northern health
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2020 Antimicrobial Stewardship Program
Adult Dosing Guidelines

Antibiotic Category	Generic Name	Dose Normal Renal Function	CrCl = 10 to 50 mL/min	CrCl less than 10 mL/min	Hemodialysis	Peritoneal Dialysis	Obesity (BMI 30 kg/m^2 or greater)
PENICILLINS	Amoxicillin (PO)	250 mg to 1 g PO TID	500 mg PO BID to TID	250 to 500 mg PO daily	250 to 500 mg PO daily; give dose AD on dialysis days	250 mg PO BID	Consider upper limit of normal dosing
	Amoxicillin/ Clavulanate (PO)	500 mg PO TID 875 mg PO BID	10 to 30: 500 mg PO BID	500 mg PO daily	500 mg PO daily; give dose AD on dialysis days	No Data	Consider upper limit of normal dosing
	Ampicillin	1 to 2 g IV q4 to 6h	**30 to 50:** 1 to 2 g IV q6 to 8h **10 to 30:** 1 to 2 g IV q8 to 12h	1 to 2 g IV q12 to 24h	Dose as per CrCl less than 10 with 1 dose given AD on dialysis days	250 mg IV q12h	Consider upper limit of normal dosing One study showed higher Vd but decreased Vd/kg^{TBW}, CL unchanged
	Cloxacillin	IV: 1 to 2 g IV q4 to 6h PO: 0.5 to 1 g QID	No change	No change	No change	No change	Consider upper limit of normal dosing Significant increase in Vd (almost double that of non-obese)
	Penicillin G Sodium	1 to 4 MU IV q4h to q6h (Max: 24 MU/day)	1 to 4 MU IV q6h	1 to 4 MU IV q8h	Dose as per CrCl less than 10 with 1 dose given AD on dialysis days	25 - 50% of normal dose	Consider upper limit of normal dosing Drug absorption and serum levels not altered by obesity
	Penicillin V Potassium (PO)	300 mg PO QID	300 mg PO TID	300 mg PO BID	Dose as per CrCl less than 10 with 1 dose given AD on dialysis days	Dose as per CrCl less than 10	Consider upper limit of normal dosing (e.g. up to 600 mg PO QID)
	Piperacillin/ Tazobactam **(Reassess after 72 hours)**	3.375 g IV q6h or 4.5 g IV q6 to 8h	**20 to 40:** 2.25 to 3.375 g IV q6h **less than 20:** 2.25 g IV q6 to 8h	2.25 g IV q8h	2.25 g IV q8 to 12h + extra 0.75 g AD	2.25 g IV q8 to 12h	CL and Vd not affected by changes in TBW May dose up to 4.5 g IV q6h (30 min infusion) Maximum dose of piperacillin (without tazobactam) reported as 24 g/day

For list of References contact Antimicrobial Stewardship Program Coordinator 250-565-5956

