

Background

- Acute kidney injury is a concern with vancomycin use.
- In 2020 new guidelines on the therapeutic monitoring of vancomycin for serious methicillin-resistant *Staphylococcus aureus* infections were published.¹
- The guidelines now recommend targeting a vancomycin area under the curve /minimum inhibitory concentration of 400 to 600 using area under the curve-guided dosing.
- Previously recommended trough-guided dosing may have a higher occurrence of vancomycin-associated acute kidney injury.²
- Area under the curve-guided dosing is now recommended to achieve therapeutic effect and minimize the risk of acute kidney injury.
- Salina Regional Health Center’s current pharmacy-initiated vancomycin dosing protocol uses trough-guided dosing.

Objective

- Evaluate the rate of vancomycin-associated acute kidney injury in patients receiving trough-guided vancomycin dosing at SRHC. Acute kidney injury was defined as an increase in the serum creatinine level of ≥ 0.5 mg/dL, or a 50% increase from baseline in consecutive daily readings.

Methods

- A retrospective data collection was conducted to identify all patients that received intravenous vancomycin from January 1, 2020 to March 31, 2020

Inclusion Criteria:

- Received greater than or equal to 48 hours of intravenous vancomycin therapy
- At least one vancomycin level available

Exclusion Criteria:

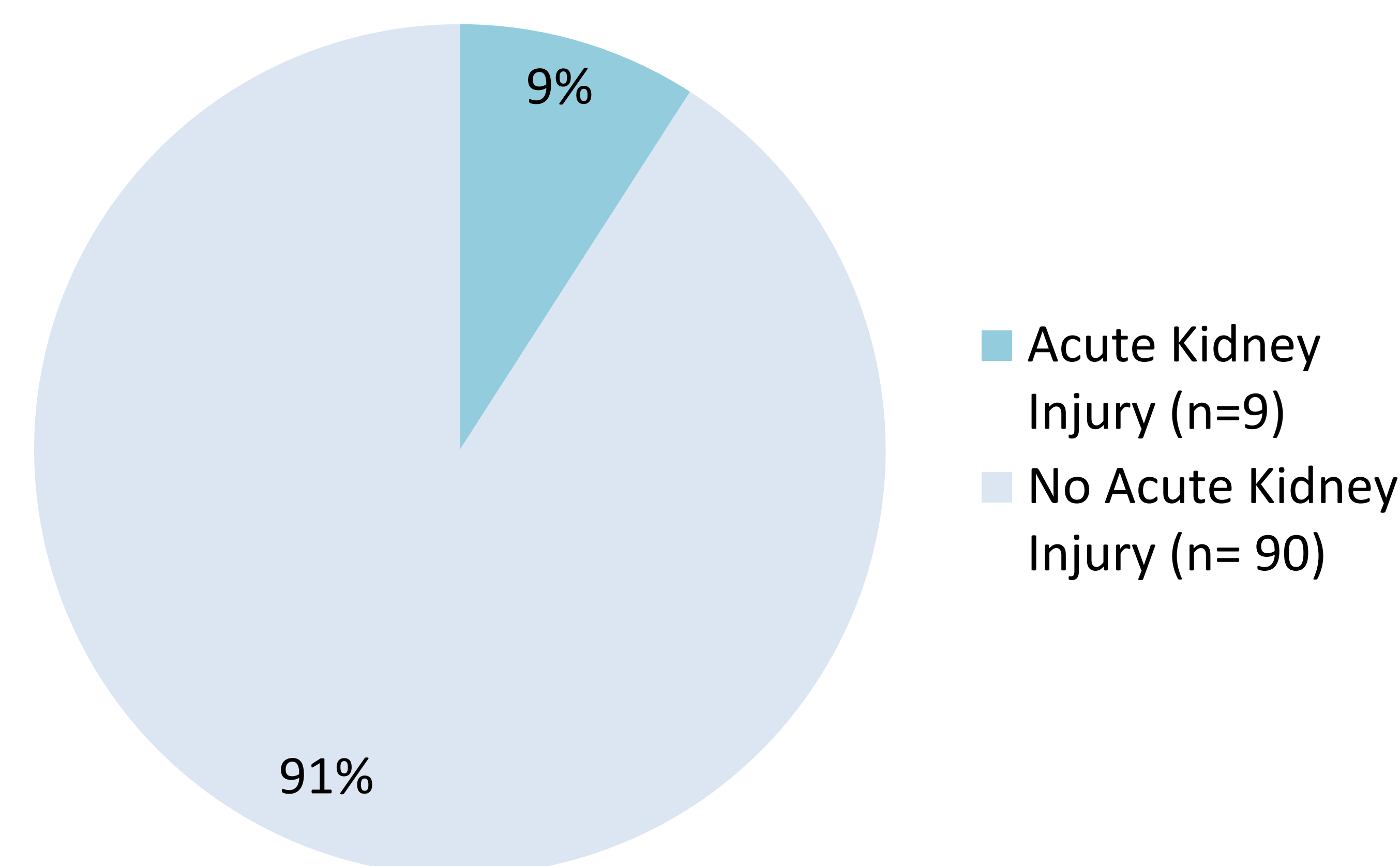
- Less than 18 years of age
- Serum creatinine > 2 at baseline
- Receiving renal replacement therapy at baseline
- Known or suspected central nervous system infection or meningitis
- Receiving vancomycin therapy as an outpatient

Results

Demographic Data

Patients	Male	60
	Female	39
Age (years)	Mean	64
Length of Therapy (days)	Mean	4.5
	Median	4

Vancomycin-Associated Acute Kidney Injury in Trough-Guided Dosing



Concurrent Nephrotoxic Medications (Aminoglycosides, Loop Diuretics, Piperacillin/Tazobactam)

	Acute Kidney Injury (n=9)	No Acute Kidney Injury (n=90)
Concurrent Nephrotoxic Medications	9 (100%)	61 (68%)

Conclusions

- Nine percent of patients receiving trough-guided vancomycin dosing developed vancomycin -associated acute kidney injury.
- Lower rates of acute kidney injury have been shown with area under the curve-guided dosing in a study by Finch et al.² Additionally, the 2020 guidelines recommend area under the curve guided dosing.¹
- An area under the curve-guided vancomycin dosing protocol is being implemented to potentially reduce vancomycin-associated nephrotoxicity.
- The occurrence of vancomycin-associated acute kidney injury with area under the curve-guided dosing will be evaluated in future research.

Disclosures

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

Jantz Budde: nothing to disclose
Linda Radke: nothing to disclose

References

1. Rybak MJ, Le J, Lodise TP, et al. Therapeutic monitoring of vancomycin for serious methicillin-resistant *Staphylococcus aureus* infections: a revised consensus guideline and review of the American Society of Health-System Pharmacists, the Infectious Diseases Society by America, Pediatric Infectious Diseases Society, and the Society of Infectious Diseases Pharmacists. *Am J Health Syst Pharm* 2020; 77: 835–64.
2. Finch NA, Zasowski EJ, Murray KP et al. A quasi-experiment to study the impact of vancomycin area under the concentration-time curve-guided dosing on vancomycin-associated nephrotoxicity. *Antimicrob Agents Chemother*. 2017; 61(12):e01293-17.