

A Retrospective Chart Review of Home Infusion Patients Being Treated with Vancomycin in Regards to Cost Savings Associated with Bayesian-Guided AUC/MIC Dosing.

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BACKGROUND

In March of 2020, the Infectious Disease Society of America updated their vancomycin dosing guidelines to prefer vancomycin to be dosed based upon AUC/MIC ratio with a goal of 400-600 mg/L*hour (with the MIC empirically assumed to be 1mg/L) rather than with traditional trough-based dosing. This organization as an entire health system has transitioned to AUC/MIC based dosing of vancomycin through the use of a Bayesian-guided dosing system. According to these guidelines, Bayesian-guided dosing is preferred to first-order pharmacokinetic equations due to ease of use, less sampling required, and speed. Literature searches do not result in any studies completed on AUC/MIC dosing of vancomycin specifically in the home infusion realm, but a clear benefit is shown in terms of reduced toxicity while maintaining efficacy of therapy in the acute care setting.

PURPOSE

To determine the potential cost savings to this organization through use of Bayesian-guided dosing of vancomycin in comparison to traditional trough-based dosing strategies. Cost savings are determined by a reduction of dose changes which leads to fewer nurse visits over time.



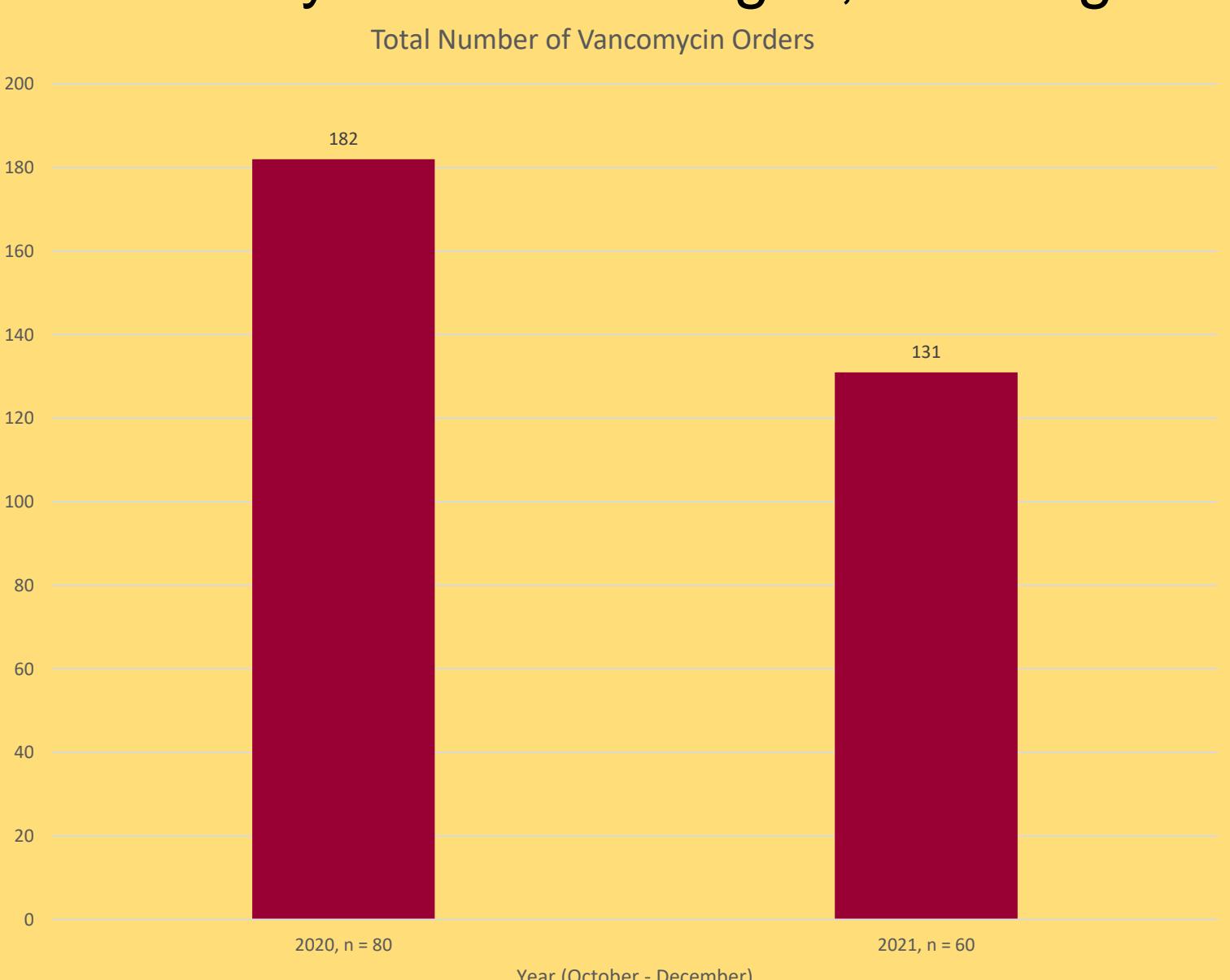
A collaboration among the University of Minnesota, University of Minnesota Physicians and Fairview Health Services

