

# VANCOMYCIN MONITORING GUIDELINES

*Developed by TDM Task Force*

- Routine monitoring of vancomycin levels is NOT recommended because there is:
  - little literature evidence to support it
  - no clear evidence that nephrotoxicity and ototoxicity associated with vancomycin would have been prevented by stricter adherence to specific concentration ranges.
- Peak (post) levels are NOT needed because:
  - vancomycin exhibits time-dependent (time > MIC) killing rather than concentration-dependent killing (as in aminoglycosides)
  - vancomycin has slow distribution into peripheral tissues making it difficult to identify the true peak
  - they have not been correlated with improvements in clinical outcome

## 1. Inclusion Criteria for Vancomycin Serum Trough Concentration Monitoring

- deteriorating/unstable renal function
- morbidly obese patients [ $\geq 190\%$  IBW] (*measure trough before 2<sup>nd</sup> dose*)
- patients with anticipated therapy > 2 weeks
- infants and children with serious infections
- cerebrospinal fluid shunt infections, meningitis
- patients with rapid clearance of drug (e.g. cystic fibrosis, burns > 20% BSA)
- selected dialysis patients [e.g. high flux and continuous arteriovenous hemodialysis/filtration (CAVH)]

Note: Continuous ambulatory peritoneal dialysis (CAPD) and conventional hemodialysis does not remove vancomycin from serum therefore these patients do not require routine serum concentration monitoring.

## 2. Monitoring

### a) Serum creatinine

- Baseline
- Once weekly (more frequently if renal function changing or if concurrent nephrotoxic drugs)
- If creatinine changes, refer to dosing interval chart (adults) for appropriate adjustment

### b) Vancomycin trough level

- Order only if patient meets inclusion criteria above
- Collect serum specimen 30 minutes or less before next dose
- Frequency of collection:
  - first level at steady state (3<sup>rd</sup> - 5<sup>th</sup> dose)
  - subsequent levels once/week (may need more frequently if renal function changing or concurrent nephrotoxic drugs)

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### 3. Interpretation of Trough Level

Therapy	Measured Trough Level (mg/L)	Dosing Interval Adjustment
<b>VANCOMYCIN</b>	< 5	<ul style="list-style-type: none"> <li>• If patient on <math>\geq</math> q24h, decrease interval by a 12h increment</li> <li>• If patient on q12h, obtain pharmacokinetic consult</li> </ul>
	5 - 15	No change
	15 - 20	Increase interval by a 12h increment
	> 20	Obtain pharmacokinetic consult

Therapy	Measured Trough Level (mg/L)	Dosing Interval Adjustment
<b>VANCOMYCIN</b> <i>with</i> <b>AMINOGLYCOSIDE</b>	< 5	<ul style="list-style-type: none"> <li>• If patient on <math>\geq</math> q24h, decrease interval by a 12h increment</li> <li>• If patient on q12h, obtain pharmacokinetic consult</li> </ul>
	5 - 10	No change
	10 - 20	Increase interval by a 12h increment
	> 20	Obtain pharmacokinetic consult

Note: These recommendations for interpretation of trough levels were developed locally based on pharmacokinetic data. These guidelines have been adopted and supported by the Antimicrobial Advisory Subcommittee and the Regional Laboratory Test Optimization Committee.

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