



Colorado Department of Public Health and Environment
Health Facility Acquired Infections Disclosure Initiative
Semi-Annual Bulletin: Volume 1, No. 1, July 2008
Central Line Associated Bloodstream
Infection Rates in Colorado
Adult Intensive Care Units

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 (ASCs) and dialysis treatment centers (DTCs) to report health facility acquired infections data as a condition of their state licensure. The Colorado Department of Public Health and Environment (the department) is the lead state agency administering the initiative. The department is required to produce semi-annual bulletins disclosing the results of the data collected.

This bulletin serves as the first semi-annual bulletin and focuses on central line associated bloodstream infections acquired in five adult intensive care units (ICUs). The five tables in this bulletin show the results of data collected in each ICU type and contain data from August 1, 2007 through January 31, 2008.

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Data in this bulletin was submitted to the National Healthcare Safety Network (NHSN) by Colorado hospitals. The department uses NHSN to access the data and format the information for presentation to the general public. NHSN is utilized to handle all statistical analysis. The department depends on accurate information from reporting facilities and NHSN to produce these reports. The department does not perform data validation or audit facilities to ensure the data is 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 blood stream infections (CLABSIs) are primary bloodstream infections that are associated with the presence of a central line at the time of or before the onset of an infection. A central line is an intravascular catheter (tube in a vein) that terminates at or close to the heart or in one of the great vessels. An example of a great vessel is the aorta or superior vena cava. A central line can be used to infuse fluids or withdraw blood in patients. Central lines can be either temporary or permanent.

The department requested facilities report CLABSIs by NHSN defined units. The information in this bulletin will cover central lines in the following units:

- Adult Medical/Surgical Intensive Care;
- Adult Medical Cardiac Intensive Care;
- Adult Surgical Cardiothoracic Intensive Care;
- Adult Medical Intensive Care; and
- Adult Surgical Intensive Care.

Not every hospital will have all five intensive care units. Hospitals decide which type of ICU they have by measuring the type of patients that are cared for in that area and applying what is called the 80/20 rule. For instance, the medical ICU serves non-surgical patients, so if a facility finds that 80 percent of their critical care patients are non-surgical that facility would have a medical ICU, according to NHSN definitions. Facilities that handle 80 percent or more trauma patients in a particular ICU are not required to report for that ICU. The department is not reporting trauma information as patients in these areas have unique risk factors and complications are often less preventable.

Reporting CLABSIs by unit type allows for fairer comparisons between hospitals. It takes into account differences in the type of patients ICUs treat and the different risks for infection. Most CLABSIs 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.

Experts in the field of infection control find many procedures are performed in facility locations that have low infection rates. These experts recommend health facilities not attempt to collect an overall facility infection rate as this would divert resources from working to prevent infections in higher risk facility locations. CLABSIs often lead to additional days in the hospital, which can be expensive for healthcare payers and healthcare organizations. Evidence suggests that tracking CLABSIs may lead to better adherence to preventive practices and decrease medical complications or death.

Results

The five tables below show facility specific data for CLABSIs attributed to the five ICU types discussed above. Results are presented separately for each type of ICU. The tables contain data from August 1, 2007 through January 31, 2008 (the first six months of data that is available since the initiative began).

Each table lists all the hospitals in Colorado with that type of intensive care unit, the city where the hospital is located, the number of central line days in the unit, the number of infections in the unit, the infection rate for the unit and a comparison to the national infection rate for that unit. The number of central line days is the total number of days a central line was used in the ICU during the reporting period. The central line associated bloodstream infection rate is the number of infections per 1,000 central line days. There are three categories summarizing how a Colorado hospital compares to the national infection rate for that ICU:

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

The national unit rate is the average rate for all hospitals reporting to NHSN in 2006. The comparison is based on statistical significance. Statistical significance is the likelihood that a 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 central line days that hospital may actually have a better infection rate than the national infection rate because of the large number of central line days without any infections.

As infections are not the only adverse event that may happen to a consumer, it is important to weigh all factors in judging care quality. Consumers should always consult with their doctor, hospital, 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: Adult Medical Cardiac ICU CLABSI Rates

The adult medical cardiac critical care location is an intensive care unit (ICU) that specializes in care of patients with serious heart problems that do not require heart surgery.

