

VANCOMYCIN

Trade Name	Vancomycin hydrochloride (MYLAN)																							
Class	Glycopeptide antibiotic																							
Mechanism of Action	Inhibits cell wall synthesis by binding to cell wall precursors																							
Indications	<p>Indication 1: Empirical antibiotic cover for suspected late onset sepsis (usually in conjunction with cefotaxime) ID Approved</p> <p>Indication 2: Infection due to confirmed coagulase negative Staphylococcus ID Approved</p> <p>Indication 3: Infection due to other organisms sensitive to vancomycin eg: MRSA, Enterococcus, C. difficile Individual ID approval required for full treatment course</p>																							
Supplied As	500mg powder vial																							
Charting	<p>Prescribe as Vancomycin 10mg/mL</p> <p>Use vancomycin sticker in drug chart to ensure vancomycin dilutions and dosing are charted appropriately</p>																							
Dilution *Two dilution steps required*	<p>Step 1: Reconstitute the 500mg of dry powder contents of the vial by adding 10mL of water for injection to get a 50mg/mL solution</p> <p>Step 2: Further dilute by taking 1mL (50mg) and diluting with 4mL of normal saline to give a final concentration of 10mg/mL</p> <table border="1" data-bbox="561 1339 1500 1456"> <thead> <tr> <th>Drug</th> <th>Sodium Chloride 0.9% Added</th> <th>Final Volume</th> <th>Final Concentration</th> </tr> </thead> <tbody> <tr> <td>50mg (1mL)</td> <td>4mL</td> <td>5mL</td> <td>10mg/mL</td> </tr> </tbody> </table> <p>If the dose volume is <0.5mL then will need to further dilute before infusing via the T34 pump (see T34 protocol)</p>			Drug	Sodium Chloride 0.9% Added	Final Volume	Final Concentration	50mg (1mL)	4mL	5mL	10mg/mL													
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Dosage / Interval	<p>Indication1,2,3:</p> <table border="1" data-bbox="561 1624 1500 2042"> <thead> <tr> <th>Creatinine micromol/L</th> <th>Dose (mg/kg)</th> <th>Interval (hourly)</th> </tr> </thead> <tbody> <tr> <td>20-39</td> <td>20</td> <td>12</td> </tr> <tr> <td>40-49</td> <td>15</td> <td>12</td> </tr> <tr> <td>50-59</td> <td>12</td> <td>12</td> </tr> <tr> <td>60-79</td> <td>15</td> <td>18</td> </tr> <tr> <td>80-100</td> <td>15</td> <td>24</td> </tr> <tr> <td>>100</td> <td>15</td> <td>Check trough at 24 hrs Dose according to result</td> </tr> </tbody> </table> <p>The minimum dose of vancomycin to be used is 10mg/kg.</p>			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
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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>Solution: 5% and 10% dextrose, 0.45% and 0.9% sodium chloride, TPN, lactated ringers</p> <p>Y-Site: 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 sulfate, 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, cefoxitin, 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> <p>*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</p>
Monitoring <p>Note: Verbal dose recommendations from a Pharmacist must be communicated to the prescriber and the nurse or ACNM</p>	<p>First set of levels take peak and trough levels around the dose due at 36-48 hours</p> <p>For ongoing monitoring recheck trough levels every 48 to 72 hours, or more frequently if renal function unstable. Recheck peak level only if specifically requested.</p> <p>Pre-dose level (trough) 5 - 15 mcg/mL Higher troughs <u>may</u> be acceptable in severe sepsis</p> <p>Peak level (1hr after end of infusion) 25-40 mcg/mL</p>

Stability	Discard opened vial immediately after use Discard unused reconstituted 10mg/mL solution immediately Use a new vial for each dose.
Storage	Powder vials stored below 25 °C
Adverse Reactions	Nephrotoxicity, ototoxicity, phlebitis Rash and hypotension - the red man syndrome Neutropenia with prolonged use > 3 weeks
Metabolism	Majority excreted unchanged in urine, small amount of hepatic metabolism
Comments	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.
References	1.ADC 1999, 81:F221-7 2.Neofax 20 th ed 2007 and NeoFax online in www.micromedex solutions.com 3.Neonatal network April 1994, 13(3):33-9 4.Therapeutic Drug Monitoring 1995, 17:319-326 5.Trissells IV Drug Compatibility in www.micromedexsolutions.com
Updated By	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)