Dosing of Antimicrobial Agents for Adult Patients with Renal Impairment

Drug/ CrCl (ml/min)	>50	50-30	29-10	<10 (no HD)	HD	CVVHD
Amikacin IV	Please contact a pharmacist if patient specific renal dose recommendation needed					
Amoxicillin PO	500mg q8h or 875mg q12h	500mg q8h or 875mg q12h	500mg q12h	500mg q24h	500mg q24h AD	500mg q24h
Amoxicillin/ Clavulanate PO	875mg q12h	875mg q12h	250-500mg q12h	250-500mg q24h	250-500mg q24h AD	No data
Amphotericin B	0.5-1.5mg/kg q24h NO RENAL ADJUSTMENT NECESSARY (NOT dialyzed)					
Liposomal amphotericin B (Ambisome®)	Standard dose					
	3-5mg/kg q24h NO RENAL ADJUSTMENT NECESSARY (NOT dialyzed)					
	Cryptococcal meningitis					
	6mg/kg q24h NO RENAL ADJUSTMENT NECESSARY (NOT dialyzed)					
Ampicillin IV	Standard dose					
	1-2g q6h	1-2g q6-8h	1-2g q8-12h	1-2g q12-24h	1-2g q12-24h AD	1-2g q8-12h
	Meningitis					
	2g q4h	2g q6h	2g q8h	2g q12h	2g q12h AD	2g q8h
Ampicillin/ Sulbactam IV	1.5-3g q6h	1.5-3g q6-8h	1.5-3g q12h	1.5-3g q24h	1.5-3g q24h AD	3g q8h
Azithromycin IV/PO	500mg IV q24h x 24-48h, then 250-500mg PO q24h NO RENAL ADJUSTMENT NECESSARY (NOT dialyzed)					
Aztreonam IV	Urinary Tract Infection					
	1g q8-12h	1g q8-12h	1g q12h	1g q24h	1g q24h AD	1g q12h
	Serious gram-negative infections					
	2g q8h	2g q8-12h	2g q12h	2g q24h	2g q24h AD	2g q12h
	Meningitis					
	2g q6h	2g q6-8h	2g q8h	2g q12h	2g q12h AD	2g q8h
Caspofungin IV	Loading dose of 70mg x 1, then 50mg Q24h NO RENAL ADJUSTMENT NECESSARY (NOT dialyzed) • Moderate hepatic insufficiency (Child Pugh Score 7-9): 70mg x 1, then 35mg q24h • Severe hepatic insufficiency (Child Pugh Score >9): No data					
Cefazolin IV	1-2g q8h	1g q8h	1g q12h	1g q24h	1g q24h AD or 2g after each HD	2g q12h
Cefepime IV	Standard dose					
	2g q12h	1g q12h	1g q24h	1g q48h	500mg q24h AD or 2g after each HD	1g q12h
	Febrile neutropenia, susceptible *Pseudomonas and Acinetobacter* infection					
	2g q8h	2g q12h	2g q24h	1g q24h	1g q24h AD or 2g after each HD	2g q12h
Cefpodoxime PO	200mg q12h	200mg q12h	200mg q24h	200mg q24-48h	200mg 3x/wk AD	No data

AD: administer after dialysis

** Medications included in the Therapeutic Interchange Program (IV to PO).

Medications without recommendation on dosing in hepatic insufficiency does NOT indicate that such adjustment is not necessary.

