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12-2020

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#### Citation

Hernandez Gama, Grether; Pardo, Winifred; Fuerte, Wilbert; and Adefisoye, James, "Impact of a Pharmacist-Driven Methicillin-Resistant Staphylococcus Aureus Nasal Swab Protocol on the De-Escalation of Empiric Vancomycin in the Setting of Community Acquired Pneumonia" (2020). *All Publications*. 3796.

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# Impact of a Pharmacist-Driven Methicillin-Resistant Staphylococcus Aureus Nasal Swab Protocol on the De-Escalation of Empiric Vancomycin in the Setting of Community Acquired Pneumonia

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Homestead Hospital

## BACKGROUND

- Pneumonia caused by Methicillin-resistant Staphylococcus aureus (MRSA) has been linked to a high incidence of morbidity and mortality<sup>1</sup>
- However, the concern associated with possible MRSA pneumonia has contributed to an overutilization of empiric anti-MRSA therapy that potentiates unfavorable outcomes<sup>2,3</sup>
- The 2019 Community Acquired Pneumonia (CAP) guidelines recommend patients with prior respiratory isolation for MRSA, or recent hospitalization requiring intravenous antibiotics may receive empiric anti-MRSA coverage until the results of a polymerase chain reaction (PCR) nasal culture are available
- Based on the substantial data supporting the utilization of this tool, Homestead Hospital developed a protocol allowing pharmacists to order the rapid nasal swab test for possible vancomycin de-escalation in patients outside of the ICU<sup>4</sup>

## OBJECTIVES

- Determine whether the implementation of the recently implemented MRSA nasal swab protocol translates to a decrease in the vancomycin-associated acute kidney injury (AKI), length of stay and associated-cost
- Compare the incidence of AKI with the combination of piperacillin/tazobactam (Zosyn) and vancomycin versus cefepime and vancomycin

