C.S. MOTT CHILDREN'S HOSPITAL
MICHIGAN MEDICINE

ANTIMICROBIAL DOSING RECOMMENDATIONS FOR PEDIATRIC PATIENTS (≥2 MONTHS OF AGE AND POST-MENSTRUAL AGE >44 WEEKS')

These guidelines include the most common indications for antimicrobial use at Michigan Medicine. Dosing recommendations are based on estimated GFR using the modified Schwartz equation[1], which has not been validated in children <1 year of age. Contact your team's pharmacist (or the pharmacy at 764-8208) to discuss appropriate dosage adjustments in children <1 year of age with impaired renal function. Please use Lexicomp® for dosing in other indications. Refer to the Antimicrobial Stewardship Team website for additional treatment guidelines of infections in pediatric patients.

Antibiotics			
Amikacin IV	Cefoxitin IV	Ciprofloxacin IV	Metronidazole IV
Amoxicillin PO	Cefpodoxime PO	Clindamycin IV/PO	Nafcillin IV
Amoxicillin-clavulanate PO	Ceftaroline IV	Daptomycin IV	Nitrofurantoin PO
Ampicillin IV	Ceftazidime IV	Doxycycline IV/PO	Penicillin G IV
Ampicillin-sulbactam IV	Ceftazidime-avibactam IV	Ertapenem IV	Piperacillin-tazobactam IV
Azithromycin IV/PO	Ceftriaxone IV	Gentamicin IV	Rifampin IV/PO
Aztreonam IV	Cefuroxime Axetil PO	Imipenem IV	TMP-SMX IV/PO
Cefazolin IV	Cefuroxime IV	Levofloxacin IV/PO	Tobramycin IV
Cefepime IV	Cephalexin PO	Linezolid IV/PO	Vancomycin IV
Cefixime PO	Ciprofloxacin PO	Meropenem IV	
Antifungals			
Amphotericin B, liposomal IV	Itraconazole PO	Pentamidine IV	Voriconazole IV/PO
Fluconazole IV/PO	Micafungin IV	Posaconazole IV/PO	
Antivirals			
Acyclovir IV	Foscarnet IV	Oseltamivir PO	Valganciclovir PO
Cidofovir IV	Ganciclovir IV	Peramivir IV	Zanamivir INH
Notes			
Footnotes		References	

	CrCl[1] >50 mL/min	CrCl[1] 50-30 mL/min	CrCl[1] 29-10 mL/min	CrCl[1] <10 mL/min	Peritoneal Dialysis	Hemodialysis[2]	CRRT[3] Based on eGFR >50 mL/min
ACYCLOVIR IV							
Mucocutaneous HSV infection (immunocompromised)	10 mg/kg/dose q8h	10 mg/kg/dose q12h	10 mg/kg/dose q24h	5 mg/kg/dose q24h	5 mg/kg/dose q24h	5 mg/kg/dose q24h	5 mg/kg/dose q8h
Disseminated HSV, HSV encephalitis outside of neonatal period	10 mg/kg/dose q8h	10 mg/kg/dose q12h	10 mg/kg/dose q24h	5 mg/kg/dose q24h	5 mg/kg/dose q24h	5 mg/kg/dose q24h	10 mg/kg/dose q8h
Varicella infections (Chickenpox, Shingles)	10 mg/kg/dose q8h	10 mg/kg/dose q12h	10 mg/kg/dose q24h	5 mg/kg/dose q24h	5 mg/kg/dose q24h	5 mg/kg/dose q24h	10 mg/kg/dose q8h
AMIKACIN[4] IV							
	See Empiric Dosing and Monitoring Recommendations for Aminoglycosides in Pediatric Patients						
AMOXICILLIN PO							
Otitis media/PCN-resistant *S. pneumoniae*	45 mg/kg/dose q12h (max: 2 g/dose)	45 mg/kg/dose q12h	20 mg/kg/dose q12h	20 mg/kg/dose q24h	20 mg/kg/dose q24h (max: 1 g/dose)	20 mg/kg/dose q24h (max: 1 g/dose)	No information
Community-acquired pneumonia	45 mg/kg/dose q12h (max: 2 g/dose)	45 mg/kg/dose q12h	20 mg/kg/dose q12h	20 mg/kg/dose q24h	20 mg/kg/dose q24h (max: 1 g/dose)		
Other infections	25 mg/kg/dose q12h (max: 2 g/dose)	25 mg/kg/dose q12h	20 mg/kg/dose q12h	20 mg/kg/dose q24h	20 mg/kg/dose q24h (max: 1 g/dose)		
AMOXICILLIN-CLAVULANATE PO	Dosing based on amoxicillin component						
Otitis media/PCN-resistant *S. pneumoniae*	45 mg/kg/dose q12h (max: 2 g/dose)	45 mg/kg/dose q12h	20 mg/kg/dose q12h	20 mg/kg/dose q24h	20 mg/kg/dose q24h	20 mg/kg/dose q24h (max: 1 g/dose)	No information
Community-acquired pneumonia, under immunized patients or oral step-down therapy for complicated/severe pneumonia	30 mg/kg/dose q8h (max: 1 g/dose)	30 mg/kg/dose q8h	20 mg/kg/dose q12h	20 mg/kg/dose q24h	20 mg/kg/dose q24h		
Other infections	25 mg/kg/dose q12h (max: 2 g/dose)	25 mg/kg/dose q12h	20 mg/kg/dose q12h	20 mg/kg/dose q24h	20 mg/kg/dose q24h		
AMPHOTERICIN B, LIPOSOMAL IV							
Invasive fungal infections	5 mg/kg/dose q24h	5 mg/kg/dose q24h	5 mg/kg/dose q24h	5 mg/kg/dose q24h	5 mg/kg/dose q24h	5 mg/kg/dose q24h	5 mg/kg/dose q24h

