

ADULT ANTIMICROBIAL DOSING TOOL

(NB Provincial Health Authorities Anti-Infective Stewardship Committee, September 2017)

Introduction

The dosing recommendations presented here are for adults with moderate-to-severe infections and are based on published literature, the Clinical & Laboratory Standards Institute's reference dosing for susceptibility interpretation and clinical experience. The recommended doses should only be used as a reference tool. Patient dosing should be individualized and based on pharmacokinetic and clinical evaluation where possible.

Recommendations for renal dose adjustment are made according to estimated creatinine clearance (CrCl) calculated using the Cockcroft-Gault equation, which is used in practice. Estimated glomerular filtration rate (eGFR) calculated using the Modification of Diet in Renal Disease 4 (MDRD4) equation, commonly reported with most serum creatinine levels, is NOT interchangeable with CrCl calculated using the Cockcroft-Gault equation. The two equations may result in different antimicrobial dosing recommendations in up to 20 to 36% of cases with potential clinical significance.²⁰ Recommendations for renal dose adjustment in the table below are for modifications of the maintenance doses; no adjustments are required for loading doses where applicable.

For patients on intermittent hemodialysis (IHD), antimicrobial dosages and administration times may need to be adjusted. If an antimicrobial is significantly removed by hemodialysis (HD) and recommended to be given post-HD then administration of the dose prior to or during HD should be avoided because drug loss could result in subtherapeutic levels post-HD. The dosing schedule should be adjusted on dialysis days so that the scheduled dose is administered **immediately after** dialysis. Other strategies may include supplementary doses administered post-HD to replace the amount of antimicrobial removed during HD or intermittent post-HD administration (ex. ceFAZolin 2 g IV post-HD 3 times weekly). Please consult your local pharmacy department for guidance in patients receiving peritoneal dialysis, continuous veno-venous hemofiltration, continuous veno-venous hemodiafiltration or continuous renal replacement therapy. Dosing adjustment may also be necessary in patients with severe liver impairment.

In critically ill patients (ex: sepsis), antimicrobial pharmacokinetics can be significantly altered and unstable potentially resulting in sub-optimal dosing. Critically ill patients may also suffer from acute renal failure (ARF) that can be rapidly reversible; therefore, since the serum creatinine level is not stable, the Cockcroft-Gault equation should NOT be used to estimate renal function in ARF. A pharmacy consultation could be considered to optimize antimicrobial doses in this patient population.

ADULT ANTIMICROBIAL DOSING TOOL

Drug	General Comments	Usual Adult Dose (CrCl greater than or equal to 50 mL/min)	CrCl 30 - 49 mL/min	CrCl 10 - 29 mL/min	CrCl less than 10 mL/min	Intermittent Hemodialysis (IHD)
Penicillins						
amoxicillin (PO) ^{1,2,3,4,5,6}		500 mg – 1 g q8h		500 mg q12h	500 mg q24h	500 mg q24h; administer dose after dialysis on dialysis days
amoxicillin/clavulanate (PO) ^{1,2,7}	Dose listed as amoxicillin component Do not use 875 mg tablets if CrCl less than 30 mL/min Less diarrhea with 875 mg given q12h vs.500 mg q8h	500 mg q8h		500 mg q12h	500 mg q24h	500 mg q24h; administer dose after dialysis on dialysis days
		875 mg q12h				
ampicillin (IV) ^{1,3,5}	Dose 2 g q4h for endocarditis and other deep space infections [†]	1 – 2 g q4-6h	1 – 2 g q6-8h	1 – 2 g q8-12h	1 – 2 g q12-24h	1 – 2 g q12-24h; administer dose after dialysis on dialysis days
cloxacillin (PO) ^{1,5}		500 – 1000 mg q6h				
cloxacillin (IV) ^{1,2,5}	Dose 2 g q4h for endocarditis and deep space infections [†]	1 – 2 g q4-6h				
penicillin G (IV) ^{1,5}	Dose 4 million units q4h for endocarditis and deep space infections [†]	2 – 4 million units q4-6h	75% of usual dose q4-6h		20 – 50% of usual dose q4-6h	20 – 50% of usual dose q4-6h; administer dose after dialysis on dialysis days
penicillin V (PO) ^{2,5,8,9}		300 – 600 mg q6h	300 – 600 mg q8h		300 – 600 mg q12h	
piperacillin/tazobactam (IV) ^{1,2,3,5}	Dose listed as piperacillin plus tazobactam components	3.375 g q6h (CrCl greater than 40 mL/min)	2.25 g q6h (CrCl 20 – 40 mL/min)		2.25 g q8h (CrCl less than 20 mL/min)	2.25 g q12h; administer supplementary dose of 0.75 g after dialysis session
	Hospital acquired pneumonia, febrile neutropenia and <i>Pseudomonas</i> spp infections	4.5 g q6h (CrCl greater than 40 mL/min)	3.375 g q6h (CrCl 20 – 40 mL/min)		2.25 g q6h (CrCl less than 20 mL/min)	2.25 g q8h; administer supplementary dose of 0.75 g after dialysis session
piperacillin (IV) ^{1,3,5}		3 – 4 g q6h (CrCl greater than 40 mL/min)	3 – 4 g q8h (CrCl 20-40mL/min)	3 – 4 g q12h (CrCl less than 20 mL/min)		2 g q8h; administer supplementary dose of 1 g after dialysis session
Cephalosporins						
ceFAZolin (IV) ^{1,5,19} (1 st generation)		2 g q8h		2 g q12h	1 – 2 g q24h	1 – 2 g q24h; administer dose after dialysis on dialysis days OR 2 g after dialysis three times weekly if receiving dialysis three times weekly
cephalexin (PO) ^{1,3,5} (1 st generation)		500 mg – 1 g q6h	500 mg q8h	500 mg q12h	500 mg q12-24h	500 mg q12-24h; administer dose after dialysis on dialysis days

