

Abstract:

BACKGROUND: Blood culture contamination (BCC) is a safety and quality indicator for intensive care units (ICUs). BCC rates in our ICU ranged from 2.90% to 6.70% in 2017.

OBJECTIVE: This quality improvement project aimed to reduce the contamination rate from a mean of 4.52% to <3.0% in 1 year by improving the adherence of nurses to the facility protocol during blood collection.

METHODS: This project used a before-after design. It was conducted by a leadership team in a 32-bed ICU where approximately 4000 cultures are drawn annually. We observed the performance of ICU nurses during blood collection, interviewed them regarding the difficulties they encountered with protocol adherence, and conducted a cause-and-effect analysis to identify the main problems. Based on a literature review, we developed and implemented a countermeasure protocol, including a standardised medical order, an online learning program, a weekly departmental report and individual feedback routine, and phlebotomy training to address these problems in 2 months.

RESULTS: The interview results indicated that blood contamination resulted from the environment, difficult phlebotomy, and the inadequate knowledge and skill of the nurses. The countermeasure protocol reduced the average BCC rate from 4.52% to 2.59% during the intervention period and to 0.59% during the 10-month postintervention period. Nursing adherence to the standard protocol for blood culture collection also improved.

CONCLUSIONS: BCC in ICUs is multifactorial. By optimising the work environment, offering skill training, and reinforcing education and individualised feedback, we successfully reduced BCC in our unit to a sustainable low rate.

Reference:

He, M., Huang, S., Xiong, J. and Xiao, Q. (2020) Improving adherence to facility protocol and reducing blood culture contamination in an intensive care unit: A quality improvement project. *Australian Critical Care*. May 13th. doi: 10.1016/j.aucc.2020.03.002. (Epub ahead of print).