

The Role of Antimicrobial Stewardship Program on Appropriate Use,

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Abstract# 229



Dose and Duration of Vancomycin

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BACKGROUND

- In an era of increasing bacterial resistance, antimicrobial stewardship programs (ASP) are essential in guiding judicious antibiotic use and improving patient safety goals.
- A prior medication use evaluation of vancomycin conducted at Stony Brook University Hospital (SBUH) identified three areas for improvement:
 - (1) Vancomycin dosing to achieve target trough concentration
 - (2) Treatment duration
 - (3) Appropriate utilization of vancomycin levels.
- As a result, the ASP at SBUH implemented an interdisciplinary team which consists of pharmacists and physicians to optimize these areas.

METHODS AND MATERIALS

- A prospective quality improvement program was implemented from October 1, 2017 to December 31, 2017.
- Stony Brook is a 603 bed tertiary care level 1 trauma center in Long Island, NY.
- Patients on two general medicine units (60 patient beds) were enrolled in the program if they received vancomycin for more than one day and were not on hemodialysis.
- The ASP monitored for appropriate use of vancomycin as well as providing real time guidance on dosing and serum concentration monitoring.
- If vancomycin was not indicated or de-escalation was warranted, the physician was contacted for discontinuation or de-escalation.
- To evaluate the impact of the program, patients from two different medicine units were included during the same period as the control.
- Duration of vancomycin therapy, percentage of patients achieving target trough level and 24-hr AUC within 72 hours, and use of vancomycin drug assay were compared.

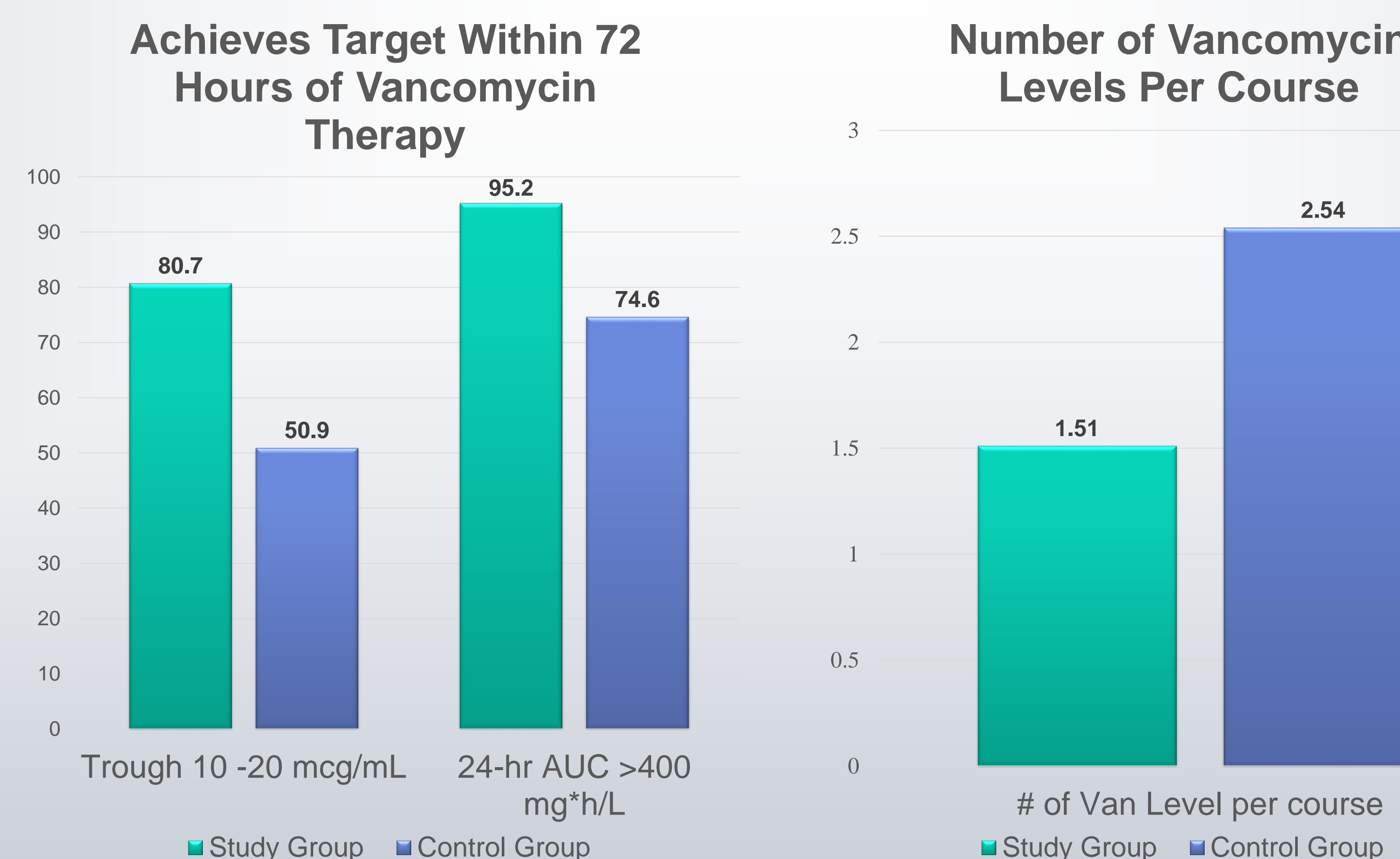
RESULTS

Clinical Features	Study Group (n=84)	Control Group (n=142)
Average Age	65	64
Total # of vancomycin courses	84	146
Average weight (kg) [range]	81.84 [33 -162]	81.82 [37 -155.4]
Average Creatinine Clearance (mL/min) [range]	75.7 [13.42 – 196.82]	81.23 [9.45 – 263.98]
Average length of hospitalization (days)	12.71	14.15
Average dose (mg/kg/dose)	13.60	14.02

Projected Savings on Vancomycin Use After ASP Intervention

Cost of vancomycin per Day-of-Therapy	\$ 38
Percentage Reduction in Vancomycin Day-of-Therapy	20%
Total Days of Vancomycin Therapy in the control group	832
3-month Cost-Savings based on reduced vancomycin days	\$ 6323
Projected Annual Cost-Savings	\$25,292

- The intervention group achieved a 20% reduction in the days of vancomycin use (median days of therapy 4.55 vs 5.7 days, p=0.071)
- A higher percentage of patient achieving trough level of 10-20 mcg/mL (80.65% vs 51.79%, p=0.0001)
- 24hr-AUC >400mg*hr/L (95.16% vs 74.6%, p = 0.001), and a lower number of trough levels per course (1.51 vs 2.54, p=0.007).
- The 3-month medication cost savings from the program on these two units was over \$6,000.



CONCLUSIONS

- An ASP supervised program led to a reduction in vancomycin days of therapy, early attainment of optimal exposure, and decreased use of laboratory resources. Moreover, the program lowered the overall healthcare cost.
- Cost savings can be realized by both the Pharmacy and Laboratory departments

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