

# VANCOMYCIN DOSING AND MONITORING IN ADULTS

## 1. Estimate patient's creatinine clearance (CrCL)

$$\text{CrCL (male) ml/min} = \frac{(140 - \text{age}) \times \text{IBW (kg)}}{72 \times \text{SCr}} \quad (\times 0.85 \text{ for females})$$

IBW (males) = 50 kg + (2.3 x height in inches > 60 inches)

IBW (females) = 45 kg + (2.3 x height in inches > 60 inches)

Instead of IBW, use adjusted body weight (ABW) in obese patients (TBW > 30% over IBW):

$$\text{ABW (kg)} = \text{IBW} + 0.4 (\text{TBW} - \text{IBW})$$

**(Use minimum SCr of 1 mg/dL. Certain disease states or other factors may alter the relationship between SCr and CrCL resulting in over- or under- estimation of CrCL)**

## 2. Determine maintenance dose using the following

Each maintenance dose (approx. 15 mg/kg) should be administered at the dosing interval recommended for a patient's CrCL. Maximum initial dose is 1500 mg every 12 hours until serum concentration monitoring indicates the need for higher dosing. Utilize recommended infusion rates to minimize development of "Red Man's Syndrome."

VANCOMYCIN DOSES		INFUSION RATE BASED ON DOSE
Total body wt (kg)	Dose (mg)	(approx. ≤ 15 mg/min)
≥ 100	1500	90 minutes
85-99	1250	75 minutes
60-84	1000	60 minutes
50-59	750	60 minutes
30-49	500	60 minutes

VANCOMYCIN DOSING INTERVAL BASED ON ESTIMATED CrCL	
CrCL (ml/min)	Dosing interval
≥ 100	Q8-12h <i>(Consider Q8h dosing if &lt;50 years old with severe infection and normal renal function)</i>
50-99	Q12h
30-49	Q24h
< 30 *	Initial loading dose of 15-20 mg/kg. Redose with 15 mg/kg when serum level ≤ 15 mg/L or when ≤ 20 mg/L in severe infections where penetration may be compromised (e.g., meningitis, pneumonia)
Hemodialysis	
Peritoneal dialysis	
Continuous renal replacement therapy (CRRT)	Q24-48h <i>(Maintain trough 10-15 mg/L or 15-20 mg/L in severe infections where penetration may be compromised (e.g., meningitis, pneumonia))</i>

\* For patients with acute renal failure or unstable and/or increasing SCr, dose as if CrCL < 30 ml/min. Consider Q48h dosing in patients with CrCL 20-30 ml/min and stable SCr.

## 3. Serum concentration monitoring

In most cases, ONLY vancomycin troughs necessary for routine monitoring

- Obtain trough levels prior to the 4<sup>th</sup> dose of a new regimen (prior to the 3<sup>rd</sup> dose for patients with dosing intervals > 24 hours).
- Trough levels should be obtained within 30 minutes before the next scheduled dose.
- Repeat trough levels weekly with stable dosing AND with any significant changes in renal function.
- **Target trough concentrations of 10-15 mg/L recommended.** Trough concentrations of 15-20 mg/L may be desired in selected, severe infections where drug penetration may be compromised (e.g. meningitis, pneumonia).
- Peak levels NOT routinely obtained.

Random concentrations ONLY if severe renal dysfunction or receiving renal replacement therapy.

- Obtain a level within 24-48 hours in patients on CRRT or after 3-4 days in patients on HD/PD. More frequent sampling is usually not necessary. Redose when serum level ≤ 15 mg/L and when ≤ 20 mg/L in severe infections.