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cefadroxil [£] (PO) ^{1,3,5} (1 st generation)	Dose 1 g twice daily for complicated UTI	500 mg – 1 g q12h		500 mg – 1 g q24h	500 mg q36h	500 mg – 1 g three times weekly after dialysis if receiving dialysis three times weekly
cefactor [£] (PO) ^{1,3,5} (2 nd generation)		250 - 500 mg q8h			250 mg q8h	250 mg q8h ; administer supplementary dose of 250 mg after dialysis session
cefuroxime axetil (PO) ^{1,2,3,5, 22, 23} (2 nd generation)		500 mg q8-12h	500 mg q12h		500 mg q24h	500 mg q24h; administer dose after dialysis on dialysis days
cefuroxime (IV) ^{1,2,5} (2 nd generation)		1.5 g q8h (CrCl greater than 20 mL/min)		1.5 g q12h (CrCl 10-19 mL/min)	1.5 g q24h	1.5 g q24h; administer dose after dialysis on dialysis days
cefOXitin (IV) ^{1,5,10} (2 nd generation)	Dose 2 g q6h for moderate to severe infections such as intra-abdominal infections	1 – 2 g q6-8h	1 – 2 g q8h	1 – 2 g q12h	1 – 2 g q24h	1 – 2 g q24h; administer dose after dialysis on dialysis days
cefprozil (PO) ^{1,3,5} (2 nd generation)		500 mg q12h		250 mg q12h		250 mg q12h; administer supplementary dose of 250 mg after dialysis session
cefixime (PO) ^{2,3} (3 rd generation)		400 mg q24h			200 mg q24h	200 mg q24h
cefTRIAxone (IV) ¹ (3 rd generation)	Dose 2 g q12h for CNS infections or <i>Enterococcus faecalis</i> endocarditis in combination with ampicillin	1 – 2 g q24h				
cefotaxime (IV) ^{1,2,3} (3 rd generation)	Moderate to severe infection	1 – 2 g q6-8h		1 – 2 g q12h	1 – 2 g q24h	1 – 2 g q24h; administer dose after dialysis on dialysis days
	CNS infection	2 g q4h	2 g q6h	2 g q8h	2 g q12h	2 g q12-24h; administer dose after dialysis on dialysis days
cefTAZidime (IV) ^{1,3,5} (3 rd generation)		2 g 8h	2 g q12h	2 g q24h	1 g q24h	1 g q24h; administer dose after dialysis on dialysis days OR 2 g after dialysis three times weekly if receiving dialysis three times weekly
cefepime [£] (IV) ^{1,2} (4 th generation)	Uncomplicated mild to moderate infections	1 – 2 g q8-12h	1 – 2 g q12 – 24h (CICr 30-59 mL/min)	1 – 2 g q24h	1 g q24h	1g q24h; administer dose after dialysis on dialysis days OR

