

VANCOMYCIN DOSING AND MONITORING IN ADULTS

1. Estimate patient's creatinine clearance (CrCL)

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

(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. 12 to 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
Wt (kg)	Dose (mg)	(approx. ≤ 15 mg/min)
≥ 100	1500	90 minutes
83-99	1250	75 minutes
66-82	1000	60 minutes
50-65	750	60 minutes
33-49	500	60 minutes

VANCOMYCIN DOSING INTERVAL BASED ON ESTIMATED CrCL	
CrCL (ml/min)	Dosing interval (hrs)
≥ 80	q12h
40-79	q24h
25-39	q48h
<25	Give an initial loading dose of 15-20 mg/kg. Redose patient with 12-15 mg/kg when serum level ≤ 15 mcg/mL
Hemodialysis	
Peritoneal dialysis	
Continuous renal replacement therapy (CRRT)	q48h (maintain trough ≤ 15 mcg/mL)

3. Serum concentration monitoring

(in most cases, only vancomycin troughs necessary for routine monitoring)

Not recommended for patients:

receiving therapy < 4 days OR receiving oral vancomycin therapy (minimal drug absorbed)

Trough concentrations ONLY if:

requiring therapy > 4 days OR

with severe or life threatening infections OR

receiving concomitant nephrotoxic drugs (e.g. cyclosporine, amphotericin B, aminoglycosides) OR

who are morbidly obese

- Obtain trough levels prior to the 4th dose of a new regimen (prior to the 3rd 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 5 - 15 mcg/mL recommended.** Trough concentrations of up to 20 mcg/mL may be desired in selected, severe infections where drug penetration may be compromised. Consider Infectious Disease or Clinical Pharmacist consult in these cases.

Both trough and peak concentrations ONLY if:

(Peak levels NOT routinely obtained. The clinical utility of obtaining serum peak concentrations is not clear.)

with severe infections requiring "high" concentrations to penetrate selected sites (e.g. endocarditis, osteomyelitis)

OR

not responding to therapy

- Obtain peak levels at least 1 hour after the end of the infusion.

- Peak levels of 20-40 mcg/mL have been considered "therapeutic."

Random concentrations ONLY if:

severe renal dysfunction or on dialysis.

- Obtain a level after 3-4 days of therapy. More frequent sampling is usually not necessary. Redose when serum level ≤ 15 mcg/mL.