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Importance in Decreasing Blood Culture Contaminations

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Importance in Decreasing Blood Culture Contaminations

A Paper Submitted in Partial Fulfillment of the Requirements

For Nurs 5382

Jannery Valdelamar

Executive Summary

Blood culture collection was a skill introduced while in nursing school. We are all human and make mistakes, and sometimes errors are made. Blood culture contamination happens. It happens even more in hectic departments like Emergency Department and Intense Care Unit. The American Society for Microbiology and Clinical Laboratory Standard have recommended that the %3 should be the overall rate for blood contamination rate (Center for Disease Control, 2023). In the current facility that I am in, blood culture contamination is an enormous issue. The facility rate is 9.3%, the Emergency Department was 11.3%, and the Phlebotomy was 5.2%. Multiple interventions were introduced to the staff, and others were brought up. Management barriers cost and employee satisfaction. The Emergency Department is already busy, and adding more tasks could increase staff stress. In a facility that is already concerned with expenses, it was scary to introduce a device that could possibly help decrease the blood contamination rate.

With committees, colleges can work harder, increase engagement, and find better solutions, and was reflected in this facility (Rehill,221). Employees from the lab, quality, management, and even IT came to speak with the Emergency Department to develop solutions. It was refreshing seeing many departments working together. It gave hope that there would be an improvement in the blood culture contamination rates.

Nurse Leader Internship

Information about the Project

Between 4,000 and 98,000 Americans die yearly because of medical errors (Knickman, Elbel, 2019). The purpose of policies and protocols is to improve patient outcomes. It is crucial to intervene in these issues for patients and staff. Despite nurses working bedside for endless hours, we must always do our best. In Nursing School, we focus on health promotion, prevention, and care of illness (ICN,2002). We should strive to continue this and to do better. As an organization, benefits and losses should be considered

The Rationale for the Project

The facility is almost triple the recommended rate of %3. When the manager over quality came to talk to the emergency department manager and stated that it costs about \$4,000 per patient with a false positive. There is an addition of two days added to hospital stay. This also means that antibiotics are being missed used. The misuse of antibiotics can lead to superbugs. In conclusion, these results increase hospital costs (Bloomfield .et al,2022). One of this facility's issues is budgeting, which adds more stress to finding a solution. What game plan can be done to improve these numbers? As a result, the PICOT question is, when doing proper blood culture (P)how is a multidisciplinary approach (I) compared to a single approach (C) affect contamination percentage (O), in 3 months(T)?

Goals

We all know that best practices will improve health care and then can be shared with other facilities to assist them. Currently, the national standard for blood contamination rate is %3. However, it is being considered to decrease to %1 to help reduce the adverse effects (CDC,2023). We also want to decrease the number of false positive admissions. Increasing the hospitals' reimbursement will be a great accomplishment. To make this happen, many interventions were introduced. One of the conversations was to start using a device called Steripath. The Steripath will divert the first 1.5 to 2.0 millimeters of blood that can contain contaminations (Magnolia, 2023). Longevity was also discussed. That is when the discussion of a log was concerned to keep accountability.

Detailed Discussion of the Literature

The subject blood culture contamination rate is profound in many peer review articles. Luckily, did not have difficulty finding articles. When looking for relevant articles, the date they were published. The type of evidence that was used while doing the project. The Evidence-Based Practice In Nursing and Healthcare by Melnyk and Fineout-Overhold, suggests that you question is the results help the population you are targeting (2019).

Reducing Blood Culture Contamination Rates: Experiences of Four Hospital Systems (Bloomfield .et al, 2022), reflected my approach using a multivariate approach to resolve the high blood culture contamination rate. This is an article that used the research method of quantity. Quantitative studies closely study the problem and the building blocks to find solutions (Melnyk & Fineout-Overholt, 2019). The results of contaminated blood cultures is causing misuse of Vancomycin. However, there can be a decrease by improving the collection of blood cultures.

