

Reducing Blood Culture Contamination Through Standardized ED Collection Practices

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Background

Blood Culture Contamination (BCC) is a common and costly issue in healthcare with significant consequences including unnecessary antibiotic use, prolonged hospital stays, and increased costs (average cost of a single contaminated blood culture (BC) is ~\$4,538).¹

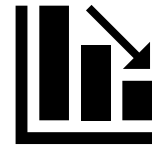
- Studies have shown standardizing collection kits and utilization of passive diversion devices can effectively reduce contamination rates.³
- Sutter Memorial Medical Center (SMMC) RNs are responsible for ~1,000+ blood culture draws per month.
- Prior to implementation of passive diversion devices and standardized kits ED RN drawn BCC rate ~4%.

Purpose

Improve patient safety and quality of care by reducing blood culture contamination and associated costs through implementation of standardized collection kits and a passive automated diversion device, with a target contamination rate below the system goal of 2%.

References: 1. Centers for Disease Control and Prevention (CDC). (2020). Blood Culture Contamination: An Overview for Infection Control and Antibiotics Stewardship Programs Working with Clinical Laboratory. 2. Kurin. (n.d.). Kurin. Retrieved September 11, 2025 from www.kurin.com 3. Burnie, J., & Vining, S. (2018). Clinical Nurse Specialist Practice Impact on Emergency Department Blood Culture Contamination. *Clinical Nurse Specialist*, 32(4), 195-201.

Outcomes



65% Reduction in Overall Contamination Rate



945+ Patients Positively Impacted

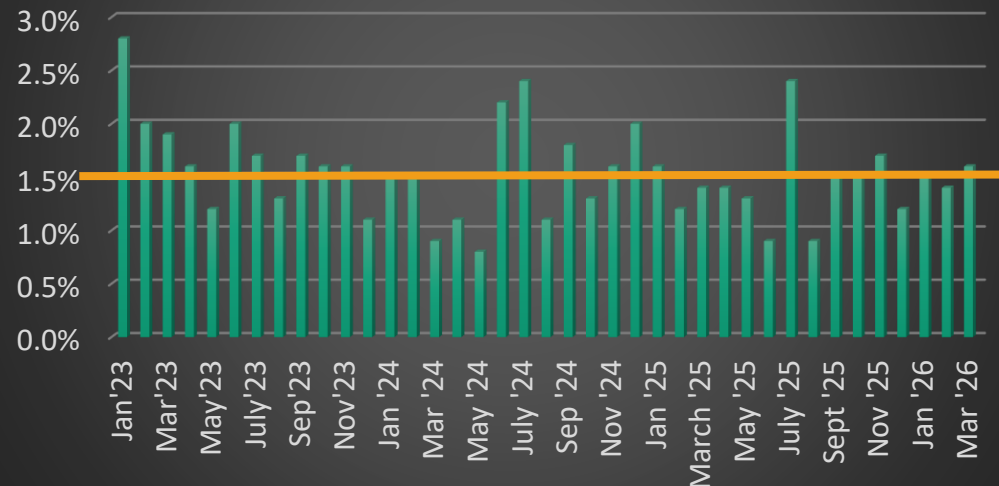


\$3.53M Cumulative Cost Savings (\$110.2K Average Monthly Savings)



1.4% Average BC Contamination Rate for Past Year

Blood Culture Contamination Rates - ED RN Draws



Design/Methods

Process Improvement (PI) Project including:

- Blood culture collection kits are pre-assembled and stocked in each patient care area to support standardized practice and efficiency.
- Passive diversion device utilized for BC collection
- Education and training provided during RN onboarding and reinforced with 1:1 orientation.
- Each RN is assigned an individual lab code, enabling accurate tracking and accountability for specimen collection.
- Monthly contamination reviews are conducted including:
 - Individual follow up with RNs associated with contaminated cultures.
 - Recognition of top performing staff.



Conclusion

Standardized collection kits and use of a passive diversion device reduced BCC, improved patient safety, and diagnostic accuracy while lowering costs. Sustained success was supported by ongoing education, feedback, and staff recognition, achieving rates below the 2% system goal.