

# Novel device and staff education lead to lower blood culture contamination rates

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A Medical University of South Carolina (MUSC Health) research study found that use of a mechanical initial specimen diversion device (ISDD) and staff education led to a nearly four-fold decrease in contaminated blood cultures that was sustained over 20 months.

Results of the [emergency department](#) research were presented recently at the Institute for Healthcare Improvement National Forum by lead study author Lisa Steed, Ph.D., MUSC Department of Pathology and Laboratory Medicine professor.

"Working on this study and seeing such strong results speaks to the great things that can happen for patients when clinicians join forces on these issues," Steed said.

"Blood cultures, and the accuracy of those cultures, are incredibly important in making sure that patients are getting the right care, at the right time, and with the right process in place."

Blood cultures help physicians determine whether patients have serious and potentially life-threatening blood infections such as sepsis. These blood draws may become contaminated with bacteria-containing fragments of a patient's skin that enter the needle during the blood collection process.

Studies have shown that conventional techniques can lead to false positives which in turn may lead to patients receiving more blood draws,

extended length of stay, increased exposure to hospital-acquired conditions, and unnecessary antibiotic treatment.

The mechanical ISDD used in the study, called Steripath, is a sterile, closed blood culture collection system that diverts, sequesters, and isolates the first 1.5-2 milliliters of blood—the portion that is known to contain contaminants—during the blood draw.

"We've seen a significant reduction of blood culture contaminations in our emergency department by using this device, along with education and training," said Danielle Scheurer, M.D., MUSC Health chief quality officer.

"By lessening the chances of contaminating a specimen, we increase our accurate diagnoses and treat [patients](#) with real infections. This in turn leads to decreased antibiotic use and allows us to help mitigate the ongoing, nationwide problem of antibiotic resistance from over or improper use."

The study also showed that use of the mechanical ISDD could reduce costs and use staff time more efficiently. Researchers suggested that MUSC would have saved \$744,955 if the ISDD had been used for every [blood](#) draw in the emergency department during the study, based on a conservative estimate (\$4,850) for the cost of a contaminated culture.

Provided by Medical University of South Carolina

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