

# VANCOMYCIN

<b>Trade Name</b>	Vancomycin hydrochloride (MYLAN)																				
<b>Class</b>	Glycopeptide antibiotic																				
<b>Mechanism of Action</b>	Inhibits cell wall synthesis by binding to cell wall precursors																				
<b>Indications</b>	<p><b>Indication 1:</b> Empirical antibiotic cover for suspected late onset sepsis (usually in conjunction with cefotaxime)</p> <p style="text-align: center;"><b>ID Approved</b></p> <p><b>Indication 2:</b> Infection due to confirmed coagulase negative Staphylococcus</p> <p style="text-align: center;"><b>ID Approved</b></p> <p><b>Indication 3:</b> Infection due to other organisms sensitive to vancomycin eg: MRSA, Enterococcus, C. difficile</p> <p style="text-align: center;"><b>Individual ID approval required for full treatment course</b></p>																				
<b>Supplied As</b>	500mg powder vial																				
<b>Charting</b>	<p><b>Prescribe as Vancomycin 10mg/mL</b></p> <p>Use <b>vancomycin sticker</b> in drug chart to ensure vancomycin dilutions and dosing are charted appropriately</p>																				
<b>Dilution</b> <b>*TWO dilution steps required*</b>	<p><b>Step 1. Reconstitute the vial</b></p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th rowspan="2">Drug</th> <th>Add Diluent</th> <th rowspan="2">Total Volume</th> <th rowspan="2">Concentration</th> </tr> <tr> <th>Water for injection</th> </tr> </thead> <tbody> <tr> <td>500mg (dry powder)</td> <td>10 mL</td> <td>10 mL</td> <td>50mg / mL</td> </tr> </tbody> </table> <p><b>Step 2. Further dilute the 50 mg/mL solution in step 1</b></p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th rowspan="2">Drug</th> <th>Add Diluent</th> <th rowspan="2">Total Volume</th> <th rowspan="2"><b>FINAL CONCENTRATION</b></th> </tr> <tr> <th>0.9% sodium chloride</th> </tr> </thead> <tbody> <tr> <td>50mg = 1mL</td> <td>4 mL</td> <td>5 mL</td> <td><b>10 mg / mL</b></td> </tr> </tbody> </table> <p><b>If the dose volume is &lt;0.5mL then will need to further dilute before infusing via the T34 pump (see T34 protocol)</b></p> <p>This would only occur in a baby &lt;500g</p>			Drug	Add Diluent	Total Volume	Concentration	Water for injection	500mg (dry powder)	10 mL	10 mL	50mg / mL	Drug	Add Diluent	Total Volume	<b>FINAL CONCENTRATION</b>	0.9% sodium chloride	50mg = 1mL	4 mL	5 mL	<b>10 mg / mL</b>
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Dosage / Interval	Creatinine micromol/L	Dose (mg/kg)	Interval (hourly)
	20-39	20	12
	40-49	15	12
	50-59	12	12
	60-79	15	18
	80-100	15	24
	>100	15	Check trough at 24 hrs Dose according to result
	The <b>minimum dose</b> of vancomycin to be used is <b>10mg/kg</b> .		
Administration	<p>IV infusion over 30 minutes followed by a <u>0.5mL flush</u> of 0.9% sodium chloride given over a further 30 minutes.</p> <p>Do not give intramuscularly</p> <p>Note: If red man syndrome occurs and vancomycin is to continue then infuse the vancomycin over 60 minutes with the flush afterwards as above</p>		
Compatible With	<p><b>Solution:</b> 5% and 10% dextrose, 0.45% and 0.9% sodium chloride, TPN, lactated ringers</p> <p><b>Y-Site:</b> Acyclovir, adrenaline, alprostadil, alteplase, amikacin, ampicillin, amiodarone, amoxicillin /clavulanate, atenolol, atropine, azithromycin, aztreonam, caffeine citrate, calcium chloride, calcium gluconate, caspofungin, cimetidine, clarithromycin, clindamycin, codeine phosphate, dexamethasone, dexmedetomidine, digoxin, diltiazem, dobutamine, dopamine, doxapram, enalaprilat, ephedrine, erythromycin esmolol, famotidine, fentanyl, fluconazole, gentamicin, glycopyrrolate, heparin (concentrations of 1 unit/mL or less), hydrocortisone succinate, insulin, labetalol, lidocaine, linezolid, lorazepam, magnesium sulphate, meropenem, metoprolol, metronidazole, midazolam, milrinone, morphine, nicardipine, noradrenaline, octreotide, ondansetron, paracetamol, pancuronium bromide, potassium chloride, propofol, propranolol, ranitidine, remifentanyl, sodium bicarbonate, tobramycin, vasopressin, vecuronium, and zidovudine.</p>		
Incompatible With...	<p>Aminophylline, amphotericin, cefazolin, cefepime, cefotaxime, ceftazidime, ceftriaxone, chloramphenicol, ciprofloxacin, diazepam, diazoxide, epoetin alfa, heparin (concentrations greater than 1 unit/mL), methylprednisolone, mezlocillin, nafcillin, omeprazole, pentobarbital, phenobarbital, piperacillin, piperacillin/tazobactam, sodium valproate, sulfamethoxazole-trimethoprim, ticarcillin, and ticarcillin/clavulanate.</p>		

