

VUMC Adult Antimicrobial Dosing Guidance

This guidance document is meant to provide general dosing recommendations. There are situations where a different dose may be used. Please consult pharmacy for assistance if needed. This document is meant to serve as a reference and does not substitute for clinical decision making. Consider loading dose in critically ill or difficult to treat infections. *Indicates medication is included in pharmacist renal dose adjustment protocol

Antibiotics

Indication	>50 ml/min	30-49 ml/min	10-29 ml/min	<10 ml/min; HD (give after HD)	CRRT ¹
Amikacin (IV)					
PK Consult					
*Amoxicillin (PO)					
Mild (ex. UTI, SSTI)	500 mg q8h		500 mg Q12h	500 mg Q24h	500 mg Q8h
Moderate to Severe (ex. pneumonia, bacteremia, osteo)	1 g Q8h		1 g Q12h	500 mg Q12h	1 g Q8h
Infective Endocarditis	1 g Q6h		1 g Q8h	1 g Q12h	1 g Q6h
*Amoxicillin/Clavulanate (PO)					
Mild (ex. Pneumonia, UTI, SSTI)	875/125 mg Q12h		500mg/125 mg Q12h	500mg/125 mg Q24h	875/125 mg Q12h
Moderate to Severe (ex. bacteremia, osteo)	875/125 mg Q8h		875/125 mg Q12h	875/125 mg Q24h	875/125 mg Q8h
*Ampicillin (IV)					
Mild to Moderate (ex. UTI, SSTI)	2 g Q6h	2 g Q8h	2 g Q12h	2 g Q12h	2 g Q8h
Severe (ex. bacteremia, meningitis, endocarditis, osteo)	2 g Q4h	2 g Q6h	2 g Q8h	2 g Q8-12h	2 g Q6h
*Ampicillin/Sulbactam (IV)					
Non-Acinetobacter	3 g Q6h		3 g Q12h	3 g Q24h	3 g Q8h
Acinetobacter Mild Infection	3 g Q4h	3 g Q6h	3 g Q8h	3 g Q12h	3 g Q6h
Acinetobacter Moderate to Severe Infection	9 g Q8h over 4 hours		9 g Q12h over 4 hours	9 g Q24h over 4 hours	9 g Q12h over 4 hours

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Azithromycin (PO/IV)					
Pneumonia	500 mg x 1, followed by 250 mg Q24h OR 500 mg Q24h				
Indication	>50 ml/min	30-49 ml/min	10-29 ml/min	<10 ml/min; HD (give after HD)	CRRT ¹
*Aztreonam (IV)					
Mild to Moderate	1-2 g Q8h		1-2 g Q12h	1-2 g Q24h	2 g Q12h
Severe (ex. neutropenia, meningitis)	2 g Q6-8h		2 g Q12h	2 g Q24h	2 g Q6-8h
*Aztreonam-Avibactam (IV)					
	>50 ml/min	30-50 ml/min	15-30 ml/min	<15 ml/min; HD (give after HD)	CRRT
	2.67g x1 followed by 2g Q6h	2.67g x1 followed by 1g Q6h	1.8g x1 followed by 900 mg Q8h	1.33g x1 followed by 900 mg Q12h	2.67g x1 followed by 1g Q6h
*Cefazolin (IV)					
Indication	>50 ml/min	30-49 ml/min	10-29 ml/min	<10 ml/min; HD (give after HD)	CRRT ¹
Mild (cystitis)	1 g Q8h		1 g Q12h	500 mg Q24h	1 g Q8h
Moderate to Severe (ex. systemic infection, SSTI)	2 g Q8h Consider 2g Q6h for augmented renal clearance		2 g Q12h	1 g Q24h Outpatient: 2g 3x/week post-HD; consider 3g for 72h interdialytic period	2 g Q8h
CNS Infections	3 g q8h		2 g Q8h	2g Q24h	3 g Q8h
*Cefadroxil (PO)					
	1g Q12h		500mg Q12h	500mg Q24h IHD: 1g 3x/week post-HD	1g Q12h
Cefdinir (PO)					
	300 mg Q12h		300 mg Q24h	300 mg 3x/week post-HD	300 mg Q12h