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cefepime [£] (IV) ^{1,2} (4 th generation)	Severe infections including febrile neutropenia, hospital acquired pneumonia, deep space infections‡ or coverage for <i>Pseudomonas aeruginosa</i>	2 g q8h	2 g q12h (CrCl 30-59 mL/min)	2 g q24h	1 g q24h	2 g after dialysis three times weekly if receiving dialysis three times weekly
Carbapenems						
ertapenem [£] (IV/IM) ^{13,5}		1 g q24h		500 mg q24h		500 mg q24h; administer supplementary dose of 150 mg after dialysis session if daily dose given less than 6 hr before start of HD
imipenem/cilastatin ^R (IV) ^{1,11}	Meropenem preferred for CNS infections and when CrCl less than 30 mL/min	500 – 1000 mg q6h (CrCl greater than 70 mL/min)	500 mg q6-8h (CrCl 31 – 70 mL/min)	500 mg q8-12h (CrCl 21 – 30 mL/min)	250 – 500 mg q12h (CrCl less than 20 mL/min)	250 – 500 mg q12h; administer dose after dialysis on dialysis days
meropenem ^R (IV) ^{1,2,3,5}	<u>q6h dosing regimen:</u> Caution: do NOT use this regimen for CNS infections	500 mg q6h	500 mg q8h (CrCl 26 – 50 mL/min)	500 mg q12h (CrCl 10 – 25 mL/min)	500 mg q24h	500 mg q24h; administer dose after dialysis on dialysis days
	<u>q8h dosing regimen:</u> Dose 2 g q8h for CNS infections	1000 – 2000 mg q8h	1000– 2000 mg q12h		500 mg – 1000 mg q24h	500 mg – 1000 mg q24h; administer dose after dialysis on dialysis days
Aminoglycosides – Adjust dose for serum drug levels where applicable. For prolonged therapies consider pharmacy consult for appropriate dosing and monitoring						
gentamicin/tobramycin (IV) Extended Interval Dosing ^{2,4,14}	- 7 mg/kg for serious infections - Dosing based on IBW, unless actual body weight greater than 20% above IBW, then use dosing weight	5 – 7 mg/kg q24h (CrCl greater than or equal to 60 mL/min)	5 – 7 mg/kg q36h (CrCl 40 – 59 mL/min)	5 – 7 mg/kg q48h (CrCl 20 – 39 mL/min) OR Consider conventional dosing	5 – 7 mg/kg IV to start then use serial serum drug levels to adjust (CrCl less than 20 mL/min) OR Consider conventional dosing	1.5 – 2 mg/kg loading dose followed by 1 mg/kg maintenance dose at the end of each dialysis session; dose adjustments based on pre-dialysis levels (dosing based on patient's dry weight if not obese; if dry weight is greater than 20% above IBW then use dosing weight)
gentamicin/tobramycin (IV) Conventional Dosing ^{2,4,14}	- Dosing based on IBW, unless actual body weight greater than 20% above IBW, then use dosing weight - Consider a loading dose of 2 mg/kg to start	1.5 – 2 mg/kg q8h (CrCl greater than or equal to 80 mL/min) 1.5 – 2 mg/kg q12h (CrCl 50 – 79 mL/min)	1.5 – 2 mg/kg q24h (CrCl 20 – 49 mL/min)	1.5 – 2 mg/kg q48-72hrs OR Single dose, then use serial drug levels to adjust; close monitoring recommended (CrCl less than 20 mL/min)		

