

Background

- Blood culture contaminations (BCCs) cause:
 - Delay in diagnoses
 - Unneeded use of antimicrobial agents
 - Prolonged hospital stays
 - Additional laboratory testing
 - Increased healthcare costs (Halstead et al., 2020)
- Each BCC costs an estimated \$8,720 compared to a negative culture (Feghaly et al., 2018)
- The College of American Pathologists suggests that BCC rates be less than 3% (College of American Pathologists, 2023)
- Contamination sources include:
 - Improper glove use
 - Breaks in aseptic technique
 - Inadequate site preparation
- 2021 average BCC rates
 - 2.7% (Hospital A)
 - 2.3% (Hospital B)
- Bundled strategies use multiple interventions to decrease BCCs which are practical, feasible, and involve collaborative interventions (Bool et al., 2020)

Purpose

- Decrease BCC rates to less than 1.5%
- Reduce unnecessary treatments and costs
- Improve antimicrobial stewardship
- Improve clinical and safety outcomes

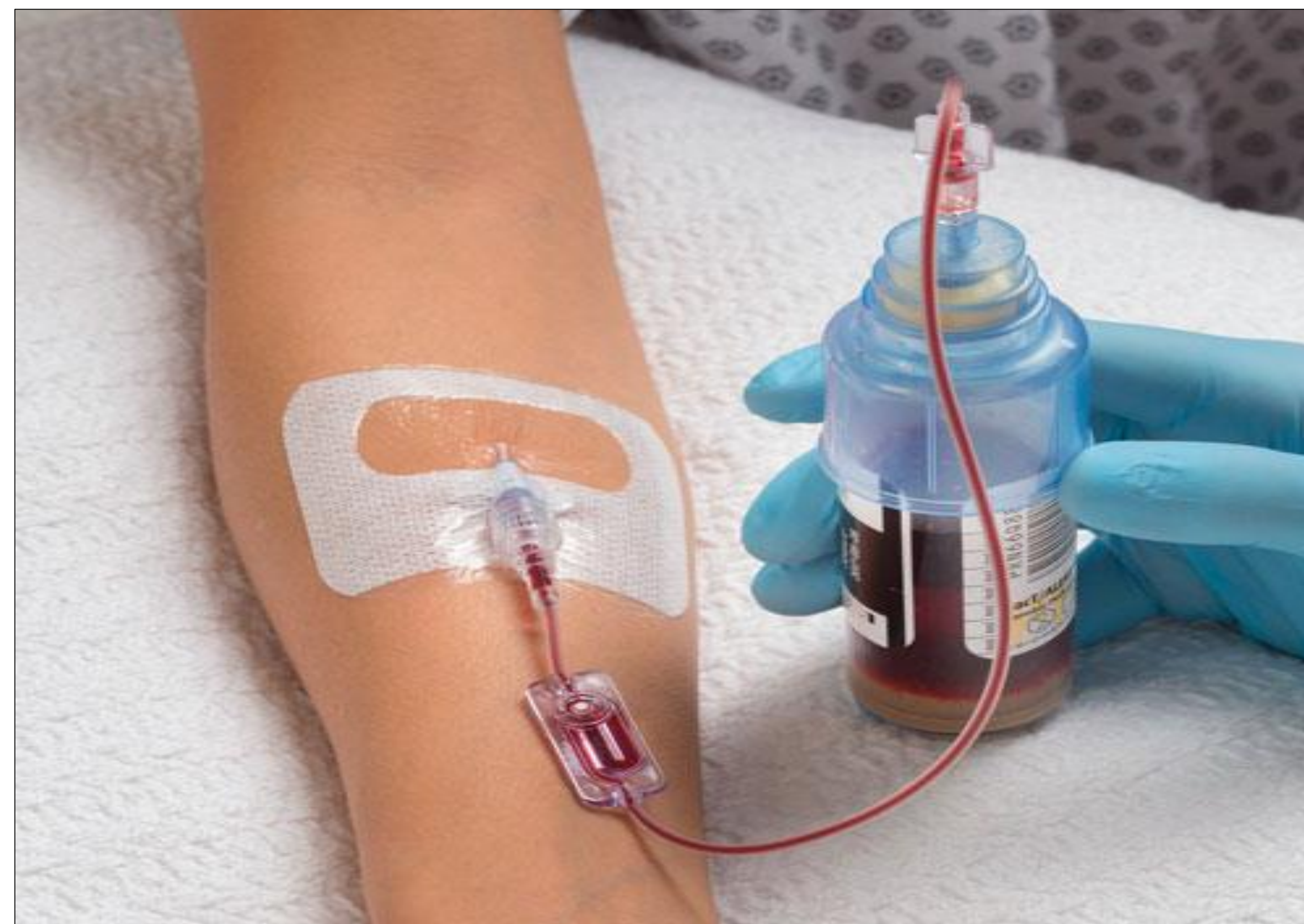
Methods

Quality improvement project at 3 Midwest hospitals over 3 months with a bundled approach:

- Developed trial protocol with a collaborative effort between lab personnel, Kurin representatives, unit managers, and supplies department staff
- Assembled BC kits (alcohol swabs, tourniquets, and Chloraprep™)
- Purchased Kurin devices (21/23-gauge devices and peripheral intravenous access tools)
- Educated unit managers and nurses on the new BC collection process
- Implemented process for 3 months
- Re-educated employees with contaminations during the trial period
- Collected post-implementation data
- Obtained feedback from staff post implementation

Results

	Hospital A		Hospital B
	ED	Med-Observation	ED
May 2022			
Kurin Draws	272	10	100
Kurin BCCs	0	0	0
Kurin BCCs %	0%	0%	0%
Non-Kurin Draws	729	14	39
Non-Kurin BCCs	26	0	3
Non-Kurin BCCs %	3.6%	0%	7.7%
Overall BCCs %	2.6%	0%	2.6%
June 2022			
Kurin Draws	314	11	85
Kurin BCCs	3	0	0
Kurin BCCs %	1%	0%	0%
Non-Kurin Draws	630	16	89
Non-Kurin BCCs	24	0	2
Non-Kurin BCCs %	3.8%	0%	2.2%
Overall BCCs %	2.86%	0%	2.86%