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Indication	>50 ml/min	30-49ml/min	10-29ml/min	<10ml/min; HD (give after HD)	CRRT ¹	
*Cefepime (IV)						
Load	2 g x1 dose over 30 minutes					
	2 g Q8h over 4 hours	1 g Q8h over 4 hours	1 g Q12h over 4 hours	1 g Q24h over 4 hours Outpatient: 2g 3x/week post-HD	2 g Q12h ² over 4 hours	
*Cefiderocol (IV)						
	>120 ml/min	60-120 ml/min	30-60 ml/min	15-30 ml/min	<15 ml/min; HD (give after HD)	CRRT
	2 g Q6h	2 g Q8h	1.5 g Q8h	1 g Q8h	750 mg Q12h	See below ³
Indication	>50 ml/min	30-49 ml/min	10-29 ml/min	<10 ml/min; HD (give after HD)	CRRT ¹	
*Ceftaroline (IV)						
Mild to Moderate	600 mg Q12h	400 mg Q12h	300 mg Q12h	200 mg Q12h	400 mg Q12h	
Severe (ex. Bacteremia)	600 mg Q8h	400 mg Q8h	300 mg Q8h	200 mg Q8h	400 mg Q8h	
*Ceftazidime (IV)						
	2 g Q8h	2 g Q12h	2 g Q24h	1 g Q24h Outpatient: 2g 3x/week post-HD	2 g Q12h	
*Ceftazidime-Avibactam (IV)						
	2.5 g Q8h	1.25 g Q8h	0.94 g Q12h	0.94 g Q24h	1.25-2.5 g Q8h	
*Ceftolozane-Tazobactam (IV)						
	3000 mg Q8h	1500 mg Q8h	750 mg Q8h	2250 mg x 1, then 450 mg Q8h	1500 mg Q8h	
Ceftriaxone (IV)						
Cystitis	1 g Q24h					
Systemic Infection	2 g Q24h					
CNS Infections or <i>E. faecalis</i> Endocarditis	2 g Q12h					

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Indication	>50 ml/min	30-49 ml/min	10-29 ml/min	<10 ml/min; HD (give after HD)	CRRT ¹
*Cefuroxime (PO)					
	250 – 500 mg Q12h		250 mg Q12h	250 mg Q24h	250 – 500 mg Q12-24h
*Cephalexin (PO)					
Mild to Moderate (ex. UTI, SSTI)	500 mg Q6h		500 mg Q8h-12h	500 mg Q12h-24h	500 mg Q6h
Severe (ex. Osteomyelitis)	1000 mg Q6h	1000 mg Q8h	1000 mg Q12h	1000 mg Q24h	1000 mg Q6h
*Ciprofloxacin (PO/IV)					
Non- <i>Pseudomonas</i> (PO)	500 mg Q12h		500 mg Q24h	500 mg Q24h	500 mg Q12h
<i>Pseudomonas</i> (PO)	750 mg Q12h		750 mg Q24h	500 mg Q24h	750 mg Q12h
Non- <i>Pseudomonas</i> (IV)	400 mg Q12h		400 mg Q24h	400 mg Q24h	400 mg Q12h
<i>Pseudomonas</i> (IV)	400 mg Q8h		400 mg Q12h	400 mg Q24h	400 mg Q8h
Clarithromycin (PO)					
	500 mg Q12h		500 mg Q24h	500 mg Q24h	500 mg Q24h
Clindamycin (PO/IV)					
IV	600-900 mg Q8h				
PO	300-450 mg Q6-8h				
Dalbavancin (IV)					
<2 Weeks Remaining	1500 mg x 1				Do not use
≥2 Weeks Remaining	1500 mg on days 1 and 8		1500 mg on day 1, then 750 mg on day 8	1500 mg on days 1 and 8	Do not use
*Daptomycin (IV)					
UTI, SSTI	6 mg/kg Q24h		6 mg/kg Q48h	6 mg/kg Q48h [^]	6 mg/kg Q24h
Osteomyelitis	8 mg/kg Q24h		8 mg/kg Q48h	8 mg/kg Q48h [^]	8 mg/kg Q24h
Bacteremia, Endocarditis	10 mg/kg Q24h		10 mg/kg Q48h	10 mg/kg Q48h [^]	10 mg/kg Q24h
VRE Infections	10-12 mg/kg Q24h		10-12 mg/kg Q48h	10-12 mg/kg Q48h [^]	10-12 mg/kg Q24h
[^]Outpatient IHD Dosing: 3x/wk post-HD; consider 50% higher dose on 72hr interdialytic day (max 12 mg/kg)					