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gentamicin/tobramycin (IV) Synergy Dosing ^{2,3,14}	<ul style="list-style-type: none"> For Gram positive infections only; tobramycin not for synergy against Enterococcus spp infections Dosing based on IBW, unless actual body weight greater than 20% above IBW, then use dosing weight 	<p>1 mg/kg q8h (CrCl greater than or equal to 80 mL/min)</p> <p>1 mg/kg q12h (CrCl 50 – 79 mL/min)</p>	1 mg/kg q24h (CrCl 20 – 49 mL/min)	1 mg/kg q48-72hrs OR Single dose, then use serial drug levels to adjust; close monitoring recommended (CrCl less than 20 mL/min)		1 mg/kg at the end of each dialysis session; dose adjustments based on pre-dialysis levels (dosing based on patient's dry weight if not obese; if dry weight is greater than 20% above IBW then use dosing weight)
amikacin (IV) Extended Interval Dosing ^{1,2,4}	Dosing based on IBW, unless actual body weight greater than 20% above IBW, then use dosing weight	15 mg/kg q24h (CrCl greater than or equal to 60 mL/min)	15 mg/kg q36h (CrCl 40 – 59 mL/min)	15 mg/kg q48h (CrCl 20 – 39 mL/min) OR Consider conventional dosing	15 mg/kg to start then use serial serum drug levels to adjust (CrCl less than 20 mL/min) OR Consider conventional dosing	5 – 7.5 mg/kg at the end of each dialysis session; dose adjustments based on pre-dialysis levels (dosing based on patient's dry weight if not obese; if dry weight is greater than 20% above IBW then use dosing weight)
amikacin (IV) Conventional Dosing ^{1,2,4}	<ul style="list-style-type: none"> Dosing based on IBW, unless actual body weight greater than 20% above IBW, then use dosing weight Consider a loading dose of 7.5 mg/kg to start 	<p>5 – 7.5 mg/kg q8h (CrCl greater than or equal to 80 mL/min)</p> <p>5 – 7.5 mg/kg q12h (CrCl 50 – 79 mL/min)</p>	5 – 7.5 mg/kg q24h (CrCl 20 – 49 mL/min)	5 – 7.5 mg/kg q48-72hrs OR use serial serum drug levels to adjust; close monitoring recommended (CrCl less than 20 mL/min)		5 – 7.5 mg/kg at the end of each dialysis session; dose adjustments based on pre-dialysis levels (dosing based on patient's dry weight if not obese; if dry weight is greater than 20% above IBW then use dosing weight)
Macrolides						
erythromycin (IV) ^{1,2}		500 – 1000 mg q6h			50 – 75% dose q6h	
erythromycin (PO) ^{1,2,3}	<u>Formulary product:</u> •erythromycin 250 mg capsules containing EC pellets	250 – 500 mg q6h			50 – 75% dose q6h	
azithromycin (IV) ¹		500 mg q24h x 3-5 days			Use with caution – No dose adjustment provided	
azithromycin (PO) ¹		500 mg q24h x 3 days OR 500 mg on day one, then 250 mg daily for days 2 to 5				
clarithromycin (PO) ^{1,3,4}		500 mg q12h	500 mg q24h		500 mg q24h; administer dose after dialysis on dialysis days	
clarithromycin XL [£] (PO) ^{1,3}		1000 mg q24h	500 mg q24h		500 mg q24h; administer dose after dialysis on dialysis days	

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Quinolones						
ciprofloxacin (IV) ^{1,2,8}		400 mg q12h			400 mg q24h	400 mg q24h; administer dose after dialysis on dialysis days
	Severe infections; infections due to <i>Pseudomonas aeruginosa</i>	400 mg q8h	400 mg q12h			
ciprofloxacin (PO) (regular release oral solid) ^{1,2,9}		500 mg q12h			500 mg q24h	250 – 500 mg q24h; administer dose after dialysis on dialysis days
	Infection of the bone or skin, infections due to <i>Pseudomonas</i> spp or severe infections	750 mg q12h	500 mg q12h			
levofloxacin (PO/IV) ¹		500 mg q24h	500 mg once then 250 mg q24h (CrCl 20 – 49 mL/min)	500 mg once then 250 mg q48h (CrCl less than 20 mL/min or IHD)		
	High dose for bacteremia, complicated UTI, pyelonephritis, complicated skin infection, nosocomial pneumonia, intra-abdominal infections, infections due to <i>Pseudomonas</i> spp	750 mg q24h	750 mg q48h (CrCl 20 – 49 mL/min)	750 mg once then 500 mg q48h (CrCl less than 20 mL/min or IHD)		
moxifloxacin(PO/IV) ¹		400 mg q24h				
norfloxacin [£] (PO) ^{1,3}		400 mg q12h		400 mg q24h		
Tetracyclines						
doxycycline (PO) ¹		100 mg q12h				
minocycline [£] (PO) ^{1,3,5}		200 mg then 100 mg q12h	Usual dose (Doxycycline preferred)			
tetracycline (PO) ^{1,3,5}		250 – 500 mg q6h (CrCl greater than 80 mL/min) 250 – 500 mg q8- 12h (CrCl 50 to 80 mL/min)	250 – 500 mg q12 – 24h (doxycycline preferred)		250 – 500 mg q24h (doxycycline preferred)	Use not recommended
tigecycline ^R (IV) ¹		100 mg initially, then 50 mg q12h				