## METHODS

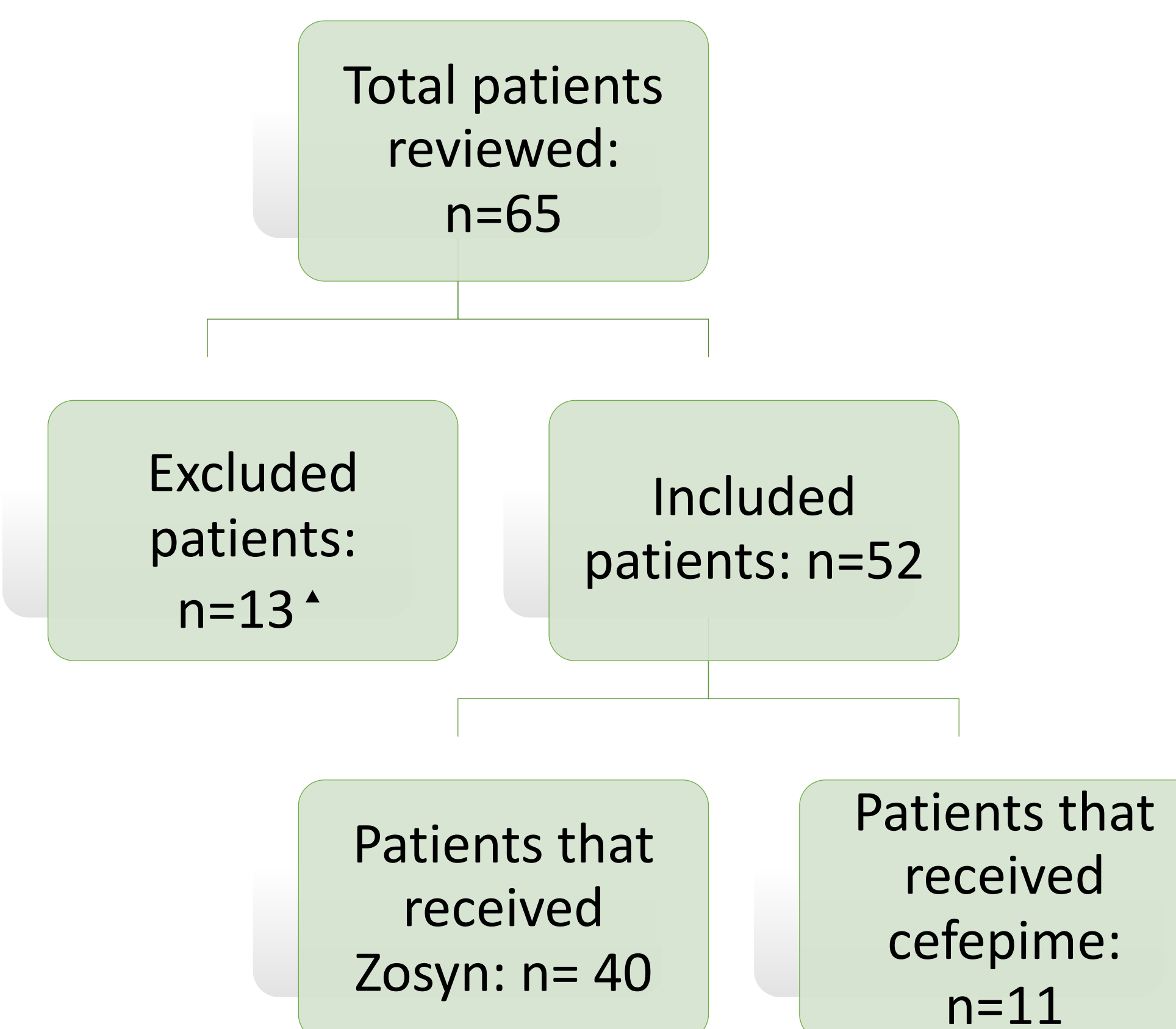
- **Study design:** Single-center, quasi experimental study, involving patients receiving empiric anti-MRSA therapy with vancomycin for CAP at Homestead Hospital
- **Inclusion criteria:**
  - Patients ≥ 18 years old
  - Patients in which vancomycin is initiated within 48 hours of hospital admission for the treatment of CAP from November 1st, 2019 to March 31st, 2021
- **Exclusion criteria:**
  - Patients < 18 years old
  - Pregnant patients
  - Patients receiving vancomycin for indications other than CAP
  - Patients in which vancomycin is initiated more than 48 hours after hospital admission
  - Patients with structural lung disease (e.g. cystic fibrosis or bronchiectasis)

### Procedure:

- A retrospective chart review was conducted in 65 patients who received vancomycin due to a pneumonia indication
- Data was collected to assess the incidence of vancomycin-associated AKI, length of stay, associated-cost, and to compare the rate of occurrence of AKI with the combination of vancomycin and Zosyn versus vancomycin and cefepime
- AKI was defined utilizing the Kidney Disease: Improving Global Outcomes (KDIGO) clinical practice guideline criteria\*