<b>...Incompatible With</b>	*There is no information on compatibility of vancomycin with lipids so please either stop the lipid whilst vancomycin is being infused or use a separate line
<b>Monitoring</b>  <b>Note: Verbal dose recommendations from a Pharmacist must be communicated to the prescriber and the nurse or ACNM</b>	<b>First set of levels</b> take peak and trough levels around the dose due at 36-48 hours  <b>For ongoing monitoring</b> recheck trough levels every 48 to 72 hours, or more frequently if renal function unstable. Recheck peak level only if specifically requested.  <b>Pre-dose level</b> (trough) <b>5 - 15 mcg/mL</b> <b>Higher troughs</b> <u>may</u> be acceptable in severe sepsis  <b>Peak level</b> (1hr after end of infusion) <b>25-40 mcg/mL</b>
<b>Stability</b>	Discard opened vial immediately after use Discard unused reconstituted 10mg/mL solution immediately Use a new vial for each dose.
<b>Storage</b>	Powder vials stored below 25 °C
<b>Adverse Reactions</b>	Nephrotoxicity, ototoxicity, phlebitis Rash and hypotension - the red man syndrome Neutropenia with prolonged use > 3 weeks
<b>Metabolism</b>	Majority excreted unchanged in urine, small amount of hepatic metabolism
<b>Comments</b>	No information of compatibility with lipid therefore it should be given separately. The dosing nomogram serves a guide to suggested starting doses. Dose modification will then be expected to occur, as required, based on individual serum vancomycin concentrations.
<b>References</b>	1.ADC 1999, 81:F221-7 2.Neofax 20 <sup>th</sup> ed 2007 and NeoFax online in <a href="http://www.micromedex.com">www.micromedex.com</a> 3.Neonatal network April 1994, 13(3):33-9 4.Therapeutic Drug Monitoring 1995, 17:319-326 5.Trissells IV Drug Compatability in <a href="http://www.micromedexsolutions.com">www.micromedexsolutions.com</a>
<b>Updated By</b>	January 2000 (trial of new dose regimen.) A Lynn, B Robertshawe, June 2007 (conc change 10mg/ml for T34) A Lynn, B Robertshawe April 2009, May 2009 (new pumps) A Lynn, B Robertshawe September 2009 (guardrail on) A Lynn, B Robertshawe June 2010 (guardrail off) A Lynn, B Robertshawe March 2012 (dilution section and add indication 2) A Lynn, B Robertshawe June 2012 (re-order profile) Nov 2012 two dilution/discard vial A Lynn, N Austin, Tony Walls July 2013 (PHARMAC update Ab approvals) A Lynn, B Robertshawe Aug 2016 (highlight double dilution steps again) A Lynn, B Robertshawe Dec 2021 (routine review + update of compatibilities) A Lynn, B Robertshawe April 2022 (review flush volume) A Lynn, B Robertshawe March 2023 (double dilution instructions)