Chlorhexidine Gluconate Baths

Supporting daily use to reduce central line–associated bloodstream infections affecting immunocompromised patients

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BACKGROUND: Chlorhexidine gluconate (CHG) has a broad-spectrum antimicrobial property that has proven to be effective in prolonging skin antisepsis and decreasing pathogens often seen in oncology units.

OBJECTIVES: The aim was to reduce the incidence of central line–associated bloodstream infections in a hematology-oncology unit through the staff's continued adherence to the institution's protocol for CHG baths with wipes, and to identify barriers and the degree to which they interfered with optimal use of the CHG wipes.

METHODS: The project focused on supporting staff and nurses by providing education and training on current practices to staff and patients, and identifying barriers. Direct observation and chart audits were the approach chosen to implement the project.

FINDINGS: For the project study period, the unit had three nonpreventable bloodstream infections and zero preventable bloodstream infections.

KEYWORDS
CLABSI; mucosal barrier injury; chlorhexidine gluconate

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BLOODSTREAM INFECTIONS (BSIs) ARE AMONG THE LEADING CAUSES of death in healthcare facilities (Alkilany, 2016). These infections are associated with surgeries and devices used to deliver treatments, such as central venous catheters (CVCs) and ventilators. The use of CVCs has increased, with about 300 million catheters being used in the United States; more than 5 million of those are CVCs (Kornbau, Lee, Hughes, & Firstenberg, 2015). The use of implanted ports; peripherally inserted central catheters; and tunneled, cuffed CVCs to obtain vascular access is common in oncology units. These remain in place for days to several months. The familiarity with them can make healthcare providers and patients overlook infection preventive measures; this can put patients at risk for central line–associated BSIs (CLABSIs). CLABSIs are hospital-acquired infections with a mortality rate of 12%–25% (Sandoval, 2015). A BSI is considered a CLABSI when a patient develops a laboratory-confirmed infection, with signs and symptoms of infection more than 48 hours after the insertion of the central line (Centers for Disease Control and Prevention [CDC], 2019).

Bacteria in oncology care settings include methicillin-resistant *Staphylococcus aureus* (MRSA) and vancomycin-resistant *Enterococcus* (VRE). These organisms are associated with poor hand hygiene by patients, family, or healthcare providers, or inadequate care of the CVC (CDC, 2016). Infections by these two organisms are preventable and counted under the CLABSI rate for healthcare facilities (Chen, Li, Li, Wu, & Zhang, 2013). Patients with cancer also are susceptible to other organisms because of mucosal barrier injury (MBI). MBIs are the result of chemotherapy promoting the translocation of oral and gastrointestinal flora into the bloodstream, increasing a patient's susceptibility to hospital-acquired infections (Metzger et al., 2015). When an intestinal organism is identified by a blood culture obtained from blood drawn from a CVC, and the patient has been neutropenic within the infection window period (three days before and three days after blood culture was obtained), it is considered an MBI and nonpreventable (Agency for Healthcare Research and Quality, 2013).

The Joint Commission (2013) created a CLABSI toolkit called the CVC Maintenance Bundles that integrated evidence-based interventions and was required to be used nationwide in healthcare facilities (see Table 1). A CVC