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RECOMMENDED VANCOMYCIN DOSING IS INADEQUATE FOR CHILDREN WITH INVASIVE MRSA INFECTIONS: A MONTE CARLO ANALYSIS (A1), Zlatan Coralic, Adam Frymoyer, Joseph Guglielmo. UCSF, San Francisco, CA. (Zlatan.Coralic@ucsf.edu) IRB approval not needed.

Vancomycin is the drug of choice for the treatment of invasive MRSA infections in children. Vancomycin area under the concentration time curve (AUC) for 24 h divided by the MIC (AUC₂₄/MIC) >400 best predicts treatment outcomes when treating invasive MRSA infection in adults. It is unknown whether currently recommended dosing (40mg/kg/day) for children achieves this target. Our objective was to evaluate whether a range of vancomycin doses (40 to 70mg/kg/day) achieves AUC₂₄/MIC >400 in children. AUC₂₄/MIC predictions were conducted using Monte Carlo simulation (n=10,000). AUC₂₄ was calculated as Daily Dose/Vancomycin Clearance. Daily dose was fixed per simulation. Literature reported estimates in children were used to define vancomycin clearance and its variance. For MIC distribution we utilized MRSA data from our children's hospital. The percentage of subjects achieving AUC₂₄/MIC >400 was only 59 to 66% at 40mg/kg/day increasing to 89 to 92% at 60 mg/kg/day. For isolates with MIC of 1 mcg/ml, 60mg/kg/day was required to consistently achieve AUC₂₄/MIC >400. Doses >60 mg/kg/day did not provide further benefit. Vancomycin 40 mg/kg/day will not consistently achieve the pharmacodynamic target of AUC₂₄/MIC >400 for invasive MRSA infections in

children. A starting dose of 60mg/kg/day is recommended in settings where isolates with MIC of 1.0 mcg/ml are common.