under Value-Based Purchasing and Hospital-Acquired Condition Reduction Programs (Centers for Medicare & Medicaid Services), it becomes difficult to brush aside the burden of a non-zero blood culture contamination rate. Following unsuccessful and unsustainable endeavors that included educational exercise and waste tube employment, initial-specimen diversion devices designed to shift performance burdens from technicians to technology were co-opted in an effort to secure reliable blood culture contamination rate reductions. **Methods:** A 3.6% blood culture contamination rate was observed systemwide prior to intervention, which began in 2020. Among seventeen facilities that share a data system, twelve co-opted initial-specimen diversion device technology as the evidence-based anchor to a trifurcate intervention strategy that included value analysis and cultural curation. **Results:** The 2023 systemwide blood culture contamination rate was 1.95%; down from 2.8% in 2022 and 3.2% in 2021. The average cost per false-positive event was $2,111, with intervention amounting to systemwide savings of $4.1 million in 2023 as approximately 1,920 patients avoided false-positive incidents. Critical to year-over-year systemwide uptick in adoption of interventive technology was consistent and near real-time communication to caretakers regarding outcomes. **Conclusion:** The sustained success of the multifactorial solution showcased herein stems from the coupling of an evidence-based action with an ongoing assessment of value and communication channels carefully constructed to celebrate and perpetuate value observed. Layered uncertainties often cloud the crux of a multifactorial solution to a complex conundrum; for many decades the literature-supported solution to high blood culture contamination rates was to educate every person involved in every possible way. Only recently, following recommended practice revisions endorsed by the Clinical and Laboratory Standards Institute and Centers for Disease Control and Prevention, did it become apparent nationwide that education alone was insufficient; some contaminant pathways persist without meticulously mechanical closure. Antimicrobial stewardship requires the respectful removal of adaptable pressures from microorganisms, but the inverse is equally important; by setting an ambitious systemwide blood culture contamination rate target of 1% or less, it is hoped that all facilities involved herein respond to this pressure with optimism, introspection and innovation.

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Risk Factors Predicting Complication of OPAT in an Academic Center: A Retrospective Cohort Study

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Background: While Outpatient Parenteral Antibiotic Therapy (OPAT) offers patient convenience and reduced healthcare costs, its increasing utilization has brought various complications to light, including antibiotics-related and line-related OPAT complications. In a large prospective study, 18% of the patients experienced adverse drug events. Another study showed 8.45% of patients had vascular complications. Our study aims to identify clinical predictors associated with OPAT complications. Identifying predictors for suboptimal OPAT outcomes provides an opportunity to intervene, thereby minimizing the risk of OPAT-related complications. **Method:** We conducted a retrospective cohort study at Tufts Medical Center of all adult patients aged ≥18 years discharged on OPAT from April 2022 to October 2022. Demographic, treatment, outcome, and complications data were extracted through chart review. The

Figure 1. Types of OPAT complications

Antibiotic-related	
• Rash	10
• Leukopenia	4
• Transaminitis	3
• Acute kidney injury	2
Line-related	
• Catheter occlusion	9
• Line displacement	6
• Local reaction (redness)	5
• Leaking line	4
• DVT	2
• Bloodstream infection	1