Another quantitative study is the Impact of Contaminated Blood Cultures on Children, Families, and the Health Care System (Farrell .et al, 2020). This study supported that contamination is causing return visits. The group that was studied was also the patients in the Emergency room. It also considered the effects it has on patients and their families. Interestingly, the opportunity cost to a physician who has to call the patient's family impacts the facility. This article broadened my thoughts on things that are being affected by contaminated blood cultures.

The great thing about the Article Impact of Blood Cultures Drawn by Phlebotomy on Contamination Rates and Health Care Cost in a Hospital Emergency Department (Gander .et al, 2009), is as we attempted to keep the task of collecting blood cultures to one person. In this study, they wanted to phlebotomists to do the collection of blood cultures, which showed promising results. A Comprehensive Update on the Problem of Blood Culture Contamination and a Discussion of Methos for Addressing (Doern .et al, 2020), was an updated article. It discussed making the whole process of collecting blood cultures a sterile process. That means even wearing sterile but also means adding cost. Considering the cost of having a patient stay extra in the hospital with sterile gloves might be worth it.

Project Stakeholders

Health Care Delivery in the United States (Jonas, & Kovner, 2019) defines stakeholders as the people who have a huge interest in making a change. These people are influencing the outcome. There are five key groups; consumers, providers and other healthcare workers, employers, insurers, and public policy makers(Jonas, & Kovner, 2019). This was one project that witnessed many people. All the nurses and technicians were involved. The manager for the Emergency Department, the manager for Laboratory, and the manager for Quality Control. Lab

offered to allow blood cultures container to the floor. We also had an IT nurse to help. When checking off the task of collecting blood cultures on the computer, a questionnaire will appear. It will include who drew the blood, the time, dates, and both locations. There has been a committee established to meet quarterly. The administration is also considered because of their target on patient satisfaction and cost. Finally, the patients and their families are also stakeholders. During clinical, there were multiple meetings between staff members over the subject. Many interventions were discussed and analyzed. There was even talk about adding different supplies to the process. As a great leader should, floor employees were interviewed. It was asked what they needed from leadership and what they believed could help.

Outcomes to be Measured

The outcome being measured is the percentage rate of blood cultures. The measurements are done for the overall facility. The Emergency Department and Phlebotomy are other groups that are being measured. These rates affect other concerns. Unnecessary admissions and the use of antibiotics would be analyzed. Since adding more work to staff, the floor employee satisfaction would be analyzed.

Evaluation Design

This was a project that included many people. Tons of interventions were also introduced. That means many things need to be evaluated. The lab is the department that has the most current rate of contamination of blood cultures. Sadly, they cannot state which employee member has the high contamination rate. This issue is because we cannot focus education or resources on this employee. Due to this paper log was introduced. The log would include the patient, which

employee collected the lab, the time, date, and both locations. Quality and Control can provide the date of unnecessary admission or readmission. They can also provide the cost for admission and readmission. Staff can receive a paper-based survey to collect feedback on the changes. Open-ended questions would be offered to get a more profound idea of their thoughts. The Blood Culture Committee can summarize what they have discussed, who attended, their goals, and their interventions. Appendix A and Appendix B will have the surveys noted.

Timetable/Flowchart

The initial chart with the results of the contaminated blood culture bottles was from January through December 2022. On February 9th, the manager asked if there were any solutions for decreasing their high contamination rates. This hit home because while I worked in the emergency room I was one of the nurses with a bad reputation for having contaminated bottles, even after education and verbal warnings. My rates decreased because I was told I would get written up. The manager and I brainstormed new interventions. She had already educated many shifts on proper technique. Multiple posters had already been placed around the department on how to collect blood cultures correctly. Bags with all the supplies for blood cultures have been made to help staff complete the steps currently.