July 2022			
Kurin Draws	346	1	73
Kurin BCCs	5	0	0
Kurin BCCs %	1.4%	0%	0%
Non-Kurin Draws	618	18	47
Non-Kurin BCCs	29	1	5
Non-Kurin BCCs %	4.7%	5.6%	10.7%
Overall BCCs %	2.86%	5.26%	3.53%



Kurin. (2023). Kurin blood culture collection sets. <https://www.Kurin.com>

Discussion

- Hospital C's data was not available due to miscommunication
- Hospital A's medical observation unit had 2 months of 0 contaminations (Kurin & Non-Kurin draws)
- BCC rates improved with the use of Kurin devices
- Lack of Kurin devices in July resulted in increased BCCs
- Inconsistent use of Kurin devices impacted BCC rates
 - Nurses were unaware of the new Kurin implementation
 - Nurses did not use the Kurin device correctly
- Anecdotal staff feedback:
 - Device was easy to use
 - Staff preferred the Kurin device over the standard collection method

Conclusion

- The goal for BCC rates to be < 1.5 % was not met
- Use of Kurin device positively impacted BCC rates
- Facilities plan to continue using the revised process

Recommendations:

- Increase trial period
- Educate all staff to ensure float staff understand the process
- Include education about the BCC process during orientation
- Consider Kurin feasibility costs for long-term use

References

- Bool, M., Barton, M. J., & Zimmerman, P-A. (2020). Blood culture contamination in the emergency department: An integrative review of strategies to prevent blood culture contamination. *Australasian Emergency Care*, 23(3), 157-165. <https://doi.org/10.1016/j.auec.2020.02.004>
- College of American Pathologists. (2023). *Blood culture contamination-QT2*. https://estore.cap.org/OA_HTML/xxCAPibeCCtpltmDspRte.jsp?item=445591&site=10020:22372:U S
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- Halstead, D. C., Sautter, R. L., Snyder, J. W., Crist, A. E. & Nachamkin, I. (2020). Reducing blood culture contamination rates: Experiences of four hospital systems. *Infectious Diseases and Therapy*, 9, 389-401. <https://doi.org/10.1007/s40121-020-00299-1>
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