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Other						
clindamycin (IV) ¹		600 – 900 mg q8h				
clindamycin (PO) ^{1,12}		300 – 450 mg q6-8h				
DAPTOmycin ^R (IV) ^{1,3}	<p><u>Skin and soft tissue infections:</u> 4 mg/kg q24h</p> <p><u>Severe infections:</u> 8-10 mg/kg q24h</p> <p>Monitor baseline and weekly creatine kinase levels</p>	6 – 8 mg/kg q24h	Usual dose q48h if CrCl less than 30 mL/min		Usual dose q48h Administer dose after dialysis on dialysis days	
fosfomycin (PO)	Uncomplicated UTI	3 g ONCE				
linezolid ^R (PO/IV) ^{1,2,3}		600 mg q12h				600 mg q12h Administer dose after dialysis on dialysis days
metroNIDAZOLE (PO/IV) ^{1,2}	Dose 500 mg q8h for <i>Clostridium difficile</i> infection or CNS infection	500 mg q12h				500 mg q12h Consider a supplemental dose after dialysis if administration cannot be separated from the dialysis session
nitrofurantoin monohydrate/macrocrystal sustained release capsules (MACROBID) (PO) ¹		100 mg q12h	Contraindicated if CrCl less than 40 mL/min (will NOT be effective in these patients)			
nitrofurantoin regular release oral solid ^{R,1}		50 – 100 mg q6h				

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<p>sulfamethoxazole + trimethoprim (IV)</p> <ul style="list-style-type: none"> Each mL of injectable contains sulfamethoxazole 80 mg and trimethoprim 16 mg^{1,2,8} 	<p>Dose listed as trimethoprim (TMP) component</p> <p>Use of sulfamethoxazole + trimethoprim in moderate to severe renal dysfunction has not been not adequately studied, close monitoring of patient response, electrolytes and serum creatinine recommended</p>	<p>8 – 20 mg TMP/kg/day divided q6-12h</p> <p><i>Pneumocystis jiroveci</i> Treatment: 15 – 20 mg/kg/day divided q6-8h</p>		<p>50% of usual dose (CrCl 15 – 29 mL/min)</p>	<p>Generally not recommended, but if required: 4 – 6 mg/kg/day divided q12-24h (CrCl less than 15 mL/min)</p>	<p>2.5 – 10 mg/kg q24h; administer dose after dialysis on dialysis days OR 4-6 mg/kg 3 times weekly after dialysis if receiving dialysis three times weekly</p>
<p>sulfamethoxazole + trimethoprim (PO)</p> <ul style="list-style-type: none"> Each regular strength tablet contains sulfamethoxazole 400 mg and trimethoprim 80 mg Each double-strength (DS) tablet contains sulfamethoxazole 800 mg and trimethoprim 160 mg Each mL of oral suspension contains sulfamethoxazole 40 mg and trimethoprim 8 mg^{1,2,8} 		<p>sulfamethoxazole/trimethoprim 800/160 to 1600/320 mg q12h</p> <p><i>Pneumocystis jiroveci</i> Treatment: 15 – 20 mg/kg/day divided q6-8h</p>	<p><i>Pneumocystis jiroveci</i> Treatment (CrCl 15 – 30 mL/min): 15 – 20 mg/kg/day divided q6-8h for 48 hr then 7 – 10 mg/kg/day divided q12h</p>	<p><i>Pneumocystis jiroveci</i> Treatment (CrCl less than 15 mL/min): 7 – 10 mg/kg/day divided q12-24h</p>	<p><i>Pneumocystis jiroveci</i> Treatment: 7 – 10 mg/kg after dialysis three times weekly if receiving dialysis three times weekly</p>	
trimethoprim (PO) ²		100 mg q12h		50 mg q12h (CrCl 15 – 29 mL/min)	Generally not recommended if CrCl less than 15 mL/min, but if required: 50 mg q24h	50 mg q24h Administer dose after dialysis on dialysis days
vancomycin (IV) ^{2,8,13}	<p>Consider a loading dose of 25-30 mg/kg if <u>severe</u> infection, adjusting maintenance doses based on renal function</p> <p>Dosing based on actual body weight</p> <p>Maximum of 2 g per dose for <u>maintenance doses</u></p> <p>Adjust dose for serum drug levels where applicable. For prolonged therapies consider pharmacy consult for appropriate dosing and monitoring</p>	<p><u>Target Trough</u> <u>10 – 15 mg/L</u></p> <p>15 mg/kg q12h (CrCl greater than 80 mL/min)</p> <p>15 mg/kg q24h (CrCl 40 – 80 mL/min)</p>	<p><u>Target Trough</u> <u>10 – 15 mg/L</u></p> <p>15 mg/kg q36h (CrCl 20 – 39 mL/min)</p>	<p><u>Target Trough</u> <u>10 – 15 mg/L</u></p> <p>15 mg/kg q48h (CrCl 10 – 19 mL/min)</p>	<p>Consider loading dose of 25 – 30 mg/kg; then use serial serum drug levels to adjust</p>	<p><u>Less than 70 kg:</u> 1000 mg loading dose then 500 mg maintenance dose infused after dialysis on dialysis days;</p> <p><u>70-100 kg:</u> 1250 mg loading dose then 750 mg maintenance dose infused after dialysis on dialysis days;</p> <p><u>Greater than 100 kg:</u> 1500 mg loading dose then 1000 mg maintenance dose infused after dialysis on dialysis days</p> <p>(Adjust maintenance doses based on pre-dialysis vancomycin trough levels)</p>
	<p><u>Target Trough</u> <u>15 – 20 mg/L</u></p> <p>15 mg/kg q8h (CrCl greater than 80 mL/min)</p> <p>15 mg/kg q12h (CrCl 40 – 80 mL/min)</p>	<p><u>Target Trough</u> <u>15 – 20 mg/L</u></p> <p>15 mg/kg q24h (CrCl 20 – 39 mL/min)</p>	<p><u>Target Trough</u> <u>15 – 20 mg/L</u></p> <p>15 mg/kg q48h (CrCl 10 – 19 mL/min)</p>			