	CrCl[1] >50 mL/min	CrCl[1] 50-30 mL/min	CrCl[1] 29-10 mL/min	CrCl[1] <10 mL/min	Peritoneal Dialysis	Hemodialysis[2]	CRRT[3] Based on eGFR >50 mL/min
AMPICILLIN IV							
Community-acquired pneumonia:							
H influenzae (beta-lactamase negative), Group A *Streptococcus*	50 mg/kg/dose q6h (max: 2 g/dose)	50 mg/kg/dose q6h	50 mg/kg/dose q8h	50 mg/kg/dose q12h	50 mg/kg/dose q12h	50 mg/kg/dose q12h	50 mg/kg/dose q6h
S pneumoniae (MIC ≤2 mcg/mL)	50 mg/kg/dose q6h (max: 2 g/dose)	50 mg/kg/dose q6h	50 mg/kg/dose q8h	50 mg/kg/dose q12h	50 mg/kg/dose q12h	50 mg/kg/dose q12h	50 mg/kg/dose q6h
S pneumoniae (MIC ≥4 mcg/mL)	100 mg/kg/dose q6h (max: 2 g/dose)	100 mg/kg/dose q6h	100 mg/kg/dose q8h	100 mg/kg/dose q12h	50 mg/kg/dose q12h	100 mg/kg/dose q12h	100 mg/kg/dose q6h
Urinary tract infections	50 mg/kg/dose q6h (max: 2 g/dose)	50 mg/kg/dose q8h	50 mg/kg/dose q8h	50 mg/kg/dose q12h	50 mg/kg/dose q12h	50 mg/kg/dose q12h	50 mg/kg/dose q6h
Endocarditis, meningitis	100 mg/kg/dose q6h (max: 3 g/dose)	100 mg/kg/dose q6h	100 mg/kg/dose q8h	100 mg/kg/dose q12h	50 mg/kg/dose q12h	100 mg/kg/dose q12h	100 mg/kg/dose q6h
AMPICILLIN-SULBACTAM IV	Dosing based on ampicillin component – For maximum doses, 2 g ampicillin/dose = 3 g ampicillin-sulbactam/dose						
Aspiration pneumonia, Community-acquired pneumonia with *H influenzae* (beta-lactamase positive)	50 mg/kg/dose q6h (max: 2 g ampicillin/dose)	50 mg/kg/dose q6h	50 mg/kg/dose q8-12h	50 mg/kg/dose q12h	50 mg/kg/dose q12h	50 mg/kg/dose q12h	50 mg/kg/dose q6h
Endocarditis, meningitis	100 mg/kg/dose q6h (max: 3 g ampicillin/dose)	100 mg/kg/dose q6h	100 mg/kg/dose q8h	100 mg/kg/dose q12h	50 mg/kg/dose q12h	100 mg/kg/dose q12h	100 mg/kg/dose q6h
AZITHROMYCIN IV/PO							
Most indications	10 mg/kg/dose load (max: 500 mg/dose), then 5 mg/kg/dose q24h (max: 250 mg/dose)	10 mg/kg/dose load, then 5 mg/kg/dose q24h	10 mg/kg/dose load, then 5 mg/kg/dose q24h	10 mg/kg/dose load, then 5 mg/kg/dose q24h	10 mg/kg/dose load, then 5 mg/kg/dose q24h	10 mg/kg/dose load, then 5 mg/kg/dose q24h	10 mg/kg/dose load, then 5 mg/kg/dose q24h
AZTREONAM IV							
CNS Infections	50 mg/kg/dose q6h (max: 2 g/dose)	50 mg/kg/dose q6h (max: 2 g/dose)	33 mg/kg/dose q8h (max: 2 g/dose)	20 mg/kg/dose q12h (max: 2 g/dose)	20 mg/kg/dose q12h (max: 2 g/dose)	20 mg/kg/dose q12h (max: 2 g/dose)	50 mg/kg/dose q6h (max: 2 g/dose)
Other indications including sepsis, cystic fibrosis, and febrile neutropenia	50 mg/kg/dose q8h (max: 2 g/dose)	50 mg/kg/dose q8h (max: 2 g/dose)	20 mg/kg/dose q8h (max: 2 g/dose)	10 mg/kg/dose q12h (max: 1 g/dose)	10 mg/kg/dose q12h (max: 1 g/dose)	10 mg/kg/dose q12h (max: 1 g/dose)	50 mg/kg/dose q8h (max: 2 g/dose)

	CrCl[1] >50 mL/min	CrCl[1] 50-30 mL/min	CrCl[1] 29-10 mL/min	CrCl[1] <10 mL/min	Peritoneal Dialysis	Hemodialysis[2]	CRRT[3] Based on eGFR >50 mL/min
CEFAZOLIN IV							
Cystitis	17 mg/kg/dose q8h (max: 1 g/dose)	17 mg/kg/dose q8h	17 mg/kg/dose q12h	17 mg/kg/dose q24h	25 mg/kg/dose q24h	25 mg/kg/dose q24h	17 mg/kg/dose q8h
Endocarditis, systemic infections, skin and soft tissue infections	33 mg/kg/dose q8h (max: 2 g/dose)	33 mg/kg/dose q8h	33 mg/kg/dose q12h	33 mg/kg/dose q24h	25 mg/kg/dose q24h	25 mg/kg/dose q24h	33 mg/kg/dose q8h
Osteomyelitis, MSSA pneumonia	50 mg/kg/dose q8h (max: 2 g/dose)	50 mg/kg/dose q8h	50 mg/kg/dose q12h	50 mg/kg/dose q24h	25 mg/kg/dose q24h	25 mg/kg/dose q24h	50 mg/kg/dose q8h
CEFEPIME IV	Extended infusion over 4 hours is preferred for most patients						
Routine pediatric dosing, including CNS infections	50 mg/kg/dose q8h (max: 2 g/dose)	50 mg/kg/dose q12h (max: 2 g/dose)	50 mg/kg/dose q24h (max: 2 g/dose)	50 mg/kg/dose Q24h (max: 1 g/dose)	50 mg/kg/dose q24h (max: 2 g/dose)	25 mg/kg/dose q24h (max: 1 g/dose) OR 50 mg/kg/dose post HD 3x/week (max: 2 g/dose)	50 mg/kg/dose q8h (max: 2 g/dose)
CEFIXIME PO							
Most indications	4 mg/kg/dose q12h (max: 200 mg/dose)	4 mg/kg/dose q12h	4 mg/kg/dose q24h	4 mg/kg/dose q24h	No information, not significantly removed	No information, not significantly removed	No information
CEFOXITIN IV							
Urinary tract infections	20 mg/kg/dose q6h (max: 1 g/dose)	20 mg/kg/dose q8h	20 mg/kg/dose q12h	20 mg/kg/dose q24h	20 mg/kg/dose q24h	20 mg/kg/dose q24h	20 mg/kg/dose q6h
Intra-abdominal infections, pelvic inflammatory disease	40 mg/kg/dose q6h (max: 2 g/dose)	40 mg/kg/dose q8h	40 mg/kg/dose q12h	40 mg/kg/dose q24h	40 mg/kg/dose q24h	40 mg/kg/dose q24h	40 mg/kg/dose q6h
CEFPODOXIME PO							
Most indications	5 mg/kg/dose q12h	5 mg/kg/dose q12h	5 mg/kg/dose q24h	5 mg/kg/dose q24h	No information	5 mg/kg/dose 3x/week	No information

