Evaluating the Adoption & Outcomes of a Vancomycin Dosing Protocol in the Home Infusion Setting

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BACKGROUND

- Home infusion often uses the trough-based dosing model to manage vancomycin due to cost, patient burden, and limitations of testing abilities compared to inpatient. [1-3]
- Supratherapeutic trough levels increase the risk of acute kidney injury (AKI), highlighting the importance of accurate monitoring and dose adjustment. [5]
- There is a notable lack of standardized practices published for making pharmacy-directed vancomycin dose adjustments in home infusion.
- A standardized vancomycin dosing protocol was previously implemented at our institution; this study evaluates protocol adoption and associated clinical outcomes in the home infusion setting.[4]

PURPOSE

To compare clinical outcomes in home infusion patients whose vancomycin therapy was managed using an internal dosing protocol versus historical non-standardized dosing methods.

OBJECTIVES

PRIMARY

Characterize efficacy of pharmacy-directed vancomycin protocol through analysis of:

- Attainment/maintenance of therapeutic trough levels
- Incidence of Acute Kidney Injury (AKI) defined by Kidney Disease: Improving Global Outcomes (KDIGO) Guidelines[6]
- Infection resolution*

SECONDARY

- Assess pharmacist compliance** to the protocol across all dosing opportunities.
- Verify protocol inclusion and exclusion criteria were appropriately applied.

**Defined as treatment duration lasting as planned and not extended beyond planned end date*

***Defined as accurate dosing adjustment suggestions and compliance to internal documentation standards*

METHODS

STUDY DESIGN

- Single-center retrospective observational chart review
- Approval for this study was granted by the Institutional Quality Review Board (QRB)

Inclusion Criteria	Exclusion Criteria
• Patients treated with vancomycin per protocol* between October 30th 2024, and September 16th, 2025. • Patients who received vancomycin dosed to a goal trough of 15-20 mg/L	• Patients on vancomycin who were not dosed following protocol • Patients without sufficient documentation to evaluate selected endpoints

**The protocol may be used for patients ≥18 years old that are not pregnant or receiving dialysis*

DISCLOSURES

Authors of this poster have no conflicts of interest to disclose.

METHODS

DATA COLLECTION POINTS

Baseline Demographics	• Patient age, sex, race, ethnicity, weight (ideal, adjusted, and actual) • Patient history of kidney disease • Concurrent nephrotoxic therapy
Lab Values *(upon hospital discharge and throughout therapy)*	• Serum Creatinine (SCr in mg/dL) • Creatinine Clearance (CrCl in mL/min) • Vancomycin Trough (mcg/mL)
Infection-Specific Information	• Indication for vancomycin therapy • Organism cultured • Expected duration of therapy (weeks) • Infection Resolution* • Premature discontinuation & reason
Dosing Characteristics *(upon inpatient discharge and throughout outpatient therapy)*	• Total daily dose of vancomycin (g) • Incidence of acute kidney injury (AKI)[5] • Recommended dosing adjustments per protocol (frequency and dose)

RESULTS

PATIENT CHARACTERISTICS (N=18)

Sex, n (%)	Female Male	5 (28) 13 (72)
Average Age, years (SD)		60.5 (16.25)
Indication for Vancomycin, n (%)	Osteomyelitis Cellulitis Other	12 (67) 1 (5) 5 (28)

BASELINE RENAL FUNCTION

*SCr (mg/dL), mean (SD)**	1.18 (0.64)
CrCl (mL/min), mean (SD)*	116.57 (75.76)

** One patient had missing baseline renal function data.*

THERAPY

Expected Duration in Weeks, mean (SD)	4.74 (1.05)
Therapy Extensions, n (%)	0 (0)
Premature Therapy Discontinuations, n (%)	2 (11)
Acute Kidney Injury, n (%)	0 (0)

PROTOCOL USE ASSESSMENT (N=80)

Total Dosing Opportunities Within Included Patients, n (%)

With Protocol	25 (31)
Without Protocol	55 (69)

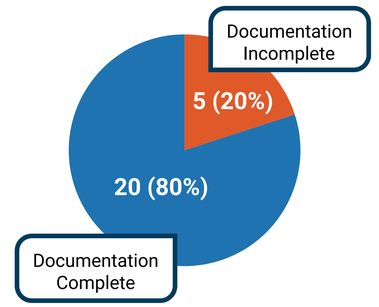
OUTCOMES ASSESSMENT OF PROTOCOLIZED PATIENTS (N=25)

Accuracy of Recommendations per Protocol, n (%)

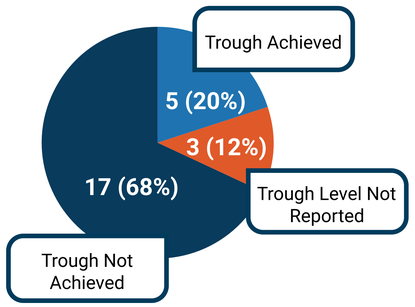
Accurate	13 (52)
Not Accurate	12 (48)

RESULTS

DOCUMENTATION ADHERENCE (N=25)



TROUGH ACHIEVEMENT IN PROTOCOLIZED PATIENTS (N=25)



DISCUSSION

- There were 80 pharmacist-directed unique vancomycin dosing opportunities identified.
- Protocol compliance was approximately 50%.
- Although therapeutic trough levels were only achieved 20% of the time, the impact on clinical outcomes was minimal.
- Limited feasibility of protocol-generated regimens likely impacted compliance.
- Small sample size limited comparison to historical data.

LIMITATIONS

- This data capture cannot account for outside factors common in a home infusion such as patient compliance, dosing schedule changes, blood draw times, and shipment complications.
- Upon further review of available data, it was found that protocol was not widely adopted by pharmacist staff.

CONCLUSION

- Designing means to encourage protocol adoption through multiple levels of the clinical process could increase pharmacist adherence would also be valuable as adoption rates were a limiting factor in collecting data for the initial purpose of this study.
- Adjustments to the protocol are warranted to promote accurate recommendations. This includes modifying documentation requirements to elucidate clinical rationale for recommendations.
- Further assessment of the selected vancomycin dosing webtool and dosing interventions should occur to better understand contributing factors as to why therapeutic trough was not achieved.
- Re-education for proper utilization of the note type to ensure appropriate capture of patient data.
- A prospective review would provide real-time data that could capture the confounders and allow for adjustments to be made to the protocol that could aid in increasing rates of trough achievement.

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