

Introduction: As methicillin-resistant *Staphylococcus aureus* (MRSA) infections continue to be a prevalent issue for children, evaluating vancomycin minimum inhibitory concentrations (MICs) may be important to selecting appropriate anti-MRSA agents and achieving therapeutic dosages of vancomycin.

Methods: This retrospective chart review was conducted on pediatric patients with at least one intravenous or oral anti-MRSA agent for the treatment of a MRSA infection. Patients were excluded if the MRSA infection was not treated or if the patient passed away. Vancomycin MICs were determined using a Vitek instrument. Electronic medical records from 2018 and 2019 were included and analyzed. The primary outcome was the number of patients with vancomycin MICs of ≤ 0.5 , 1, and 2 $\mu\text{g}/\text{mL}$. Secondary outcomes include describing which hospital locations and service had the most MRSA cases, length of stay, anti-MRSA treatment and duration, and causes of the various MRSA infections.

Results: A total of 358 cases of MRSA were included with 256 (71.5%) encounters from inpatient or emergency department and 102 (28.5%) from an outpatient clinic or same day surgery. The average age of the patients was 6.1 ± 5.6 years, and there were (50.8%) females included in the primary outcome. The most common vancomycin MIC was $\leq 0.5 \mu\text{g}/\text{mL}$ at 193 (75.1%) cases, followed by 59 (22.9%) with MICs of 1 $\mu\text{g}/\text{mL}$, and 5 (1.9%) with MICs of 2 $\mu\text{g}/\text{mL}$. Of the cases with a vancomycin MIC of 2 $\mu\text{g}/\text{mL}$, three (60%) were skin and soft tissue infections (SSTI) and two (40%) were cystic fibrosis respiratory cultures. Similarly, the most common cause of a vancomycin MIC of both ≤ 0.5 and 1 $\mu\text{g}/\text{mL}$ was SSTI (77.7% and 55.9%, respectively). The most common inpatient service treating MRSA infections was pulmonology

(19.8%), and the most common outpatient clinic was the cystic fibrosis clinic (40%). Length of stay was 4.6 ± 3.6 days for patients with vancomycin MICs of $\leq 0.5 \mu\text{g/mL}$ versus 7.8 ± 5.6 days for patients with MICs of $1 \mu\text{g/mL}$ ($p=0.002$). Most patients were treated with clindamycin (70.8%) or vancomycin (15.2%) for an average treatment duration of 10.7 ± 5.8 days.

Conclusion: The majority of pediatric patients presenting with MRSA infections have vancomycin MICs of $\leq 0.5 \mu\text{g/mL}$ and receive clindamycin to treat the infection. Higher vancomycin MICs may be associated with longer hospital lengths of stay.