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 5/2019

Antimicrobial Stewardship Program (ASP)	Call M-F 8am-5pm for focused questions on antimicrobial selection, dose, monitoring, duration of therapy and for approvals (Voalte: Pediatric Antimicrobial Stewardship Team - ID/ASP Pharmacist or Provider)	Contact via 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.
An approving clinician's ID number is needed to order a restricted agent. To obtain approval for a restricted agent, call Pediatric ASP between 8am-5pm M-F. For off-hours approval (until 9pm) contact the Pediatric ID Consult Service. From 9pm-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 alternative – 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 ***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	Adjust for CrCl < 50 ml/min/1.73m²	None
	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®) $$$	5mg/kg/dose q24h	No recommended dose adjustment for renal dysfunction, but drug should be used with caution due to nephrotoxicity risk	None
	Lower dose may be appropriate for certain infections – consult ID pharmacist		
Ampicillin IV[IV-PO] $$	50mg/kg/dose q6h ***Endocarditis, Meningitis*** 300mg/kg/day divided q4-6h	Adjust for CrCl < 50 ml/min/1.73m²	2g/dose
Ampicillin-sulbactam IV [IV-PO] (Unasyn®) $$	50mg ampicillin/kg/dose q6h	Adjust for CrCl < 50 ml/min/1.73m²	***Usual Max*** 2g ampicillin q6h
Amoxicillin PO $	25mg/kg/dose BID ***High Dose (Pneumococcal)*** 45mg/kg/dose BID	Adjust for CrCl < 50 ml/min/1.73m²	***Usual Max*** 1g BID ***Absolute Max*** 2g BID
	Refer to **Pediatric EATG** (idmp.ucsf.edu) for dosing specific to indication, guidance on formulations and maximum dosing by indication		
Amoxicillin-clavulanate PO (Augmentin®) $-$$	***<3 mo:*** 15mg amox/kg/dose BID (Use 125mg/5ml suspension) ***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)	Adjust for CrCl < 50 ml/min/1.73m²	***Usual Max*** Susp: 1000mg BID Tablet: 875mg BID ***Absolute Max*** 2g BID
Caspofungin IV[ID-R] $$$	***1-3 mo:*** 25mg/m²/dose q24h ***≥3 mo:*** LD 70mg/m²/dose x1 then MD 50mg/m²/dose q24h	Adjust MD for severe hepatic dysfunction 70mg/m² x 1, then 35mg/m² q24h	LD: 70mg MD: 50mg q24h
Cefazolin IV $	***Mild-Moderate Infection*** 25mg/kg/dose q8h ***Severe Infection*** 50mg/kg/dose q8h	Adjust for CrCl < 70 ml/min/1.73m²	***Mild-Moderate*** 1g q8h ***Severe*** 2g q8h
Cephalexin PO $	***Mild Infection (e.g. Cystitis)*** 25mg/kg/dose BID ***Moderate Infection (e.g. Cellulitis)*** 25mg/kg/dose TID ***Severe Infection (e.g. Bone/Joint)*** 33mg/kg/dose TID	Adjust for CrCl < 50 ml/min/1.73m²	***Usual Max*** 500mg/dose ***Absolute Max (Severe Infection)*** 1g/dose
	Refer to **Pediatric EATG** (idmp.ucsf.edu) for dosing specific to indication, and maximum dosing by indication		
Cefepime IV $	50mg/kg/dose q12h ***CF/Pseudomonas/ Febrile Neutropenia/Meningitis*** 50mg/kg/dose q8h	Adjust for CrCl < 50 ml/min/1.73m²	2g q12h ***High Dose*** 2g q8h
Ceftazidime IV $$	50mg/kg/dose q8h	Adjust for CrCl < 50 ml/min/1.73m²	2g q8h

Drug	Usual Dose	Dose Adjustment	Maximum Dose
Ceftriaxone IV $	50mg/kg/dose q24h ***Meningitis*** 50mg/kg/dose q12h	No adjustment	1g q24h ***Meningitis*** 2g q12h
Ciprofloxacin[IV-PO*] *IV:PO Ratio 1:1 until adult doses, then 4:5 $	10-15mg/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
	For ***Pseudomonas Infection*, go up to maximum dose**		
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] $	***Invasive Candidiasis*** 12mg/kg/dose q24h	Adjust for CrCl < 50 ml/min/1.73m^2	800mg q24h *Varies by site and severity*
Gentamicin IV $	***Gram Negative Infection*** 2.5mg/kg/dose q8h	Adjust for CrCl < 50 ml/min/1.73m^2	None
	Consult pharmacist for dose adjustment/level assessment		
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 $$	20mg/kg/dose q8h ***Cystic Fibrosis/Meningitis*** 40mg/kg/dose q8h	Adjust for CrCl < 50 ml/min/1.73m^2	1g q8h ***CF/Meningitis*** 2g q8h
Metronidazole[IV-PO] $	10mg/kg/dose q8h ***Appendicitis/Intra-Abdom. Infection*** 30mg/kg/dose q24h	Adjust for CrCl < 50 ml/min/1.73m^2	1500mg/day
Nafcillin IV $$	50mg/kg/dose q6h	Adjust for concurrent hepatic and renal dysfunction	***Individual Dose*** 2g/dose ***Daily Dose*** 12g/**DAY**
Piperacillin/ Tazobactam IV (Zosyn®) $$	80mg piperacillin/kg/dose q6h ***CF/Pseudomonas/Serious Infection*** 100mg piperacillin/kg/dose q6h	Adjust for CrCl < 50 ml/min/1.73m^2	4g piperacillin q6h
Tobramycin IV $	2.5mg/kg/dose q8h ***Cystic Fibrosis*** 10mg/kg/dose q24h	Adjust for CrCl < 50 ml/min/1.73m^2	None
	Consult pharmacist for dose adjustment/level assessment		
TMP/SMX [IV-PO] (Bactrim®, Septra®) $	***Mild to Moderate Infection*** 5mg/kg/dose TMP BID ***CF/Serious Infection/PCP*** 5mg/kg/dose TMP q6-8h	Adjust for CrCl < 30 ml/min/1.73m^2	***Mild-Moderate*** 160mg TMP/dose (no max for severe)
Vancomycin IV $	**3mo-<12yo**: 17.5mg/kg/dose Q6H* **≥12yo**: 15mg/kg/dose Q6H* *Consult pharmacy for pt-specific dosing	Consider q8-12h interval for ***Cardiac Dysfunction/CICU*** Consult pharmacy for dose adjustment and level assessment	***Initial Max*** 4g/day
Voriconazole IV ID-R $$$	***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 Avoid if severe hepatic dysfunction, decrease MD by 50% for mild-moderate hepatic dysfunction	***IV:*** No max ***PO Initial Max Maintenance Dose 2-<12 yo OR 12-14yo and < 50kg:*** 350mg/dose ***PO Initial Max Maintenance Dose >14 yo OR 12-14 yo and ≤ 50kg:*** 200mg/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		
	For IV and PO, therapeutic drug monitoring recommended with first 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.