Antibiotic Category	Generic Name	Dose Normal Renal Function	CrCl = 10 to 50 mL/min	CrCl less than 10 mL/min	Hemodialysis	Peritoneal Dialysis	Obesity (BMI 30 kg/m^2 or greater)
CARBAPENEMS	Ertapenem **(Restricted to outpatients) Consult ID or call pharmacist**	1 g IV q24h	**Less than 30**: 0.5 g IV q24h	0.5 g IV q24h	0.5 g IV q24h; give dose AD on dialysis days	0.5 g IV q24h	No change in maximum dose
	Imipenem/Cilastatin **(Restricted: Consult ID or call pharmacist)**	500 mg IV q6h	500 mg IV q12h	250 mg IV q12h	250 mg IV q12h with 1 dose given AD on dialysis days	250 mg IV q12h	Use caution in renal impairment and with high doses (1 g IV q6h) due to increased risk of seizures
	Meropenem **(Restricted: Consult ID or call pharmacist)**	500 mg IV q6h or 1 g IV q8h 2 g IV q8h (CNS infections)	**25 to 50:** 500 mg IV q8h or 1 g IV q12h **10 to 25:** 500 mg IV q12h	500 mg IV q24h	500 mg IV q24h; give dose AD on dialysis days	500 mg IV q24h	No change in maximum dose
CEPHALOSPORINS 1st	Cefazolin	1 to 2 g IV q8h	1 to 2 g IV q12h	1 to 2 g IV q24h	1 to 2 g IV q24 to 48h + extra 0.5 to 1 g IV AD; or 2 g IV AD 3x/ week	500 mg IV q12h	Consider upper limit of normal dosing
	Cephalexin (PO)	500 mg to 1 g PO QID	500 mg PO BID to TID	250 mg PO BID	250 mg PO BID with 1 dose given AD on dialysis days	500 mg PO BID	Consider upper limit of normal dosing
2nd	Cefoxitin **(Restricted: OB/GYN or Mycobacterium abscessus infections)**	2 g IV q8h	2 g IV q12h	2 g IV q24h	2 g IV q24 to 48h; give 1 g IV AD on dialysis days	1 g IV q24h	Consider higher stat doses for perioperative use, or dosing at upper limit of normal doses
	Cefuroxime axetil (PO)	500 mg PO BID	**10 to 30**: 500 mg PO daily	500 mg PO daily	500 mg PO daily; give dose AD on dialysis days	500 mg PO daily	Consider dosing at upper limit of normal doses
	Cefuroxime sodium (IV)	0.75 to 1.5 g IV q8h	**Less than 20:** 0.75 to 1.5 g IV q12h	0.75 to 1.5 g IV q24h	Dose as per CrCl less than 10; give dose AD on dialysis days	0.75 to 1.5 g IV q24h	Consider dosing at upper limit of normal doses
3rd	Cefotaxime	2 g IV q8h **Meningitis**: 2 g IV q6h	2 g IV q8 to 12h	2 g IV q24h	1 to 2 g IV q24h; give dose AD on dialysis days (assuming 3 HD per week)	1 g IV q24h	Consider dosing at upper limit of normal doses
	Ceftriaxone **(avoid with IV calcium)**	1 to 2 g IV q24h **Meningitis:** 2 g IV q12h	No change	No change	No change	No change	Consider dosing at upper limit of normal doses
	Ceftazidime **(Reserved for treating Pseudomonas)**	2 g IV q8h	**30 to 50:** 2 g IV q12h **15 to 30:** 2 g IV q24h	2 g IV q24 to 48h	2 g IV q24 to 48h; give extra 1 g AD on dialysis days	1 g IV load then 500 mg IV q24h	Consider dosing at upper limit of normal doses
	Cefixime (PO)	400 mg PO daily	**Less than 20:** 200 mg PO daily (split 400 mg tablet)	200 mg PO daily (split 400 mg tablet)	Dose as per CrCl less than 10	Dose as per CrCl less than 10	Consider dosing at upper limit of normal doses