That same day we had a meeting with the manager of Quality and Control. She had the bright idea of adding the SteriPath. She also wanted to be the person to introduce it when it came to speaking the cost with the administration. The Quality and control manager also wanted the lab manager to be involved. On February 16th, the lab manager came to speak with the emergency department. She offered to start giving the collection bottles to the Emergency Department. She also gave the bad news that she could not inform us on who has the worst

contamination rates. IT also spoke with us and stated she would add the questionnaire to the computer to monitor who is collecting blood cultures. March 2ND, was the first day for the Blood Culture Committee and was more of an introductory meeting. Throughout my days in that facility, we would speak to other leadership floor employees about the progress.

Data Collection Methods

The percentages of the contamination rate are collected throughout three months. Lab is the department that can give us the monthly results. The last month would be March. The Blood Culture Committee is to give their report at their quarterly meetings. The employees will be asked for their input every month. This will allow us to adjust changes to keep employee satisfaction. The patient log can be analyzed every month and compared to the patient who has contaminated bottles. This will also allow us to see who does not have the proper technique. Quality and Control can also give us a report of the data of admission and readmission due to the blood culture contamination rate. Appendix C, Appendix D, and Appendix E is what can be used to hold data.

Evaluation Discussion

There are two things that are being analyzed. The influence it has on patients. Employee input and satisfaction are also being analyzed. The data given by the patient outcomes are more quality based. The results are percentages and costs. Which measures how successful the interventions are. On the other hand, employee results are more quantitative-based. The results of 2022 patients are what cultivated the idea of change. The input from the employees towards the project aids in making interventions. Since longevity is also a concern when making a change,

we must speak to staff members. Staff needs to feel motivated to help make changes and maintain retention. The quarterly meetings with the Blood Culture Committee allow the interventions to be assessed at that current time. It can also allow for quick interventions if rates begin to increase. As a future leader, I want to do what is best for patients and staff members.

Cost/Benefits

The quality and control manager said that for every admission of contaminated blood cultures, they lose \$4,000. The Article Blood Culture Contamination: An Overview for Infection Control and Antibiotic Stewardship Programs Working With the Clinical Laboratory (CDC,2023), reported direct and indirect hospital cost of contaminated blood cultures is \$12,824 compared to negative blood cultures that are \$8,286. This means that the \$4,538 is being wasted. That is money that can go to upgrading equipment or giving an employee a raise. During a time that nurses are low in numbers, this is creating more work. Medicare might not reimburse the facility. Since come these results might result in readmission. This is an issue that cost the hospital more.

In another article Impact of Blood Cultures Drawn Phlebotomy on Contamination Rates and Health Care Cost in a Hospital Emergency (Gander, 2009), gave some scary results. 960 patient charges associated with blood cultures that were negative and the median cost was \$18,752. 120 patients had false positives and the median price was \$27,472. 153 patients had true positives and the median was cost \$51,055. There is an additional cost that is hurting this facility.

Conclusion

The emergency department manager was recently notified that the contamination rates have decreased by %50. From January to March, the current overall contamination rate is %4.5. The multiple interventions were successful in making a change. Unfortunately, the current rate still does not meet the standard of %3. This means that interventions need to be re-evaluated.

This is an issue that negatively affects a lot of people and costs. We are advocates for patients and should strive to have the best practice. By having the best practice, patients have optimum outcomes. As a future leader, I also want to do right by staff. Things to consider are cost and policy changes.

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White Rock Medical Center.2022. Blood Culture Contamination Percentages January-

December 2022. Line Graph

Appendix A

Blood Culture Contamination Percentages

	January	February	March
Hospital			
Emergency Department			
Phlebotomy			

Appendix B

Blood culture Collection Log

Patient Sticker	Employee	Date	Time	Location 1	Location 2

Appendix C

Blood culture Committees

	Quarter 1	Quarter 2	Quarter 3
Date/Time			
Who attended			
Topics Discussed			
Goals			
Interventions			

Appendix D

Floor Employee Feedback

What can leadership do to help ease collecting blood cultures?
Do you want more education on proper blood culture collecting?
What are your thoughts of the current changes?

Appendix E

Cost

	January	February	March
Admission/Readmission			
Antibiotics			
Total Cost			