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# Impact of central catheter maintenance bundle on central line-associated bloodstream infections

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A central catheter maintenance bundle developed to prevent a common healthcare-associated infection had an immediate effect of decreasing rates of central line-associated bloodstream infections (CLABSIs), according to a study in the *American Journal of Critical Care (AJCC)*.

The article, "Use of a Central Catheter Maintenance Bundle in Long-Term Acute Care Hospitals," details the 14 components of the central catheter maintenance bundle and a five-item checklist to monitor compliance.

Patients with chronic critical illnesses are at high risk for healthcare-associated infections, especially when they have a central catheter for an extended period.

In an effort to decrease CLABSI rates, a quality improvement team from Select Medical developed and implemented a central catheter maintenance bundle for patients admitted to 30 long-term acute care hospitals (LTACHs), which are specialty hospitals that treat patients who require extended hospitalization for chronic critical illness. LTACH patients typically arrive with a central catheter already in place.

The research team used infection prevention guidelines from the Centers for Disease Control and Prevention (CDC) as the core of the bundle, with mandatory use of alcohol-based central catheter caps and chlorhexidine gluconate dressings.

Ongoing education of clinical staff about the protocol and a checklist to track compliance were also key elements of the initiative. Each hospital identified staff nurses with demonstrated competency in the care of central catheters to monitor implementation of the bundle for the initial six months of the study.

About 65 percent of patients admitted during the study period were admitted with a central catheter. The researchers reviewed the medical records of 6,660 patients discharged during the 14 months prior to the study and 6,559 patients discharged after implementation of the bundle. Patient days and central catheter days before and after the bundle was implemented were comparable.

Following implementation of the central catheter maintenance bundle, the CLABSI standardized infection rate was reduced 29 percent. In addition, a mean reduction of 4.5 CLABSIs per hospital occurred for 14 months after implementation of the bundle.

Study results demonstrate that the bundle, with attention to compliance, resulted in a significant and sustained reduction in the overall mean CLABSI rate in the participating hospitals for 14 months.

"Our results encourage the development and implementation of similar bundles as effective infection reduction strategies in LTACHs," said lead author Antony Grigonis, PhD, Vice President of Quality and Healthcare Analytics at Select Medical. The company, based in Mechanicsburg, Pennsylvania, is one of the nation's largest providers of specialized acute and post-acute care.

"Preventing these infections can help reduce complications and the length of stay for other patients," Grigonis said. "This infection reduction could also translate to a savings of approximately \$3.7 million annually for the 30 Long-Term Acute Care Hospitals studied."

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Source:

American Association of Critical-Care Nurses

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