Antibiotic Category	Generic Name	Dose Normal Renal Function	CrCl = 10 to 50 mL/min	CrCl less than 10 mL/min	Hemodialysis	Peritoneal Dialysis	Obesity (BMI 30 kg/m^2 or greater)
FLUOROQUINOLONES	Ciprofloxacin (IV)	400 mg IV q8 to 12h	**Less than 30**: 400 mg IV q24h	400 mg IV q24h	400 mg IV q24h; give AD on dialysis days	400 mg IV q24h	Poorer tissue perfusion in obese patients. Obese patients are likely to benefit from increased doses Consider upper limit of normal dosing in severe infections (e.g. up to 400 mg IV q8h or 750 mg PO BID)
	Ciprofloxacin (PO)	500 to 750 mg PO BID	**30 to 50:** 250 to 500 mg PO BID **Less than 30:** 500 mg PO daily	500 mg PO daily	500 mg PO daily; give AD on dialysis days	500 mg PO daily	
	Moxifloxacin (PO/IV)	400 mg PO/IV q24h	No change	No change	No change	No change	No change in maximum dose
	Levofloxacin (PO/IV)	500 to 750 mg PO/IV q24h	**20 to 49:** 500 mg x 1 PO/IV then 250 mg PO/IV q24h or 750 mg PO/IV q48h	**Less than 20:** 500 mg PO/IV x1 then 250 mg PO/IV q48h or 750 mg PO/IV x 1 then 500 mg PO/IV q48h	500 mg PO/IV x 1 then 250 mg PO/IV q48h	Same as HD	May use up to 750 mg PO/IV q24h PK reportedly unaltered by obesity, but serum levels may be sensitive to CrCl; 1 g IV/PO q24h has been suggested for CrCl greater than 110 mL/min to target gram negative pathogens
MACROLIDES	Azithromycin (PO/IV)	500 mg IV/PO x 3 days or 500 mg PO x 1 then 250 mg PO x 4 days MAC prophylaxis: (CD4 less than 50) 1250 mg PO weekly pulm exacerbation proph: 250 to 500 mg 3x/week or 250 mg daily	No change	No change	No change	No change	No recommendations available
	Clarithromycin (PO)	250 to 500 mg PO BID	**Less than 30:** 250 to 500 mg PO daily	250 to 500 mg PO daily	500 mg PO daily (dose AD on dialysis days)	500 mg PO daily	Maximum dose found was 500 mg PO q8h for dual-therapy *Helicobacter pylori* eradication or 1 to 2 g PO q12h for resistant mycobacterial infections (2 g dose was not as well tolerated)
TETRACYCLINES	Doxycycline (PO)	100 mg PO BID	No change	No change	No change	No change	Maximum dose found was 300 mg PO daily in divided doses for 10 or more days for treatment of primary or secondary syphilis
GLYCYLCYCLINE	Tigecycline (IV) **(Restricted: Consult ID or call pharmacist)**	100 mg IV x 1 dose, then 50 mg IV q12h	No change	No change	No change	No change	No change in maximum dose

