Department of Pharmacy/Antimicrobial Stewardship Program (February 2022)
Antimicrobial Renal Dosing Guideline

Antibiotic	Usual Dose (Normal Renal Function)	CrCl (ml/min)	Dosage Adjustment
Acyclovir IV 500 mg/vial	5 (10*) mg/kg IV q8h *Use 10 mg/kg for CNS infection or herpes zoster Dose based on **ideal body wt** (not actual body wt), use **adjusted body wt** for BMI>30 *** Ensure adequate hydration to prevent AKI**	25-50	5 (10*) mg/kg IV q12h
		10-24	5 (10*) mg/kg IV q24h
		<10 or HD	2.5 (5*) mg/kg IV q24h (give after HD on dialysis days, e.g. 10PM)
		CRRT	5 (10*) mg/kg IV q12-24h

Aminoglycosides IV (Gentamicin, Tobramycin, Amikacin) Please see Aminoglycoside Dosing Guidelines for full recommendations (e.g. conventional dosing in special populations, dosage adjustments for renal replacement therapy, peak and trough monitoring, etc.) on Sanford Guide via intranet.		**Gentamicin/Tobramycin**	**Amikacin**
	CrCl (ml/min)	***For all infections except UTI or synergy in staphylococcal/enterococcal infection***	
	>60	5-7 mg/kg IV q24h	15-20 mg/kg IV q24h
	>30-59	5-7 mg/kg IV q48h	15-20 mg/kg IV q48h
	≤30	1.5-2 mg/kg IV q24h	5 mg/kg IV q24h
	HD	1.5-2 mg/kg IV after HD	5-7.5 mg/kg IV after HD
		For UTI	
	>30	3 mg/kg IV q24h	10 mg/kg IV q24h
	≤30	1.5 mg/kg IV q24h	5 mg/kg IV q24h
	HD	1-1.5 mg/kg IV after HD	5-7.5 mg/kg IV after HD
		For synergy in staphylococcal or enterococcal infections (gentamicin only)	
	>60	1 mg/kg IV q8h	N/A
	>30-59	1 mg/kg IV q12h	
	20-30	1mg/kg IV q24h	
	<20	1 mg/kg IV (Dose by level)	
	HD	1 mg/kg IV after HD	

Ampicillin IV 1 gm, 2 gm	1-2 gm IV q6h	10-30	Normal dose IV q8h
		<10 or HD	Normal dose IV q12h
		CRRT	Normal dose IV q8-6h
	2 gm q4h for Listeria meningitis, Enterococcal endocarditis	30-<50	2g IV q6h
		10-<30	2g IV q8h
		<10 or HD	2g IV q12h
		CRRT	Normal dose IV q4-6h
		15-29	Normal dose IV q12h
		<15 or HD	Normal dose IV q24h (give after HD on dialysis days, e.g. 10PM)
		CRRT	Normal dose IV q8h
Amphotericin B Liposomal (Ambisome), 50 mg/vial	3-5 mg/kg IV q24h	<10	Normal dose IV q48h
		HD	No dose adjustment
Artemether/Lumefantrine (Coartem) Tablet: Artemether 20 mg/ Lumefantrine 120 mg	4 tablets (total artemether 80 mg/lumefantrine 480 mg ORALLY), 4 tablets again after 8 hours, then 4 tablets q12h for the next 2 days (total course is 6 doses=24 tablets)		No renal adjustment necessary
Artesunate IV	Please **contact ID pharmacist ASAP** if you are requesting Artesunate IV. Please see Malaria Treatment Guidelines for indication, dosing, and monitoring on Sanford Guide via intranet.		

