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Retrospective Evaluation of Pharmacist Screened Vancomycin Levels and Its Impact on Quality and Cost

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Retrospective evaluation of pharmacist screened vancomycin levels and its impact on quality and cost Jennie T. Mathew, Pharm.D. and Jarrod W. Kile, R.Ph. LEHIGH VALLEY HEALTH NETWORK • ALLENTOWN AND BETHLEHEM, PENNSYLVANIA

PURPOSE

The objective of this study is to retrospectively evaluate the impact of pharmacist interventions on vancomycin serum concentrations.

BACKGROUND

Literature

- To monitor vancomycin efficacy, the 2009 Infectious Disease Society of America/ American Society of Health-System Pharmacists consensus review recommends obtaining serum trough concentrations, instead of both peak and trough concentrations.
- It is recommended that trough serum concentrations should be obtained just prior to the fourth dose.¹

Lehigh Valley Health Network (LVHN)

- Historically, providers at LVHN utilized physician order entry to order vancomycin serum concentrations.
- Lab orders did not require verification by a pharmacist.
- Beginning in February 2010, pharmacists timed orders for vancomycin serum concentrations.
- The provider may select from the following options:
- Serum trough concentration prior to the fourth dose.
- Serum trough concentration prior to the next dose.
- Serum random concentration at a time designated by the provider.
- The intent of the new process was to create standardization throughout the health network.
- The total costs for vancomycin usage and vancomycin serum concentrations at LVHN in 2007 were \$194,966 and \$392,022, respectively.

STUDY DESIGN

- A retrospective chart review of patients admitted to LVHN with a minimum of one serum vancomycin concentration obtained during the pre- or post intervention periods.
- The pre- and post intervention periods are defined as December 2009 to January 2010 and September 2010 to October 2010, respectively.

STUDY POPULATION

Inclusion criteria

- Inpatient adults greater than 18 years old.
- Patients who had a minimum of one serum vancomycin concentration obtained from December 2009 to January 2010.
- from September 2010 to October 2010.

• Exclusion criteria

care facility.

Select Patient 🖛 🚹 Sex: M	ADM Dt-L05: 220ct10-7 DNA:	
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Place a Laboratory Order	Order Reference Y	
Order:LAB-Vancomycin Random [*]		
Frequency: ONCE 👻 # Actions: 👻 Priority: R 👻	REMINDER: Please complete the aminoglycoside dosing form and	
	and send it along with the specimen.	
Draw Labs in:		
Draw With:	Draw trough sample immediately before next dose.	
Comment:	**************************************	
	Aminoglycoside / Vancomycin Trough	
Label/No Label: 🖵 (L=print lab label, N=no print)	To optimize therapeutic effect and to prevent toxicity,	
	complete the following information:	
COLLECT D/T: 290CT10 12:35PM END:	 Is patient currently receiving a penicillin derivative? YES or NO 	
	If Yes, specify:PenicillinAmpicillin	
Ordered By: PAPER CHART, U R0221 Order Mode: 🛛 🔽	DicloxacillinAmoxicillin NafcillinCarbenicillin	
Signed By: P & T PROTOCOL, P RO225 ED Pt Call:	OxacillinPiperacillin 💽	
Dept:LAB Ord Fac:	Print Reference	
Ord Location: IS		
Review		
Viewer-View All Pending Lab Med Profile Worklist		
Place This Order	Skip Remaining Orders Skip This Order	

METHODS

- vancomycin concentrations.
- obtained.
- inappropriate.¹⁻⁵
- considered appropriately timed.²⁻⁵

- Patients who had a minimum of one serum vancomycin concentration obtained

- Patients admitted to the transitional skilled unit, hospice, or the long term acute

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CAPOE ORDER PAD vanco ···································	
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the description. > The order is then held in the Unprocessed Orders Box. > Press the Process Orders button to place the order.	Additional Descriptor (For Meds Only)
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The primary outcome of the study is the number of appropriately ordered serum

- Appropriate serum concentrations will be compared pre- and post intervention by the type of concentrations requested and the time the concentrations were to be

- An appropriate serum concentration, based on type, will be defined as an ordered trough or random concentration. All peak serum concentrations will be deemed

- An appropriately timed serum concentration will be defined as a trough concentration obtained within one hour of the fourth or next dose. All random concentrations will be

- intervention.
- before the next administered dose.
- concentration was to be obtained.
- obtained for each patient.
- Additional data to be collected:
- clearance).

DISCLOSURE

Authors of this 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: – Jennie Mathew: Nothing to disclose

Jarrod Kile: Nothing to disclose

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• The secondary outcome is the number of appropriately obtained vancomycin serum concentrations prior to and after pharmacist

- A trough serum concentration will be considered appropriately obtained when it is acquired between the time it was ordered to be obtained and immediately

– A random serum concentration will be considered appropriately obtained when it is acquired within one hour before or one hour after the time the

Collected data will be in relation to the first serum vancomycin concentration

– Demographics (age, gender, weight, serum creatinine, estimated creatinine

 The cost of total vancomycin usage and the cost to obtain all serum vancomycin concentrations prior to and after pharmacist intervention.

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