MISCELLANEOUS	Clindamycin (IV/PO)	600 to 900 mg IV q8h; 150 to 450 mg PO QID	No change	No change	No change	No change	Consider dosing at upper limit of normal doses for serious infections Studies from prosthetic joint infection and SSTI suggest increased doses warranted Inadequate oral doses (Less than 10 mg/kg/24h in divided doses) had worse outcomes in morbidly obese patients
	Daptomycin **(Restricted Consult ID or call pharmacist)**	6-12 mg/kg IV q24h	**Less than 30**: 6 to 12mg/kg IV q48h	6 to 12 mg/kg IV q48h	Give dose q48h AD. if dialysis is 72hrs apart give dose + 50%	Dose as per CrCl less than 10	Use AdjBW or TBW No weight-based dosing suggested by some experts Exposure increased by 25 to 30% when dosed based on TBW, but still safe and tolerated in individuals ranging from 56 to 147 kg
	Linezolid (PO/IV) **(Restricted: Consult ID or call pharmacist)**	600 mg PO/IV q12h	No change	No change	600 mg PO/IV q12h; ensure 1 dose given AD	600 mg IV/PO q12h	Use standard dose of 600 mg IV/PO q12h Prolonged inhibitory activity observed despite decreased serum concentrations
	Metronidazole (PO/IV)	500 mg PO/IV q8 to 12h **C. diff.:** refer to order set 10-111-5354	No change	No change	500 mg PO/IV q12h; ensure 1 dose given AD Metabolites may accumulate = monitor for adverse effects	Dose as per HD	Single doses up to 2 g IV/PO are used for treatment of trichomoniasis. Doses of 7.5 mg/kg IV/PO (up to a maximum 1 g) q6h can be used for treatment of anaerobic bacterial infections
	Nitrofurantoin (PO)	50 to 100 mg PO QID MacroBID: 100 mg PO BID	**For females less than 40:** DO NOT USE **For males less than 60:** DO NOT USE	DO NOT USE	DO NOT USE	DO NOT USE	No recommendations available
	Septra, Bactrim, Trimethoprim (TMP)/ Sulfamethoxazole (SMX) (PO/IV) (IV = TMP 16 mg/mL + SMX 80 mg/mL)	**IV:** 8 - 20 mg TMP/kg/day divided q6, 8 or 12h. **PO:** 1 DS tab PO BID **PJP IV:** 15 to 20 mg TMP/kg/ day div. q6 to 8h (Prednisone adjunct therapy: start 15 to 30 minutes prior to TMP/SMX at 40 mg PO BID x 5 days then taper over 21 days) **PJP PO**: 2 DS tabs PO TID treat x 21 days **PJP Prophylaxis:** (CD4 less than 200) 1 DS tab PO daily or 3x/week	**30 to 50**: No change **Less than 15 to 30:** Reduce dose by 50% **PJP:** **15 to 30:** 5 mg TMP/kg/dose q6 to 8h x 48h then 3.5 to 5 mg TMP/kg/dose q12h **PJP Prophylaxis:** **30 to 50:** 1 DS tab po daily or 3x/week **15 to 30:** 1 SS tab po daily or 3x/week	**Less than 15:** Not recommended **PJP:** **Less than 15:** 7 to 10 mg TMP/kg/day in 1 or 2 divided doses **PJP Prophylaxis:** **Less than 15:** 1 SS tab PO daily or 3x/ week	**Not recommended** **PJP:** 7 to 10 mg TMP/ kg AD **PJP Prophylaxis:** 1 SS tab PO daily, give dose AD on dialysis days	Not recommended but if used as per CrCl less than 10	Limited and conflicting data to guide optimal dosing weight. Dose depends on indication, severity and pathogen IV: Consider AdjBW ORAL: Consider using the upper limit of dosing range for morbidly obese patients when treating SSTI or severe/complicated UTI (e.g. 2 DS tabs PO BID)
	Vancomycin	Refer to order set 10-111-5335 (PO) **C. diff**: refer to order set 10-111-5354	Refer to order set 10-111-5335 (PO) **C. diff**: refer to order set 10-111-5354	Refer to order set 10-111-5335 (PO) **C. diff**: refer to order set 10-111-5354	Refer to order set 10-111-5335 (PO) **C. diff**: refer to order set 10-111-5354	25 mg/kg IV (max 2 g) x 1, draw trough levels q 2 to 3 days, target 15 to 20 mcg/ mL; when in range give 15 mg/kg x 1 then repeat levels	Refer to order set 10-111-5335 (PO) **C. diff**: refer to order set 10-111-5354

Antibiotic Category	Generic Name	Dose Normal Renal Function	CrCl = 10 to 50 mL/min	CrCl less than 10 mL/min	Hemodialysis	Peritoneal Dialysis	Obesity (BMI 30 kg/m^2 or greater)
AMINOGLYCOSIDES (AG) **NOTE: Try to avoid in renal dysfunction.**	Amikacin **Check serum levels*** Target trough levels: Once Daily: less than 2 mg/L Multiple Daily dosing: less than 8 mg/L	**Once daily dose:** 15 mg/kg** IV q24h; round to nearest 25 mg **Multiple daily dosing:** 7.5 mg/kg IV 12h	**40 to 59:** 15 mg/kg q36h **20 to 50:** 7.5 mg/kg q24h **Less than 20:** Do Not Use	DO NOT USE	DO NOT USE	DO NOT USE	Use AdjBW for initial dose Adjust by TDM
	Gentamicin and Tobramycin	Refer to order set 10-111-5336	Refer to order set 10-111-5336	Refer to order set 10-111-5336	Refer to order set 10-111-5336	No Data	Refer to order set 10-111-5336