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Indication	>50 ml/min	30-49 ml/min	10-29 ml/min	<10 ml/min; HD (give after HD)	CRRT ¹
Dicloxacillin (PO)					
250-500 mg Q6h					
Doxycycline (PO/IV)					
100 mg Q12h					
*Ertapenem (IV)					
	1 g Q24h		500 mg Q24h		1 g Q24h
Fidaxomicin (PO)					
200 mg Q12h x 10 days For recurrent infection consider 200 mg Q12h x 5 days, then 200 mg every other day x 20 days					
Fosfomycin (PO)					
Cystitis	3g x 1				
Gentamicin (IV)					
PK Consult					
*Imipenem-Cilastatin (IV)					
Nontuberculous Mycobacteria	1 g Q12h	500 mg Q12h		250 mg Q12h	500 mg Q8h
Severe (ex. Bacteremia, Necrotizing SSTI)	500 mg Q6h or 1 g Q8h	500 mg Q8h	500 mg Q12h	250 mg Q12h	500 mg Q8h
*Levofloxacin (PO/IV)					
Systemic Infection	750 mg Q24h	750 mg Q48h	750 mg X1 then 500 mg Q48h	750 mg X1 then 500 mg Q48h	750 mg x 1 then 500 mg Q24h
Prophylaxis	500 mg Q24h	500 mg x1 then 250 mg Q24h	500 mg x1 then 250 mg Q48h	500 mg x1 then 250 mg Q48h	500 mg x1 then 250 mg Q24h
Linezolid (PO/IV)					
600 mg Q12h ⁴					

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Indication	>50 ml/min	30-49 ml/min	10-29 ml/min	<10 ml/min; HD (give after HD)	CRRT ¹
*Meropenem (IV)					
Load	1-2g x 1 dose over 30 minutes				
Systemic Infection	1 g Q8h over 3 hours	1 g Q12h over 3 hours	500 mg Q12h over 3 hours	500 mg Q24h over 3 hours	1 g Q8-12h over 3 hours
CNS, <i>Pseudomonas</i> , augmented renal clearance	2 g Q8h over 3 hours	1 g Q8h over 3 hours	1 g Q12h over 3 hours	1 g Q24h over 3 hours	2 g Q12h over 3 hours
*Meropenem-Vaborbactam (IV)					
	eGFR >50 ml/min/1.73m ³	eGFR 30-49 ml/min/1.73m ³	eGFR 15-29 ml/min/1.73m ³	eGFR <15 ml/min/1.73m ³ ; HD (give after HD)	CRRT
	4 g Q8h	2g Q8h	2 g Q12h	1 g Q12h	2 g Q12h
Indication	>50 ml/min	30-49 ml/min	10-29 ml/min	<10 ml/min; HD (give after HD)	CRRT ¹
Metronidazole (PO/IV)					
Systemic Infection	500 mg Q12h				
Fulminant <i>C. difficile</i>	500 mg IV Q8h (in combination with oral and/or rectal vancomycin)				
Brain abscess	500 mg Q6-8h				
Minocycline (PO)					
Systemic Infection	100 mg Q12h				
<i>Acinetobacter</i> , <i>S. maltophilia</i>	200 mg Q12h				
Moxifloxacin (PO/IV)					
400 mg Q24h					
Nafcillin (IV)					
2 g Q4h or 12g over 24h as a continuous infusion					
Nitrofurantoin (PO)					
Macrobid (Cystitis)	100 mg Q12h		Do not use	Do not use	Do not use
Macrochantin (Cystitis)	50-100 mg Q6h		Do not use	Do not use	Do not use

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Indication	>50 ml/min	30-49 ml/min	10-29 ml/min	<10 ml/min; HD (give after HD)	CRRT ¹
*Penicillin G (IV)					
	18-24 million units daily divided Q4h or as a continuous infusion	18 million units daily divided Q4h	12 million units daily divided Q4h	6-12 million units daily divided Q4h-6h	18-24 million units daily divided Q4h
*Piperacillin/Tazobactam (IV)					
	≥20 ml/min		<20 ml/min or HD		CRRT¹
Load	4.5 g x 1 over 30 minutes				
Maintenance	4.5 g Q8h over 4 hours		4.5 g Q12h over 4 hours		4.5 g Q8h over 4 hours
Cystic Fibrosis	4.5 g Q6h over 4 hours		4.5 g Q12h over 4 hours		4.5 g Q8h over 4 hours
*Sulbactam/Durlobactam (IV)					
≥130 ml/min	45-129 ml/min	30-44 ml/min	15-29 ml/min	<15 ml/min; HD (give after HD)	CRRT
Sulbactam 1g/ Durlobactam 1g Q4h	Sulbactam 1g/ Durlobactam 1g Q6h	Sulbactam 1g/ Durlobactam 1g Q8h	Sulbactam 1g/ Durlobactam 1g Q12h	Load: Sulbactam 1g/ Durlobactam 1g Q12h x 3 doses Maintenance: Sulbactam 1g/Durlobactam 1g Q24h	Sulbactam 1g/ Durlobactam 1g Q6-8h ⁵
Tedizolid (PO)					
200 mg Q24h					
Tigecycline (IV)					
Systemic Infection	100 mg x 1, then 50 mg Q12h				
CRE, <i>Acinetobacter</i> , <i>S. maltophilia</i>	200 mg x 1, then 100 mg Q12h				
Tobramycin (IV)					
PK Consult					