Central Line Associated Bloodstream Infections (CLABSI) in the Medical Cardiac Intensive Care Unit					
Reporting Period: August 1, 2007-January 31, 2008					
Health Facility	Location	Central line days	CLABSI	CLABSI rate	National comparison*
Exempla Lutheran Med. Ctr.	Wheat Ridge	968	0	0.0	
Memorial Hospital Central	Colorado Springs	939	0	0.0	
North Colorado Med. Ctr.	Greeley	1,202	0	0.0	
University of Colorado Hospital	Aurora	614	4	6.5	

*Comparison to the national rate calculated from NHSN participating hospitals in 2006. National infection rate for medical cardiac ICU is 2.8.

Statistically Better than national rate
 Statistically Worse than national rate
 Statistically the Same as the national rate

Table 2: Adult Surgical Cardiothoracic ICU CLABSI Rates

The adult medical cardiothoracic critical care location is an intensive care unit (ICU) that specializes in care of patients following cardiac and thoracic surgery (i.e., surgeries on the organs within the chest-like the heart or lungs).

Central Line Associated Bloodstream Infections (CLABSI) in the Surgical Cardiothoracic Intensive Care Unit					
Reporting Period: August 1, 2007-January 31, 2008					
Health Facility	Location	Central line days	CLABSI	CLABSI rate	National comparison*
Centura St. Anthony Central Hospital	Denver	867	1	1.2	
St. Mary's Hospital	Grand Junction	671	0	0.0	

*Comparison to the national rate calculated from NHSN participating hospitals in 2006. National infection rate for surgical cardiothoracic ICU is 1.6.

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 Statistically Worse than national rate
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Table 3: Adult Medical/Surgical ICU CLABSI Rates

The adult medical/surgical critical care location is an intensive care unit (ICU) for critically ill patients who are being treated for medical conditions, surgical conditions or both.

Central Line Associated Bloodstream Infections (CLABSI) in the Medical/Surgical Intensive Care Unit					
Reporting Period: August 1, 2007-January 31, 2008					
Health Facility	Location	Central line days	CLABSI	CLABSI rate	National comparison*
Arkansas Valley Regional Med. Ctr.	La Junta	62	0	0.0	
Aspen Valley Hospital	Aspen	19	***	***	***
Boulder Community Hospital [†]	Boulder	910	1	1.1	
Centura Avista Adventist Hospital	Louisville	467	2	4.3	
Centura Penrose St. Francis Health	Colorado Springs	2,108	2	0.9	
Centura Porter Adventist Hospital	Denver	2,227	1	0.4	
Centura St. Mary Corwin Med. Ctr.	Pueblo	1,156	1	0.9	
Centura St. Thomas More Hospital	Canon City	57	0	0.0	
Colorado Plains Med. Ctr.	Fort Morgan	73	0	0.0	
Community Hospital	Grand Junction	211	1	4.7	
Delta County Memorial Hospital	Delta	110	0	0.0	
Exempla Good Samaritan Med. Ctr.	Lafayette	973	3	3.1	
Exempla Lutheran Med. Ctr.	Wheat Ridge	1,294	1	0.8	
Exempla St. Joseph Hospital	Denver	3,052	1	0.3	
Gunnison Valley Hospital	Gunnison	2	***	***	***
Heart of the Rockies Regional Med. Ctr.	Salida	20	***	***	***
Longmont United Hospital	Longmont	1,236	1	0.8	
McKee Med. Ctr.	Loveland	286	0	0.0	
Med. Ctr. of Aurora	Aurora	3,555	1	0.3	
Med. Ctr. of the Rockies North Unit	Loveland	637	0	0.0	
Med. Ctr. of the Rockies South Unit	Loveland	918	1	1.1	
Memorial Hospital Central	Colorado Springs	2,221	1	0.5	
Mercy Regional Med. Ctr.	Durango	577	0	0.0	
Montrose Memorial Hospital	Montrose	131	0	0.0	
North Colorado Med. Ctr.	Greeley	1,268	0	0.0	
North Suburban Med. Ctr.	Thornton	865	1	1.2	