Antibiotic Category	Generic Name	Dose Normal Renal Function	CrCl = 10 to 50 mL/min	CrCl less than 10 mL/min	Hemodialysis	Obesity (BMI 30 kg/m^2 or greater)
ANTI-TUBERCULOUS **(Refer to Sanford's Guide for multi-drug regimen options)**	Ethambutol (PO)	15 to 25 mg/kg PO daily	15 to 25 mg/kg PO q24 to 36h **CrCl 10 to 30:** q36 to 48h	15 to 25 mg/kg PO q48h	15 to 25 mg/kg PO q48h, give AD on dialysis days PD: dose as for CrCl less than 10	ATS/CDC/IDSA Guidelines recommend dosing based on IBW for initial doses
	Isoniazid (PO) [Always give with vitamin B6 50 mg PO daily]	5 mg/kg PO daily (Max: 300 mg/day)	No change	No change	Dose daily; give AD on dialysis days for PD no change	ATS/CDC/IDSA Guidelines recommend dosing based on IBW for initial doses
	Pyrazinamide (PO) [dose based on IBW]	25 mg/kg PO daily (Max: 2.5 g/day)	**Less than 20:** 25 mg/kg PO q48h	25 mg/kg PO q48h	25 mg/kg PO q48h, give AD on dialysis days PD: 25 mg/kg PO daily	ATS/CDC/IDSA Guidelines recommend dosing based on IBW for initial doses
	Rifampin (PO) [dose based on IBW]	600 mg PO daily	300 to 600 mg PO daily	300 to 600 mg PO daily	HD & PD: 300 to 600 mg PO daily	ATS/CDC/IDSA Guidelines recommend dosing based on IBW for initial doses

Antifungal Agents	Generic Name	FDA Treatment Indications	Dose	Renal Impairment Dose	Obesity (BMI 30kg/m^2 or greater)
Azoles Derivatives	Fluconazole (PO/IV) **(FIRST LINE AGENT)**	Esophageal, UTI, vaginal candida infections, cryptococcal meningitis	100 to 400 mg PO/IV q24h	**Less than 50**: decrease dose by 50%; **Hemo:** Give full dose AD and 50% of dose on non-dialysis days **PD:** dose as for CrCl less than 10	Candidiasis: May use up to 12 mg/kg x 1 load, then 6 mg/kg q24h (TBW) Doses up to 1200 mg daily have been reported in the literature for Cryptococcus meningitis In critically ill, especially with CrCl greater than 50 or MIC greater than 2 *Candida* spp, higher doses may be warranted
	Itraconazole (PO/IV)	Blastomycosis, histoplasmosis, invasive salvage therapy for aspergillosis	200 mg PO/IV q12h or For invasive infections: 200 mg TID x 3 days then q12h	**If less than 30: DO NOT give IV** - due to cyclodextrin accumulation **Less than 10:** 100 to 200 mg PO BID **HD:** 100 mg PO BID **PD:** same as for HD	No recommendations available
	Voriconazole (PO/IV) (restricted: see indications)	Prophylaxis or treatment of aspergillus, scedosporium or fusarium spp. or intolerance or isolate resistance to amphoB or fluconazole	400 mg PO BID or 6 mg/kg IV q12h x 2 doses, then 200 mg PO BID or 4 mg/kg IV q12h (reduce dose by 50% for less than 40 kg)	No change for oral dose **If less than 50 or HD/PD: DO NOT administer IV** due to cyclodextrin accumulation	IV: Use IBW or AdjBW
Cell Wall Disruptor	Micafungin **(Restricted to 2nd line use after fluconazole)**	Candidemia, disseminated candidiasis, *candida* abscess & peritonitis infection	100 to 150 mg IV q24h	No adjustment	Higher dose (150 mg) may be required
	Caspofungin **(Restricted to 2nd line use in pediatric patients)**	Refractory aspergillosis, *candida* infections resistant to fluconazole	Pediatric: 70 mg/m^2 IV load dose (max 70 mg) then 50 mg/m^2 IV q24h (max 50 mg)	No adjustment	No change in maximum dose

