

Investigating the Impact of Blood Culture Bundles on the Incidence of Blood Culture Contamination Rates

Theresa Murphy, BS, RN, CRN, VA-BC, CRNI® et al.

The Journal of Infusion Nursing (May/June 2014); 37 (3): 205-210

Abstract

Blood cultures are integral diagnostic procedures for identifying serious infections and selecting antimicrobials. Positive blood cultures are the initial step in attaining a conclusive diagnosis of sepsis. Relative risk is blood culture contamination, false-positive blood culture results, diagnostic error delays, treatment errors, excessive lab testing, and increased length of stay. A complicating issue is the increased use of central venous access devices (CVADs). The purpose of this descriptive, comparative study is to evaluate the effectiveness of blood culture bundles on blood cultures drawn through a CVAD and contamination rates. The study revealed a decrease in blood culture rates by 61%.

Summary

- This study was performed at John T. Mather Hospital, a 248-bed community hospital in Port Jefferson, NY.
- 286 blood cultures that met the study's criteria were included.
- 97 of these were before the implementation of the blood culture bundle.
- 140 were after the implementation of the blood culture bundle.
- An additional 49 were drawn during re-monitoring periods.
- 6 (12.77%) of the cultures were contaminated prior to the bundle.
- 8 (4.23%) of the cultures were contaminated after the implementation of the bundle.
- A 61% decrease in blood culture contamination rates was reported after implementation of the Centurion® blood culture bundles.

Key Points

- The author determined that a "bundle" was necessary to ensure compliance in her facility.
- The kit showed a significant reduction of 61% in the number of contaminated samples at this facility.
- 108 nurses were surveyed regarding whether using the bundle saved time: 93 stated YES.
- The author reports that since the study, contamination rates are near ZERO.
- A contaminated specimen may increase the length of stay, hospital costs, expenses for the family, administration of unnecessary antibiotics, and the risk of the patient acquiring a central line-associated bloodstream infection as a result of repeated blood sampling.