	CrCl[1] >50 mL/min	CrCl[1] 50-30 mL/min	CrCl[1] 29-10 mL/min	CrCl[1] <10 mL/min	Peritoneal Dialysis	Hemodialysis[2]	CRRT[3] Based on eGFR >50 mL/min
CEFTAROLINE IV							
Skin/soft tissue, urinary tract infections	<6 months: 8 mg/kg/dose IV q8h ≥6 months & <33 kg: 12 mg/kg/dose IV q8h (max: 400 mg/dose) ≥33 kg: 400 mg IV q8h	<6 months: 6 mg/kg/dose IV q8h ≥6 months & <33 kg: 8 mg/kg/dose IV q8h (max: 300 mg/dose) ≥33 kg: 300 mg IV q8h	<6 months: 4 mg/kg/dose IV q8h ≥6 months & <33 kg: 6 mg/kg/dose IV q8h (max: 200 mg/dose) ≥33 kg: 200 mg IV q8h	<6 months: 2 mg/kg/dose IV q8h ≥6 months & <33 kg: 4 mg/kg/dose IV q8h (max: 120 mg/dose) ≥33 kg: 120 mg IV q8h	No information	<6 months: 2 mg/kg/dose IV q8h ≥6 months & <33 kg: 4 mg/kg/dose IV q8h (max: 120 mg/dose) ≥33 kg: 120 mg IV q8h	<6 months: 8 mg/kg/dose IV q8h ≥6 months & <33 kg: 12 mg/kg/dose IV q8h (max: 400 mg/dose) ≥33 kg: 400 mg IV q8h
Bacteremia, MRSA pneumonia, MRSA osteomyelitis	<6 months: 10 mg/kg/dose IV q8h ≥6 months & <40 kg: 15 mg/kg/dose IV q8h (max: 600 mg/dose) ≥40 kg: 600 mg IV q8h	<6 months: 8 mg/kg/dose IV q8h ≥6 months & <40 kg: 10 mg/kg/dose IV q8h (max: 400 mg/dose) ≥40 kg: 400 mg IV q8h	<6 months: 6 mg/kg/dose IV q8h ≥6 months & <40 kg: 5 mg/kg/dose IV q8h (max: 300 mg/dose) ≥40 kg: 300 mg IV q8h	<6 months: 3 mg/kg/dose IV q8h ≥6 months & <40 kg: 15 mg/kg/dose IV q8h (max: 200 mg/dose) ≥40 kg: 200 mg IV q8h	No information	<6 months: 3 mg/kg/dose IV q8h ≥6 months & <40 kg: 15 mg/kg/dose IV q8h (max: 200 mg/dose) ≥40 kg: 200 mg IV q8h	<6 months: 10 mg/kg/dose IV q8h ≥6 months & <40 kg: 15 mg/kg/dose IV q8h (max: 600 mg/dose) ≥40 kg: 600 mg IV q8h
CEFTAZIDIME IV							
Systemic infections, CNS infections, Cystic fibrosis	50 mg/kg/dose q8h (max: 2 g/dose)	50 mg/kg/dose q12h	50 mg/kg/dose q24h	50 mg/kg/dose q48h	50 mg/kg/dose q48h	50 mg/kg/dose q48h	50 mg/kg/dose q8h
CEFTAZIDIME-AVIBACTAM IV	Dosing based on ceftazidime component – For maximum doses, 2 g ceftazidime/dose = 2.5 g ceftazidime-avibactam/dose						
Systemic infections, CNS infections, Cystic fibrosis	50 mg/kg/dose q8h (max: 2 g ceftazidime/dose)	25 mg/kg/dose q8h	19 mg/kg/dose q12h	19 mg/kg/dose q24h	50 mg/kg/dose q48h	19 mg/kg/dose q24h	50 mg/kg/dose q8h
CEFTRIAXONE IV							
Urinary tract infections	50 mg/kg/dose q24h (max: 2 g/dose)	50 mg/kg/dose q24h	50 mg/kg/dose q24h	50 mg/kg/dose q24h	50 mg/kg/dose q24h	50 mg/kg/dose q24h	50 mg/kg/dose q24h
Intra-abdominal infections	75 mg/kg/dose q24h (max: 2 g/dose)	75 mg/kg/dose q24h	75 mg/kg/dose q24h	75 mg/kg/dose q24h	75 mg/kg/dose q24h	75 mg/kg/dose q24h	75 mg/kg/dose q24h
Endocarditis	100 mg/kg/dose q24h (max: 2 g/dose)	100 mg/kg/dose q24h	100 mg/kg/dose q24h	100 mg/kg/dose q24h	100 mg/kg/dose q24h	100 mg/kg/dose q24h	100 mg/kg/dose q24h
Meningitis, community-acquired pneumonia (complicated, underimmunized, or failed high dose amoxicillin), sepsis	50 mg/kg/dose q12h (max: 2 g/dose)	50 mg/kg/dose q12h	50 mg/kg/dose q12h	50 mg/kg/dose q12h	50 mg/kg/dose q12h	50 mg/kg/dose q12h	50 mg/kg/dose q12h