Antiviral Category Generic Name	FDA Treatment Indications	Dose	CrCl = 10 to 50 mL/min	CrCl less than 10 mL/min	Obesity (BMI 30kg/m^2 or greater)
Acyclovir ****For obese pts (BMI 30 or greater) use AdjBW**	Herpes Simplex Virus	400 mg PO TID or 200 mg 5x/day 5 to 10 mg/kg** IV q8h (immunocompromised, critically ill, pregnant, necrotic ulcers)	**25 to 50:** 5 to 10 mg/kg** IV q12h **10 to 25:** 5 to 10 mg/kg** IV q24h 400 mg PO BID	50% dose** IV q24h 200 mg PO BID give 1 dose AD on dialysis days for PD: dose as CrCl less than 10	Use AdjBW
	HSV Encephalitis, Herpes Zoster & Varicella-Zoster Virus	800 mg PO 5x/day (q4h) 10 to 15 mg/kg** IV q8h	**25 to 50:** 10 to 15 mg/kg** IV q12h **10 to 25:** 10 to 15 mg/kg** IV q24h 800 mg PO TID	5 to 7.5 mg/kg** IV q24h (Dose AD) 800 mg PO BID (give 1 dose AD) PD: dose as for CrCl less than 10	Use AdjBW

Antifungal Agents	Generic Name	FDA Treatment Indications	Dose	Renal Impairment Dose	Obesity (BMI 30kg/m^2 or greater)
Valacyclovir	Herpes Zoster (shingles)	1 g PO TID x 7 days [HIV: 1 g PO TID x 7 to 10 days]	**30 to 49:** 1 g PO BID **10 to 29:** 1 g PO daily	500 mg PO daily (dose AD) for PD: 500 mg PO daily	No recommendations available
	HSV genital infection	Initial episode: 1 g PO BID x 10 days Recurrence: 500 mg PO BID x 3 days [HIV: 1 g PO BID x 5 to 10 days] Suppression: 0.5 to 1 g PO daily (0.5 g if less than 9 episodes/yr) [Suppression in HIV: 500 mg PO BID]	Initial: 10 to 29: 1 g PO daily Recurrence: 10 to 29: 500 mg PO daily Suppression: 10 to 29: 500 mg PO daily to q48h (give q48h if 9 or less episodes/yr)	Initial: 500 mg PO daily Recurrence: 500 mg PO daily Suppression: 500 mg PO q48h [HIV or 9 or more episodes/year: 500 mg PO daily] Dose AD; for PD 500 mg PO daily	No recommendations available
	Herpes labialis (cold sores)	2 g PO BID x 1 day [HIV: 1 g PO BID x 5 to 10 days]	**30 to 49:** 1 g PO BID x 2 doses **10 to 29:** 500 mg PO BID x 2 doses	500 mg x 1 dose (dose AD; for PD 500 mg x 1 dose)	No recommendations available
Ganciclovir **(Restricted: HIV, transplant, oncology, ophthalmology and hematology patients)**	Cytomegalovirus infections	**Induction (I)**: 5 mg/kg IV q12h **Maintenance (M)**: 5 mg/kg IV q24h	**50 to 69: I:** 2.5 mg/kg IV q12h; **M**: 2.5 mg/kg IV q24h **25 to 49: I:** 2.5 mg/kg IV q24h; **M:** 1.25 mg/kg IV q24h **10 to 24: I:** 1.25 mg/kg IV q24h; **M:** 0.625 mg/kg q24h	**I:** 1.25 mg/kg IV 3x/week (dose AD) **M:** 0.625 mg/kg IV 3x/week (dose AD) **PD:** dose as for CrCl less than 10	Use AdjBW
Valganciclovir **(Restricted: HIV, transplant, oncology, ophthalmology and hematology patients)** *Give oral dose with food*	Cytomegalovirus infections	900 mg PO BID x 21 days, then 900 mg PO daily	**40 to 59**: 450 mg PO BID x 21 days, then 450 mg PO daily **25 to 39:** 450 mg PO daily x 21 days, then 450 mg PO q48h **10 to 24:** 450 mg PO q48h x 21 days, then 450 mg PO twice weekly	Not recommended For HIV consider solution 200 mg 3x/week x 21 days, then 100 mg 3x/week	No recommendations available
Oseltamivir (**Restricted: need approval by MHO for *prophylaxis***)	Influenza A and B	**Treatment:** 75 mg PO BID **Prophylaxis:** 75 mg PO daily until outbreak over	**Treatment: 31 to 60:** 30 mg PO BID x 5 days **10 to 30:** 30 mg PO daily x 5 days **Prophylaxis: 31 to 60:** 30 mg PO daily until outbreak over	**Not recommended unless on HD:** **Treatment:** 75 mg PO after each HD x 5 days (max 3 doses) **For PD:** 30 mg PO x 1 dose **Prophylaxis:** 30 mg PO after every other	No change in dosing

