



Simulation: Blood Culture Contamination Rates

Time: 15 minutes

Max number of people per station: 5

Number of facilitators per station: 1

Supplies Needed:

- Notepad
- Pen
- Or other notetaking device

Scenario: Your facility's blood culture contamination rate is now 5%, which is up from the normal 2% contamination rate the facility usually sees. This contamination rate changed in one month's time. The instructor will test the learner's knowledge on what level of contamination is acceptable.

Steps to Perform Simulation

For **in-person** learners:

1. Break out into groups and role play as personnel from pharmacy (antibiotic stewardship), laboratory, and those that collect the blood cultures.
2. Identify potential reasons for the increase, and create a plan to decrease the contamination below 1%.
3. Examine what this increased contamination rate means for antibiotic stewardship.
4. Discuss the plans as a collective group and instructor provide feedback.

For **virtual** learners:

1. Break out into zoom break-out groups and role play as personnel from pharmacy (antibiotic stewardship), laboratory, and those that collect the blood cultures.
2. Identify potential reasons for the increase, and create a plan to decrease the contamination below 1%.
3. Examine what this increased contamination rate means for antibiotic stewardship. After 10 minutes, return from breakout room.
4. Discuss the plans as a collective group and instructor provide feedback.

Debriefing Script*

Facilitator: Thank you for participating in this debriefing session about the importance of Blood Culture Contamination Rates. Let's discuss the key points and address any questions or concerns you may have.

Question 1: What errors did your group identify as possible reasons for the increased contamination rate?

Answer: Possible answers include-drawing cultures from an indwelling line, drawing multiple cultures (beyond anaerobic and aerobic) from one site, inadequate skin antisepsis, lack of knowledge, lack of supplies.

Question 2: How can following guidelines on appropriate ordering of blood cultures have an impact on contamination rates and antibiotic stewardship?

Answer: Blood culture contamination can result in unnecessary antibiotic use until repeat cultures can grow. Obtaining blood cultures before starting antibiotics is key to finding the best antibiotic to treat the pathogen. Starting broad spectrum without cultures can make it difficult to narrow and ultimately increase the risk of antibiotic resistance.

Question 3: What action plan has your group created?

Answer: Possible answers include-Knowing the dos and don'ts of blood culture collection will help keep contamination rates down. A standardized approach, the use of kits, and a dedicated team of people that draws the blood cultures are all ways to decrease the contamination rate.

Question 4: What IPC actions can be taken to reduce blood culture contamination rates?

Answer: Perform hand hygiene prior to donning gloves, aseptic cleaning of the venipuncture site, disinfection of the blood culture vial, use of phlebotomy teams with proper technique education, use of diversion devices, and surveillance and feedback. It is also important to choose peripheral venipuncture collection over central unless ordered by a provider.

Question 4: When do you plan to deploy this action plan for future occurrences of an increased contamination rate?

Answer: The contamination rate should remain below 3%, however; the CDC emphasizes with the proper techniques and protocols that a rate below one percent is doable. The action plan should be maintained to keep contamination rates down below one percent.

Facilitator: Thank you for your participation. Understanding the importance blood culture contamination rates is vital to best patient outcomes and being good diagnostic and antibiotics stewards. If you have any further questions or need clarification on any topic, please feel free to ask.

***Disclaimer:** Please follow this debriefing script. The skill of debriefing is a process that takes time and experience to learn. Please do not use these debriefing tools outside of this situation without appropriate knowledge and experience.

Blood Culture Contamination: An Overview for Infection Control and Antibiotic Stewardship Programs Working with the Clinical Laboratory. (n.d). CDC. Retrieved from [Blood Culture Contamination: An Overview for Infection Control and Antibiotic Stewardship Programs Working with the Clinical Laboratory \(cdc.gov\)](https://www.cdc.gov/infection-control/education/clinical-practice/2019-blood-culture-contamination-overview.html)

Doern GV, Carroll KC, Diekema DJ, Garey KW, Rupp ME, Weinstein MP, Sexton DJ. 2019. A comprehensive update on the problem of blood culture contamination and a discussion of methods for addressing the problem. Clin Microbiol Rev 33:e00009-19. <https://doi.org/10.1128/CMR.00009-19>

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