Putting the Kibosh on Bugs
Nurses Lead Reduction in Blood Culture Contamination Rates

Aurora Health Care
Now part of ADVOCATE HEALTH

November 15, 2023  I  Echo Ashley, BSN, RN, CEN
What are blood cultures?

- Key lab test used in identifying sepsis/bacteremia
- Monitor for growth of bacteria in blood over 24 hours
- Two sets from two different sites prior to antibiotic administration
- Depending on bacteria that is present the blood culture could be considered positive or potentially contaminated
Why are contaminations bad?

- Increased length of stay in hospital
  - 4-5 days
- Financial burdens
  - Cost of cultures, hospital stay, medication costs, additional laboratory tests, etc.
- Antibiotic resistance
  - “Antibiotic resistant bacteria are one of the greatest challenges in healthcare today [...] judicious use of currently available broad-spectrum antibiotics is paramount”

(Hughes et. al, 2018).
Background

- In 2022: 478 blood culture draws; 19 contaminates
- 2022 Data  (Benchmark per ACL labs: ≤ 2.3%)

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Method

Nurse-led interdisciplinary group:
• ED RN
• Lead Phlebotomist
• Leadership and Educator support
• Identify trends and dissect data

Reevaluation of current process:
• Comparison to current literature and evidence-based practice recommendations

Identifying the potential causes:
• Collection from direct venipuncture versus off established peripheral intravenous catheters
• Improper cleansing technique/dry time
• Hand hygiene
• Lack of proper knowledge regarding collection
Implementation

• Literature and evidence-based practice review
• Revamping of collection process
  • Limiting who can collect
  • Process for critical/time sensitive draws
  • Avoiding samples from established lines
  • Hand hygiene/glove changing practices
• Re-education and hardwiring
• Peer feedback
• Chart audits and follow up

Our Process

• Gather all supplies needed
  • Two blood culture bottles (aerobic/anaerobic)
  • Blood culture vacutainer
  • Find appropriate site for IV insertion/venipuncture
  • Preform Hand Hygiene
  • Apply Tourniquet
  • Prep skin with Chlorhexidine swabs
    • Apply lightly scrubbing the skin for 30 seconds
    • Allow site to dry for 30 seconds after scrubbing skin
  • Clean the tops of the blood culture bottles with alcohol wipes and leave on top
  • Once IV insertion is complete blood cultures are drawn FIRST
# Results

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Results for end of 2022 following practice changes
2023 Results
Department PDSA ≤ 1 contaminate per month
VALUE nursing

“A new way to envision nursing practice” (Yakusheva et.al, 2021)

- Value-informed nursing practice innovation that streamlined a care process
- Process change that aided in decreased resource usage, decreased admissions and length of stay:
  - **An average of $45,380 in total medical costs saved**
- Decreased resources used means higher quality of care, improved safety outcomes, and affordability for patients
- In respect to VALUE nursing this is an example of how nurses have a direct impact on innovating high value care.
Conclusion

• Utilization of evidence-based practice strategies and techniques improved collection technique.

• Creating a standardized process outlining acceptable and unacceptable processes keeps collection consistent within the unit.

• Re education and frequent check ins with teammates and monitoring data are associated with positive patient outcomes.

• Nurses are key players in emphasizing the quality-of-care being delivered, avoiding unnecessary resources, and health care costs.
References


Questions?