

DAPTOMYCIN VS. VANCOMYCIN:

A COST COMPARISON IN A REGIONAL HOME INFUSION PHARMACY

Katherine Yang, PharmD, BCPS, Kristina Wong, PharmD, Wendy Morimoto, PharmD, Mehrnaz Zahiri, PharmD, Meredith Silverman, MD
Kaiser Permanente Regional Home Infusion Pharmacy | Berkeley, CA



BACKGROUND

- Intravenous (IV) vancomycin is frequently used to treat complicated infections caused by Gram-positive organisms.
- Daptomycin may be used to treat many of these infections, but its cost has historically made this agent less preferable.
- Lower-cost generic daptomycin is now readily available.

PURPOSE

- Characterize and compare the costs associated with administering vancomycin and daptomycin through a home infusion pharmacy by assessing pharmacist time spent monitoring, drug cost, and lab costs to measure the overall cost of administering these antibiotics.

METHODS

- Retrospective chart review of patients from 16 Northern California medical centers who received services from a regional home infusion pharmacy (HIP)
- Inclusion criteria: Adults age ≥ 18 years prescribed vancomycin or daptomycin for ≥ 7 days from August 1- December 27, 2022.
- Exclusion criteria: ANC < 1000 cells/mm³, baseline SCr ≥ 2 mg/dL; received IV aminoglycoside within 7 days before or 30 days after hospital discharge; transitioned from vancomycin to daptomycin or vice versa during study period.
- Statistical analyses were performed using GraphPad Prism software. Categorical variables were evaluated by Chi-square test or Fisher's exact test, as appropriate. Mann-Whitney U test was used to calculate p-values between median values. All other continuous variables were evaluated by unpaired t-test or ANOVA.

DATA COLLECTION OF COSTS

PHARMACIST MONITORING

- Included all pharmacist notes written for entire duration of therapy with HIP
 - Median hourly salary
 - Converted to minutes
 - Multiplied by the number of minutes spent monitoring
- OPEN TIME $\xrightarrow{\text{\# of minutes}}$ FILE TIME

ANTIBIOTIC

- Price billed to insurance for every fill, which includes: the cost of drug and administration device

Vancomycin elastomeric device **Daptomycin** ≤ 600 mg: syringe, >600 mg: elastomeric

LABS

- Extracted from the Cost Management Information System (CMIS)
- Includes both direct and indirect costs in the provision of lab services
- One lab draw per week minimum, more as needed
- Per protocol labs:

Vancomycin: serum creatinine, CBC w/ differential, trough or random level
Daptomycin: serum creatinine, CBC w/ differential, ALT, creatine kinase

RESULTS

Table 1. Patient Demographics

Characteristic	Vancomycin (n=57)	Daptomycin (n=56)	p-value
Male (%)	31 (54.4)	36 (64.3)	0.36
Median Age [IQR Range]	66 [74.5–55]	61 [72.5–50.3]	0.13
BMI (kg/m ²) (%)			
<25	24 (42.1)	16 (28.5)	0.13
25 – <30	13 (22.8)	19 (33.3)	0.19
≥ 30	20 (35.1)	21 (38.6)	0.79
β -Lactam allergy (%)	17 (29.8)	15 (26.8)	0.72
Congestive Heart Failure (%)	11 (19.3)	9 (16.1)	0.65
Diabetes (%)	22 (38.6)	24 (42.9)	0.64
ACE inhibitor or ARB (%)	21 (36.8)	19 (33.9)	0.75
Furosemide (%)	12 (21.0)	11 (19.6)	0.85
Another antibiotic (%)	25 (43.9)	33 (58.9)	0.11
Diagnosis (%)			
Bacteremia	13 (22.8)	9 (16)	0.37
Osteomyelitis or PJI	25 (43.9)	32 (57.1)	0.16
Endocarditis	3 (5.3)	3 (5.4)	>0.99
Other (includes skin/soft tissue, surgical site, intra-abdominal infections, meningitis, pneumonia, pyelonephritis, sinusitis)	11 (19.2)	12 (21.4)	0.78
MRSA in culture (%)	15 (26.3)	20 (35.7)	0.28
Baseline CrCl (mL/min) (%)			
0 – <30	1 (1.8)	1 (1.8)	>0.99
30 – 50	10 (17.5)	10 (17.9)	0.97
>50	45 (78.9)	45 (80.3)	0.85
Median Outpatient DOT [IQR Range]	28 [38–11.5]	34 [41.3–22]	0.06

DISCUSSION

- This study found that daptomycin is less costly for a HIP to administer and monitor than vancomycin when considering the combined cost of the drug, lab draws, and pharmacist time spent monitoring patients.
- Pharmacists required significantly less time to monitor patients prescribed daptomycin.
- This information can guide institution-specific practices pertaining to prescribing vancomycin or daptomycin through the HIP.

Table 2. Clinical Monitoring by HIP Pharmacists

Average Value	Vancomycin	Daptomycin	p-value
Number of minutes spent writing note	25.58 minutes	23.76 minutes	p = 0.52
Number of notes written per therapy day	1.04 notes	0.58 Notes	p < 0.05
Number of minutes spent monitoring per therapy day	24.93 minutes	14.47 Minutes	p < 0.05

Table 3. Average Cost per Therapy Day

Expenditure	Vancomycin	Daptomycin	p-value
Pharmacist Time	\$37.99	\$22.60	< 0.05
Antibiotic	\$32.56	\$31.91	0.82
Labs	\$14.01	\$5.24	< 0.05
Total Combined	\$84.56	\$59.75	< 0.05

LIMITATIONS

- Pharmacist monitoring time was an estimation taken from the amount of time spent writing notes.
- This study was unable to include home health nursing and delivery costs, which also contribute to the overall dispensing and monitoring of antibiotics in the outpatient setting.

CONCLUSION

- Daptomycin is less costly for a HIP to administer and monitor than vancomycin when combining the cost of the antibiotics and administration devices, lab draws, and pharmacist time spent monitoring patients.
- Analysis of a larger sample size is needed to generalize the study findings to guide other institutions.

ACKNOWLEDGEMENTS

- Thank you Dan Faletti and Michelle Su for extracting all the lab cost data for each patient from the CMIS.

Disclosures: all authors of this poster have no conflicts of interest to disclose

SCAN ME

