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MUSC Health study demonstrates significant reduction in blood culture contamination rates with novel blood culture collection device, staff education

Charleston, S.C. (Jan. 24, 2018) – 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.

The Institute of Healthcare Improvement National Forum was held December 11, 2017 in Orlando, Fla.

This study was funded by MUSC Health and does not constitute a product endorsement.

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About MUSC Health

Founded in 1824 in Charleston, The Medical University of South Carolina is the oldest medical school in the South. Today, MUSC continues the tradition of excellence in education, research, and patient care. MUSC educates and trains more than 3,000 students and 700 residents in six colleges (Dental Medicine, Graduate Studies, Health Professions, Medicine, Nursing, and Pharmacy), and has more than 13,000 employees, including approximately 1,500 faculty members. As the largest non-federal employer in Charleston, the university and its affiliates have collective annual budgets in excess of \$2.4 billion, with an annual economic impact of more than \$3.8 billion and annual research funding in excess of \$250 million. MUSC operates a 700-bed medical center, which includes a nationally recognized Children's Hospital, the Ashley River Tower (cardiovascular, digestive disease, and surgical oncology), Hollings Cancer Center (a National Cancer Institute-designated center), Level I Trauma Center, Institute of Psychiatry, and the state's only transplant center. In 2017, for the third consecutive year, U.S. News & World Report named MUSC Health the number one hospital in South Carolina. For more information on academic programs or clinical services, visit musc.edu. For more information on hospital patient services, visit muschealth.org