	CrCl[1] >50 mL/min	CrCl[1] 50-30 mL/min	CrCl[1] 29-10 mL/min	CrCl[1] <10 mL/min	Peritoneal Dialysis	Hemodialysis[2]	CRRT[3] Based on eGFR >50 mL/min
CEFUROXIME AXETIL PO							
Most indications	15 mg/kg/dose q12h (max: 500 mg/dose)	15 mg/kg/dose q12h	15 mg/kg/dose q12h	15 mg/kg/dose q24h	15 mg/kg/dose q24h	15 mg/kg/dose q24h	15 mg/kg/dose q12h
CEFUROXIME IV							
Most indications	50 mg/kg/dose q8h (max: 2 g/dose)	50 mg/kg/dose q8h	50 mg/kg/dose q12h	50 mg/kg/dose q24h	50 mg/kg/dose q24h	50 mg/kg/dose q24h	50 mg/kg/dose q8h
CEPHALEXIN PO							
Urinary tract infections, skin and soft tissue infections	25 mg/kg/dose q8h (max: 1 g/dose)	10 mg/kg/dose q8h	10 mg/kg/dose q12h	10 mg/kg/dose q24h	10 mg/kg/dose q24h	10 mg/kg/dose q24h	25 mg/kg/dose q8h
MSSA community-acquired pneumonia	25 mg/kg/dose q6h (max: 1 g/dose)	25 mg/kg/dose q8h	25 mg/kg/dose q12h	25 mg/kg/dose q24h	20 mg/kg/dose q24h	25 mg/kg/dose q24h	25 mg/kg/dose q6h
Osteomyelitis	37.5 mg/kg/dose q6h (max: 1 g/dose)	37.5 mg/kg/dose q8h	37.5 mg/kg/dose q12h	37.5 mg/kg/dose q24h	20 mg/kg/dose q24h	37.5 mg/kg/dose q24h	37.5 mg/kg/dose q6h
CIDOFOVIR IV							
BK virus nephropathy (WITHOUT probenecid)	0.25 mg/kg/dose x1, then discuss repeat dosing with transplant ID team						
Adenovirus viremia (WITH probenecid & hydration)	5 mg/kg/dose x1, then discuss repeat dosing with transplant ID team						
CIPROFLOXACIN PO							
Urinary tract infections	10 mg/kg/dose q12h (max: 500 mg/dose)	10 mg/kg/dose q12h	10 mg/kg/dose q24h	10 mg/kg/dose q24h	No information	10 mg/kg/dose q24h	10 mg/kg/dose q12h
Systemic infections, intra-abdominal infections, invasive *Pseudomonas* infections	15 mg/kg/dose q12h (max: 750 mg/dose)	15 mg/kg/dose q12h	15 mg/kg/dose q24h	15 mg/kg/dose q24h	No information	15 mg/kg/dose q24h	15 mg/kg/dose q12h
Cystic fibrosis	20 mg/kg/dose q12h (max: 1 g/dose)	20 mg/kg/dose q12h	20 mg/kg/dose q24h	20 mg/kg/dose q24h	No information	15 mg/kg/dose q24h	20 mg/kg/dose q12h

	CrCl[1] >50 mL/min	CrCl[1] 50-30 mL/min	CrCl[1] 29-10 mL/min	CrCl[1] <10 mL/min	Peritoneal Dialysis	Hemodialysis[2]	CRRT[3] Based on eGFR >50 mL/min
CIPROFLOXACIN IV							
Urinary tract infections, intra-abdominal infections without risk of MDRO, systemic infections	10 mg/kg/dose q12h (max: 400 mg/dose)	10 mg/kg/dose q12h	10 mg/kg/dose q18h	10 mg/kg/dose q24h	10 mg/kg/dose q24h	10 mg/kg/dose q24h	10 mg/kg/dose q12h
Cystic fibrosis, invasive *Pseudomonas* infections, empiric therapy for risk of MDRO infections, endocarditis	10 mg/kg/dose q8h (max: 400 mg/dose)	10 mg/kg/dose q8h	15 mg/kg/dose q18h	15 mg/kg/dose q24h	15 mg/kg/dose q24h	15 mg/kg/dose q24h	10 mg/kg/dose q8h
CLINDAMYCIN PO/IV							
Systemic infections, skin and soft tissue infections	10 mg/kg/dose q8h (max: PO 450 mg/dose; max: IV 900 mg/dose)	10 mg/kg/dose q8h	10 mg/kg/dose q8h	10 mg/kg/dose q8h	10 mg/kg/dose q8h	10 mg/kg/dose q8h	10 mg/kg/dose q8h
Bone and joint infections	13 mg/kg/dose q8h (max: PO 600 mg/dose; max: IV 900 mg/dose)	13 mg/kg/dose q8h	13 mg/kg/dose q8h	13 mg/kg/dose q8h	13 mg/kg/dose q8h	13 mg/kg/dose q8h	13 mg/kg/dose q8h
Group A *Streptococcus* pharyngitis	7 mg/kg/dose q8h (max: 300 mg/dose)	7 mg/kg/dose q8h	7 mg/kg/dose q8h	7 mg/kg/dose q8h	7 mg/kg/dose q8h	7 mg/kg/dose q8h	7 mg/kg/dose q8h
DAPTOMYCIN IV							
Skin/soft tissue infections	1-<2 years: 10 mg/kg/dose q24h 2-6 years: 9 mg/kg/dose q24h 7-11 years: 7 mg/kg/dose q24h 12-17 years: 5 mg/kg/dose q24h	1-<2 years: 10 mg/kg/dose q24h 2-6 years: 9 mg/kg/dose q24h 7-11 years: 7 mg/kg/dose q24h 12-17 years: 5 mg/kg/dose q24h	1-<2 years: 10 mg/kg/dose q48h 2-6 years: 9 mg/kg/dose q48h 7-11 years: 7 mg/kg/dose q48h 12-17 years: 5 mg/kg/dose q48h	1-<2 years: 10 mg/kg/dose q48h 2-6 years: 9 mg/kg/dose q48h 7-11 years: 7 mg/kg/dose q48h 12-17 years: 5 mg/kg/dose q48h	1-<2 years: 10 mg/kg/dose q48h 2-6 years: 9 mg/kg/dose q48h 7-11 years: 7 mg/kg/dose q48h 12-17 years: 5 mg/kg/dose q48h	1-<2 years: 10 mg/kg/dose q48h 2-6 years: 9 mg/kg/dose q48h 7-11 years: 7 mg/kg/dose q48h 12-17 years: 5 mg/kg/dose q48h	1-<2 years: 10 mg/kg/dose q24h 2-6 years: 9 mg/kg/dose q24h 7-11 years: 7 mg/kg/dose q24h 12-17 years: 5 mg/kg/dose q24h
MRSA/VRE bacteremia, endocarditis, osteomyelitis	10-12 mg/kg/dose q24h	10-12 mg/kg/dose q24h	10-12 mg/kg/dose q48h	10-12 mg/kg/dose q48h	10-12 mg/kg/dose q48h	10-12 mg/kg/dose q48h	10-12 mg/kg/dose q24h