Drug/ CrCl (ml/min)	>50	50-30	29-10	<10 (no HD)	HD	CVVHD
Ceftriaxone IV	Standard dose ICU patients should receive higher dose (2g based regimen)					
	1-2g q24h	1-2g q24h	1-2g q24h	1g q24h	1g q24h [AD] or 2g after each HD	2g q24h
	Meningitis					
	2g q12h	NO RENAL ADJUSTMENT NECESSARY			2g q12h [AD]	2g q12h
Cephalexin PO	500-1000mg q6h	500-1000mg q6h	500-1000mg q8h	500-1000mg q12-24h	500-1000mg q12-24h [AD]	No data
Ciprofloxacin IV**	Urinary Tract Infections (uncomplicated)					
	200mg q12h	200mg q12h	200mg q24h	200mg q24h	200mg q24h [AD]	200mg q12-24h
	Standard dose					
	400mg q12h	400mg q12h	400mg q24h	400mg q24h	400mg q24h [AD]	400mg q12-24h
	Severe infection including *Pseudomonas aeruginosa*					
	400mg q8h	400mg q8h	400mg q12h	400mg q24h	400mg q24h [AD]	400mg q12h
Ciprofloxacin PO	Urinary Tract Infections (uncomplicated)					
	250mg q12h	250mg q12h	250mg q24h	250mg q24h	250mg q24h [AD]	250mg q12h
	Standard dose					
	500mg q12h	500mg q12h	500mg q24h	500mg q24h	500mg q24h [AD]	500mg q12h
	Severe infection including *Pseudomonas aeruginosa*					
	750mg q12h	750mg q12h	750mg q24h	750mg q24h	750mg q24h [AD]	750mg q12h
Clarithromycin PO	500mg q12h	500mg q12h	500mg q12h	500mg q24h	500mg q24h [AD]	No data
Clindamycin IV	Standard dose					
	600mg q8h NO RENAL DOSAGE ADJUSTMENT NECESSARY (Not dialyzed)					
	Maximum dose					
	900mg q8h NO RENAL DOSAGE ADJUSTMENT NECESSARY (Not dialyzed)					
Clindamycin PO	300-450mg q6h NO RENAL DOSAGE ADJUSTMENT NECESSARY (Not dialyzed)					
Colistimethate IV Use IBW for obese pts	2.5mg/kg q12h	2.5mg/kg q12h	CrCl 29-20: 2.5mg/kg q12h CrCl<20: 2.5mg/kg q24h	1.25-1.5mg/kg q24h	1.25-1.5mg/kg q24h (Not dialyzed)	2.5mg/kg q12-24h (Not dialyzed)
Daptomycin IV Use ABW for obese pts	Skin and soft tissue infection					
	4mg/kg q24h	4mg/kg q24h	4mg/kg q48h	4mg/kg q48h	4mg/kg q48h [AD]	4mg/kg q48h
	Bacteremia					
	6mg/kg q24h	6mg/kg q24h	6mg/kg q48h	6mg/kg q48h	6mg/kg q48h [AD]	6mg/kg q48h
Doxycycline IV/PO**	100mg q12h NO RENAL DOSAGE ADJUSTMENT NECESSARY (Not dialyzed)					
Ethambutol PO	15-25mg/kg q24h	15-25mg/kg q24h	15-25mg/kg q36h or 15-25mg/kg 3x/wk	15-25mg/kg q48h or 15-25mg/kg 3x/wk	15-25mg/kg q48h [AD] or 15-25mg/kg 3x/wk [AD]	15mg/kg q24-36h
	Maximum dose: 1600mg/day for daily tuberculosis therapy. TB guideline. AJRCCM 2003; 167: 603-62.					

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Drug/ CrCl (ml/min)	>50	50-30	29-10	<10 (no HD)	HD	CVVHD
Fluconazole IV/PO**	Loading dose: 2x of maintenance dose x 1					
	Maintenance dose: Standard dose					
	100-400mg q24h	CrCl <50ml/min: reduce dose by half and continue daily			reduce dose by half and continue daily [AD]	100-200% of normal dose (highly removed)
	Systemic candidiasis (800mg/day preferred for *C. glabrata*)					
	400-800mg q24h	CrCl <50ml/min: reduce dose by half and continue daily			reduce dose by half and continue daily [AD]	100-200% of normal dose (highly removed)
Gentamicin IV	Please contact a pharmacist if patient specific renal dose recommendation needed					
Imipenem/ cilastatin IV	CrCl >71	CrCl 41-70	CrCl 21-40	CrCl 6-20	HD	CVVHD
ABW >70kg	500mg q6h	500mg q8h	250mg q6h	250mg q12h	250mg q12h [AD]	500mg q8-12h
60kg	500mg q8h	250mg q6h	250mg q8h	250mg q12h	250mg q12h [AD]	500mg q8-12h
50kg	250mg q6h	250mg q6h	250mg q8h	250mg q12h	250mg q12h [AD]	500mg q8-12h
40kg	250mg q6h	250mg q8h	250mg q12h	250mg q12h	250mg q12h [AD]	500mg q8-12h
30kg	250mg q8h	125mg q6h	125mg q8h	125mg q12h	125mg q12h [AD]	250mg q8-12h
Isoniazid PO	300mg qday (5mg/kg)	300mg qday (5mg/kg)	300mg qday (5mg/kg)	150-300mg qday (2.5-5mg/kg)	150-300mg qday (2.5-5mg/kg) [AD]	150-300mg qday (2.5-5mg/kg)
	Maximum dose: 300mg/day for daily tuberculosis therapy. TB guideline. AJRCCM 2003; 167: 603-62.					
Linezolid IV/PO**	600mg q12h	NO RENAL ADJUSTMENT NECESSARY			600mg q12h [AD]	600mg q12h
Meropenem IV	Standard dose					
	1g q8h	1g q12h	500mg q12h	500mg q24h	500mg q24h [AD]	1g q12h
	Meningitis					
	2g q8h	2g q12h	1g q12h	1g q24h	1g q24h [AD]	2g q12h
Metronidazole IV/PO**	500mg q8h	500mg q8h	500mg q8h	500mg q12h	500mg q8-12h [AD]	500mg q8h
Moxifloxacin IV/PO**	400mg Qday	NO RENAL ADJUSTMENT NECESSARY (Not dialyzed)				
Nitrofurantoin SR (macrocrystalline)	100mg q12h	CONTRAINDICATED in CrCl <50ml/min				
Oxacillin IV	1-2g q4-6h	NO RENAL ADJUSTMENT NECESSARY (Not dialyzed)				
Penicillin G IV	2-4MU q4h	1-2MU q4h	1-2MU q6h	0.5-1MU q6h	0.5-1MU q6h [AD]	1-2MU q4h
Piperacillin/ tazobactam IV	Standard dose					
	4.5g q8h	4.5g q8-12h	4.5g q12h	4.5g q12h	4.5g q12h [AD]	4.5g q8h
	Nosocomial pneumonia (especially including *Pseudomonas aeruginosa*)					
	4.5g q6h	4.5g q6-8h	4.5g q8-12h	4.5g q12h	4.5g q12h [AD]	4.5g q8h
Pyrazinamide PO	15-30mg/kg q24h	12-20mg/kg q24h	12-20mg/kg q24h or 25-35mg/kg 3x/wk	12-20mg/kg q24h or 25-35mg/kg 3x/wk	15-30mg/kg q24h [AD] or 25-35mg/kg 3x/wk [AD]	No data
	Maximum dose: 2000mg/day for daily tuberculosis therapy. TB guideline. AJRCCM 2003; 167: 603-62.					
Rifampin IV/PO	600mg q24h (10mg/kg)	600mg q24h (10mg/kg)	600mg q24h (10mg/kg)	300-600mg q24h (5-10mg/kg)	600mg q24h (10mg/kg) (Not dialyzed)	No data