METHODS

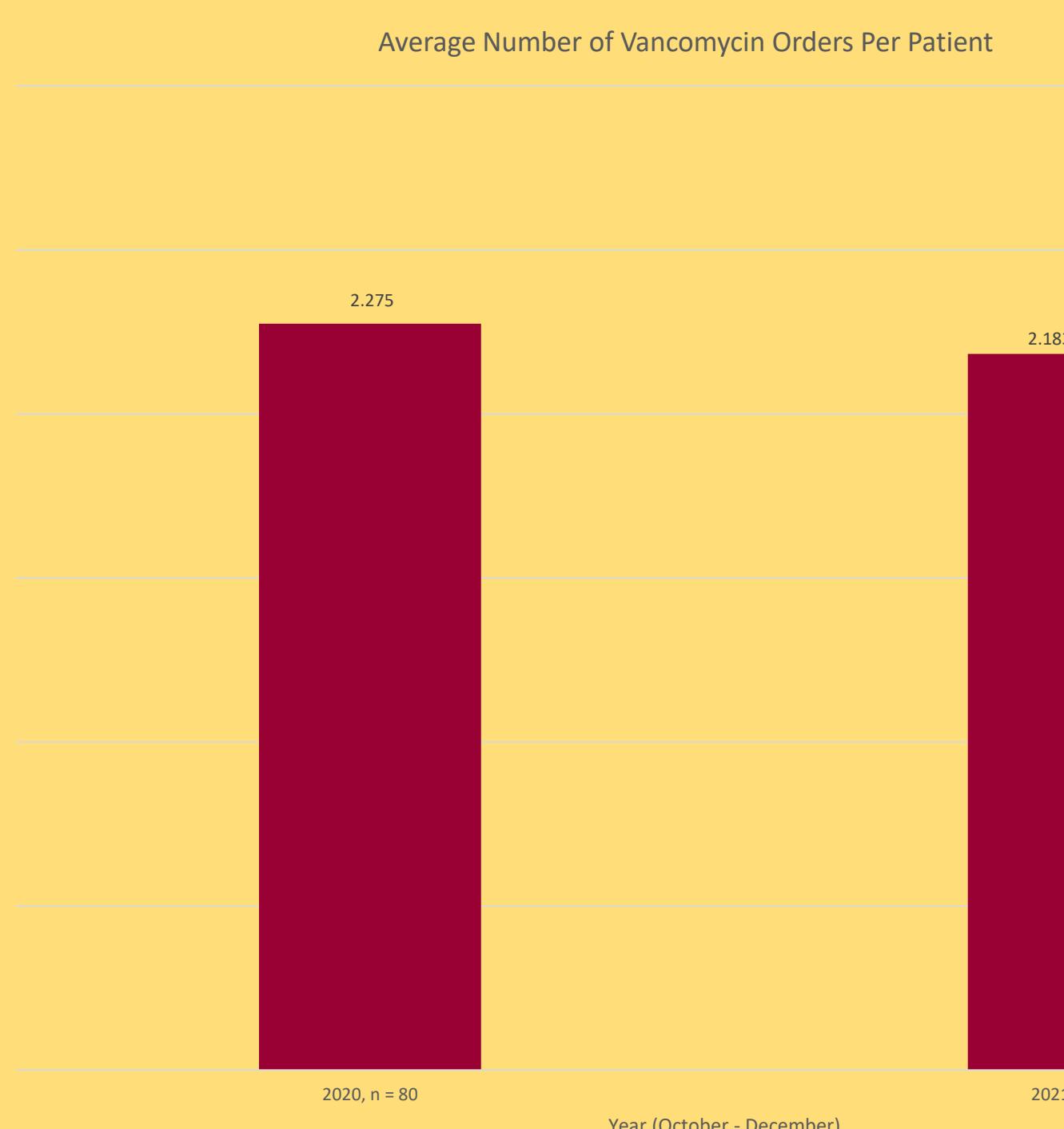
- This research study is a retrospective chart review that collected and analyzed data using chart review for previous adult patients on trough-based dosing and using the Bayesian-guided dosing platform's data analysis platform. Patients in the data analysis platform were filtered based on this organization's treatment site and changes in dose were analyzed and quantified. Patient dose changes in trough-based dosing were quantified via manual chart review.
- Patients included for the Bayesian-guided dosing model were initiated on vancomycin in the months of October to December 2021, and patients included for the trough-based dosing model were included from the months of October to December 2020.
- Secondary endpoints: number of emergency department visits while on therapy, number of hospitalizations while on therapy.
- Exclusion criteria: pregnant patients, patients who are imprisoned, patients with CNS infections, patients under the age of 18.
- Patients included:
 - 2020: 115 patients identified, 35 excluded, n = 80 patients
 - 2021: 87 patients identified, 27 excluded, n = 60 patients

PRELIMINARY RESULTS

Primary endpoint: reduction in vancomycin dose changes, showing stability for patients and a reduced need for laboratory draws.



PRELIMINARY RESULTS



DISCUSSION AND CONCLUSIONS

Secondary endpoints have not been collected and statistical analysis has not been completed. Thus, discussion and conclusions are not available.

ACKNOWLEDGEMENTS

- Rybak, Le, J., Lodise, T. P., Levine, D. P., Bradley, J. S., Liu, C., Mueller, B. A., Pai, M. P., Wong-Beringer, A., Rotschafer, J. C., Rodvold, K. A., Maples, H. D., & Lomaestro, B. M. (2020). Therapeutic monitoring of vancomycin for serious methicillin-resistant *Staphylococcus aureus* infections: A revised consensus guideline and review by the American Society of Health-System Pharmacists, the Infectious Diseases Society of America, the Pediatric Infectious Diseases Society, and the Society of Infectious Diseases Pharmacists. *American Journal of Health-System Pharmacy*, 77(11), 835–864. <https://doi.org/10.1093/ajhp/zxa036>

No disclosures to note.