

BACKGROUND

- According to the Centers for Disease Control and Prevention (CDC), one in three people are carriers of *Staphylococcus aureus*, however, only two in one hundred people carry methicillin resistant *Staphylococcus aureus* (MRSA).¹
- MRSA is most often associated with blood stream and skin and soft tissue infections, however, it can also result in other infection types such as, pneumonia, urinary tract infections, endocarditis, and osteomyelitis.²
- Patients who are admitted with severe infections or hospital acquired infections are likely to be placed on vancomycin therapy per guideline recommendations until culture results are finalized.³
- Conventional testing for MRSA takes about 48 – 72 hours to result while polymerase chain reaction (PCR) testing can be completed within 24 hours allowing for quicker identification and the possibility of de-escalating antibiotics earlier.⁵

OBJECTIVES

- Primary Objective:**
- Characterize patients treated with vancomycin at a rural teaching hospital
- Secondary Objectives:**
- Determine incidence of acute kidney injury (AKI) in patients treated with vancomycin
 - PCR testing cost-effectiveness

METHODS

Design: Single center, retrospective study reviewing the use of vancomycin and the incidence of patients treated with vancomycin that have positive MRSA cultures.

Performance Site: St. Claire Regional Medical Center, Morehead, KY

Inclusion Criteria: Patients 18 years of age and older that received a dose of vancomycin as documented in the electronic medical record and were admitted to the hospital during the time period of January 1, 2017 to December 31, 2017.

Recruitment Methods: Report requested from Clinical Informatics of vancomycin use in the hospital from January 1, 2017 through December 31, 2017.

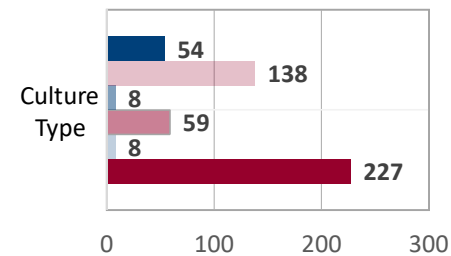
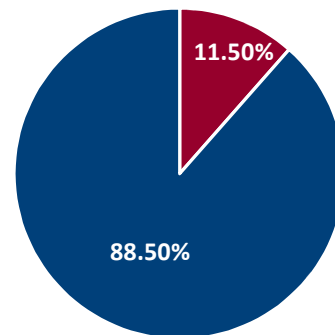
1. <https://www.cdc.gov>. 2. National burden of invasive methicillin-resistant *Staphylococcus aureus* infections, United States, 2011. *JAMA Internal Med* 2013. 3. Management of methicillin-resistant *Staphylococcus aureus* infections. *Clinical Microbiology Infections* 2009. 4. Rapid PCR-based identification of methicillin-resistant *Staphylococcus aureus* from screening swabs. *Journal of Clinical Microbiology*. 5. Development and evaluation of a PCR-based immunoassay for the rapid detection of methicillin-resistant *Staphylococcus aureus*. *The Journal of Medical Microbiology*.

STUDY DESIGN



PRIMARY OBJECTIVE

- Vancomycin duration of therapy was an average of 3.43 ± 2.41 days
- Average maintenance dose (mg/kg) was 16.2 ± 3.41 mg/kg



■ MRSA Positive ■ MRSA Negative ■ Ascetic Fluid ■ Abscess/Wound

SECONDARY OBJECTIVES

AKI:

- 27.3% of patients had an AKI on admission
- 8.9% of patients had an AKI during vancomycin treatment

PCR Testing:

	Vancomycin Cost	PCR Cost
Vancomycin cost per average patient	\$249.33	\$83.11
Vancomycin levels	\$3,600.00	--
PCR starter package	--	\$3,600.00
PCR test per patient	--	\$65.00
Total estimated annual cost	\$126,769.02	\$76,766.34

CONCLUSION

- Vancomycin empiric therapy is commonly used at St. Claire Regional Medical Center
- 11.5% of patients were MRSA positive
- MRSA PCR testing could reduce the use of vancomycin use at St. Claire Regional Medical Center

DISCLOSURES & ACKNOWLEDGEMENTS

The authors of this presentation have the following to disclose concerning possible financial or personal relationships with commercial entities that may have direct or indirect interest in the subject matter of this presentation.

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