8h		
	CNS HSV ≥12 yo, HSV in Immunocompromised Host, or VZV Infection 10mg/kg/dose q8h		
	HSV Infection <3mo 20mg/kg/dose q8h		
	Acyclovir PO preferred for non-invasive infection in immunocompetent host > 3 months old – refer to Pediatric EATG or Lexi-Comp for dose (idmp.ucsf.edu)		
Amphotericin B Liposomal IV^{ID-R} (AmBisome®) \$\$\$	5mg/kg/dose q24h	No recommended dose adjustment for renal dysfunction, but drug should be used with caution due to nephrotoxicity risk	None
	Lower dose may be appropriate for certain infections – consult ID pharmacist		
Ampicillin IV \$\$	50mg/kg/dose q6h Endocarditis, Meningitis 300mg/kg/day divided q4-6h	Adjust for CrCl < 50 ml/min/1.73m ²	Individual Dose 2g/dose Daily Dose 12g/DAY
Ampicillin-sulbactam IV (Unasyn®) \$\$	50mg ampicillin/kg/dose q6h	Adjust for CrCl < 50 ml/min/1.73m ²	Usual Max 2g ampicillin q6h
Amoxicillin PO \$	25mg/kg/dose BID High Dose (Pneumococcal) 45mg/kg/dose BID	Adjust for CrCl < 50 ml/min/1.73m ²	Usual Max for High Dose 1g BID
	Refer to Pediatric EATG (idmp.ucsf.edu) for dosing specific to indication, guidance on formulations and maximum dosing by indication		Absolute Max 2g BID
Amoxicillin-clavulanate PO (Augmentin®) \$-\$\$	<3 mo: 15mg amox/kg/dose BID (Use 125mg/5ml suspension)	Adjust for CrCl < 50 ml/min/1.73m ²	Usual Max for High Dose Susp: 1000mg BID Tablet: 875mg BID
	Standard Dose >3 mo 22.5mg amox/kg/dose BID (Use 400mg/5ml suspension) High Dose (Pneumococcal) 45mg amox/kg/dose BID (Use 600mg/5ml suspension <40kg, 400mg/5ml suspension ≥40kg)		
Caspofungin IV^{ID-R} \$\$\$	1-3 mo: 25mg/m ² /dose q24h ≥3 mo: LD 70mg/m ² /dose x1 then MD 50mg/m ² /dose q24h	Adjust MD for severe hepatic dysfunction 70mg/m ² x 1, then 35mg/m ² q24h	LD: 70mg MD: 50mg q24h
Cefazolin IV \$	Mild-Moderate Infection 25mg/kg/dose q8h	Adjust for CrCl < 70 ml/min/1.73m ²	Mild-Moderate 1g q8h
	Severe Infection 50mg/kg/dose q8h		Severe 2g q8h
Cephalexin PO \$	Mild Infection (e.g. Cystitis) 25mg/kg/dose BID	Adjust for CrCl < 50 ml/min/1.73m ²	Usual Max 500mg/dose Absolute Max (Severe Infection) 1g/dose
	Moderate Infection (e.g. Cellulitis) 25mg/kg/dose TID Severe Infection (e.g. Bone/Joint) 25mg/kg/dose 4x/day		
	Refer to Pediatric EATG (idmp.ucsf.edu) for dosing specific to indication, and maximum dosing by indication		