Aztreonam IV 1 gm, 2 gm	1-2 gm IV q8h	10-30	Normal dose IV q12h
		<10 or HD	Normal dose IV q24h (give after HD on dialysis days, e.g. 10PM)
		CRRT	Normal dose IV q12h
Cefazolin IV 1 gm, 2 gm	1-2 gm IV q8h	10-35	1 gm IV q12h
		<10	1 gm IV q24h
		HD	1 gm IV q24h (give after HD on dialysis days, e.g. 10PM) or 2 gm/2 gm/3 gm IV after HD (M/W/F or T/Th/Sat)
		CRRT	2 gm IV q12h
Cefdinir PO Capsule: 300 mg Suspension: 50 mg/ml	300 mg PO q12h	<30 or HD	300 mg PO q24h (give after HD on dialysis days, e.g. 10PM)
Cefepime IV 1 gm, 2 gm	1 gm IV q8h or 2 gm IV q12h	10-29	1 gm IV q24h
		HD	1 gm IV q24h or 2 gm IV after HD* **For stable patients or upon discharge for mild to moderate infections. This dosing strategy should NOT be used in severe infections (i.e. morbidly obese, sepsis, CNS infection, etc.)*
		CRRT	2 gm IV q12h
	1 gm IV q6h (Pseudomonas with MIC < 4)	30-50	1 gm IV q8h
		10-29	1 gm IV q12h
		<10 or HD	1 gm IV q24h (give after HD on dialysis days, e.g. 10PM)
		CRRT	1 gm IV q8h
	2 gm IV q8h (Neutropenic Fever, Pseudomonas, CNS Infection)	30-60	2 gm IV q12h
		10-29	1 gm IV q12h or 2 gm IV q24h
		HD	1-2 gm IV q24h (give after HD on dialysis days, e.g. 10PM)
		CRRT	2 gm IV q12h
Cefiderocol IV 1 gm, $228/vial	2 gm IV q8h	**>120**	2 gm IV q6h
		30-60	1.5 gm IV q8h
		15-30	1 gm IV q8h
		<15	750 mg IV q12h
		HD	750 mg IV q12h
		CRRT	2 gm IV q12h
Ceftaroline IV 400 mg, 600 mg, $116/vial	600 mg IV q12h	30-49	400 mg IV q12h
		15-29	300 mg IV q12h
		<15 or HD	200 mg IV q12h
		CRRT	400 mg IV q12h
	If susceptible-dose-dependent (SDD) with MIC 2-4 or persistent bacteremia, consider 600 mg IV q8h	30-49	400 mg IV q8h
		15-29	300 mg IV q8h

		<15 or HD	200 mg IV q8h
		CRRT	400 mg IV q8h
Ceftazidime/Avibactam IV (Avycaz) 2.5 gm, $300/vial	2.5 gm IV q8h	31-50	1.25 gm IV q8h
		<30, HD	0.94 gm IV q12h
		CRRT	1.25-2.5 gm IV q8h
Ceftolozane/Tazobactam IV (Zerbaxa) 1.5 gm, $91/vial	1.5 gm IV q8h	30-50	750 mg IV q8h
		15-29	375 mg IV q8h
		HD	750 mg IV x 1, then 150 mg IV q8h
		CRRT	1.5 gm IV q8h
	For pneumonia: 3 gm IV q8h	30-50	1.5 gm IV q8h
		15-29	750 mg IV q8h
		HD	2.25 gm IV x 1, then 450mg IV q8h
		CRRT	1.5 gm IV q8h
Cephalexin PO Capsule: 250 mg, 500 mg Suspension: 50 mg/ml	500 mg PO q6h or 1 gm PO q8h	10-29	500 mg PO q8h or 1 gm PO q12h
		<10	500 mg PO q12h
		HD	500 mg PO q24h (give after HD on dialysis days, e.g. 10PM)
Cidofovir IV 375 mg/vial, $441/vial	5 mg/kg IV once weekly x 2 weeks, then 5 mg/kg IV every other week and give with saline hydration and probenecid 2 gm PO 3 hrs before and 1 gm at 2 hrs and 8 hrs after (total 4 gm) **Low dose:** 0.5-1 mg/kg IV weekly (BK virus), probenecid is optional Dose based on **actual body wt**, use **adjusted body wt** for BMI>30	CKD or ESRD	3 mg/kg IV every other week
	Intravesicular instillation: 5mg/kg once a week in 60 ml normal saline instill through a foley catheter over 15 min and clamp for 1 hr.	No renal adjustment needed	
Ciprofloxacin IV, PO Tablet: 250 mg, 500 mg IV: 200 mg, 400mg	400 mg IV q12h (q8h-Pseudomonas)	<30 or HD	-400 mg IV q24h
		CRRT	400 mg IV q8-12h
	500 mg PO q12h (750mg-Pseudomonas)	<30 or HD	500 mg PO q24h (give after HD on dialysis days, e.g. 10PM)
		CRRT	500 mg PO q12h
Daptomycin IV 500 mg/vial, $301/vial	4 mg/kg IV q24h (SSTI, UTI) 8-10 mg/kg IV q24h (bacteremia/endocarditis) *Enterococcal bacteremia/endocarditis: start 8 mg/kg IV q24h	<30	Normal dose IV q48h
		HD	Normal dose IV q48h after HD (give after HD on dialysis days, e.g. 10PM)

