

# Central Line Care

## Empowering patients to prevent infection and injury via EPIC<sup>2</sup>

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**BACKGROUND:** Central line–associated bloodstream infections (CLABSIs) are associated with an increased risk of mortality, prolonged hospitalizations, and inflated cost of care. Patients in the hematology-oncology specialty unit are at greater risk of developing CLABSIs because of their immunocompromised state and high number of central line (CL) days.

**OBJECTIVES:** The aim of the EPIC<sup>2</sup> project was to reduce CLABSI rates on a hematology-oncology specialty unit with historically high CLABSI rates despite prior quality improvement efforts.

**METHODS:** EPIC<sup>2</sup> used the theory of planned behavior as the framework for changing patient behavior and was based on evidence from the Partners in Your Care<sup>®</sup> handwashing study that successfully engaged patients to hold healthcare professionals accountable.

**FINDINGS:** The three-month preintervention average CLABSI rate was 5.69. During the intervention period, the average rate was 3.24. This accounted for a 43% reduction in CLABSIs. Participants in the EPIC<sup>2</sup> project reported feeling empowered to speak up against improper CL care.

### KEYWORDS

central line–associated bloodstream infection; patient empowerment; EPIC<sup>2</sup>

### DIGITAL OBJECT IDENTIFIER

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**HEALTH CARE-ASSOCIATED INFECTIONS (HAIs) OCCUR IN ABOUT 1 IN 25** hospitalized patients in the United States (Centers for Disease Control and Prevention [CDC], 2018a). Central line–associated bloodstream infections (CLABSIs) account for an estimated 30,100 of these HAIs annually (CDC, 2018a). CLABSIs are associated with an elevated risk of mortality, prolonged hospitalizations, and inflated cost of care (CDC, 2018a; Stevens et al., 2014). CLABSIs decreased by roughly 50% in U.S. hospitals from 2008–2016 (CDC, 2018b); however, research and quality improvement efforts have been primarily conducted in intensive care units, despite the majority of CLABSIs occurring in non-intensive care units or in the outpatient setting (Marshall et al., 2014). Patients in hematology-oncology units are at an increased risk for developing CLABSIs because of patient- and central line (CL)–related variables, including immunosuppression and the use of CLs for prolonged periods of time (Marshall et al., 2014; Timsit et al., 2012). An estimated 65%–70% of CLABSIs may be preventable when evidence-based guidelines are followed (Umscheid et al., 2011).

### Background

A novel CLABSI reduction quality improvement project, Engaging and Empowering Patients to Prevent Infection and Injury Via Central-Line Through Collaborations (EPIC<sup>2</sup>), was conducted on a 29-bed hematology-oncology specialty unit at the University of Alabama at Birmingham Hospital, a Magnet<sup>®</sup>-designated academic medical center. The purpose of the project was to evaluate the effectiveness of adding a patient engagement and empowerment program to standardized CL care, with a goal of reducing CLABSI rates by at least 20% with sustained results.

In the 36 months prior to this project, the hematology-oncology specialty unit had fluctuating CLABSI rates, demonstrating an inability to sustain quality improvement efforts. The data during this time frame showed that there were 81 diagnosed CLABSIs and 21,839 CL days, which translates to an average CLABSI rate of 3.71 incidents per 1,000 CL days (range = 0–8.39), reflecting a need for additional improvement. Previous quality improvement efforts did not emphasize educating and empowering patients to participate and interact with nursing staff during CL care.

### Literature Review

In 2011, the CDC published guidelines for the prevention of CL site infections, insertion-related infection, and CLABSIs. The guidelines were based on the highest level of evidence and, with only minor revisions, are still considered the standard of care for CL selection, insertion, and maintenance