

Blood Culture Contamination in the ED

Lee Health System – Southwest Florida

Clinical Problem/Significance:

Blood culture contamination rates for the ED were continuously on the rise.

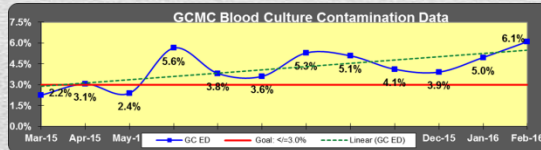
This was leading to:

- increase in antibiotic resistance
- need for repeat testing
- increase length of stay
- increase cost to the system
- patient dissatisfaction

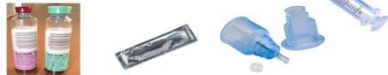
Background:

National standards for blood culture contamination rate is less than 2%. Our peak contamination rate reached 6.1% leading us to re-evaluate our current standards and protocols for collection of blood cultures.

Prior draw method was the use of multiple devices with many entry points for bacteria as well as unsafe for employees.



- Clean site with appropriate product and allow to dry
- Clean bottle tops
- Choose Draw Method (Syringe or Butterfly)
- Use Transfer Device to fill bottles
- Label bottles and send to the lab



Clinical Question:

What are the other protocols/devices available to decrease blood culture contamination rates?

Description of Evidenced Based Protocol:

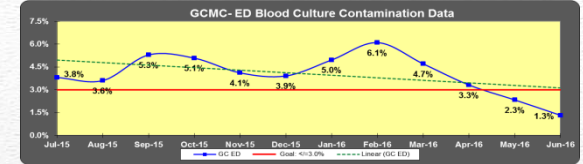
Utilizing the same concept as clean catch urine collection and closed-looped sterile systems, we found a new device. This new diversion technique would be in line with best practice of diverting the first 1-2ml of contaminates away from our collection tubes.



Implementation of Evidence-based Protocol:

- Involved Medical Director of Infectious Disease for support of initiative.
- Requested and obtained product use approval.
- Provided 1:1 training for all staff.
- Made diversion technique mandatory for the collection of all adult blood cultures.
- Audited weekly usage with the assistance of microbiology department.
- On contaminations found, determined if technique was used or not, and re-educated specific staff.
- After much success in our department, technique was rolled out system wide to all four emergency departments.

Results:



Key Performance Indicator	Measurement	Initial Total Patients 9/15	Target	Current Total Patients 9/16	Cost Avoidance \$3500-\$8750
Financial Viability	GCMC ED	37	0	12	\$ 87,500-\$ 218,750
Financial Viability	HPMC ED	20	0	10	\$ 35,000-\$ 87,500
Financial Viability	CCH ED	31	0	7	\$ 84,000-\$ 210,000
Financial Viability	LMH ED	24	0	6	\$ 63,000-\$ 157,500

Conclusion/Discussion:

With significant decrease in contaminations across the system, the diversion technique has become part of standard practice. A secondary effect of decreasing patients affected, was a large amount of cost avoidance realized by system leaders.

Implications for Emergency Nursing Practice:

Allows the ED to practice evidenced-based medicine while being conscious of the need to increase patient satisfaction and safety as well as reducing patient length of stays, antibiotic resistance, and cost to the system.