Evidence Based strategies to Reduce Central Line Associated Blood Stream Infection in the Intensive Care Unit at Johns Hopkins Aramco Healthcare

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“On my honor, I pledge that I have neither given nor received any unauthorized assistance on this paper”

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Abstract

**Background:** Central line-associated bloodstream infection (CLABSI) is among the four most common hospital-acquired infections (HAIs) in the United States, where it is a well-recognized cause of morbidity and mortality. Therefore, exploring best evidence-based practice strategies that could reduce the CLABSI rate is important to improve the quality of care for critical care patients with a central line.

**Interventions:** The current insertion and maintenance central line checklists were modified. An educational session was conducted and an audit and spot check performed to assess compliance with the bundles. An interprofessional team was formulated with the aim of improving the quality of care for patients in the intensive care unit (ICU) who have a central line through reducing rates of CLABSI, increasing clinicians’ adherence, standardizing central line care, and increasing staff knowledge and awareness of central line care and infection prevention.

**Design:** Quality improvement, pre-test and post-test study.

**Setting:** Eight-bed medical intensive care unit (ICU) of a tertiary hospital.

**Population:** All patients in the ICU who had a central line during the study period and available ICU staff during the study period.

**Result:** CLABSI rates were reduced during the project implementation period. The education sessions showed significant improvement in the staff knowledge \((p = 0.001)\). Post project implementation, staff adherence to bundle compliance increased, and central line care was standardized among the staff in the ICU.

**Conclusion:** The project incorporated multiple interventions, including modifying central line insertion and maintenance bundles, conducting unit-based in-service for CLABSI prevention,
and formulating an interprofessional health care team, in an effort to reduce the occurrence of CLABSI. Incorporation of evidence-based practices will improve patient outcomes and enhance patient safety.

**Key words:** intensive care unit, critically ill patients, ICU, central line bundles, central line checklist, evidence-based guidelines, reduce CLABSI, CLABSI prevention, zero CLABSI, reduction, adherence, compliance