Checking CLABSI
Introduction and resources

Central line-associated bloodstream infections (CLABSI) are serious infections that can result in longer hospital stays, increased costs and increased risk of death. These infections are among the most deadly types of healthcare-associated infections with a mortality rate of 12 percent to 25 percent. Experts estimate that the average cost of care for a patient with CLABSI is $45,000 with an estimated $2 billion annual cost to the U.S. health care system.

Great strides have been made in U.S. hospitals to prevent CLABSI in the intensive care unit (ICU) with the use of proper techniques to insert and manage the central line. There is room to strengthen CLABSI prevention outside of the ICU, however. The Centers for Disease Control and Prevention estimate that 32 percent of CLABSI in hospitals occur outside of the ICU.

Care bundles, generally, are structured sets of evidence-based practices that when applied together in a standard manner can improve patient outcomes. CLABSI prevention bundles have been shown to result in fewer CLABSI in hospitals. Central to the CLABSI bundle is the use of an insertion checklist, which has consistently demonstrated decreased CLABSI rates. When accompanied by education and training, insertion checklists ensure adherence to and standardization of the evidence-based central line insertion practices.

The Checking CLABSI work group, convened by the Minnesota Hospital Association under CMS’ Partnership for Patients program, was mentored by Hennepin County Medical Center (HCMC), where CLABSI has been nearly eliminated. The HCMC CLABSI tool kit was condensed into the Checking CLABSI bundles and piloted at Glacial Ridge Health System, Grand Itasca Clinic and Hospital, CHI LakeWood Health, North Memorial Health Care, and Sanford Bemidji Medical Center. Lessons learned during the implementation phase of the pilot project were incorporated into the bundles.

The Minnesota Checking CLABSI Prevention Bundles

The Minnesota CLABSI bundles cover central line insertion, maintenance, and monitoring, and are intended to be used in all patient care areas in acute care hospitals. The CLABSI bundle tool kit is a collection of supporting documents, resources, and tools to assist hospitals in implementing the bundle.

The CLABSI bundle elements are largely supported by CDC/HICPAC, APIC, SHEA, and IDSA guidance documents. In an effort to provide practical guidance, the bundle element “Scrub the hub with antiseptic (eg. CHG or alcohol)…” includes a time component (“at least ten seconds with 20 second dry”) that is a collaborative consensus statement. The time specified is more conservative than SHEA/IDSA recommendation to “apply mechanical friction for no less than five seconds.” Additionally, the bundle element “Critical central line information to be shared upon transfer to another unit or care setting…” is a collaborative consensus statement; while it has not been rigorously studied, it is a recommended healthcare-associated infection prevention strategy by CDC, and is included as a reasonable and practical strategy for CLABSI prevention.
Bundle

Insertion

- Use an insertion checklist [1-7].
  - An insertion checklist is to be used to audit every central line insertion.
  - Designate who will observe central line insertions.
- Determine criteria for site selection [1-7].
  - Consider best practice and facility needs (e.g., teaching vs. non-teaching).
- Standardize central line supplies [1-7].
  - Reduce central line kit variability as much as possible.
  - Consistent location, standardized contents, and stocking process for central line carts/containers/shelves.
- Manage non-sterilely placed lines (i.e., in the event that one cannot ensure adherence to aseptic technique, such as during an emergency) [1,3,5,6].
- Provide patient/family education [1-7].

Maintenance

- Standardize dressing change kits [5].
- Define dressing change frequency:
  - Transparent dressing – change every seven days; gauze dressing – change every 2 days [1,2,5-7]
  - Immediately change if the dressing becomes damp, loosened, or visibly soiled [1,2,5-7]
  - If possible, change central line when two or more unintended dressing disruptions occur [8]
- Before accessing catheter, scrub the hub with antiseptic (e.g., chlorhexidine or alcohol) [1-7].
  - Scrub for at least 10 seconds with 20 second dry time or per manufacturer guidelines
- Daily head to toe bathing with 2% chlorhexidine [1,2,4].
- Daily assessment of need for central line [1-7].
- Critical central line information to be shared upon transfer to another unit or care setting:
  - Date of insertion
  - Location of catheter
  - Type of central venous catheter (temporary non-tunneled, tunneled, dialysis)
  - Whether inserted under sterile conditions
  - Dressing change due date
  - Copy of placement confirmation x-ray, if available

Monitoring

- Observation monitoring of every central line insertion using insertion checklist [2,3,5-7].
- Develop maintenance process measures [6].
- Communicate progress on outcome and process measures to staff and providers regularly [2].
- Education on teamwork/communication tools provided to staff and providers [1-7].
- Mini-RCA performed on every CLABSI identified with feedback to staff [3,7].
Bundle References


Resources


Centers for Disease Control and Prevention CLABSI Resources [http://www.cdc.gov/HAI/bsi/bsi.html](http://www.cdc.gov/HAI/bsi/bsi.html)