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vancomycin (PO) ¹	<i>C. difficile</i> infection ONLY See NB-ASC <i>Clostridium difficile</i> Infection treatment guidelines for more details	125 – 500 mg q6h					
Antivirals							
acyclovir (IV) ^{1,2,3,9}	Dose based on ideal or dosing body weight Herpes zoster (shingles)/ Herpes simplex/ Varicella- zoster (chickenpox) in an immunocompromised host or patient with severe disease or encephalitis: 10 - 15 mg/kg q8h	5 – 10 mg/kg q8h	5 – 10 mg/kg q12h (CrCl 25 – 49 mL/min)	5 – 10 mg/kg q24h (CrCl 10 – 24 mL/min)	2.5 – 5 mg/kg q24h	2.5 – 5 mg/kg q24h Administer after dialysis on dialysis days	
acyclovir (PO) ¹	Herpes zoster, and Varicella zoster: 800 mg five times a day	400 – 800 mg q8h to five times a day		400 – 800 mg q8h	200 – 800 mg q12h	200 - 800 mg q12h Administer dose after dialysis on dialysis days	
famciclovir [£] (PO) ^{1,2,3,8}	Herpes zoster (shingles)	500 mg q8h (CrCl greater than or equal to 60 mL/min)	500 mg q12h (CrCl 40 – 59 mL/min)	500 mg q24h (CrCl 20 – 39 mL/min)	250 mg q24h (CrCl less than 20 mL/min)	250 mg after each dialysis session	
	Primary genital herpes	250 mg q8h (CrCl greater than 40 mL/min)	250 mg q12h (CrCl 20 – 40 mL/min)		250 mg q24h (CrCl less than 20 mL/min)	250 mg after each dialysis session	
	Recurrent Genital herpes	1000 mg q12h x 1 day (CrCl greater than 40 mL/min)	500 mg q12h x 1 day (CrCl 40 – 59 mL/min)	500 mg as a single dose (CrCl 20 – 39 mL/min)	250 mg as a single dose (CrCl <20 mL/min)	250 mg as a single dose after a dialysis session	
ganciclovir (IV) ^{1,8}	Induction	5 mg/kg q12h or 2.5 mg/kg q12h if (CrCl 50 – 69 mL/min)	2.5 mg/kg q24h	1.25 mg/kg q24h	1.25 mg/kg 3 times weekly (following dialysis, if receiving dialysis three times weekly)		
	Maintenance	5 mg/kg q24h or 2.5 mg/kg q24 h if (CrCl 50 – 69 mL/min)	1.25 mg/kg q24h	0.625 mg/kg q24h	0.625 mg/kg three times weekly (following dialysis, if receiving dialysis three times weekly)		
oseltamivir (PO) ^{1,2,15}	Treatment (for 5 days)	75 mg q12h (CrCl greater than 60 mL/min)	30 mg q12h (CrCl 30 – 60 mL/min)	30 mg q24h	Use with caution: 75 mg ONCE	75 mg after each dialysis session over a period of 5 days	
	Prophylaxis (for 10 to 14 days)	75 mg q24h (CrCl greater than 60 mL/min)	30 mg q24h (CrCl 30 – 60 mL/min)	30 mg q2days	Use with caution: 30 mg ONCE	An initial 30 mg dose may be given prior to HD if exposed during the 48 hours between dialysis sessions. Then administer 30 mg after alternate dialysis sessions over a period of 10-14 days	

