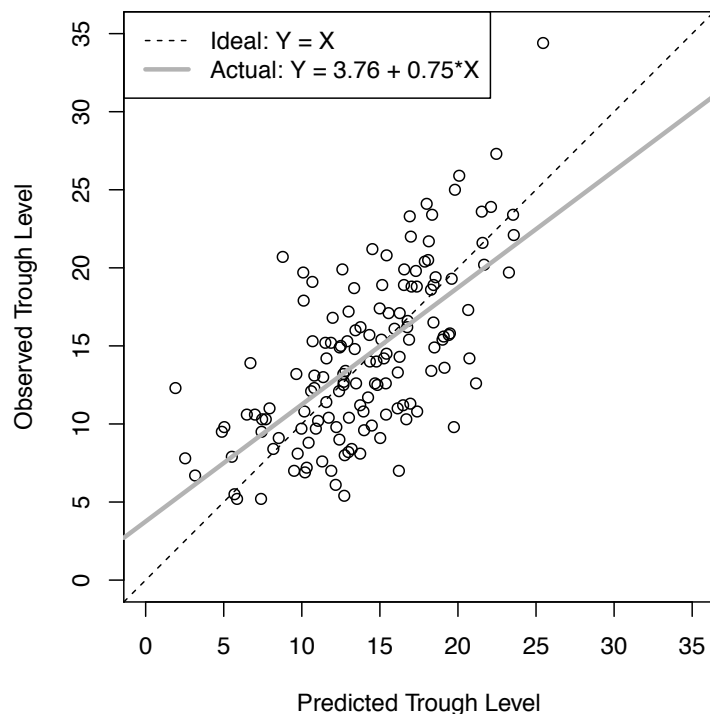# Supplemental Appendix

Figure 1: Observed vs. predicted trough concentrations using previously studied model[1] in the 142 patients from the present population with a trough prior to the 4th dose.

Model Number	R^2 as reported in Table 3	R^2 using total body weight instead of adjusted body weight	R^2 using total pre-trough dose instead of mg/kg dose and number of doses prior to level
Model 1	0.16	0.14	0.14
Model 2	0.48	0.45	0.42
Model 3	0.48	0.45	0.42
Model 4	0.09	0.04	0.09
Model 5	0.12	0.09	0.15
Model 6	0.36	0.31	0.39
Model 7	0.31	0.27	0.34
Model 8	0.44	0.44	0.44
Model 9	0.49	0.46	0.49

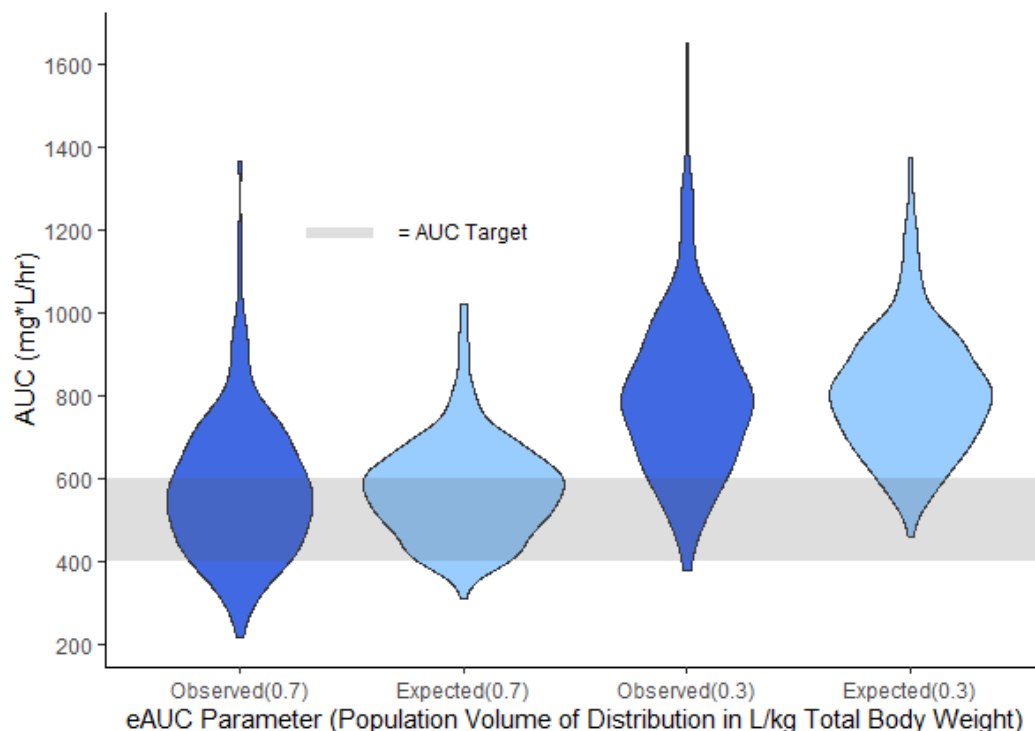**Table 1: Performance of additional models tested.**

Figure 2: Observed vs. expected area under the curve distribution depending on volume of distribution used (N=200).

Cross-validation was performed on the optimal model for trough level prediction to address potential over-fitting. The final model was re-derived by using 90% of the sample (n = 180) and validated by determining the R^2 in the remaining 10% (n = 20). This cross-validation was repeated 10 times to determine the mean R^2 across the 10 replications.

Appendix 1: Cross validation method.

Parameter	Beta
Intercept	16.7
Vancomycin total dose, g	2.95
Every 8-hour interval	4.84
Every 12-hour interval	REF
Every 24-hour interval	-7.70

Table 2: Coefficients of previously studied model[1] that was assessed for performance in the present study population.

References

1. Frazee EN, Rule AD, Herrmann SM, Kashani KB, Leung N, Virk A, Voskoboev N, Lieske JC. 2014. Serum cystatin C predicts vancomycin trough levels better than serum creatinine in hospitalized patients: A cohort study. Crit Care 18:1–10.