**Supplement 2.** University of Kentucky HealthCare AUC24 formulas.

**Evaluation of AUC0-24 at Steady State to Determine Dose Adjustments**

*The peak (C1) and trough (C2) obtained around the 4th dose should be utilized to calculate patient specific parameters to determine if dose adjustments need to be made.*

1. Calculate patient-specific elimination rate (k).

T’ is determined by subtracting the time difference between C1 and C2 from the Tau. For example, if the time difference between C1 and C2 was 1.5hrs and the Tau = q8hrs, then T’ = (8 - 1.5) = 6.5hrs. \*If both concentrations are drawn after the dose is given then can simply subtract the time difference between the two concentrations\*

1. Calculate patient-specific half-life (*t*1/2)



1. Calculate the Cmax and Ctr from C1 and C2, respectively

 t’ = Time between C1 as drawn and end of infusion  t’ = Time between C2 as drawn and Ctr

1. Calculate volume of distribution (Vd):





MD = maintenance dose (mg)

= dosing interval t = Infusion time

1. If measured Ctr is high, calculate time required to reach desired range to know when to restart vancomycin



1. Assess AUC0-24 for goal of 500 and acceptable range of 400-600

TDD = total daily dose

1. If within goal, continue dosing. If NOT AT GOAL:
   * Increase or decrease TDD proportionally to attain goal AUC0-24.

 AUC0-24 goal = 500 (Range of 400-600 acceptable)

\*Once a maintenance dose is selected, can double check what your actual AUC0-24 will be using proportions\*

* + **Can also** use the following equations if want to determine dosing interval and anticipated peak and trough. Try to choose the regimen that provides an adequate AUC0-24 but has an estimated trough closer to 10 mg/L to limit the risk of nephrotoxicity

Calculate tau:



Calculate predicted Cmax and Ctr:

: 40 µg/mL

: 10 µg/mL t = infusion time



Adults: Pediatrics:

=dosing interval t = Infusion time

1. Follow-up concentrations –should be monitored no less frequently than 1 time per week once at steady state. Two concentrations should still be obtained around the dose to calculate the AUC0-24. As an outpatient, a trough is likely all that will be obtained due to feasibility.

Ctr goal 10-20 mg/L