



**Colorado Department of Public Health and Environment
Health Facility Acquired Infections Disclosure Initiative
Semi-Annual Bulletin: Volume 2, No. 1, May 2009
Central Line-Associated Bloodstream Infection Rates in
Colorado Long Term Acute Care Hospitals**

Introduction

This report was written to fulfill the requirements set forth in Colorado Revised Statute title 25, article 3, part 6, the Hospital-Acquired Infections Disclosure Act. The Act requires hospitals, hospital units, ambulatory surgery centers and dialysis treatment centers to report health facility acquired infections data as a condition of their state licensure. The Colorado Department of Public Health and Environment (CDPHE) is the lead state agency administering the initiative. CDPHE is required to produce semi-annual bulletins disclosing the results of the data collected.

This bulletin serves as the first semi-annual bulletin for 2009 and focuses on central line-associated bloodstream infections (CLABSIs) acquired in long term acute care hospitals (LTACH). The table in this bulletin shows the results of data collected in each LTACH reported by temporary lines. The reporting period is from July 1, 2008 through December 31, 2008.

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Data in this bulletin was submitted to the National Healthcare Safety Network (NHSN) by eight Colorado long term acute care hospitals. One LTACH reported data to CDPHE manually, for a total of nine LTACHs reporting for the six-month period. CDPHE uses NHSN to access the data and format the information for presentation to the general public. CDPHE depends on accurate information from reporting facilities. CDPHE does not perform data validation or audit facilities to ensure the data are complete. This report should be used as one of many quality evaluation tools and cannot, on its own, paint a complete picture of hospital care in Colorado.

Central Line-Associated Bloodstream Infections

Central line-associated bloodstream infections (CLABSI) are primary bloodstream infections associated with the presence of a central line within the 48-hour period before the development of a blood stream infection (BSI). A central line is an intravascular catheter that terminates at or close to the heart or in one of the great vessels (i.e., a tube placed in a vein). An example of a great vessel is the aorta or superior vena cava. There are two types of central lines used in the LTACH setting: temporary and permanent. This distinction is made because permanent lines are commonly used in patients frequenting LTACHs and may have lower rates of associated infection than central lines inserted for temporary use. A temporary central line is noncuffed and nontunneled. A permanent central line is one that is cuffed and tunneled. Both line types are used to temporarily or permanently infuse fluids or withdraw blood in patients.

CDPHE requested facilities report central line-associated bloodstream infections by type of line (permanent and temporary) as defined by NHSN. The information in this bulletin will show data for the central line-associated bloodstream infections in long term acute care temporary lines.

A long term acute care hospital is a specialty care hospital that cares for patients that have medical conditions requiring intense, special treatment for a long time (an average length of stay is 25 days). These patients often transfer from intensive 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. There is a high prevalence of multi-drug resistant organisms and antibiotic resistance among patients in these facilities.

Reporting central line data by facility type and central line type allows for fairer comparisons between health facilities as it takes into account how differences in care and patients' risk for infection lead to differences in infection rates. Many of the central line-associated bloodstream infections that occur in these facility locations can

- Be prevented by following established prevention techniques;
- Easily be detected and reported accurately; and
- Have a devastating impact on the patient's quality of life.

Central line-associated bloodstream infections often lead to additional days in the hospital, which can be expensive for healthcare payers and healthcare organizations. Evidence suggests that reporting of infections may lead to better adherence to preventive practices and decrease medical complications or death.

Results

The table below shows data submitted by the nine Colorado long term acute care hospitals. The table contains data from July 1, 2008 through December 31, 2008. The table shows information on central line-associated bloodstream infections in temporary lines.

If a patient has both a temporary and a permanent central line on the same day, the day is counted as one temporary central line day. If patients have more than one line on a given day (temporary or permanent), it is counted as one central line day.

The table lists the LTACHs name, the city where the hospital is located, the number of central line days in the hospital, the number of infections in the hospital, the infection rate for the hospital, the state infection rate among LTACHs, and a comparison to the state infection rate. The number of central line days is the total number of days a line was used in the LTACH during the reporting period. The infection rate is the number of infections per 1,000 central line days.

There are three categories summarizing how a Colorado LTACH compares to the other LTACHs in Colorado

1. LTACHs can have a statistically lower (better) infection rate than the state rate;
2. LTACHs can have an infection rate that is statistically the same as the state rate; or
3. LTACHs can have a statistically higher (worse) infection rate than the state rate.