	CrCl[1] >50 mL/min	CrCl[1] 50-30 mL/min	CrCl[1] 29-10 mL/min	CrCl[1] <10 mL/min	Peritoneal Dialysis	Hemodialysis[2]	CRRT[3] Based on eGFR >50 mL/min
DOXYCYCLINE IV/PO							
Most indications	2 mg/kg/dose q12h (max: 100 mg/dose)	2 mg/kg/dose q12h	2 mg/kg/dose q12h	2 mg/kg/dose q12h	2 mg/kg/dose q12h	2 mg/kg/dose q12h	2 mg/kg/dose q12h
ERTAPENEM IV							
Most indications	15 mg/kg/dose q12h (Infants/children max: 500 mg/dose; Adolescents max: 1 g/dose)	15 mg/kg/dose q12h	15 mg/kg/dose q24h	15 mg/kg/dose q24h	15 mg/kg/dose q24h	15 mg/kg/dose q24h	15 mg/kg/dose q12h
FLUCONAZOLE IV/PO							
Urinary tract infections	3 mg/kg/dose q24h (max: 200 mg/dose)	1.5 mg/kg/dose q24h	1.5 mg/kg/dose q24h	1.5 mg/kg/dose q48h	1.5 mg/kg/dose q48h	1.5 mg/kg/dose q48h	3 mg/kg/dose q24h
Oropharyngeal, esophageal candidiasis	6 mg/kg/dose q24h (max: 400 mg/dose)	3 mg/kg/dose q24h	3 mg/kg/dose q24h	3 mg/kg/dose q48h	3 mg/kg/dose q48h	3 mg/kg/dose q48h	6 mg/kg/dose q24h
Systemic infections, CNS infections	12 mg/kg/dose q24h (max: 800 mg/dose)	6 mg/kg/dose q24h	6 mg/kg/dose q24h	6 mg/kg/dose q48h	6 mg/kg/dose q48h	6 mg/kg/dose q48h	12 mg/kg/dose q24h
FOSCARNET IV	mL/kg/min = [(0.413 x Ht in cm) ÷ SCr] ÷ Wt in kg						
	>1.4 mL/kg/min	**1.4-1 mL/kg/min**	**1-0.8 mL/kg/min**	**0.79-0.6 mL/kg/min**	**0.59-0.5 mL/kg/min**	**0.49-0.4 mL/kg/min**	**<0.4 mL/kg/min**
Induction, CMV	60 mg/kg/dose q12h	45 mg/kg/dose q12h	30 mg/kg/dose q12h	50 mg/kg/dose q24h	35 mg/kg/dose q24h	30 mg/kg/dose q24h	Not recommended
Maintenance, CMV	90 mg/kg/dose q24h	70 mg/kg/dose q24h	50 mg/kg/dose q24h	80 mg/kg/dose q48h	60 mg/kg/dose q48h	50 mg/kg/dose q48h	Not recommended
GANCICLOVIR IV							
Congenital CMV	6 mg/kg/dose q12h	3 mg/kg/dose q24h	1.5 mg/kg/dose q24h	1.5 mg/kg/dose 3 times per week	1.5 mg/kg/dose 3 times per week	1.5 mg/kg/dose 3 times per week	6 mg/kg/dose q12h
Induction, CMV	5 mg/kg/dose q12h	2.5 mg/kg/dose q24h	25 mg/kg/dose q24h	1.25 mg/kg/dose 3 times per week	1.25 mg/kg/dose 3 times per week	1.25 mg/kg/dose 3 times per week	5 mg/kg/dose q12h
Maintenance, CMV	5 mg/kg/dose q24h	1.25 mg/kg/dose q24h	0.625 mg/kg/dose q24h	0.625 mg/kg/dose 3 times per week	0.625 mg/kg/dose 3 times per week	0.625 mg/kg/dose 3 times per week	5 mg/kg/dose q24h
GENTAMICIN[4] IV							
	See Empiric Dosing and Monitoring Recommendations for Aminoglycosides in Pediatric Patients						
IMIPENEM IV							
Systemic infections other than those listed below	15 mg/kg/dose q6h (max: 500 mg/dose)	7.5 mg/kg/dose q8h (max 500 mg/dose)	7.5 mg/kg/dose q12h (max: 500 mg/dose)	7.5 mg/kg/dose q24h (max: 250 mg/dose)	7.5 mg/kg/dose q24h (max: 250 mg/dose)	7.5 mg/kg/dose q24h (max: 250 mg/dose)	7.5 mg/kg/dose q8h (max: 500 mg/dose)
Cystic fibrosis, CNS infections	25 mg/kg/dose q6h (max: 1 g/dose)	12.5 mg/kg/dose q8h (max: 1 g/dose)	12.5 mg/kg/dose q12h (max: 1 g/dose)	12.5 mg/kg/dose q24h (max: 500 mg/dose)	12.5 mg/kg/dose q24h (max: 500 mg/dose)	12.5 mg/kg/dose q24h (max: 500 mg/dose)	12.5 mg/kg/dose q8h (max: 500 mg/dose)
ITRACONAZOLE PO							
Histoplasmosis, Blastomycosis	5 mg/kg/dose q12h (max: 400 mg/dose)	5 mg/kg/dose q12h	5 mg/kg/dose q12h	5 mg/kg/dose q12h	5 mg/kg/dose q12h	5 mg/kg/dose q12h	5 mg/kg/dose q12h

