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Blood Culture Collection Standard of Work

BACKGROUND

- Blood culture collection is a common procedure in Emergency Departments (ED) for patients presenting with signs/symptoms of an infectious process
- Blood culture collection generally requires 2 sets of blood cultures to determine the pathogen. This is especially important for patients meeting SIRS/Sepsis criteria.
- Blood culture specimen contamination occurs when normal skin flora is introduced into the specimen
- Blood culture contamination and resulting ‘false positive results’ are associated with:
 - unnecessary or inappropriate antibiotic use
 - hospitalization
 - increased diagnostic and consultation costs
 - patient dissatisfaction
 - negative repercussions to the hospital’s reputation
- The Emergency Nurses Association (ENA) recommends use of a standard procedure for blood culture in the Clinical Practice Guideline on Prevention of Blood Culture Contamination

LOCAL CONTEXT

- St. Joseph Hospital, Orange does not have a policy on Blood Culture Collection nor a standard of work
- Hospital-wide contamination rate is less than 1%. While the goal is under 3% as an industry standard, there are discussions to lower the threshold to <1%

PURPOSE

The two-fold purpose of this project is to develop a Standard of Work for blood culture draws and to determine the percent of ‘false positive results’ occurring from Emergency Care Center blood draws

METHODS

- Design: Implementation of an Evidence-based Clinical Practice Guideline from ENA
 - Participants: ECC RNs
 - Setting: ECC St Joseph Hospital
- Procedure:
- Create a Standard of Work for Blood Culture Collection developed with best practice evidence
 - Educated ECC RNs using visual aids during pre-shift huddle or in small groups or individually using microteaching during Summer 2021
 - Content:
 - Proper technique
 - Dispel common misconceptions regarding site selection, number of sites needed, and timing of specimens
 - Impact of contaminated specimens on patients, finances, and hospital reputation

RESULTS

- Baseline Data:
 - 2020 Hospital-wide Contamination Rate = 0.96%; in 4th Quarter 2020 rate increased to 1.84%
 - February – April 2021 Hospital-wide Contamination Rate = 0.86%; 15% of cases attributed to ECC RNs
- Post intervention data not yet available

REFERENCES

Available on request: Charles.Pfeiffer@stjoe.org

DISCUSSION

- Continue to educate ECC RNs on the importance of proper procedure and technique when drawing blood cultures
- Identify opportunities to work with other units on proper technique
- Collaborate with Microbiology regarding opportunities for education and quality improvement projects relating to blood cultures
- Consider a pilot project using a blood diversion device to remove the initial blood from the sample; research has demonstrated these devices substantially decrease false positives/contamination numbers



CONCLUSION

- False positives & blood culture contamination rates have a real & significant impact on the patient, ‘hard costs’ include unnecessary treatment, prolonged length of stay, or having to be called back to the ED for evaluation
- Although ‘hard costs’ have a significant financial impact on a hospital, the ‘soft costs’ such as patient dissatisfaction associated with blood culture contamination must be considered
- Establishing an evidence-based approach including standard of work and education can greatly reduce contamination rates