



Adult Vancomycin Dosing Guidelines

Definitions

- Total body weight (TBW)
 - Patient’s actual weight
- Ideal body weight (IBW)
 - IBW (male) = 50 kg + (2.3 x height in inches > 60 inches)
 - IBW (female) = 45 kg + (2.3 x height in inches > 60 inches)
- Adjusted body weight (AdjBW)
 - AdjBW (kg) = IBW + 0.4 (TBW – IBW)

Dosing

1. Obtain baseline serum creatinine (SCr), patient height, and patient weight
2. Estimate patient’s creatinine clearance (CrCL)

$$\text{CrCL (mL/min)} = \frac{(140 - \text{age}) \times \text{IBW}}{\text{SCr} \times 72} \text{ (x 0.85 for females)}$$

- Instead of ideal body weight (IBW) use adjusted body weight (AdjBW) in obese patients (TBW > 30% over IBW)
 - Use total body weight if less than ideal body weight
 - If elderly and SCr is less than 1 mg/dL consider rounding the SCr to 1 mg/dL due to decreased muscle mass
 - Formula may not accurately estimate creatinine clearance in transplant patients
3. Determine necessity of loading dose based on total body weight (TBW)
 - Consider loading doses of 25-30 mg/kg if patient critically ill or high suspicion for MRSA infection
 - If CrCl<20 ml/min loading doses of 20-25 mg/kg can be utilized
 4. Determine maintenance dose based on total body weight (TBW)

Creatinine Clearance	Vancomycin Dose
≥50 ml/min	15-20 mg/kg IV Q12h*
20-49 ml/min	15-20 mg/kg IV Q24h
<20 ml/min	15-20 mg/kg IV Q48h or dose by level
Intermittent hemodialysis	15 mg/kg post HD

*Consider Q8h if patient <50 years old and CrCl>100 ml/min

Notes

- Avoid every 18 hour and every 36 hour dosing intervals as these are error-prone
- Round all doses to the nearest 250 mg
- Maximum vancomycin dose = 2g/dose; No maximum daily dose
- Patients with a dose > 3g/day have increased risk of nephrotoxicity. Signs of renal dysfunction such as increase in serum creatinine should be monitored closely

Monitoring

- Trough levels should usually be drawn approximately 30 minutes before the patient’s 4th dose after initiating therapy or following a dosage adjustment
 - Earlier levels may be necessary in worsening renal function
 - Vancomycin levels in hemodialysis patients may be obtained the morning prior to dialysis to assess necessity to redose Obtain a level after 3-4 days of therapy

- Peak levels are not recommended routinely
- Monitoring of troughs is indicated in any of the following situations
 - Expected prolonged course of therapy (>3 days)
 - Renal dysfunction or unstable renal function
 - Concomitant use of nephrotoxins
 - Obese patient
- Levels can be checked weekly in patients at target troughs with stable serum creatinine

Target Trough	
10-20 mcg/ml	15-20 mcg/ml
Skin and soft tissue infection Urinary tract infection	Bacteremia Central nervous system infection Deep-seated infection (ex. abscess) Endocarditis Pneumonia Osteomyelitis

Dose Adjustments

- Assess timing of trough level and ensure all previous doses were given
- Assess renal function for changes in creatinine or urine output

$$\frac{\text{Dose}}{\text{Trough}} = \frac{\text{Dose (new)}}{\text{Trough (goal)}}$$

- Formula can be used if dosing interval stays the same and renal function is stable

Hemodialysis

- Dose adjustments based on pre-dialysis level
- 10-15 mcg/ml- Increase dose by 250 mg
- 15-25 mcg/ml- Redose at previous dose
- >25 mcg/ml- Decrease dose by 250 mg or hold