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valACYclovir (PO) ^{1,2,16}	Herpes zoster (shingles)	1 g q8h	1 g q12h	1 g q24h	500 mg q24h	1 g three times weekly after dialysis, if receiving dialysis three times weekly
	Herpes labialis	2g q12h x 2 doses	1 g q12h x 2 doses	500 mg q12h x 2 doses	500 mg as a single dose	500 mg as a single dose Administer dose after a dialysis session
	Primary genital herpes	1g q12h		1g q24h	500 mg q24h	500 mg PO q24h Administer dose after dialysis on dialysis days
	Recurrent genital herpes	500 mg q12h x 3 days or 1g q24h x 5 days		500 mg q24h		500 mg PO q24h Administer dose after dialysis on dialysis days
	Herpes simplex/ Varicella zoster treatment in oncology patients	1 g q8h	1 g q12h	1 g q24h	500 mg q24h	1 g three times weekly after dialysis, if receiving dialysis three times weekly
	Herpes simplex/ Varicella zoster prophylaxis in oncology patients	500 mg q8-12h		500 mg q12h	500 mg q24h	500 mg PO q24h Administer dose after dialysis on dialysis days
valGANciclovir (PO) ^{1,2,8}	Induction	900 mg q12h (CrCl greater than or equal to 60 mL/min)	450 mg q12h (CrCl 40 – 59 mL/min) 450 mg q24h (CrCl 25 – 39 mL/min)	450 mg q48h (CrCl 10 – 24 ml/min)	Consider ID or Transplant consult	
	Maintenance	900 mg q24h (CrCl greater than or equal to 60 mL/min)	450 mg q24h (CrCl 40 – 59 mL/min) 450 mg q2days (CrCl 25-39 mL/min)	450 mg 2x/week (CrCl 10 – 24 ml/min)	Consider ID or Transplant consult	
zanamivir [£] (inhaled) ^{1,15}	Treatment	10 mg inhaled orally q12h				
	Prophylaxis	10 mg inhaled orally q24h				
Antifungals						
amphotericin B (IV) ^{1,2,4,8} (FUNGIZONE)		0.5-1 mg/kg q24h				
amphotericin B, lipid complex [£] (IV) ^{1,4,8} (ABELCET)		5 mg/kg q24h				
amphotericin B, liposomal (IV) ^{1,8} (AMBISOME)		3 – 6 mg/kg q24h				
anidulafungin [£] (IV) ¹		200 mg once then 100 mg q24h				
casposfungin [£] (IV) ¹		70 mg once, then 50 mg q24h				

