Reduction of Blood Culture Contaminations in the Emergency Department
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Introduction
The Issue: False Positive Blood Cultures
- Peer reviewed evidence demonstrates patient safety issues and financial impacts of false positives
- GOAL: Below 3% false positives recommended by the American Society of Microbiology.
- The U.S. Healthcare System spends over $4 billion each year on unnecessary treatment associated with false positive blood culture results (Magnolia Medical Technologies, 2016). Every year an average of 1.2 million false positive cultures are drawn in the U.S. (Magnolia Medical Technologies, 2016).
- FALSE POSITIVES ARE HARMFUL! Treated false positives are harmful to patients:
  - 1. Mild to severe antibiotic side effects
  - 2. Additional admission days
  - 3. Increase in difficult to treat C-difficile
  - 4. Increase treatment costs (Alahmadi et al, 2011)

Objectives
Increase patient safety by:
- Decreasing blood culture contamination rates
- Decreasing false positives/negatives
- Improving quality care
- Reducing costs

Technique
Initial Specimen Diversion Technique (ISDT)
- Diverting first millimeter of venipuncture blood BEFORE collecting culture specimen
- Benefits:
  - Reduces blood culture contamination rates
  - Has high benefit/cost ratio. According to Patton & Schmitt (2010), if ISDT were implementing in an ED with 5,432 blood cultures in 13 months, annual charges would decrease by $699,572.
  - Practical and safe for staff and patients
  - Does not compromise blood culture sensitivity

Methods
SteriPath Methods (Uses Initial Specimen Diversion Technique)
- Self-contained system
- Quality control “in a box”
- Vacuum-assisted collection system
- Pre-assembled sterile device
- Isolates and sequestered 1.5-2ml of blood as “waste”
- Eliminates fragments from skin or contaminates introduced during initial intravenous access
- GOAL: reduce blood culture contaminations by >50%.

Results
SteriPath at BAMC
- Pilot study initiated in September 2015 in Emergency Department
- SteriPath was tested against standard method of collecting blood cultures
- Randomly collected in Emergency Department
- Only 5 false positives using SteriPath since September 2015

Conclusions
- Data indicates use of SteriPath significantly reduces contamination rates.
- Approximately $5,000 per false positive result
- BAMC has saved over $235,000 since September 2015 by utilizing SteriPath in Emergency Department

References