

CENTRAL LINE-ASSOCIATED BLOODSTREAM INFECTIONS OVERVIEW

BACKGROUND

Central line associated bloodstream infections (CLABSI) are associated with specific intravascular catheters or central lines that must be in place at the time of, or within 48 hours before the onset of the infection. A central line is an intravascular catheter (tube in a vein or artery) that terminates at or close to the heart or in one of the great vessels (e.g., aorta, superior vena cava). A peripheral line is a similar tube in a vein or artery that does not enter a great vessel, is a smaller diameter tube, and is typically used for shorter periods of intravenous access. Both central lines and peripheral lines can be used to infuse fluids or medications, withdraw blood or monitor fluid volume in patients. However, central lines are typically placed when intravenous access is needed for longer time periods, larger volumes of fluids, or access for dialysis is needed. An umbilical catheter (i.e., a tube placed in the umbilical cord) is a central vascular catheter inserted through the umbilical artery or vein in a neonate (infant ≤ 30 days old). Central lines can be either permanent or temporary. Permanent lines are those that are tunneled under the skin before entering a great vessel. These can include certain dialysis lines and implanted catheters such as a port. Temporary lines are those that are not tunneled.

All patients with central lines are at risk for CLABSI. However, certain groups are at higher risk for infection: elderly, neonates, dialysis patients, patients with weak immune systems (e.g., cancer patients, transplant patients), diabetics and patients with burn injuries¹⁰⁻¹².

Colorado requires that all adult critical care units, neonatal critical care units Level II/III and III, long-term acute care hospitals (LTAC), and inpatient rehabilitation hospitals and wards report CLABSI data into NHSN.

Every CLABSI data table below lists all Colorado hospitals and hospital unit(s) reporting central line use, their cities, number of central line days per year, number of infections, SIRs, and comparisons to national infection rates. The number of central line days is the total number of days a central line was in place for patients in the unit during the reporting period (for example, if three patients each had a central line for 10 days, the number of central line days is 30). The three categories summarizing how a Colorado facility compares to the national infection rate for that unit are:

1. Statistically lower infection rate than the national rate (**better**);
2. Statistically similar infection rate as the national rate (**same**); or
3. Statistically higher infection rate than the national rate (**worse**).

LONG-TERM ACUTE CARE HOSPITALS

A long-term acute care hospital (LTAC) is a specialty care hospital that cares for patients with complex medical conditions requiring intense, specialized treatment for at least 25 days. These patients often transfer from critical care units in traditional hospitals. Patients in these facilities have a higher severity of illness often with multi-system complications posing a challenge for infection control.

LTAC report infection data for patients with either permanent or temporary central lines. As previously noted, permanent lines are those that are tunneled and can include certain dialysis lines and implanted catheters such as a port. Temporary lines are those that are not tunneled. Permanent lines are commonly used in LTAC patients and historically have had lower rates of infection than temporary lines.

With all LTAC combined, the statewide CLABSI rate was better than the national average for the last two reporting years.

RESULTS

Table 19 shows facility specific data for CLABSI in LTAC. The table contains data from August 1, 2012 through July 31, 2015.

In Colorado this past year, nine LTAC reported 33,464 central line days; three LTAC reported zero CLABSI and all LTACs had rates similar to national rates. With all LTAC combined, the statewide CLABSI rate was better than the national average for the last two reporting years.

TABLE 19: Number of Central Line-Associated Bloodstream Infections in Long-Term Acute Care Hospitals – Colorado, August 2012 – July 2015

Central Line Associated Blood Stream Infections (CLABSI) in Long-Term Acute Care Hospitals: August 1, 2012 – July 31, 2015													
Health Facility and City		August 2012 – July 2013				August 2013 – July 2014				August 2014 – July 2015			
		No. of CL Days	No. of Infections	SIR	National Comparison	No. of CL Days	No. of Infections	SIR	National Comparison	No. of CL Days	No. of Infections	SIR	National Comparison
Advanced Care Hospital of Northern Colorado	Johnstown	2,840	3	1.4	Same	3,295	0	0	Same	3,478	3	1.1	Same
Colorado Acute Long Term Hospital	Denver	5,902	7	1.3	Same	6,012	5	0.9	Same	6,593	2	0.3	Same
Craig Hospital	Englewood	3,283	3	1	Same	2,033	1	0.5	Same	2,062	2	1.1	Same
Kindred Hospital	Denver	5,540	10	2	Same	4,177	2	0.5	Same	4,129	2	0.5	Same
Select Long Term Care Hospital	CO Springs	4,070	0	0	Same	3,944	1	0.3	Same	3,953	0	0	Same
Select Specialty Hospital South Campus	Denver	2,641	1	0.4	Same	2,495	0	0	Same	2,990	0	0	Same
Select Specialty Hospital	Denver	3,278	0	0	Same	2,456	0	0	Same	2,626	0	0	Same
Triumph Acute Long Term Care Hospital of Aurora	Aurora	4,067	1	0.4	Same	3,458	1	0.3	Same	2,976	1	0.4	Same
Vibra Long Term Acute Care Hospital	Thornton	6,249	10	1.8	Same	4,956	4	0.9	Same	4,657	5	1.2	Same

Note: CL=Central Line; SIR=standardized infection ratio, the ratio of observed to expected infections adjusted for procedure risk factors.

*** Indicates value not shown due to suppression of infection data, no national or historical rate available, or an expected infection count of less than 1.

Infections for facilities with fewer than 50 central line days per year are suppressed to protect confidential health information. These facilities fulfilled reporting requirements.

National comparison based on data collected and reported by NHSN-participating hospitals from January-December, 2013.

Source: National Health Care Safety Network (NHSN) Database.