

Vancomycin TDM – What’s all the fuss?



‘1 in 3 instances of Vancomycin TDM are performed incorrectly’

Austin Hall¹, Celine Chee¹, Alice Wisdom¹, Mirjana Culibrk²

1: SA Pharmacy, Northern Adelaide Local Health Network, 2: SA Pharmacy, Southern Adelaide Local Health Network

Introduction

- **Monitoring of levels** during vancomycin use is **crucial** due to the complex pharmacokinetic and side effect profiles
- **Timing of therapeutic drug monitoring (TDM)** is essential in ensuring the level taken is accurate to guide further dosing and ensure optimal clinical outcomes

Aims

- To review and compare the **appropriateness of vancomycin TDM sampling** with paper and Electronic Medical Records (EMR) systems

Method

- **Setting:** Lyell McEwin Hospital
- **Study period:** 01/09/22 to 31/03/23
- **Study sample:** Randomized sample of patients undergoing vancomycin treatment
- **Outcome measures:** Accuracy of TDM sampling times and dose changes compared to the hospital vancomycin monitoring protocol



Results

Characteristics	N (%)
Total patients	43
<i>Paper-based (mean age)</i>	22 (60 years)
<i>EMR systems (mean age)</i>	21 (57 years)
Total TDM samples	122
Samples accurately performed	77 (63%)
<i>Paper-based</i>	38 (58%)
<i>EMR systems</i>	39 (70%)
Overall financial cost of inappropriately sampled TDM	~\$800

Figure 1: Appropriateness of TDM sampling time

System	TDM Sample Appropriately Timed (%)	TDM Sample NOT Appropriately Timed (%)
Electronic	70%	30%
Paper-Based	58%	42%

Figure 2: Appropriateness of Dose Adjustment following TDM

System	Dose Adjusted Appropriately (%)	Dose NOT Adjusted Appropriately (%)
Electronic	64%	36%
Paper-Based	70%	30%

Discussion

- A **substantial proportion of incorrect sampling** was observed with a third of all samples taken at inappropriate times.
- **Potential implications:**
 - Financial and resource burden
 - Considerable proportion of clinical decisions made based on inaccurate samples
- **Implementation of an EMR system** did not have a negative effect on vancomycin TDM, with a trend towards improvement regarding appropriate timing.

Conclusion

Further actions to improve blood sampling time and awareness of clinical impacts of inappropriate timed samples when prescribing is warranted.

For more information

Austin Hall
Intern Pharmacist at NALHN
austin.hall@sa.gov.au



<https://au.linkedin.com/in/Austin-hall-626a61161>



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