Since long term acute care hospitals began reporting data to NHSN in 2008, CDC has not yet released a national rate. The national rate would be the average CLABSI rate for all LTACHs reporting to NHSN. LTACH rates would be compared to the national average to determine if it is significantly different.

In order to have a comparison for each long term acute care hospital's infection rate, CDPHE calculated the combined state rate for CLABSIs in LTACHs. Taking the total of the CLABSIs in these facilities for this time period and dividing it by the total temporary line days calculated the combined state rate. The state rate is the number of infections per 1,000 temporary line days. Hospital rates are compared to the state rate to determine if it is statistically different. The Poisson approach was chosen due to the non-normal distribution of the data and the low number of infections (events) in each facility. This statistical significance test shows the likelihood that the result did not happen by chance alone. In other words, there is a scientific reason why some hospitals have better or worse rates. For example, two hospitals may have zero infections, but if one hospital has a much greater number of temporary line days that hospital may actually have a better infection rate than the state infection rate because of the large number of temporary line days without any infection.

Results shown below focus on central line-associated bloodstream infections in temporary lines only and not CLABSIs in permanent lines. CDPHE reviewed the CLABSI in permanent line data and found only one infection for the 2,440 permanent central line days reported in all nine LTACHs across the state. Furthermore, only four of the nine LTACHs used permanent central lines during the six-month reporting period.

Cautions

There are some cautions consumers should be aware of when interpreting the data in this report. Long term acute care hospitals serve a medically complex patient population. Not only do these hospitals serve medically complex patients, but also more of their patient population requires central lines. LTACHs perform house wide central line surveillance. Whereas hospitals focus their central line surveillance to their highest risk units, typically intensive care units.

As infections are not the only adverse event that may happen to a consumer, it is important to weigh all factors in judging the quality of healthcare. Consumers should always consult with their doctor, hospital, health insurance carrier, family and friends before deciding where to receive care. Consumers should consider the experience of the facility, staff and other quality of care indicators in addition to the infection data below.

Table 1: CLABSI Rates in Temporary Lines in Long Term Acute Care Hospitals

Central line-associated bloodstream infections in temporary lines in long term acute care hospitals.

Central Line Associated Bloodstream Infections (CLABSI) in Long Term Acute Care Hospitals (Temporary Lines) Reporting Period: July 1, 2008-December 31, 2008						
Health Facility	Location	Central line days	CLABSI	CLABSI Rate **	State Rate †	Comparison
Colorado Acute Long Term Hospital	Denver	2,913	7	2.403	1.564	
Craig Hospital	Englewood	3,059	0	0.0	1.564	
Kindred Hospital – Denver	Denver	2,154	5	2.321	1.564	
Northern Colorado Long Term Acute Hospital	Johnstown	62	***	***	1.564	***
Select Long Term Care Hospital – Colorado Springs	Colorado Springs	128	***	***	1.564	***
Select Specialty Hospital – Denver	Denver	1,926	2	1.038	1.564	
Select Specialty Hospital – Denver South	Denver	2,785	4	1.436	1.564	
Triumph Acute Long Term Acute Hospital of Aurora	Aurora	1,900	4	2.105	1.564	
Vibra Long Term Acute Care Hospital	Thornton	1,056	0	0.0	1.564	
Facility temporary central line infection rate per 1,000 temporary line days. †Statewide temporary central line infection rate, per 1,000 temporary line days, among long term acute care hospitals. NHSN has not released a national infection rate for this data. *Infections data for hospitals with less than 500 temporary line days in a 6-month period is suppressed to protect confidential health information. These hospitals have met the reporting requirement.						
						Statistically better than the state rate Statistically the same as the state rate Statistically worse than the state rate

believes that the disclosure initiative will ultimately help Colorado health facilities identify areas for improvement and result in fewer infections in the coming years. CDPHE and its infection advisory committee are eager to continue this initiative and are committed to providing this valuable information to Colorado healthcare consumers.

For more information, please contact the patient safety initiatives program at:

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Or view detailed information on implementing the disclosure initiative, including the first annual report by visiting the patient safety initiatives Web page at:

<http://www.cdphe.state.co.us/hf/PatientSafety/index.html>

Conclusion

This report shows the initial results from a new reporting system. CDPHE and the Colorado Health Facility Acquired Infections Advisory Committee recommend users of these data not draw drastic conclusions from the limited information that is currently available. Facilities vary in the types of patients they treat, and a facility that treats a high volume of severely ill patients may have higher infection rates. It is important to note, initiatives involving new reporting systems require time to allow facilities to become familiar with the requirements and ensure the system is used correctly. CDPHE