

**GUIDELINES FOR IV ANTIBIOTIC DOSING DURING CONTINUOUS VENO-VENOUS  
HAEMOFILTRATION (CVVH) IN PATIENTS WITH ACUTE RENAL FAILURE**

*Mid- Trent Critical Care Network*

IV Antibiotics	Dosage in normal renal function	Dosage range during CVVH	Action taken if CVVH interrupted for > 4- 6 hrs in anuric pts or urine output <10 ml/hr	Removal of drug by haemofiltration	Notes
Abelcet	1-5mg/kg OD	As normal renal function	As normal renal function	No	Less nephrotoxic than Amphotericin but still potential for nephrotoxicity
Aciclovir IV	Encephalitis 10mg/kg TDS	7- 10mg /kg once daily	5mg/kg once daily	Yes	Can measure aciclovir levels if indicated. Samples sent to Bristol
Ambisome	1- 3mg/kg OD	As normal renal function	As normal renal function	No	Less nephrotoxic than Amphotericin but still potential for nephrotoxicity
Amoxicillin <b>(Normal dose)</b>	1g TDS (2g QDS dosing at Derby)	As normal renal function	Discuss with pharmacy limited information available	Yes	
Amoxicillin <b>(High Dose)</b>	2g 4 hourly	As normal renal function	Discuss with pharmacy limited information available .Potential risk of convulsions and crystalluria in anuric patients	Yes	Can measure levels if indicated. Samples need to be frozen and sent on ice to Bristol
Benzylpenicillin <b>(Normal dose)</b>	1.2g - 2.4g QDS	1.8g QDS	Maximum quoted in literature 900mg QDS In practice have used 1.2g QDS.	Yes	Potential to induce seizures particularly with dose accumulation. If seizures occur consider whether the drug may be implicated.
Benzylpenicillin <b>(High dose)</b>	2.4g 4 hourly	1.2-1.8g 4 hourly	Maximum quoted in literature 900mg QDS In practice have used 1.2g QDS.	Yes	Potential to induce seizures particularly with dose accumulation. If seizures occur consider whether the drug may be implicated.
Caspofungin	Loading dose 70mg. Day two: 50mg OD or if >80kg 70mg OD	As normal renal function	As normal renal function	No	Dosage reduction required in liver impairment
Ceftazidime	1-2g TDS	1-2 g BD	1g OD	No	Potential to induce seizures particularly with dose accumulation. If seizures occur consider whether the drug may be implicated.
Cefuroxime	750mg TDS prophylaxis 1.5g TDS treatment	750mg-1.5g BD . If severe infection can leave at TDS for 24-48 hours	750mg-1.5g BD	Unknown	
Ceftriaxone	2g BD meningitis	As normal renal function	Maximum quoted in literature 2g OD In practice have some units have left at 2g BD	Unknown	

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Ciprofloxacin	400mg BD	As normal renal function	200mg BD	Yes	Potential to lower seizure threshold. If seizures occur consider whether the drug may be implicated.
Clarithromycin	500mg BD	As normal renal function	250mg BD Some units do not reduce dosage below 500mg BD	Unknown	
Clindamycin	600mg - 1.2g QDS	As normal renal function	As normal renal function	No	
Co-amoxiclav	1.2g TDS	1.2g BD	1.2g BD	Yes	
Flucloxacillin	1 - 2 g QDS	As normal renal function	1g QDS	No	
Fluconazole	200mg -400mg OD	As normal renal function	200mg OD	Yes	
Gentamicin once daily dose	5mg/kg OD	3mg/kg check levels daily Re-dose when trough less than 1mg/L	2mg/kg check levels daily Re-dose when trough less than 1mg/L	Yes	100% renally cleared. Accumulates rapidly if filtration interrupted in anuric patients. If possible dose daily at 14.00hrs level at 10am and await result before re-dosing
Imipenem	500mg-1g TDS or QDS	* 500mg TDS	250mg BD		Risk of seizures if accumulates. <b>*Some hospitals prefer to use Meropenem in CVVH</b>
Linezolid	600mg BD	As normal renal function	As normal renal function	Yes	Two metabolites with MAOI activity but no antibacterial action accumulate in renal failure. Monitor FBC & for neuropathic side effects
Meropenem	1g TDS (some units use 500mg TDS) <b>2g TDS for CNS infections</b>	1g BD*	1g OD	Yes	*In <b>CNS infections</b> consider <b>1g TDS in CVVH for less susceptible</b> organisms discuss with microbiology. Less potential to induce seizures than imipenem in renal failure. However if seizures occur consider whether the drug may be implicated.
Metronidazole	500mg TDS	As normal renal function	As normal renal function	Unknown	
Rifampicin	300-600mg BD	As normal renal function	As normal renal function	Unknown	
Tazocin	4.5g TDS (Derby use 4.5g QDS)	4.5g BD May increase to TDS if clinically indicated	4.5g BD	Yes	Patient at greater risk of convulsions in renal failure associated with overdosage. QMC and Derby have used TDS dosing in CVVH without apparent problems

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Teicoplanin	Loading dose 400mg 12 hourly for 3 doses. Then 200mg-400mg OD or 6mg/kg	Normal loading dose 400mg 12 hourly for 3 doses then 400mg once a day on day 3 then 200mg od (2-3mg/kg) <b>Alternatively some units use 400mg every 72 hours</b>	Normal loading dose 400mg 12 hourly for 3 doses then 400mg once a day on day 3 then 2mg/kg daily <b>Alternatively some units use 400mg every 72 hours</b>	Unknown	Advised to measure trough serum levels if larger doses are required / used.
Vancomycin intermittent infusion	1g daily or BD	1g OD check level daily and await the result before re-dosing. Re-dose when trough less than 15mg/L	1g OD check level daily and await the result before re-dosing. 100% renally cleared accumulates rapidly	Yes	Where practical dose daily dose at 14.00 hrs and check timed level at 10am await result .For severe infections /MRSA pneumonia aiming for trough 10-15mg/L
Voriconazole	Dose according to IV or nasogastric (NG) route and patient weight	Use oral /NG administration no dosage adjustment needed	Use oral /NG administration no dosage adjustment needed	Unknown	If NG administration not possible discuss with pharmacy. IV relatively contra-indicated due to accumulation of solvent vehicle

<b>Filtration Machine (Name):</b>	Aquarius (Edwards) Prisma (Gambro) Infomed (Infomed)
<b>UltraFiltrate Rate:</b>	35ml/kg/hr (max 45ml/kg/hr)
<b>Use of Pre/Post dilution blood:</b>	Yes (approx 1/3 pre 2/3 post)

*This information is only intended as a practical guide to dosing using the above filtration methods. Clinical guidelines are guidelines only. The interpretation and application of the clinical guidelines to individual patients will remain the responsibility of the individual clinician. If in doubt contact a senior colleague or expert .*

Reference: R Burns . Ashley C. The renal drug handbook.Radcliffe Medical Press 2004  
 ABPI Data Sheet Compendium online access May 2007  
 Micro medex  
 Mid trent Critical Care Pharmacist's In house experience  
 UKCPA members in house CVVH dosing tables  
 Robin L et Al. Antibiotic dosing in Critically ill Adult Patients receiving continuous renal replacement. Clinical Infectious Diseases (CID) 2005;41:1159-1166  
 Sceetz M H et al . Adjustment of antimicrobial doses for CVVH . CID 2006;42:436-438  
 References for individual antibiotics available on request

Caution is advised when using guidelines after a review date. This guideline has been registered with the Mid Trent Critical Care Network 11th September 2007  
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