	Dose based on **actual body wt**, use **adjusted body wt** for BMI>30	CRRT	Normal dose IV q24h	
Fluconazole IV, PO Tablet: 50 mg, 100 mg, 200 mg; IV: 100 mg, 200 mg, 400 mg	100-400* mg IV/PO q24h Susceptible-dose-dependent (SDD) *C. glabrata*: 800 mg IV/PO q24h *Consider giving loading dose (2 x normal dose) as first dose if severe infection (max dose 800 mg)	<50	50% of normal dose IV/PO q24h	
		HD	50% of normal dose IV/PO q24h (give after HD on dialysis days, e.g. 10PM)	
		CRRT	400 mg IV/PO q24h	
		Note: 150 mg x 1 dose for vaginal candidiasis or 100 mg/day – no renal adjustment necessary		
Flucytosine PO Capsule: 250mg, 500mg	25 mg/kg PO q6h	20-40	Normal dose PO q12h	
		10-20	Normal dose PO q24h	
		<10	Normal dose PO q48h	
		HD	25-50 mg/kg/dose PO q48h	
Foscarnet IV 6 gm/vial, $221/vial	**Induction:** 90 mg/kg IV q12h **Maintenance:** 90 mg/kg IV q24h Dose based on **actual body wt**, use **adjusted body wt** for BMI>30 **Ensure adequate hydration to prevent AKI**	**CrCl (ml/min/kg)**	**Induction**	**Maintenance**
		>1-1.4	70 mg/kg IV q12h	70 mg/kg IV q24h
		>0.8-1	50 mg/kg IV q12h	50 mg /kg IV q24h
		>0.6-0.8	80 mg/kg IV q24h	80 mg/kg IV q48h
		>0.5-0.6	60 mg/kg IV q24h	60 mg/kg IV q48h
		≥0.4-0.5	50 mg/kg IV q24h	50 mg/kg IV q48h
		<0.4	No data	No data
		HD	45-60 mg/kg/dose after HD days	
Ganciclovir IV 500 mg/vial	**Induction:** 5 mg/kg IV q12h* **Maintenance or Prophylaxis:** 5 mg/kg IV q24h *High dose induction: 10 mg/kg IV q12h for low level CMV resistant strain with UL97 mutation, EC 50 < 5 x normal Dose based on **actual body wt**, use **adjusted body wt** for BMI>30		**Induction**	**Maintenance or Prophylaxis**
		50-69	2.5 mg/kg IV q12h	2.5 mg/kg IV q24h
		25-49	2.5 mg/kg IV q24h	1.25 mg/kg IV q24h
		10-24	1.25 mg/kg IVq24h	0.625 mg/kg IV q24h
		HD	1.25 mg/kg IV after HD	0.625 mg/kg IV after HD
		CVVH	2.5 mg/kg IV q24h	1.25 mg/kg IV q24h
		CVVHD, CVVHDF	2.5 mg/kg IV q12h	2.5 mg/kg IV q24h
Imipenem/Cilastatin/ Relebactam IV 1.25 gm, $330/vial	1.25 gm IV q6h	60-89	1 gm IV q6h	
		30-59	750 mg IV q6h	
		15-29	500 mg IV q6h	
		<15 on HD	500 mg IV q6h	

IVIG 2.5 g, 5 g, 10 g, 20 g, 40 g $77/g (i.e. $2000-5500/dose for a 70kg patient)	Toxic shock (GAS, MRSA): 1 g/kg IV on day 1, 0.5 g/kg IV on days 2 and 3 Last resort *C. difficile* colitis: 400 mg/kg IV once Measles post-exposure for high-risk patient: 400 mg/kg IV once (Use **ideal body wt** for dosing, use **adjusted body wt** for BMI>30; round the dose to the nearest 5 g)		
Levofloxacin IV, PO Tablet: 500 mg, 750mg IV: 500 mg, 750mg	750 mg IV/PO q24h ** 500mg IV/PO q24h (if CrCl<20, use q48h) for prophylaxis regimens **	20-49	750mg IV/PO q48h
		10-19, HD	750 mg IV/PO x1, then 500mg IV/PO q48h
		CRRT	750mg IV/PO q48h
Meropenem IV 500 mg, 1 gm	500 mg IV q6h	31-49	500 mg IV q8h
		≤30	500 mg IV q12h
		≤10 or HD	500 mg IV q24h (give after HD on dialysis days, e.g. 10PM)
		CRRT	1 gm IV q12h
	2 gm IV q8h (Meningitis, intermediate sensitivity of carbapenem)	31-49	1 gm IV q8h
		≤30	1 gm IV q12h
		≤10 or HD	1 gm IV q24h (give after HD on dialysis days, e.g. 10PM)
		CRRT	1 gm IV q8h
Oseltamivir PO Capsule: 75 mg, 30 mg Suspension: 6 mg/ml	**Treatment:** 75 mg PO q12h **Prophylaxis:** 75 mg PO daily		**Treatment** / **Prophylaxis**
		30-60	30 mg PO q12h / 30 mg PO daily
		<30	30 mg PO daily / 30 mg PO q48h
		HD	30 mg PO after HD / 30 mg PO after alternate HD sessions
Penicillin G IV Sodium salt: 5 million units Potassium salt: 1, 2, 3, 5 million units	3-4 million units IV q4h	10-50	Normal dose IV q8h-q6h
		<10 or HD	Normal dose IV q12h
		CRRT	4 million units IV x1, then normal dose IVq6h
Piperacillin/Tazobactam IV 4.5 gm, 2.25 gm	4.5 gm IV q8h	<20 or HD	4.5 gm IV q12h
		CRRT	4.5 gm IV q8h
	4.5 gm IV q6h (Pseudomonas, nosocomial pneumonia, or organism MIC 16)	20-40	4.5 gm IV q8h
		<20 or HD	4.5 gm IV q12h
		CRRT	4.5 gm IV q8h
Polymyxin B IV 500,000 units/vial	12,500 units/kg IV q12h (Use total body wt if < 100 kg or adjusted body wt if > 100 kg) Single maximum dose: 1.5 million units		No renal adjustment necessary Monitor Cr, urine output
Pyrazinamide PO **Tablet: 500 mg**	15-30 mg/kg q24h	<30	25-35 mg/kg three times weekly
		<20	15-30 mg/kg q48h
		HD	25-35 mg/kg post-HD three times weekly