Drug	Usual Dose	Dose Adjustment	Maximum Dose
Cefepime IV \$	50mg/kg/dose q12h CF/Pseudomonas/ Febrile Neutropenia/Meningitis 50mg/kg/dose q8h	Adjust for CrCl < 50 ml/min/1.73m ²	2g q12h High Dose 2g q8h
Ceftazidime IV \$\$	50mg/kg/dose q8h	Adjust for CrCl < 50 ml/min/1.73m ²	2g q8h
Ceftriaxone IV \$	50mg/kg/dose q24h Endocarditis 100mg/kg/dose q24h Meningitis 50mg/kg/dose q12h	No adjustment	1g q24h Endocarditis 2g q24h Meningitis 2g q12h
Ciprofloxacin IV-PO* *IV:PO Ratio 1:1 until adult doses, then 4:5 \$	15mg/kg/dose q12h Cystic Fibrosis 20mg/kg/dose PO q12h 15mg/kg/dose IV q12h	Adjust for CrCl < 50 ml/min/1.73m ²	750mg PO q12h 400mg IV q8h Cystic Fibrosis 1000mg PO q12h 600mg IV q8h
Clindamycin IV-PO* \$	10mg/kg/dose q8h Bone/Joint Infection 13 mg/kg/dose q8h	No adjustment	PO: 600mg q8h IV: 900mg q8h
Fluconazole IV-PO \$	12mg/kg/dose q24h	Adjust for CrCl < 50 ml/min/1.73m ²	800mg q24h <i>Varies by site and severity</i>
Gentamicin IV \$	2.5mg/kg/dose q8h	Adjust for CrCl < 50 ml/min/1.73m ²	None
Levofloxacin IV-PO \$	6 mo-<5 yo: 10mg/kg/dose q12h ≥5 yo: 10mg/kg/dose q24h	Adjust for CrCl < 50 ml/min/1.73m ²	750mg q24h
Meropenem IV \$\$	20mg/kg/dose q8h Cystic Fibrosis/Meningitis 40mg/kg/dose q8h	Adjust for CrCl < 50 ml/min/1.73m ²	1g q8h CF/Meningitis 2g q8h
Metronidazole IV-PO \$	10mg/kg/dose q8h	Adjust for CrCl < 50 ml/min/1.73m ²	500mg q6h
Nafcillin IV \$\$	50mg/kg/dose q6h	Adjust for concurrent hepatic and renal dysfunction	Individual Dose 2g/dose Daily Dose 12g/DAY
Piperacillin/ Tazobactam IV (Zosyn®) \$\$	80mg piperacillin/kg/dose q6h CF/Pseudomonas/Serious Infection 100mg piperacillin/kg/dose q6h	Adjust for CrCl < 50 ml/min/1.73m ²	4g piperacillin q6h
Tobramycin IV \$	2.5mg/kg/dose q8h Cystic Fibrosis 10mg/kg/dose q24h	Adjust for CrCl < 50 ml/min/1.73m ²	None
TMP/SMX IV-PO (Bactrim®, Septra®) \$	Mild to Moderate Infection 5mg/kg/dose TMP BID CF/Serious Infection/PCP 5mg/kg/dose TMP q6h	Adjust for CrCl < 30 ml/min/1.73m ²	Mild-Moderate 160mg TMP/dose (no max for severe)
Vancomycin IV \$	15mg/kg/dose q6-8h* CNS/Endocarditis/Bone/Joint Infection 20mg/kg/dose q6h	*Consider q8-12h interval for Cardiac Dysfunction/CICU Consult pharmacist for renal adjustment	Initial Max 1g/dose
Voriconazole IV ID-R \$\$\$	2-<12 yo OR 12-14 yo and < 50kg: LD: 9mg/kg/dose q12h x 2, then MD: 8mg/kg/dose q12h >14 yo OR 12-14 yo and ≥ 50kg: LD: 6mg/kg/dose q12h x 2, then MD: 4mg/kg/dose q12h	No adjustment for renal dysfunction but avoid IV formulation if CrCl < 50 ml/min/1.73m ²	IV: No max PO Initial Max Maintenance Dose 2-<12 yo OR 12-14yo and < 50kg: 350mg/dose
Voriconazole PO ID-R \$\$	2-<12 yo OR 12-14 yo and < 50kg: 9mg/kg/dose BID >14 yo OR 12-14 yo and ≥ 50kg: LD: 400mg/dose BID x 2, then 200mg/dose BID	Avoid if severe hepatic dysfunction, decrease MD by 50% for mild-moderate hepatic dysfunction	PO Initial Max Maintenance Dose >14 yo OR 12-14 yo and ≤ 50kg: 200mg/dose
For IV and PO, therapeutic drug monitoring recommended with trough level after 5 days on stable dose – consult ID/ASP pharmacist for guidance			

Antibiotic Spectrum Guide

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

	Vancomycin	Amoxicillin	Amoxicillin/Clavulanate	Clindamycin	Cefazolin	Ceftriaxone	Cefepime	Piperacillin/tazobactam	Meropenem	Azithromycin	Ciprofloxacin	Levofloxacin	TMP/SMX (non-sepsis)	Clindamycin	Doxycycline	Metronidazole
<i>Enterococcus</i>																
MRSA																
MSSA																
<i>Streptococcus pneumoniae</i>																
β -hemolytic strep (e.g. GAS, GBS)																
Gram negatives: community																
Gram negatives: hospital																
<i>Enterobacter</i> , other AmpC-producers																
<i>Pseudomonas</i>																
ESBL-producers																
Mouth anaerobes																
Gut anaerobes																
Atypicals																

Shading Key: good to excellent activity some activity little to no activity