Central Line Associated Bloodstream Infections (CLABSI) in the Medical/Surgical Intensive Care Unit					
Reporting Period: August 1, 2007-January 31, 2008					
Health Facility	Location	Central line days	CLABSI	CLABSI rate	National comparison*
Parker Adventist Hospital	Parker	82	0	0.0	
Parkview Medical Center	Pueblo	945	0	0.0	
Poudre Valley Hospital	Fort Collins	875	2	2.3	
Presbyterian St. Luke's Med. Ctr.	Denver	1,491	4	2.7	
Rose Med. Ctr.	Denver	1,297	1	0.8	
San Luis Valley Regional Med. Ctr.	Alamosa	120	0	0.0	
Sky Ridge Med. Ctr.	Lone Tree	1,098	3	2.7	
Southwest Memorial Hospital	Cortez	66	0	0.0	
St. Anthony Summit Med. Ctr.	Frisco	72	0	0.0	
St. Mary's Hospital	Grand Junction	614	0	0.0	
Sterling Regional Med. Ctr.	Sterling	73	0	0.0	
Swedish Med. Ctr.	Englewood	4,359	8	1.8	
Vail Valley Med. Ctr.	Vail	76	0	0.0	
Valley View Hospital	Glenwood Springs	138	0	0.0	
Yampa Valley Med. Ctr.	Steamboat Springs	18	***	***	***

*Comparison to the national rate calculated from NHSN participating hospitals in 2006. National infection rate for medical surgical ICU is 2.2.

[†]Data for this facility includes Boulder Community-Foothills campus data for August 1, 2007 through November 30, 2007.

*** Infections data, for hospitals with less than 25 central line days in a six month period is suppressed to protect confidential health information. These hospitals have met the reporting requirements.

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Table 4: Adult Medical ICU CLABSI Rates

The adult medical critical care location is an intensive care unit (ICU) for patients who are being treated for non-surgical conditions.

Central Line Associated Bloodstream Infections (CLABSI) in the Medical Intensive Care Unit					
Reporting Period: August 1, 2007-January 31, 2008					
Health Facility	Location	Central line days	CLABSI	CLABSI rate	National comparison*
Boulder Community Hospital-Foothills [†]	Boulder	17	***	***	***
Centura Littleton Adventist Hospital	Littleton	1,275	1	0.8	
Centura St. Anthony Central Hospital	Denver	1,313	0	0.0	
Centura St. Anthony North Hospital	Westminster	1,398	4	2.9	
Denver Health Med. Ctr.	Denver	1,879	2	1.1	
Platte Valley Med. Ctr.	Brighton	205	0	0.0	
University of Colorado Hospital	Aurora	1,851	9	4.9	

*Comparison to the national rate calculated from NHSN participating hospitals in 2006. National infection rate for medical ICU is 2.9.

[†]Data for this facility only covers December 2007 and January 2008. Facility was late to register this campus.

*** Infections data, for hospitals with less than 25 central line days in a six month period is suppressed to protect confidential health information. These hospitals have met the reporting requirements.

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Conclusion

This report shows the initial results from a new reporting system. The department and the Colorado Health Facility Acquired Infection 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. The department believes that the disclosure initiative will ultimately help Colorado health facilities identify areas for improvement and result in fewer infections in the coming years. Because only six months of data is available, the department is not able to provide trending information. Trends reports will gauge the progress hospitals are making in preventing central line associated bloodstream infections over time. Trend reports will be developed once enough data is collected. The department and its infection advisory committee are eager to continue this initiative and are committed to providing this valuable information to Colorado healthcare consumers.

Table 5: Adult Surgical ICU CLABSI Rates

The adult surgical critical care location is an intensive care unit (ICU) for the evaluation and management of patients with serious illness before and/or after surgery.

Central Line Associated Bloodstream Infections (CLABSI) in the Surgical Intensive Care Unit					
Reporting Period: August 1, 2007-January 31, 2008					
Health Facility	Location	Central line days	CLABSI	CLABSI rate	National comparison*
University of Colorado Hospital	Aurora	1,568	12	7.7	

*Comparison to the national rate calculated from NHSN participating hospitals in 2006. National infection rate for surgical ICU is 2.7.

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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>