

Blood Culture Contamination Rates in Bloomington, Association with Patient History

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Background/Objective: Blood cultures are vital for diagnosing infections and directing antibiotic therapy to causative organisms in systemically ill patients. Blood culture contamination contributes to increased costs, longer lengths of stay, and unnecessary antibiotic use. Certain patient histories and demographics have been associated with higher contamination rates. Identifying contamination risk factors within the hospital may allow for improvements in patient care.

Methods: Patient demographics, history, and blood culture information were identified through a chart review for all adult blood cultures collected in January 2023 at the IU Health Bloomington Hospital. Patient characteristics collected included age, race, ethnicity, BMI, and a number of comorbidities (COPD, diabetes, etc.). Blood culture characteristics, including the number of cultures drawn, hospital setting, etc., were also collected. A comparative analysis was performed between positive, negative, and contaminated cultures.

Results: In January, 443 adult patients had blood cultures collected at IUH Bloomington hospital, with contamination in 33 cases (7.4%). Patients with contaminated cultures had a higher prevalence of hypertension (75.8%) compared to those with negative cultures (61.9%). Type II diabetes was more prominent in the contaminated culture group (36.4%) than the negative culture group (31.3%). 15.2% of patients with contaminated cultures resided in extended care facilities, while only 12.3% of patients with negative cultures did so. Most contaminated cultures (97%) were drawn in the emergency department, with 3% collected in medical-surgical units/floor level of care.

Conclusion: Features of patient history, demographics, and culture collection may be associated with higher blood culture contamination rates.

Scientific/Clinical/Policy Impact and Implications: This data will be expanded into the entire 1st quarter of 2023 to further identify trends in culture contamination. Findings may present opportunities for quality improvement in patient care as IUH Bloomington looks to further reduce their rates of contaminated cultures.