

Nephrology preferred dosing strategy:

Adult hemodialysis patients receiving vancomycin

The following preferred dosing strategy applies to adult patients with chronic kidney disease receiving stable hemodialysis on vancomycin for confirmed or suspected infection.

Excluded patients include those receiving SLED or peritoneal dialysis, patients receiving vancomycin antibiotic lock therapy, and pediatric patients.

The vancomycin serum concentration targets of this protocol are 15-20 mcg/mL.

Loading Dose of vancomycin: 20 mg/kg IV once (Minimum: 1000mg and Maximum: 2000mg)

Maintenance Dosing: 750 mg IV with each dialysis until dosage changed or discontinued (administered after dialysis). As a guide this is 7-10 mg/kg

Prior to the second (2nd) post-load dialysis session, a pre-dialysis vancomycin trough level will be drawn: therapeutic goal 15 – 20 mcg/mL.

The dialysis dose is based upon this level:

Pre-dialysis serum concentration	Supplemental vancomycin dose with dialysis session
> 20 mcg/mL	vancomycin 500 mg IV
15 – 20 mcg/mL	vancomycin 750 mg IV
< 15 mcg/mL	lesser of vancomycin 15 mg/kg or 1000 mg IV

If level is within range, continue with same dosing and draw weekly vancomycin level (prior to dialysis).

Following a dose adjustment, a vancomycin level should be checked prior to the next dialysis session to ensure target level is achieved. It is still out of range, adjust another 250mg. Check a level again prior to next dialysis after dose change and then weekly once in target range.

General dosing strategy:

Load (20 mg/kg) → HD plus 750 mg → AM Level prior to next dialysis → HD plus dose based on level

Check level prior to 2nd hemodialysis following load.

Check level prior to the next dialysis sessions following any dosage change.

If no dose changes, monitor weekly levels.

Examples:

- 1) If patient has a dialysis schedule of Monday, Wednesday, Friday (M,W,F) is loaded with vancomycin (20mg/kg) on Sunday, the patient would receive 750 mg of vancomycin with dialysis on Monday. A vancomycin trough concentration should be drawn with morning labs pre-dialysis on Wednesday. If the level is 15-20 mcg/mL, then the patient should receive 750 mg of vancomycin after that dialysis, and with each subsequent dialysis session. The vancomycin levels would be drawn weekly.

- 2) If patient on dialysis M,W,F loaded with vancomycin (20mg/kg) on Sunday, then the patient would receive 750 mg of vancomycin after dialysis on Monday. Patient would return for dialysis on Wednesday, at which time a pre-dialysis vancomycin level would be drawn. If the level was <15 mcg/mL then the patient would receive

1000 mg of vancomycin after dialysis. Patient would have a level checked on Friday prior to dialysis. If therapeutic (between 15-20 mcg/mL), continue with 1000 mg per treatment and check level weekly.

**If the level on Friday is still less than 14 mcg/mL then the post-dialysis dose should be increased to vancomycin 1250 mg. With any dose adjustment, check level with next dialysis session until dose and level are stable then decrease frequency of vancomycin level to weekly.

- 3) Patient on hemodialysis M,W, F loaded with vancomycin (20mg/kg) on Sunday so the patient would receive 750 mg of vancomycin with dialysis on Monday. Patient would return for dialysis on Wednesday, at which time a pre-dialysis vancomycin level would be drawn. If the level was >20 mcg/mL, then the patient would receive 500mg of vancomycin. Patient would have a level checked on Friday prior to dialysis. If therapeutic, continue vancomycin 500 mg after dialysis and check level weekly. At this point, if vancomycin level is not therapeutic, contact the prescriber. Approximately 40% of serum vancomycin is removed by modern high-flux hemodialysis. It may be necessary to skip a dose and then resume 500mg after each dialysis when level is >30 mcg/mL.

Updated 11/17 by Scott Bergman, PharmD and Trevor Van Schooneveld, MD

Reviewed by Troy Plumb, MD