ADULT ANTIMICROBIAL DOSING TOOL

Drug	General Comments	Usual Adult Dose (CrCl greater than or equal to 50 mL/min)	CrCl 30 - 49 mL/min	CrCl 10 - 29 mL/min	CrCl less than 10 mL/min	Intermittent Hemodialysis (IHD)
micafungin (IV) ^{1,17}		100 mg q24h				
	Esophageal candidiasis OR invasive aspergillosis	150 mg q24h				
	Prophylaxis of <i>Candida</i> infection in hematopoietic stem cell transplantation	50 mg q24h				
fluconazole (PO/IV) ¹	Candidemia: 800 mg loading dose on day 1 then 400 mg daily	200 – 800 mg q24h	50% of the dose if CrCl 50 mL/min or less			Administer usual dose after dialysis on dialysis days; on non-dialysis days, reduce dose by 50 %
itraconazole (PO) ¹ *Capsules and oral solution are NOT bioequivalent; favor the oral solution	Aspergillosis: Consider loading dose of 200 mg q8h x 3 days; then 200 mg q12h	100 – 200 mg q24h				
posaconazole (IV) ^{1,8,9}		Loading dose, 300 mg IV infusion q12h on day 1, followed by 300 mg IV infusion q24h starting on day 2	Accumulation & resultant toxicity of the diluent can occur if CrCl less than 50 mL/min.			
posaconazole (PO) ^{1,8,9} Delayed release tablet and oral suspension are NOT bioequivalent; favor the delayed release tablet.	Delayed-Release Tablet	Loading dose of 300 mg q12h on day 1 followed by 300 mg q24h starting on day 2				
	Oral Suspension	Prophylaxis: 200 mg three times daily Treatment of invasive fungal infections: 400 mg q12h or 200 mg four times daily for patients unable to tolerate a meal or nutritional supplement				
voriconazole (IV) ¹	Therapeutic drug monitoring may be considered	6 mg/kg q12h x 2 doses then 4 mg/kg q12h thereafter	Accumulation & resultant toxicity of the diluent can occur if CrCl less than 50 mL/min. Use oral voriconazole at normal doses			
voriconazole (PO) ^{1,18}	Therapeutic drug monitoring may be considered	For patients weighing greater than or equal to 40 kg: 400 mg q12h x 2 doses then 200 mg q12h ; OR for patients less than 40 kg: 200 mg q12h x 2 doses then 100 mg q12h IDSA recommendations for invasive aspergillosis: may consider oral therapy in place of IV with dosing of 4 mg/kg rounded up to convenient tablet dosage form every 12 hours. IV administration preferred in serious infections as comparative efficacy with the oral route has not been established.				

ADULT ANTIMICROBIAL DOSING TOOL

(NB Provincial Health Authorities Anti-Infective Stewardship Committee, September 2017)

Legend:

R: restricted antimicrobial

£: antimicrobial *not* listed on NB Hospital Formulary

‡: deep space infections include meningitis, septic arthritis, complicated abscesses, etc

IBW: ideal body weight

Dry body weight **in hemodialysis**: defined as the lowest tolerated post-dialysis weight at which there are minimal signs or symptoms of hypovolemia or hypervolemia.²¹

Obesity: defined as an actual body weight greater than 20% above patient's calculated ideal body weight.

Cockcroft-Gault equation for estimated creatinine clearance (mL/min):

$$\text{CrCL (females)} = \frac{(140 - \text{age}) \times \text{weight (kg)}^*}{\text{serum creatinine (mcmol/L)}}$$

$$\text{CrCl (males)} = \text{CrCl (females)} \times 1.2$$

*For weight, use ideal body weight *unless* actual body weight is greater than 20% of ideal body weight, in which case use dosing body weight.

Ideal body weight (IBW):

$$\text{IBW (females)} = 45.5 \text{ kg} + 0.92 \times (\text{height in cm} - 150 \text{ cm}) \quad \text{OR} \quad 45.5 \text{ kg} + 2.3 \times (\text{height in inches} - 60 \text{ inches})$$

$$\text{IBW (males)} = 50 \text{ kg} + 0.92 \times (\text{height in cm} - 150 \text{ cm}) \quad \text{OR} \quad 50 \text{ kg} + 2.3 \times (\text{height in inches} - 60 \text{ inches})$$

$$\text{Dosing weight (kg)} = \text{IBW} + 0.4 \times (\text{actual body weight} - \text{IBW})$$

ADULT ANTIMICROBIAL DOSING TOOL

(NB Provincial Health Authorities Anti-Infective Stewardship Committee, September 2017)

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