Ribavirin for RSV, PO Capsule: 200 mg	20 mg/kg/day PO divided in 2-3 doses Maximum dose: 1800 mg/day (Monitor Hgb closely)	<30	Normal dose PO q12-24h	
Sulfamethoxazole/ Trimethoprim IV, PO SS: trimethoprim 80 mg DS: trimethoprim 160 mg	Dose based on trimethoprim component UTI/SSTI: 1DS (160 mg) - 2DS (320mg) PO q12h PCP: 15 mg/kg/day IV/PO divided in q8-6h Serious systemic infection: 5 mg/kg IV/PO q12h	10-30 or HD	UTI/SSTI: 1DS (160 mg) /PO q24h PCP: 5-7.5 mg/kg/day IV/PO divided in q12-24h Others: 5 mg/kg/day IV/PO q24h	
		CRRT	No dosage adjustment required	
Valganciclovir tablet: 900 mg, 450 mg	**Induction:** 900 mg PO q12h **Maintenance:** 900 mg PO q24h **Prophylaxis**: 450 mg PO q12h or 900 mg PO q24h		**Induction**	**Maintenance or Prophylaxis**
		40-59	450 mg PO	450 mg PO q24h
		25-39	450 mg PO	450 mg PO q48h
		10-24	450 mg PO	450 mg PO twice weekly
		HD	450 mg PO	450mg PO after HD

			Creatinine Clearance (ml/min) Estimated by CG Equation							
			≥30-39	40-49	50-59	60-69	70-79	80-89	90-99	≥100
Vancomycin IV **(This nomogram is for dose initiation only. Do not use this nomogram if patient has AKI or is on dialysis)** Please see Vancomycin Dosing Guidelines for full recommendations (e.g. dosing in HD, monitoring, etc.) on Sanford Guide via intranet. ****Patients with CrCl < 30 and actual body weight (ABW) less than 50kg, consider dosing vancomycin by level**	**Actual Body Weight (kg)**	50-59	1g q24h	1g q24h	1g q24h	0.75g q12h	0.75g q12h	1g q12h	1g q12h	1g q12h
		60-69	1g q24h	1g q24h	1g q24h	0.75g q12h	1g q12h	1g q12h	1g q12h	1g q12h
		70-79	1g q24h	1g q24h	1g q12h	1g q12h	1g q12h	1g q12h	1g q12h	1g q8h
		80-89	1g q24h	1g q24h	1g q12h	1g q12h	1g q12h	1g q12h	1g q8h	1g q8h
		90-99	1g q24h	1.5g q24h	1g q12h	1g q12h	1g q12h	1g q8h	1g q8h	1g q8h
		100-109	1.5g q24h	1.5g q24h	1g q12h	1g q12h	1g q8h	1g q8h	1g q8h	1g q8h
		110-119	1.5g q24h	1.5g q24h	1g q12h	1g q12h	1g q8h	1g q8h	1g q8h	1g q6h
		120-129	1.5g q24h	1g q12h	1g q12h	1g q8h	1g q8h	1g q8h	1g q6h	1g q6h
		130-130	1.5g q24h	1g q12h	1g q12h	1g q8h	1g q8h	1g q8h	1g q6h	1g q6h
		140-150	1.5g q24h	1g q12h	1g q12h	1g q8h	1g q8h	1g q6h	1g q6h	1g q6h

Antibiotics that Do NOT Require Renal Adjustment

Azithromycin Ceftriaxone Chloramphenicol Clindamycin	Dicloxacillin Doxycycline Eravacycline Linezolid	Metronidazole Micafungin Nafcillin/Oxacillin Voriconazole	Posaconazole (dosing for delayed release tablet and suspension formulations are NOT interchangeable)

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