	CrCl[1] >50 mL/min	CrCl[1] 50-30 mL/min	CrCl[1] 29-10 mL/min	CrCl[1] <10 mL/min	Peritoneal Dialysis	Hemodialysis[2]	CRRT[3] Based on eGFR >50 mL/min
LEVOFLOXACIN IV/PO							
Urinary tract infections	<5 years: 8 mg/kg/dose q12h (max: 375 mg/dose) ≥5 years: 8 mg/kg/dose q24h (max: 750 mg/dose)	<5 years: 8 mg/kg/dose q12h (max: 375 mg/dose) ≥5 years: 8 mg/kg/dose q24h (max: 750 mg/dose)	8 mg/kg/dose q24h	8 mg/kg/dose q48h	8 mg/kg/dose q48h	8 mg/kg/dose q48h	<5 years: 8 mg/kg/dose q12h (max: 375 mg/dose) ≥5 years: 8 mg/kg/dose q24h (max: 750 mg/dose)
Systemic infections	<5 years: 10 mg/kg/dose q12h (max: 375 mg/dose) ≥5 years: 10 mg/kg/dose q24h (max: 750 mg/dose)	<5 years: 10 mg/kg/dose q12h (max: 375 mg/dose) ≥5 years: 10 mg/kg/dose q24h (max: 750 mg/dose)	10 mg/kg/dose q24h	10 mg/kg/dose q48h	10 mg/kg/dose q48h	10 mg/kg/dose q48h	<5 years: 10 mg/kg/dose q12h (max: 375 mg/dose) ≥5 years: 10 mg/kg/dose q24h (max: 750 mg/dose)
LINEZOLID IV/PO							
<12 years:	10 mg/kg/dose q8h (max: 600 mg/dose)	10 mg/kg/dose q8h	10 mg/kg/dose q8h	10 mg/kg/dose q8h	10 mg/kg/dose q12h	10 mg/kg/dose q12h	10 mg/kg/dose q8h
≥12 years:	10 mg/kg/dose q12h (max: 600 mg/dose)	10 mg/kg/dose q12h	10 mg/kg/dose q12h	10 mg/kg/dose q12h	10 mg/kg/dose q12h	10 mg/kg/dose q12h	10 mg/kg/dose q12h
MEROPENEM IV	Extended infusion over 3 hours is preferred for most patients						
Systemic infections other than those listed below	20 mg/kg/dose q8h (max: 1 g/dose)	20 mg/kg/dose q12h (max: 1 g/dose)	10 mg/kg/dose q12h (max: 500 mg/dose)	10 mg/kg/dose q24h (max: 500 mg/dose)	10 mg/kg/dose q24h (max: 500 mg/dose)	10 mg/kg/dose q24h (max: 500 mg/dose)	20 mg/kg/dose q8h (max: 1 g/dose)
Suspected or proven *Acinetobacter* or *Pseudomonas* infection, cystic fibrosis, febrile neutropenia, CNS infection, septic shock, burn infection	40 mg/kg/dose q8h (max: 2 g/dose)	40 mg/kg/dose q12h (max: 2 g/dose)	20 mg/kg/dose q12h (max: 1 g/dose)	20 mg/kg/dose q24h (max: 1 g/dose)	20 mg/kg/dose q24h (max: 1 g/dose)	20 mg/kg/dose q24h (max: 1 g/dose)	40 mg/kg/dose q8h (max: 2 g/dose)
METRONIDAZOLE PO							
Mild-moderate *C difficile* infection	7.5 mg/kg/dose q6h (max: 500 mg/dose)	7.5 mg/kg/dose q6h	7.5 mg/kg/dose q6h	4 mg/kg/dose q6h	4 mg/kg/dose q6h	4 mg/kg/dose q6h	7.5 mg/kg/dose q6h
Systemic infections, CNS infections	10 mg/kg/dose q8h (max: 500 mg/dose)	10 mg/kg/dose q8h	10 mg/kg/dose q8h	4 mg/kg/dose q6h	4 mg/kg/dose q6h	4 mg/kg/dose q6h	10 mg/kg/dose q8h

	CrCl[1] >50 mL/min	CrCl[1] 50-30 mL/min	CrCl[1] 29-10 mL/min	CrCl[1] <10 mL/min	Peritoneal Dialysis	Hemodialysis[2]	CRRT[3] Based on eGFR >50 mL/min
METRONIDAZOLE IV							
Intra-abdominal infections	10 mg/kg/dose q8h (max: 500 mg/dose) OR 30 mg/kg/dose q24h (max: 1.5 g/dose)	10 mg/kg/dose q8h OR 30 mg/kg/dose q24h	10 mg/kg/dose q8h OR 30 mg/kg/dose q24h	4 mg/kg/dose q6h	4 mg/kg/dose q6h	4 mg/kg/dose q6h	10 mg/kg/dose q8h OR 30 mg/kg/dose q24h
Fulminant *C difficile* infection	7.5 mg/kg/dose q6h (max: 500 mg/dose)	7.5 mg/kg/dose q6h	7.5 mg/kg/dose q6h	4 mg/kg/dose q6h	4 mg/kg/dose q6h	4 mg/kg/dose q6h	7.5 mg/kg/dose q6h
Systemic infections, CNS infections	10 mg/kg/dose q8h (max: 500 mg/dose)	10 mg/kg/dose q8h	10 mg/kg/dose q8h	4 mg/kg/dose q6h	4 mg/kg/dose q6h	4 mg/kg/dose q6h	10 mg/kg/dose q8h
MICAFUNGIN IV							
Prophylaxis	3 mg/kg/dose q24h (max: 50 mg/dose)	3 mg/kg/dose q24h	3 mg/kg/dose q24h	3 mg/kg/dose q24h	3 mg/kg/dose q24h	3 mg/kg/dose q24h	3 mg/kg/dose q24h
Treatment	5 mg/kg/dose q24h (max: 150 mg/dose)	5 mg/kg/dose q24h	5 mg/kg/dose q24h	5 mg/kg/dose q24h	5 mg/kg/dose q24h	5 mg/kg/dose q24h	5 mg/kg/dose q24h
NAFCILLIN IV							
Systemic infections, CNS infections	37.5 mg/kg/dose q6h (max: 2 g/dose)	37.5 mg/kg/dose q6h	37.5 mg/kg/dose q6h adjustment may be required for concomitant hepatic failure	37.5 mg/kg/dose q6h adjustment may be required for concomitant hepatic failure	37.5 mg/kg/dose q6h adjustment may be required for concomitant hepatic failure	37.5 mg/kg/dose q6h adjustment may be required for concomitant hepatic failure	37.5 mg/kg/dose q6h adjustment may be required for concomitant hepatic failure
Endocarditis	33 mg/kg/dose q4h (max: 2 g/dose)	33 mg/kg/dose q4h	33 mg/kg/dose q4h adjustment may be required for concomitant hepatic failure	33 mg/kg/dose q4h adjustment may be required for concomitant hepatic failure	33 mg/kg/dose q4h adjustment may be required for concomitant hepatic failure	33 mg/kg/dose q4h adjustment may be required for concomitant hepatic failure	33 mg/kg/dose q4h adjustment may be required for concomitant hepatic failure

