

**ACTION and USES**

Vancomycin is used to treat Gram positive multi resistant bacterial infections such as staphylococcal infections including **Coagulase negative Staph (CoNS)**.

**STARTING DOSE IV** (based on serum creatinine)

Creatinine $\mu\text{mol/l}$	STARTING DOSE
<40	15mg/kg every 8 hours
40 - 80	15mg/kg every 12 hours
> 80	15mg/kg every 12 hours <b>BUT</b> perform a <b>trough and hold</b> before giving the second dose. Remember to mark the trough and hold on the Kardex. Thereafter, the <b>dose should be according to drug levels</b> (see table), with pharmacy advice, if required.

  

Medicine (Approved Name)	For Use	6			
VANCOMYCIN	Date	8		9	
Dose	Quantity	12		trough + hold	
Route					
15mg	IV				
Notes/Indication for antibiotic	Start Date	Stop Date	14		
late onset infection Cr > 80	17/7/20				
Prescriber - sign + print	Pharmacy	18		US/OC	
A Prescriber A PRESCRIBER		22			

9=Dose withheld on doctor's instruction

**SUBSEQUENT DOSE** (based on drug serum levels)

Subsequent dosages are based on measured serum vancomycin level not serum creatinine. Increase or decrease the prescribed dose according to drug levels.

**PLEASE NOTE:**

**Creatinine is ONLY used for calculating the initial dosing interval.**

It is not taken into consideration once you have administered the drug and obtained drug serum levels.

You do not change the subsequent dosing interval just because the creatinine moves between the groups above.

**Subsequent dose times are ONLY changed on the basis of BLOOD LEVELS**

**THERAPEUTIC DRUG MONITORING** (see dosage adjustment table below)

**Frequency of drug level:**

Check **trough and peak** on the 3rd dose after starting treatment. **Do not recheck the peak** unless specifically requested.

Following any dosage change thereafter, check the **trough level only** at the 3rd dose. If the trough is within therapeutic range, recheck after 72h, or **sooner** if baby becomes oedematous or renal function deteriorates.

**Trough Level:** Take trough immediately before a dose. The therapeutic trough level to treat the infection is 10-15mg/l but up to 20mg/l may be required for some infections. Discuss with a consultant microbiologist if trough level needs to be above 15mg/l. Only delay giving the subsequent dose if you intend to 'trough and hold'.

**Peak Level:** Take peak level 1 hour after the end of the 1 hour infusion to allow vancomycin to distribute throughout the body. Level should be in the range 20-30mg/l but up to 40mg/l is acceptable.

**Guidelines for IV medicine administration**

Prepared by: Jenny Carson June 2020

Approved July 2020

Checked by: Caroline O'Hare (update to reconstitution info Oct 2022)

Lothian Neonatal Service

Review date: June 2023

**Dosage adjustment table**

Drug level	Action
<b>Low Trough &lt; 7mg/L</b>	Keep same dose but give more frequently i.e. if 12 hourly dosing, change to 8 hourly.
<b>Low Trough ≥ 7mg/L but ≤ 10mg/L</b>	<p>Increase the dose proportionally to achieve target level of 12 mg/L (or 14mg/L in severe infection).</p> <p>Suggested new dose = <math>\frac{\text{target trough}}{\text{measured trough}} \times \text{previous dose}</math></p> <p>e.g. If the target trough is 12mg/L but measured trough only 8 mg/L on a dose of 20mg 12 hourly, the suggested new dose = 12 mg/L / 8mg/L x 20mg = 30mg 12 hourly</p> <p>Remember this is likely to increase the peak also by a similar proportion and the dose interval may need to be extended. For example, if the peak is predicted to be &gt; 40mg/L, consider splitting the new total daily dose into 3 doses i.e. 8 hourly.</p> <p>Predicted peak = <math>\frac{\text{new dose}}{\text{previous dose}} \times \text{measured peak}</math></p> <p>Discuss with consultant or pharmacist if unsure before next dose due.</p>
<b>Target trough &gt;10mg/L and ≤15mg/L</b>	Continue current dose.
<b>High trough &gt; 15mg/ but ≤ 20mg/L</b>	Reduce dose proportionally (see example above).
<b>High trough &gt; 20mg/L</b>	<p>Withhold and repeat random level until trough below 15mg/L. Likely to require extending interval i.e. 12 hourly to 24 hourly. Looking at the peak should enable you to estimate half-life.</p> <p>Discuss with consultant or pharmacist if unsure before next dose due.</p>
<b>High Peak &gt; 40 mg/L</b>	<p>Consider either reducing dose <b>or</b> giving same total daily dose divided between more doses depending on trough level.</p> <p>If trough is at the higher end of the range it may be appropriate to reduce the total daily dose and continue with the same dosing interval.</p> <p>If trough is at the lower end of range give the same total daily dose but change the interval i.e. 20mg x 12 hourly = 40mg daily; divided by 3, gives a suggested new dose of 13mg 8 hourly.</p> <p>Discuss with consultant or pharmacist if unsure before next dose due.</p>

**Plasma Drug Sample:** 0.2mL in an orange topped capillary sample tube. A plain specimen tube (clotted sample) is also acceptable but the volume will need to be larger (0.5mL) as these are flat-bottomed tubes. Send to Clinical Biochemistry Department (RIE-document time of sampling and whether trough or peak on Trak). **DO NOT take sample from the administration site.**

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**ADMINISTRATION**

By IV infusion over 1 hour. NEVER give by IV bolus injection.

**RECONSTITUTION**

Vancomycin IV is available as a 500mg and 1g dry powder vials. Reconstitution is necessary.

**NB Depending on vial size, add the amount of water for injection to make a 50mg/mL solution. CHECK VIAL SIZE.**

Vancomycin solution 50mg/mL

Vancomycin injection is available in 500mg and 1g dry powder vials. Reconstitution is necessary.

**Note: There can be supply problems and many brands can be supplied with different displacement values. To avoid missed doses and delayed antibiotic administration, it has been agreed to have an average displacement value irrespective of the brand. PLEASE CHECK VIAL SIZE.**

Irrespective of brand, add 9.8mL of water for injection to a **500mg** vial or 19.6mL of water for injection to a **1g** vial and shake well to mix.

**This solution MUST be diluted further to 5mg/mL (see below).**

Vancomycin solution 5mg/mL

Add 1mL of 50mg/mL vancomycin solution to 9mL of sodium chloride 0.9% injection and shake well to mix.

**Other compatible diluents** Glucose 5%, glucose 10%.

**INCOMPATIBILITIES**

Do not mix with any other drugs without checking with clinical pharmacist.

**STORAGE**

Use reconstituted intravenous solutions immediately, do not store. Syringes supplied by pharmacy are stable for 24 hours in the refrigerator. Unopened vials are stored in the IV drug cupboard.

**MONITORING**

'Red Man Syndrome' with flushing to the upper body and neck can occur if infusion is too rapid. Ototoxicity is possible but rarely seen if serum levels are kept below 30mg/L. Nephrotoxicity can occur and is more likely with pre-existing kidney dysfunction or with concomitant use of an aminoglycoside e.g. gentamicin. Observe site for extravasation and phlebitis. Neutropenia is reported after prolonged use (greater than 3 weeks).