

### CLINICAL QUESTION:

Which preanalytic variables related to peripheral venous specimen collection and transportation decrease blood culture contamination?

### PROBLEM:

Bacteremia is a significant cause of morbidity and mortality, and accurate and timely identification of the causative organism is imperative for patient survival. However, the value of blood cultures is limited by contamination. Blood culture contamination decreases efficiency and safety and increases resource utilization. Patients with contaminated blood cultures often receive unnecessary antibiotics and additional diagnostic studies, leading to increased hospital stay lengths and potential exposure to harm. This CPG evaluates the scientific evidence for the prevention of blood culture contamination in the preanalytic phase.

Description of Decision Options/Interventions and the Level of Recommendation:		
BEFORE THE DRAW	Provide education and training for personnel who collect blood cultures.	B
	Have blood cultures drawn by dedicated phlebotomy staff.	B
	Draw blood cultures from a dedicated peripheral venipuncture site, not an intravenous catheter.	B
	Use a standard sterile process to draw blood cultures.	B
	Clean blood culture bottle tops with antiseptic prior to blood culture bottle inoculation.	B
	Draw blood cultures from a newly inserted (less than one hour) intravenous catheter with appropriate skin preparation.	C
	Routine sterile gloving during venipuncture may decrease blood culture contamination.	C
	Use pre-assembled blood culture collection packs.	C
	Clean blood culture bottle tops with 70% isopropyl alcohol and air dry prior to inoculation.	C
DURING AND AFTER THE DRAW	Use products containing alcohol to cleanse the skin prior to collecting blood cultures.	A
	Use chlorhexidine–alcohol to clean the skin before drawing blood cultures in patients over 2 months of age.	A
	Allow the skin cleansing agent to air dry before venipuncture when drawing blood cultures.	A
	Divert the initial 1–2 ml of blood into a sterile receptacle when drawing blood culture specimens via peripheral venipuncture.	B
	Inoculate the blood culture bottle with a different needle than that used for venipuncture. <i>Note: Changing needles is not recommended because of the risk of blood exposure.</i>	B
	Monitor contamination rates and provide performance feedback to personnel who draw blood cultures.	B
	Use alcohol to clean the skin before drawing blood cultures in children under 2 months of age.	C
	Apply alcohol-containing solutions with 30 seconds of vigorous back and forth scrubbing. If povidone-iodine is used, it should be applied in concentric circles.	C
	Inadequate evidence exists to make a recommendation regarding blood sample volume and prevention of contamination of blood cultures. <i>Note: Manufacturers' recommendations for blood specimen volume per culture bottle should be followed.</i>	I/E

A	Level A (High):	Based on consistent and good quality of evidence; has relevance and applicability to emergency nursing practice.
B	Level B (Moderate):	There are some minor inconsistencies in quality of evidence; has relevance and applicability to emergency nursing practice.
C	Level C (Weak):	There is limited or low quality patient-oriented evidence; has relevance and applicability to emergency nursing practice.
NR	Not Recommended	Based upon current evidence.
I/E	Insufficient Evidence	Insufficient evidence upon which to make a recommendation.
N/E	No Evidence	No evidence upon which to make a recommendation.

Access the full clinical guideline at: [www.ena.org/clinical-guidelines/prevention-of-blood-culture-contamination](http://www.ena.org/clinical-guidelines/prevention-of-blood-culture-contamination)