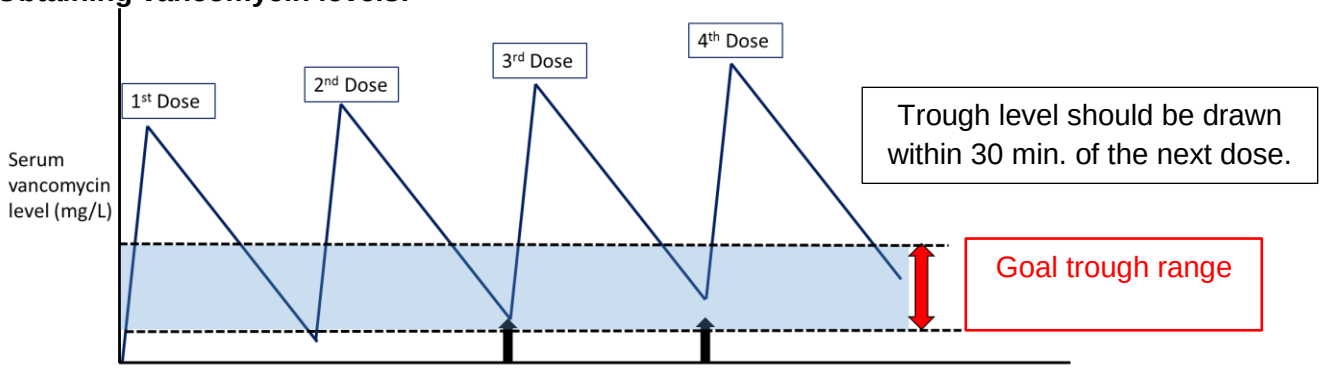
Vancomycin Monitoring and Adjustment

- **For guidance on empiric dosing, see Intravenous Vancomycin Empiric Dosing**
- **Indication for monitoring vancomycin trough levels:**
  - Duration of vancomycin treatment expected to be a minimum of 5 days
  - Treatment of serious infections (e.g. sepsis, bacterial meningitis, infective endocarditis), deep-seated infections (e.g. bone and joint infections), or any indications that require more aggressive dosing
  - For safety, in patients at risk of nephrotoxicity: concurrent nephrotoxic medications, pre-existing renal insufficiency or unstable renal function, older (age >60), or extremes of weight (under 50 or over 100 kg)
- **Obtaining vancomycin levels:**



Obtain trough level before the 3rd or 4th dose
Exceptions: unstable renal function→re-dose based on level drawn in 24-48h; dialysis patients→level drawn pre-dialysis; non-dialysis patients with chronic kidney disease→levels 24h-48h post-dose to determine re-dosing

- **Selecting and interpreting trough levels:**
  - Always interpret trough level in context of timing of the preceding dose, particularly if the level appears to be much higher or lower than expected
  - Trough for most patients in most indications: 8-15 mg/L
  - Serious infections (e.g. sepsis, central nervous system infections, and endocarditis) or deep-seated infections (e.g. bone and joint infections) may require more aggressive dosing with trough level in the 15-20 mg/L range, but this decision must be balanced with the risk of acute kidney injury, which is associated with higher vancomycin levels.
- **Adjusting vancomycin doses:**
  - "Dose-by-proportion," assuming renal function and volume of distribution are stable. Example: 1g Q12H resulted in trough level of 18 mg/L → regimen may be adjusted to 750 mg Q12H with new trough expected to be ~10-13 mg/L if the goal trough range is 8-15 mg/L.
  - Changing the dose in increments of 250 mg and/or the frequency to Q8H, Q12H, Q24H, Q48H are all reasonable strategies. Consult Pharmacist.
- **When to recheck levels:**
  - After a change in dosing regimen, recheck by before the 3rd or 4th dose of the new regimen
  - Renal function becomes unstable, or with introduction of another nephrotoxic medication
  - Treatment >7 days expected. Recheck level weekly during therapy, as vancomycin can accumulate.
- **Other monitoring parameters**:
  - Renal function, including SCr, and electrolytes; hydration status
  - Weekly WBC, absolute neutrophil count (ANC), platelet in patients receiving >7 days of vancomycin. Neutropenia (ANC <1x10^9/L) is reported as 2-12%, but expected to resolve upon discontinuation of vancomycin. Thrombocytopenia is rare (<150x10^9 platelets/L) is rare (reported as 5-8%). Severe thrombocytopenia (<100x10^9 platelets/L) was reported as less than 1%.

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