## RESULTS

### Retrospective Chart Review



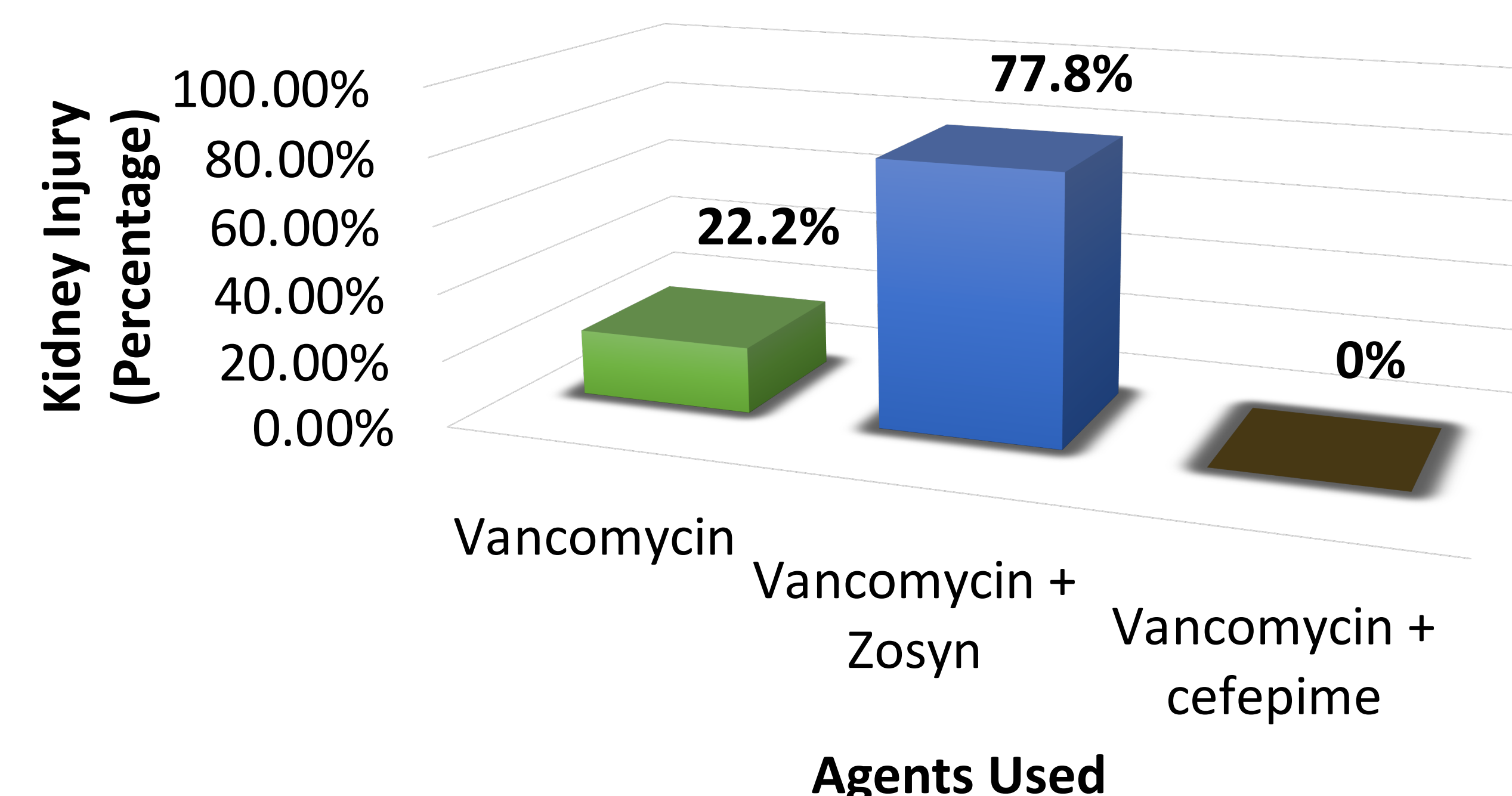
### Patient Demographics (n=52)

<b>Gender</b>	
Female, n (%)	26 (50%)
Male, n (%)	26 (50.%)
<b>Age (In Years)</b>	
Mean (SD)	66.6 (15.8)

### Pre-implementation of the Protocol

<b>Length of stay (Day's Average)</b>	<b>Average cost of hospital per day (\$)</b>
• 4.7 days	• \$5,508

### Pre-Implementation of the Protocol Associated Acute Kidney Injury (n=9)



- Study in progress

\* Increase in serum creatinine (SCr) by ≥ 0.3 mg/dl (≥ 26.5 μmol/l) within 48 hours

\* Excluded patients: No CAP diagnosis, n=11

Vancomycin initiated > 48 hours after hospital admission, n=2

## CONCLUSION

- Anticipated completion date April 30, 2021

## LIMITATIONS

- Small sample size
- Disproportionate number of patients receiving Zosyn versus Cefepime
- Difficult to assess cost at the different units throughout the hospital

## DISCUSSION

- Study in progress

## REFERENCES

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## DISCLOSURE

- All authors of this presentation have nothing 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