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Indication	>50 ml/min	30-49 ml/min	10-29 ml/min	<10 ml/min; HD (give after HD)	CRRT ¹
*Trimethoprim/Sulfamethoxazole (PO/IV)					
Cystitis	1 DS tablet Q12h		1 SS tablet Q12h	1 SS tablet Q24h	1 DS tablet Q12h
Skin Soft Tissue	5-8 mg/kg/day TMP divided every 6-12 hours		Reduce dose by 50%	Reduce dose by 75%	5-8 mg/kg/day TMP divided every 6-12 hours
Systemic Infection (ex. bacteremia, osteomyelitis, Toxoplasmosis, <i>Stenotrophomonas</i>)	8-12 mg/kg/day TMP divided every 6-12 hours		Reduce dose by 50%	Reduce dose by 75%	8-12 mg/kg/day TMP divided every 6-12 hours
Meningitis/Nocardia/PJP	12-15 mg/kg/day TMP divided every 6-12 hours		Reduce dose by 50%	Reduce dose by 75%	8-12 mg/kg/day TMP divided every 6-12 hours
Vancomycin (IV)					
PK Consult					

¹ Drug clearance is highly dependent on the CRRT flow rate. Dosing may be different for more aggressive flow rates.

² Consider 2g Q8h for CNS infections or severe gram-negative infections with elevated MIC values

³ Effluent flow rate ≤2 L/hour: 1.5 g every 12 hour

Effluent flow rate 2.1 to 3 L/hour: 2 g every 12 hours

Effluent flow rate 3.1 to 4 L/hour: 1.5 g every 8 hours

Effluent flow rate ≥4.1 L/hour: 2 g every 8 hours

⁴ Consider using higher doses with CRRT for severe infections with MIC ≥2 mg/L

⁵ Limited data

Antivirals

Indication	>50 ml/min	30-49 ml/min	10-29 ml/min	<10 ml/min; HD (give after HD)	CRRT ¹		
*Acyclovir (IV)							
Mucocutaneous (IV)	5 mg/kg Q8h	5 mg/kg Q12h	5 mg/kg Q24h	2.5 mg/kg Q24h	5 mg/kg Q12h		
HSV encephalitis or VZV (IV)	10 mg/kg Q8h	10 mg/kg Q12h	10 mg/kg Q24h	5 mg/kg Q24h	10 mg/kg Q12h		
Cidofovir (IV)							
Consult ID Pharmacy							
Foscarnet (IV)							
Indication	>1.4 mL/min/kg	>1-1.4 mL/min/kg	>0.8-1 mL/min/kg	>0.6-0.8 mL/min/kg	>0.5-0.6 mL/min/kg	≥0.4-0.5 mL/min/kg	<0.4 mL/min/kg
CMV Induction	90 mg/kg Q12h	70 mg/kg Q12h	50 mg/kg Q12h	80 mg/kg Q24h	60 mg/kg Q24h	50 mg/kg Q24h	Not recommended
CMV Maintenance	90 mg/kg Q24h	70 mg/kg Q24h	50 mg/kg Q24h	80 mg/kg Q48h	60 mg/kg Q48h	50 mg/kg Q48h	Not recommended
CrCl calculation: $((140 - \text{age}) / (\text{Serum Cr} * 72)) * 0.85$ (if female)							
Letermovir (PO/IV)							
480 mg Q24h (240 mg Q24h if on cyclosporine)							
*Nirmatrelvir/ritonavir (PO)							
	eGFR >60 ml/min/1.73m ²	eGFR 30-59 ml/min/1.73m ²	eGFR 10-29 ml/min/1.73m ²	eGFR <10 ml/min/1.73m ² ; HD (give after HD)	CRRT ¹		
	nirmatrelvir/ritonavir 300/100 mg Q12h	nirmatrelvir/ritonavir 150/100 mg Q12h	nirmatrelvir/ritonavir 300/100 mg once followed by 150/100mg Q24h	Not recommended	Not recommended		