		CrCl[1] >50 mL/min	CrCl[1] 50-30 mL/min	CrCl[1] 29-10 mL/min	CrCl[1] <10 mL/min	Peritoneal Dialysis	Hemodialysis[2]	CRRT[3] Based on eGFR >50 mL/min
NITROFURANTOIN PO (monohydrate/macro-crystals capsules, Macrobid®)								
Cystitis		100 mg q12h	100 mg q12h	Not recommended				
NITROFURANTOIN PO (suspension, Macrodantin®)								
Cystitis								
7-11.9 kg		12.5 mg q6h	12.5 mg q6h	Not recommended				
12-21.9 kg		25 mg q6h	25 mg q6h					
22-30.9 kg		37.5 mg q6h	37.5 mg q6h					
31-41.9 kg		50 mg q6h	50 mg q6h					
≥42 kg		75 mg q6h	75 mg q6h					
OSELTAMIVIR PO								
Treatment (duration = 5 days)								
<12 months		3 mg/kg/dose q12h	3 mg/kg/dose q12h	3 mg/kg/dose q24h	3 mg/kg/dose q48h	No information	7.5 mg q48h	3 mg/kg/dose q12h
≥12 months	≤15 kg	30 mg q12h	30 mg q12h	30 mg q24h	30 mg q48h		7.5 mg q48h	30 mg q12h
	15.1-23 kg	45 mg q12h	45 mg q12h	45 mg q24h	45 mg q48h		10 mg q48h	45 mg q12h
	23.1-40 kg	60 mg q12h	60 mg q12h	60 mg q24h	60 mg q48h		15 mg q48h	60 mg q12h
	≥40 kg	75 mg q12h	75 mg q12h	75 mg q24h	75 mg q48h		30 mg q48h	75 mg q12h
Prophylaxis (duration = 7 days)								
<3 months		Not recommended unless critical situation						
<3-11 months		3 mg/kg/dose q24h	3 mg/kg/dose q24h	3 mg/kg/dose q48h	3 mg/kg/dose twice weekly	No information	7.5 mg q48h	3 mg/kg/dose q24h
≥12 months	≤15 kg	30 mg q24h	30 mg q24h	30 mg q48h	30 mg twice weekly		7.5 mg q48h	30 mg q24h
	15.1-23 kg	45 mg q24h	45 mg q24h	45 mg q48h	45 mg twice weekly		10 mg q48h	45 mg q24h
	23.1-40 kg	60 mg q24h	60 mg q24h	60 mg every q48h	60 mg twice weekly		15 mg q48h	60 mg q24h
	≥40 kg	75 mg q24h	75 mg q24h	75 mg every q48h	75 mg twice weekly		30 mg q48h	75 mg q24h

	CrCl[1] >50 mL/min	CrCl[1] 50-30 mL/min	CrCl[1] 29-10 mL/min	CrCl[1] <10 mL/min	Peritoneal Dialysis	Hemodialysis[2]	CRRT[3] Based on eGFR >50 mL/min
PENICILLIN G IV							
Endocarditis	50,000 units/kg/dose q4h (max: 4 million units/dose)	50,000 units/kg/dose q4h	50,000 units/kg/dose q8h	25,000 units/kg/dose q8h	25,000 units/kg/dose q8h	25,000 units/kg/dose q8h	50,000 units/kg/dose q4h
Pneumococcal or meningococcal meningitis	75,000 units/kg/dose q6h (max: 6 million units/dose)	75,000 units/kg/dose q6h	75,000 units/kg/dose q8h	37,500 units/kg/dose q8h	37,500 units/kg/dose q8h	37,500 units/kg/dose q8h	75,000 units/kg/dose q6h
Group B *Streptococcus* meningitis	125,000 units/kg/dose q6h (max: 6 million units/dose)	125,000 units/kg/dose q6h	125,000 units/kg/dose q8h	62,500 units/kg/dose q8h	62,500 units/kg/dose q8h	62,500 units/kg/dose q8h	125,000 units/kg/dose q6h
Systemic infections	37,500 units/kg/dose q6h (max: 2 million units/dose)	37,500 units/kg/dose q6h	37,500 units/kg/dose q8h	18,750 units/kg/dose q8h	18,750 units/kg/dose q8h	18,750 units/kg/dose q8h	37,500 units/kg/dose q6h
PENTAMIDINE IV							
Treatment, *Pneumocystis* pneumonia	4 mg/kg/dose q24h	4 mg/kg/dose q24h	4 mg/kg/dose q36h	4 mg/kg/dose q48h	4 mg/kg/dose q48h	4 mg/kg/dose q48h	4 mg/kg/dose q24h
PERAMIVIR IV							
Influenza	12 mg/kg/dose q24h (max: 600 mg/dose)	4 mg/kg/dose q24h (max: 200 mg/dose)	2 mg/kg/dose q24h (max: 100 mg/dose)	2 mg/kg/dose q24h (max: 100 mg/dose)	No information	2 mg/kg/dose (max: 100 mg/dose)	12 mg/kg/dose q24h (max: 600 mg/dose)
PIPERACILLIN-TAZOBACTAM IV	Dosing based on piperacillin component – For maximum doses, 4 g piperacillin/dose = 4.5 g piperacillin-tazobactam/dose Extended infusion over 3 hours is preferred for most patients						
Systemic infections, empiric therapy for febrile neutropenia	75 mg/kg/dose q6h (max: 4 g piperacillin/dose)	75 mg/kg/dose q6h	75 mg/kg/dose q8h	75 mg/kg/dose q12h	75 mg/kg/dose q12h	75 mg/kg/dose q12h	75 mg/kg/dose q6h
Cystic fibrosis	100 mg/kg/dose q6h (max: 4 g piperacillin/dose)	75 mg/kg/dose q6h	75 mg/kg/dose q8h	75 mg/kg/dose q8h	75 mg/kg/dose q12h	75 mg/kg/dose q12h	100 mg/kg/dose q6h
POSACONAZOLE IV/PO							
	Refer to Bone Marrow Transplant Infection Prophylaxis or Aspergillosis/Mucormycosis Guidelines						
RIFAMPIN IV/PO							
Endocarditis	7 mg/kg/dose q8h (max: 300 mg/dose)	7 mg/kg/dose q8h	7 mg/kg/dose q8h	7 mg/kg/dose q8h	7 mg/kg/dose q8h	7 mg/kg/dose q8h	7 mg/kg/dose q8h