Figure 2. Characteristics and comparison of risk factors of OPAT complications

Characteristics	OPAT Complications		Univariable		Multivariable	
	Yes (n=44)	No (n=187)	OR (95% CI)	*p* value	aOR (95% CI)	*p* value
Age, years (IQR)	56 (46, 69)	64 (54, 74)	0.974 (0.953 – 0.996)	0.019	0.980 (0.947 – 1.015)	0.266
Gender						
• Male	29 (65.9)	116 (62.0)	Reference			
• Female	15 (34.1)	71 (38.0)	1.183 (0.594 – 2.359)	0.632	-	-
Race						
• White	36 (81.8)	142 (75.9)	Reference			
• Others	8 (18.2)	45 (24.1)	0.701 (0.304 – 1.618)	0.406	-	-
Ethnicity						
• Non-Hispanic	39 (88.6%)	172 (92.0)	Reference			
• Hispanic	5 (11.4)	15 (8.0)	1.470 (0.504 – 4.287)	0.480	-	-
Charlson comorbidity index						
• 0	9 (20.5)	17 (9.1)	Reference			
• 1-2	14 (31.8)	43 (23.0)	0.615 (0.224 – 1.686)	0.345	0.740 (0.231 – 2.368)	0.612
• 3-4	10 (22.7)	53 (28.3)	0.356 (0.124 – 1.022)	0.055	0.646 (0.159 – 2.619)	0.541
• >5	11 (25.0)	74 (39.6)	0.281 (0.101 – 0.784)	0.015	0.508 (0.105 – 2.465)	0.401
SUD	3 (6.8)	15 (8.0)	0.839 (0.232 – 3.034)	0.789	-	-
IVDU	2 (4.5)	7 (2.7)	1.224 (0.246 – 6.107)	0.805	-	-
Insurance						
• Commercial	15 (34.1)	64 (34.2)	Reference	Reference		
• Medicare	18 (40.9)	97 (51.9)	0.792 (0.372 – 1.684)	0.544	-	-
• Medicaid	10 (22.7)	22 (11.8)	1.939 (0.761 – 4.942)	0.165	-	-
• Others	1 (2.3)		1.067 (0.111 – 10.245)	0.955	-	-
Primary language						
• English	39 (88.6)	172 (92.0)	Reference			
• Non-English	5 (11.4)	15 (8.0)	1.470 (0.504 – 4.287)	0.480	-	-
Penicillin allergy	8 (18.2)	31 (16.6)	1.118 (0.474 – 3 636)	0.798	-	-
Discharge location						
• Home	33 (75.0)	119 (63.6)	Reference			
• SNF	11 (25.0)	68 (36.4)	0.583 (0.277 – 1.228)	0.156	-	-
Access						
• Central	32 (72.7)	139 (74.3)	Reference			
• Peripheral	12 (27.3)	48 (25.7)	1.086 (0.518 – 2.276)	0.827	-	-
Antibiotic class						
• Penicillin	7 (15.9)	41 (21.9)	0.674 (0.280 – 1.623)	0.378	-	-
• Cephalosporin	27 (61.4)	88 (47.1)	1.787 (0.913 – 3.496)	0.090	1.761 (0.810 – 3.826)	0.153
• Carbapenems	4 (9.1)	27 (14.4)	0.593 (0.196 – 1.791)	0.354	-	-
• Glycopeptides	14 (31.8)	37 (19.8)	1.892 (0.912 – 3.923)	0.087	1.752 (0.768 – 3.998)	0.183
• Dalbavancin	1 (2.3)	8 (4.3)	0.520 (0.063 – 4.272)	0.543	-	-
• Metronidazole	6 (13.6)	14 (7.5)	1.951 (0.704 – 5.404)	0.198	-	-
• Others	6 (13.6)	26 (13.9)	0.978 (0.376 – 2.542)	0.963	-	-
Number of Antibiotics						
• 1	23 (52.3)	129 (69.0)	Reference	Reference		
• 2	21 (47.7)	52 (27.8)	2.265 (1.155 – 4.442)	0.017	1.826 (0.818 – 4.079)	0.142
• 3	0 (0)	6 (3.2)	0	0.999	-	-
Frequency						
• <=2 /day	20 (45.5)	105 (56.1)	Reference			
• >2 /day	24 (54.5)	82 (43.9)	1.537 (0.794 – 2.973)	0.202	-	-
Duration of OPAT in days, median (IQR)	42 (21, 42)	42 (23, 42)	0.990 (0.965 – 1.015)	0.423	-	-
Type of OPAT follow up						
• Office visit	38 (86.4)	151 (80.7)	1.510 (0.593 – 3.845)	0.388	-	-
• Telehealth	18 (40.9)	52 (27.8)	1.797 (0.910 – 3.551)	0.091	1.879 (0.899 – 3.927)	0.094
Time from hospital discharge to first OPAT follow up in days, median (IQR)	9 (7, 14)	10 (7, 13)	1.006 (0.965 – 1.049)	0.779	-	-
Missed appointment						
• 0	37 (84.1)	150 (80.2)	Reference	Reference		
• 1	3 (6.8)	24 (12.8)	0.507 (0.145 – 1.774)	0.288	-	-
• >1	4 (9.1)	13 (7.0)	1.247 (0.384 - 4.407)	0.713	-	-
Missing OPAT labs	9 (20.9)	27 (14.4)	1.569 (0.677 – 3.635)	0.294	-	-

primary outcome was the proportion and predictors of OPAT complications. The secondary outcomes were OPAT completion rate, 30-day ED visit, and 30-day readmission rates related to OPAT complications. We used univariable and multivariable analyses using logistic regression models for the predictors of OPAT complications. Variables with p5 (OR, 0.281, 95% CI 0.101–0.784), but they were more likely to have received two antibiotics (OR, 2.265; 95% CI 1.155-4.442). However, no significant independent predictor OPAT complications was identified in multivariable regression analysis (Figure 2). OPAT completion rates were lower in patients with complications (59.1% versus 75.4%). The 30-day ED visit and 30-day readmission rates were significantly higher in the complication group (31.8% vs. 0 and 34.1% vs. 2.1%, respectively). **Conclusion:** Our study highlights the significant difference in treatment completion rates and higher incidence of ED visits and readmissions rates among those with OPAT complications. Although specific independent predictor was not identified, the association with multiple antibiotic therapies and telemedicine follow-ups suggests areas for further investigation.