AD: administer after dialysis

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Drug/ CrCl (ml/min)	>50	50-30	29-10	<10 (no HD)	HD	CVVHD
Tigecycline IV	Loading dose of 100mg x 1, then 50mg q12h NO RENAL ADJUSTMENT NECESSARY (NOT dialyzed) • Moderate hepatic insufficiency (CPS 7-9): NO ADJUSTMENT NECESSARY • Severe hepatic insufficiency (CPS>9): Loading dose of 100mg x 1, then 25mg q12h					
Tobramycin IV	Please contact a pharmacist if patient specific renal dose recommendation needed					
Trimethoprim/ sulfamethoxazole (TMP/SMX) IV** TMP/SMX IV = 80mg SMX/ 16mg TMP per 1ml	PCP treatment (Dose based on TMP component)					
	15-20 mg/kg/day divided q6-8h	15-20 mg/kg/day divided q6-8h	CrCl 30-15: 15-20mg/kg/day divided q6-8h x 48h, then 7-10mg/kg/day divided q12-24h CrCl<15: 7-10mg/kg/day divided q12-24h		7-10mg/kg after each HD	7-10mg/kg/day divided q12h (Limited data)
	Other indications (Dose based on TMP component)					
	8-12 mg/kg/day divided Q12h	8-12 mg/kg/day divided Q12h	CrCl 30-15: 8-12mg/kg/day divided q12h x 48h, then 4-6 mg/kg/day divided q12-24h CrCl<15: 4-6mg/kg/day divided q12-24h		4-6mg/kg after each HD	4-6mg/kg/day divided q12h (Limited data)
	PCP prophylaxis (Dose based on TMP component)					
	5mg/kg q24h or 5mg/kg 3x/wk	5mg/kg q24h or 5mg/kg 3x/wk	CrCl 30-15: 5mg/kg q24-48h or 5mg/kg 3x/wk CrCl <15: 5mg/kg q48-72h or 5mg/kg 3x/wk		5mg/kg after each HD	5mg/kg q24h (Limited data)
Trimethoprim/ sulfamethoxazole (TMP/SMX) PO	Urinary Tract Infection					
	1 DS q12h	1 DS q12h	CrCl 30-15: 1 DS q12h CrCl <15: 1 DS q24h		1 DS q24h [AD]	1 DS q12h (Limited data)
	• For infections other than UTI, may require weight based-dosing (see TMP/SMX IV)					
	PCP prophylaxis					
	1 DS q24h	1 DS q24h	1 SS q24h or 1 SS 3x/wk		1 SS-DS q24h [AD] or 1 SS-DS 3x/wk [AD]	1 SS q24h (Limited data)
	DS: 800mg SMX/ 160mg TMP SS: 400mg SMX/ 80mg TMP Suspension: 200mg SMX/ 40mg TMP per 5ml					
Vancomycin IV	Please consult a pharmacist					
Vancomycin PO	*C. difficile*: 125mg q6h NO RENAL ADJUSTMENT NECESSARY (Poorly absorbed)					
Voriconazole IV**	6mg/kg q12h x 2, then 4mg/kg q12h CrCl <50ml/min: accumulation of the IV cyclodextrin vehicle occurs. Oral therapy should be used unless the benefits of IV therapy outweigh risks. • Moderate hepatic insufficiency (Child Pugh class A&B): 6mg/kg q12h x 2, then 2mg/kg q12h • Severe hepatic insufficiency (Child Pugh class C): No data					
Voriconazole PO	Patients ≥40kg					
	400mg q12h x 2, then 200mg q12h or 4mg/kg q12h NO RENAL DOSAGE ADJUSTMENT NECESSARY (Not significantly dialyzed) • Moderate hepatic insufficiency (Child Pugh class A&B): 400mg q12h x 2, then 100mg q12h or 2mg/kg q12h • Severe hepatic insufficiency (Child Pugh class C): No data					

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