

C. Vancomycin Recommended Dose Adjustment based on Trough Level Results

- After all dose adjustments repeat level as per recommendations above
- If there is a rise in creatinine, please calculate GFR and dose adjust as per recommendations in section on renal impairment below. Additionally assess patient for AKI as per the KDIGO definition in section on renal impairment below.

Trough level interpretation and maintenance dose adjustment for child >1 month (15mg/kg IV 6 HOURLY)		
Target trough level	Trough level	Dose Adjustment
10 – 20 mg/L If signs of AKI contact micro/ID and see section on renal impairment below	< 5mg/L	Increase dose by 20%
	5–9 mg/L	Increase dose by 10%
	10–20 mg/L	No change (unless target level is 15-20mg/L for complex infections* contact micro/ID)
	21–24 mg/L	Decrease dose by 10%, but do not omit a dose
	≥ 25 mg/L	Contact micro/ID for advice
*Complicated infections: Severe infection, reduced sensitivities, bacteraemia, endocarditis, osteomyelitis, meningitis, necrotising fasciitis and empyema		

Vancomycin Dosing, Therapeutic Drug Monitoring and Dose Adjustments in Patients with Renal Impairment

- Dosing is based on estimated GFR in patients with renal impairment. Please use the Schwartz formula below to calculate GFR
- Dosing and monitoring are expressed in the table below
- Please be aware that impaired renal function should be taken into account for both chronic kidney disease (CKD) and in acute kidney injury (AKI)
- If trough is high, consult nephrologist/Micro/ID for advice on subsequent dosing

GFR can be estimated by the Schwartz formula:

Child over 1 year:

$$\text{GFR (mL/min/1.73 m}^2\text{)} = (40 \times \text{Height in cm}) / \text{Creatinine in micromol/L}$$

Neonate:

$$\text{GFR (mL/min/1.73 m}^2\text{)} = (30 \times \text{Height in cm}) / \text{Creatinine in micromol/L}$$

To monitor for AKI please use the KDIGO model, if a patient is showing signs of AKI please review vancomycin and all nephrotoxic medication prescribed.

KDIGO classification of Acute Kidney Injury (AKI)

Stage 1 : Increase in creatinine of ≥50%

Or

Absolute increase in creatinine of 26.5micromol/L

Stage 2 : Increase in creatinine of ≥100%

Stage 3 : Increase in creatinine of ≥200%

Reference: Kidney Disease: Improving Global Outcomes (KDIGO) Acute Kidney Injury Work Group. KDIGO Clinical Practice Guideline for Acute Kidney Injury. Kidney Int Suppl 2012;2:8.

Dose Adjustment and Monitoring for Renal Impairment in Infants and Children >1 month of age

GFR (mL/min/1.73m ²)	IV Dose	Frequency	When to take a trough level
30-50	15mg/kg	12 hourly	Up to ONE HOUR before the 3rd dose . HOLD the next dose until level is back.
10-29	15mg/kg	24 hourly	Up to ONE HOUR before the 2nd dose . HOLD the next dose until level is back.
<10 / HD / PD	10 – 15mg/kg	STAT – subsequent dosing determined by serum levels.	Take level 12-18 HOURS after first dose . HOLD the next dose until level is back.

Vancomycin Reconstitution and Administration

Dilution of reconstituted vials (500mg and 1g)	Dilute with sodium chloride 0.9% or glucose 5% to a concentration of up to 5mg/mL i.e. dilute each 500mg with at least 100mL
Rate of infusion	The rate must not exceed 10mg/minute, give over <u>at least</u> 60 minutes minimum using an infusion pump e.g. 750mg over at least 75 minutes, 1000mg over at least 100 minutes, etc
Infusion reactions	Rapid infusion may cause severe hypotension (including shock and cardiac arrest), wheezing, dyspnoea, urticaria, pruritus, flushing of the upper body ('red man' syndrome), pain and muscle spasm of back and chest. Stop the infusion if they occur. Effects may last between 20 minutes and up to several hours after stopping administration. Peripheral administration may cause injection site pain and thrombophlebitis - rotate injection sites.