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Evaluating the Generalizability of an Electronic Algorithm to Identify Vancomycin-Associated Acute Kidney Injury

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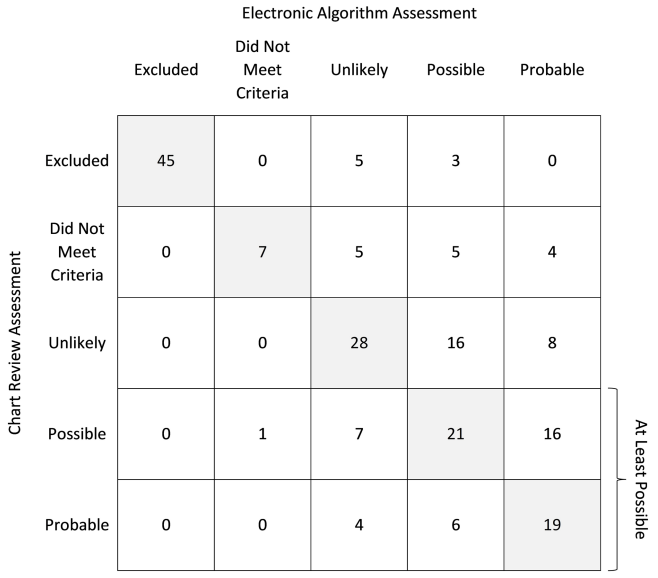
Introduction: Vancomycin-associated acute kidney injury (V-AKI) is a common adverse reaction; however, there is currently no method to systematically monitor its incidence. We previously developed and internally validated an electronic algorithm to identify cases of V-AKI using structured electronic health record data at the Johns Hopkins Hospital, which demonstrated excellent agreement with chart review (percent agreement 92.5%; weighted kappa coefficient 0.95), as well as excellent sensitivity (89.7%) and specificity (98.2%) in detecting at least possible V-AKI events. The objective of this study was to evaluate the generalizability of the V-AKI electronic algorithm. **Methods:** We identified a retrospective cohort of adult and pediatric patients who received ≥1 dose of intravenous vancomycin while admitted to University of Virginia (UVA) Medical Center from 1/2021-1/2023. An increase in creatinine (Cr) of ≥0.3 mg/dL within 48 hours or ≥50% increase in baseline Cr within 7 days, occurring after the first dose and up to 72 hours after the last dose of IV vancomycin, was considered a potential V-AKI event. The electronic algorithm was executed at UVA with only limited contextualization of hospital specific variables (e.g., procedure names). Patients were categorized as excluded/not meeting criteria, or as having an unlikely, possible or probable V-AKI event using a causality framework. A random subset of the cohort underwent chart review by a blinded reviewer for external validation. Percent agreement and a weighted kappa coefficient were calculated. The sensitivity and specificity in identifying at least possible V-AKI events was determined. **Results:** The electronic algorithm was validated using 200 cases and demonstrated 60.0% percent agreement with chart review (Figure). The weighted kappa coefficient was 0.75. The algorithm was 83.8% sensitive and 71.4% specific in detecting at least possible V-AKI events. Among the 80 discrepant cases, there was only a 1-category difference in 62.5% of cases. The most common reasons for discrepant assessments, which were partly due to inconsistencies in chart review, included disagreement regarding timing of AKI onset (18.6%) and whether renal function returned to baseline (16.3%). **Conclusions:** An electronic algorithm to identify V-AKI events was successfully implemented at another institution. Although agreement with chart review was only fair, sensitivity in detecting at least possible V-AKI events remained excellent. The electronic algorithm may be useful for systematically and reproducibly identifying V-AKI events across institutions in a scalable manner to inform stewardship interventions. However, further refinement of the algorithm and improvement in consistency of chart review assessments is needed.



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Impact of MIC Breakpoint Changes for Enterobacterales on Trends of Antibiotic Susceptibilities in An Academic Medical Center

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