Obtaining blood cultures by venipuncture versus from central lines: Impact on blood culture contamination rates and potential effect on central line–associated bloodstream infection reporting.

Abstract:

Objective: Reduce the frequency of contaminated blood cultures that meet National Healthcare Safety Network definitions for a central line-associated bloodstream infection (CLABSI).

Design: An observational study.

Setting: A 500-bed university-affiliated hospital.

Methods: A new blood culture policy discouraged drawing blood samples from central lines. Phlebotomists were reeducated regarding aseptic technique when obtaining blood samples by venipuncture. The intravenous therapy team was taught how to draw blood samples by venipuncture and served as a backup when phlebotomists were unable to obtain blood samples. A 2-nurse protocol and a special supply kit for obtaining blood samples from catheters were developed. Rates of blood culture contamination were monitored by the microbiology laboratory.
Results: The proportion of blood samples obtained for culture from central lines decreased from 10.9% during January–June 2010 to 0.4% during July–December 2012 ( ). The proportion of blood cultures that were contaminated decreased from 84 (1.6%) of 5,274 during January–June 2010 to 21 (0.5%) of 4,245 during January–June 2012 ( ). Based on estimated excess hospital costs of $3,000 per contaminated blood culture, the reduction in blood culture contaminants yielded an estimated annualized savings of $378,000 in 2012 when compared to 2010. In mid-2010, 3 (30%) of 10 reported CLABSIs were suspected to represent blood culture contamination compared with none of 6 CLABSIs reported from mid-November 2010 through June 2012 ( ).

Conclusions: Multiple interventions resulted in a reduction in blood culture contamination rates and substantial cost savings to the hospital, and they may have reduced the number of reportable CLABSIs.