Abbreviations:
AdjBW = adjusted body weight, AD = after dialysis, AG = aminoglycosides, AUC = area under the curve, CF = cystic fibrosis, CK = creatine kinase, CL = clearance, CRRT = continuous renal replacement therapy, CMV = cytomegalovirus, CSF = cerebrospinal fluid, DS = double strength, FN = febrile neutropenia, HSV = herpes simplex virus, HD = hemodialysis, I = induction, IBW = ideal body weight, ID=Infectious diseases, M = maintenance, MAC = mycobacterium avium complex, MHO = medical health officer,
MIC = minimal inhibitory concentration, MU = million units, MD = maintenance dose, PD = peritoneal dialysis, PJP = pneumocystis jiroveci pneumonia (formerly PCP), PK = pharmacokinetic, Ps = pseudomonas, SMX = sulfamethoxazole, SS = single strength,
SSTI = skin and soft tissue infections, TBW = total body weight, TDM = therapeutic drug monitoring, TMP = trimethoprim, Vd = volume of distribution

Formulas			
BMI (kg/m^2)	**CrCl (mL/min)**	**AdjBW (kg)**	**IBW**
Weight (kg) Height^2 (m^2)	**Male:** ((140 - age) / SCr (micromol/L)) x 90 **Female:** [((140 - age) / SCr (micromol/L)) x 90] x 0.85	IBW + 0.4 (TBW - IBW)	**Male:** 50 kg+ 2.3 (each inch over 5 ft) **Female:** 45.5 kg + 2.3 (each inch over 5 ft)

IV to Oral Antimicrobial Step-down Guidelines

Oral antimicrobials **equally potent** to the IV formulation		
Parenteral Therapy	**Oral Therapy**	**Oral Bioavailability**
Ciprofloxacin 200 mg IV q12h Ciprofloxacin 400 mg IV q12h	Ciprofloxacin 250 mg PO BID Ciprofloxacin 500 to 750 mg PO BID **NOTE**: space oral dose 2hrs before or 6hrs after calcium, magnesium and iron. Hold enteral feeds 1hr before and after dose (do not use oral suspension in feeding tubes due to clogging)	70%
Clindamycin 600 mg IV q6h Clindamycin 900 mg IV q8h	Clindamycin 300 mg PO QID Clindamycin 450 mg PO TID	90%
Fluconazole IV daily (daily dose same for both IV and PO administration)	Fluconazole PO daily (daily dose same for both IV and PO administration)	90%
Levofloxacin 750 mg IV q24h Levofloxacin 500 mg IV q24h	Levofloxacin 750 mg PO q24h Levofloxacin 500 mg PO q24h	99%
Metronidazole 500 mg IV q8h Metronidazole 500 mg IV q12h	Metronidazole 500 mg PO TID Metronidazole 500 mg PO BID	100%
Moxifloxacin 400 mg IV daily	Moxifloxacin 400 mg PO daily	90%
Sulfamethoxazole/trimethoprim 800/160 mg IV q8h	1 DS tab PO BID	85%
Voriconazole 400 mg IV q12h x 2 doses then 200 mg IV q12h	400 mg PO BID x 2 doses then 200 mg PO BID	96%
Oral antimicrobials **<u>less potent</u>** than IV formulation. Step-down to a less potent oral agent requires <u>individual patient assessment</u>		
Parenteral Therapy	**Oral Therapy *****	**Oral Bioavailability**
Azithromycin 500 mg IV daily x 3 days (5 days if suspected legionella)	Azithromycin 500 mg PO x 1 then 250 mg PO daily x 4 days or Azithromycin 500 mg PO daily x 3 days	37%*
Cefazolin 1 g IV q8h	Cephalexin*** 500 mg PO QID	90%
Cefuroxime 750 mg IV q8h Cefuroxime 1.5 g IV q8h	Cefuroxime 500 mg PO BID with food	50%
Cloxacillin 1 to 2 g IV q6h	Cloxacillin 500 mg PO QID 1 hr before or 2 hours after meals **or** Cephalexin 500 mg PO QID	50%
Penicillin G 1 to 2 million units IV q6h	Penicillin V 300 mg PO QID **or** Amoxicillin 500 mg PO TID	60 to 73% Amoxicillin = 80%
Acyclovir# 5mg/kg IV q8h	Acyclovir# 400 mg PO TID **or** Valacyclovir# 1 g PO BID	Acyclovir = 10 to 20% Valacyclovir = 54%