	CrCl[1] >50 mL/min	CrCl[1] 50-30 mL/min	CrCl[1] 29-10 mL/min	CrCl[1] <10 mL/min	Peritoneal Dialysis	Hemodialysis[2]	CRRT[3] Based on eGFR >50 mL/min
TMP-SMX (BACTRIM®) IV/PO	Dosing based on trimethoprim component						
Most infections	6 mg/kg/dose IV/PO q12h (max: 320 mg/dose)	6 mg/kg/dose IV/PO q12h	3 mg/kg/dose IV/PO q12h	3 mg/kg/dose IV/PO q24h	5 mg/kg/dose IV/PO q24h (max: 80 mg/dose)	3 mg/kg/dose IV/PO q24h	5-6 mg/kg/dose IV/PO q12h
Pneumocystis pneumonia	5 mg/kg/dose IV q6h OR 10 mg/kg/dose PO q12h (max: 320 mg/dose)	5 mg/kg/dose IV q6h OR 10 mg/kg/dose PO q12h	5 mg/kg/dose IV/PO q12h	5 mg/kg/dose IV/PO q24h	5 mg/kg/dose IV/PO q24h (max: 80 mg/dose)	5 mg/kg/dose IV/PO q24h	5 mg/kg/dose IV q6h OR 10 mg/kg/dose PO q12h
TOBRAMYCIN[4] IV							
	See Empiric Dosing and Monitoring Recommendations for Aminoglycosides in Pediatric Patients						
VALGANCICLOVIR PO							
Congenital CMV	16 mg/kg/dose q12h	8 mg/kg/dose q24h	8 mg/kg/dose q48h	Give IV ganciclovir 2.5 mg/kg/dose 3 times per week	No information	Give IV ganciclovir 2.5 mg/kg/dose 3 times per week	Give IV ganciclovir 2.5 mg/kg/dose q24h
Prophylaxis/Treatment of CMV	Refer to appropriate transplant guidelines						
VANCOMYCIN[4] IV							
	See Empiric Dosing and Monitoring Recommendations for Vancomycin						
VORICONAZOLE IV/PO							
<16 years[5]	9 mg/kg/dose q12h	9 mg/kg/dose q12h	9 mg/kg/dose q12h	9 mg/kg/dose q12h	9 mg/kg/dose q12h	9 mg/kg/dose q12h	9 mg/kg/dose q12h
≥16 years[5]	6 mg/kg/dose q12h x2 doses, then 4 mg/kg/dose q12h	6 mg/kg/dose q12h x2 doses, then 4 mg/kg/dose q12h	6 mg/kg/dose q12h x2 doses, then 4 mg/kg/dose q12h	6 mg/kg/dose q12h x2 doses, then 4 mg/kg/dose q12h	6 mg/kg/dose q12h x2 doses, then 4 mg/kg/dose q12h	6 mg/kg/dose q12h x2 doses, then 4 mg/kg/dose q12h	6 mg/kg/dose q12h x2 doses, then 4 mg/kg/dose q12h
ZANAMIVIR INHALED							
Treatment (duration = 5 days)							
≥7 years	10 mg (2 inhalations) twice daily	10 mg (2 inhalations) twice daily	10 mg (2 inhalations) twice daily	10 mg (2 inhalations) twice daily	10 mg (2 inhalations) daily	10 mg (2 inhalations) daily	10 mg (2 inhalations) twice daily
<7 years	Not recommended						
Prophylaxis (duration = 7 days)							
≥5 years	10 mg (2 inhalations) daily	10 mg (2 inhalations) daily	10 mg (2 inhalations) daily	10 mg (2 inhalations) daily	10 mg (2 inhalations) daily	10 mg (2 inhalations) daily	10 mg (2 inhalations) daily
<5 years	Not recommended						

Footnotes:

1. Modified Schwartz equation: $CrCl\ (ml/min)\ = \frac{0.413 * ht\ (cm)}{SCr\ (mg/dL)}$
2. Patients receiving Hemodialysis should have antimicrobials administered after dialysis on dialysis days.
3. CRRT = Continuous renal replacement therapy; For patients on CRRT: $eGFR\ (mL/min) = D_{rate}(mL/h) * \frac{1\ h}{60\ min} * \frac{1.73\ m^2}{BSA\ in\ m^2}$; dose antibiotic based on corresponding calculated CrCl
4. All patients on vancomycin or an aminoglycoside are evaluated by a pharmacist daily. For kinetics consultation with a pediatric pharmacist regarding special patient populations (e.g., those on ECMO or CRRT, or those with renal insufficiency), please contact the pharmacy at (76)4-8208.
5. Recommend oral formulation; IV vehicle (SCECD) can accumulate when CrCl <50 mL/min. Only use IV formulation if benefit/risk to patient justifies use.

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Revision History:

12/20: Updated ceftazidime-avibactam dosing
03/21: Updated aminoglycoside and vancomycin hyperlinks
02/23: Updated aztreonam, cefepime, imipenem, meropenem, and piperacillin-tazobactam dosing