Dethroning Vancomycin: A Multifaceted Stewardship Approach to Reduce Vancomycin in an Academic Medical Center (1790)

Katherine Lusardi, Pharm.D., BCIDP[1], Brett Bailey, Pharm.D.[2], Juan Carlos Rico Crescencio, M.D.[3], Ramez Awad, M.D.[4], Mitchell Jenkins, M.D.[3], Ryan K. Dare, M.D., M.S.[3]
1. Hospital Pharmacy, 2. Clinical Informatics, 3. Division of Infectious Diseases, 4. Division of Hospital Medicine
University of Arkansas for Medical Sciences, Little Rock, AR

BACKGROUND

Vancomycin is a broadly used antimicrobial, and from 2014-2022 represented the most used antibiotic at our academic medical center. Since 2015, the stewardship program has introduced several measures to optimize vancomycin use including pharmacy consultation, addition of MRSA nares PCR testing, embedding MRSA nares PCR order into vancomycin order panel, and introducing an electronic medical record (EMR) best practice alert to assist providers in identifying patients eligible for vancomycin discontinuation. The impact of each of these interventions are described.

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METHODS

This is a retrospective review at a single academic center. We compared vancomycin utilization over time, following the introduction of various stewardship measures. Each intervention remained in place during the subsequent periods. Vancomycin utilization was extracted from Epic™ and converted to days of therapy (DOT)/1000 patient days (PD) and length of therapy (time from start to stop of therapy). Wilcoxon rank sum was used for analysis.

Period 1 (P1): 4/2015-12/2016: Introduction of pharmacy consults for vancomycin management. Development of order panel that included initial dose, indication, and anticipated length of therapy.

Period 2 (P2): 1/2017-6/2019 Pharmacokinetic policy updated to allow pharmacists to order Nasal MRSA PCR when vancomycin indication was pneumonia.

Period 3 (P3): 7/2019-2/2020: When "pneumonia" was the selected indication, additional step indicating to order Nasal MRSA was included, and the Nasal MRSA displayed within the panel (Fig 1)

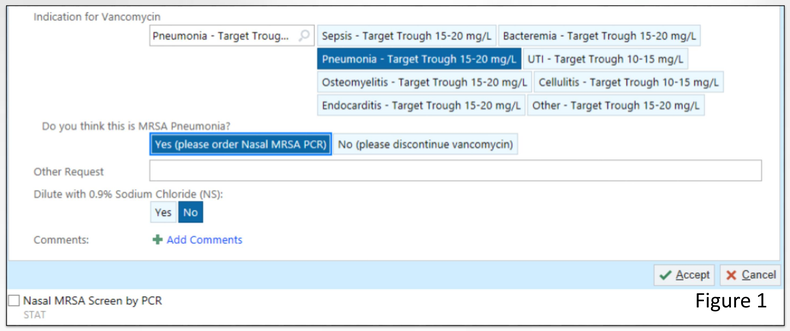

Figure 1

Period 4 (P4): 2/2020-3/2022 addition of automated EMR time-out (See Poster 1791)

Scan here for Poster 1791 and more information on EMR Time-out implementation

RESULTS

Each period of vancomycin optimization was associated with a statistically significant decrease in vancomycin length of therapy (LOT) in days, when compared to the period before it (Figure 2, Table 1):

- P1 vs P2, **p< 0.0001**
- P2 vs P3, **p< 0.0001**
- P3 vs P4, **p< 0.0001**

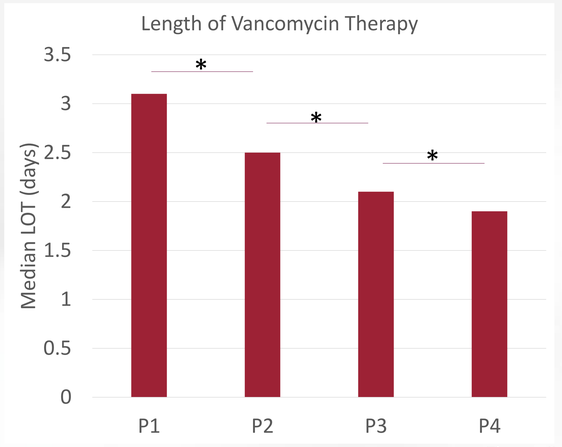

Figure 2

Overall institution vancomycin consumption, expressed as monthly DOT/1000 PD also decreased over time, starting with period 3 (Table1):

Table 1	Period 1 (N=4,517)	Period 2 (N=16,108)	Period 3 (N=4,273)	Period 4 (N=11,919)
Patient LOT, d, median (IQR)	3.1 (1.7-5.5)	2.5 (1.1-4.6)	2.1 (0.9-3.9)	1.9 (0.9-3.7)
Institution monthly DOT/1000 PD, median (IQR)	147.2 (144.4-158.3)	147.1 (140.7-153)	132.6 (124.6-136.1)	117.3 (107.7-122.6)

- P1 vs P2, p=0.4812
- P2 vs P3, **p=0.0003**
- P3 vs P4, **p=0.0019**

CONCLUSIONS

Decreasing vancomycin at an academic medical center is challenging and takes a multifaceted approach with continued efforts over time to maintain a steady downward trend for utilization. These combined efforts have led to vancomycin no longer being the most commonly prescribed antibiotic at our institution.

Contact us! Katie Lusardi, PharmD: ktlusardi@uams.edu; Ryan Dare, MD: rdare@uams.edu