* low bioavailability but rapidly moves into tissues resulting in low serum concentrations but high and persistent tissue concentrations
(Note: 500 mg oral dose = loading dose)
Doses and frequencies may vary depending on indication

Intravenous antimicrobials **without oral formulations**		
Parenteral Therapy	**Oral Therapy*** **	**Oral Bioavailability**
Ampicillin 500 mg IV q8h Ampicillin 1 g IV q6h	Amoxicillin 500 mg PO TID	80%
Ceftazidime 2 g IV q8h	Ciprofloxacin 750 mg PO BID (for *Pseudomonas spp*)	70%
Ceftriaxone 1 to 2 g IV q24h	**Depends on indication (consult pharmacist)** Amoxicillin-Clavulanate 875 mg PO BID **or** Cefuroxime 500 mg PO BID **or** Cefixime 400 mg PO daily	Amoxicillin = 80% Clavulanate = 30 - 98% Cefuroxime (with food) = 50% Cefixime = 50%
Gentamicin 6 mg/kg IBW** IV q24h Tobramycin 6 mg/kg IBW** IV q24h **Please contact pharmacy for dosing	Ciprofloxacin 750 mg PO BID (for *Pseudomonas spp*)	Cipro = 70%
Piperacillin/Tazobactam 3.375 g IV q6hr	**Depends on indication (consult pharmacist)** Amoxicillin/clavulanate 500/125 mg PO TID **or** Ciprofloxacin 500 to 750 mg PO BID + Metronidazole 500 mg PO BID **or** Ciprofloxacin 500 to 750 mg PO BID + Clindamycin 300 mg PO QID	Amoxicillin= 80% Clavulanate = 30 - 98% Cipro = 70% Metro = 100% Clinda = 90%
NOTE: All above doses should be adjusted for the indication, patient's age, weight, and renal function when necessary. ***** If a pathogen has been identified ensure the organism is susceptible.** **Note: cephalothin is the representing agent in microbiology testing for cephalexin**		

Criteria for IV to Oral Step-Down in Adult Patients

1. Clinically improving
   a. Consistent improvement in fever over the last 24 hours or patient is afebrile (less than 38ºC)
   b. White blood cells decreasing
   c. Hemodynamically stable
2. Able to tolerate and absorb oral medications and is **NOT**:
   a. NPO or having difficulties swallowing
   b. Unconscious with no OG/NG available
   c. Experiencing active GI bleed, GI obstruction/ileus, OG/NG continuous suction, malabsorption syndrome
   d. Experiencing severe or persistent nausea, vomiting or diarrhea
3. Pathogen is not known to be resistant to the oral antimicrobial to be used

For list of References contact
Antimicrobial Stewardship Program Coordinator 250-565-5956