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Indication	>50 ml/min	30-49 ml/min	10-29 ml/min	<10 ml/min; HD (give after HD)	CRRT ¹	
*Oseltamivir (PO)						
Treatment	75mg Q12h	75 mg x 1 then 30 mg q12h	30 mg Q24h	30 mg x 1 then 30 mg post-HD	75 mg Q24h	
Prophylaxis	75 mg Q24h	30 mg Q24h	30 mg Q48h	30 mg x 1 then 30 mg post-HD	75 mg Q24h	
Remdesivir (IV)						
200 mg x 1, then 100 mg Q24h						
*Valacyclovir (PO)						
Orolabial (HSV)	1000 mg Q12h		500 mg Q12h	500 mg Q24h	500 mg Q12h	
Genital (HSV)	1000 mg Q12h		1000 mg Q24h	500 mg Q24h	1000 mg Q24h	
VZV Treatment	1000 mg Q8h	1000 mg Q12h	1000 mg Q24h	500 mg Q24h	1000 mg Q24h	
Prophylaxis (HSV/VZV)	500 mg Q12h		500 mg Q24h	500mg Q24h	500 mg Q24h	
*Ganciclovir (IV)						
	>70 ml/min	50-69 ml/min	25-49 ml/min	10-24 ml/min	<10 ml/min or HD	CRRT ¹
CMV Induction	5 mg/kg Q12h	2.5 mg/kg Q12h	2.5 mg/kg Q24h	1.25 mg/kg Q24h	1.25 mg/kg 3x/week	2.5 mg/kg Q12h
CMV Maintenance	5 mg/kg Q24h	2.5 mg/kg Q24h	1.25 mg/kg Q24h	0.625 mg/kg Q24h	0.625 mg/kg 3x/week	2.5 mg/kg Q24h
*Valganciclovir (PO)						
	≥60 ml/min	40-59 ml/min	25-39 ml/min	10-24 ml/min	<10 ml/min or HD	CRRT ¹
CMV Induction	900 mg Q12h	450 mg Q12h	450 mg Q24h	450 mg Q48h	450 mg post-HD 3x/week	450 mg Q12h
CMV Maintenance/ Prophylaxis	900 mg Q24h	450 mg Q24h	450 mg Q48h	450 mg twice weekly	450 mg post-HD 3x/week	450 mg Q24h

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Antifungals

Indication	>50 ml/min	30-49 ml/min	10-29 ml/min	<10 ml/min; HD (give after HD)	CRRT ¹
Amphotericin B Deoxycholate (IV)					
UTI	0.3-0.6 mg/kg Q24h				
Liposomal Amphotericin B (IV)					
Systemic Infection	3-5 mg/kg Q24h				
Mucormycosis	5-10 mg/kg Q24h				
*Fluconazole (PO/IV)					
Cutaneous/ Oropharyngeal	100 – 200 mg Q24h	Load with full dose x1, then reduce further doses by 50% Q24h			200 – 400 mg Q24h
Systemic Infection	400 – 800 mg Q24h	Load with full dose x1, then reduce further doses by 50% Q24h			800 mg Q24h
*Flucytosine (PO)					
>40 ml/min	20-39 ml/min	10-19 ml/min	<10 ml/min or HD	CRRT ¹	
25 mg/kg Q6h	25 mg/kg Q12h	25 mg/kg Q24h	25 mg/kg Q48h	25 mg/kg Q12h	
Isavuconazole (PO/IV)					
Capsule, IV	372 mg Q8h x 6 doses, then 372 mg Q24h starting 12 to 24 hours after the last loading dose				
Itraconazole (PO)					
Dose adjusted based on troughs; first trough should be drawn 10-14 days after starting therapy					
PO Capsule and PO Solution	200 mg Q8h x 9 doses, then 200 mg Q12h				
Micafungin (IV)					
Invasive Candidiasis Treatment	100 mg Q24h				
Esophageal Candidiasis, Infective Endocarditis	150 mg Q24h				

Posaconazole (PO/IV)	
Dose adjusted based on troughs; first trough should be drawn 7 days after starting therapy	
PO Tablet, IV	300 mg Q12h x 2 doses, then 300 mg Q24h
PO Suspension Prophylaxis	200 mg Q8h
PO Suspension Systemic Infection	200 mg Q6h or 400 mg Q12h
Voriconazole (PO/IV)	
Dose adjusted based on troughs; first trough should be drawn 5-7 days after starting therapy	
PO Tablet, PO Suspension	200-300 mg Q12h
IV	6 mg/kg Q12h x 2 doses, then 4 mg/kg Q12h

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