Colorado Department
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Colorado Department of Public Health and Environment
Health Facility Acquired Infections Disclosure Initiative
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Central Line-Associated Bloodstream Infections in Colorado Long Term Acute Care Hospitals

Introduction

This report was written to fulfill the requirements set forth in Colorado's Healthcare Associated Infections (HAI) Disclosure Act.[1] The Colorado Department of Public Health & Environment (CDPHE) publishes two bulletins each year addressing a relevant HAI topic utilizing data reported by healthcare facilities into the National Healthcare Safety Network (NHSN).[2] NHSN is a national electronic database which collects and maintains HAI data that are self-reported by healthcare facilities. CDPHE uses the data submitted to NHSN to disclose information about facilities' HAI rates to the legislature and general public.

This bulletin focuses on central line-associated bloodstream infections (CLABSI) acquired in Colorado long term acute care hospitals (LTACH). LTACH are specialized hospitals that care for patients with complex medical conditions requiring intense, specialized treatment for extended periods of time. In Colorado, there are nine LTACH, all of which monitor their patients for CLABSI and submit data on identified CLABSI to the State, as required by law. LTACH have been submitting CLABSI data through NHSN since August, 2008.

HAI and CLABSI**.** In simple terms, a HAI is an infection acquired during a stay in a healthcare facility that was not present upon admission to that facility.[3] A CLABSI is a type of HAI acquired when a patient has a central line or umbilical catheter. A central line is a tube or catheter placed in a large vein of a patient's neck or chest to give fluids, draw blood, perform dialysis, or monitor bodily pressures. An umbilical catheter is a line placed in the umbilicus or belly button of a newborn. Both of these types of devices must be placed using strict infection prevention practices. When not placed properly or kept clean, they can become sources of infection that lead directly into patients' bloodstreams.

According to the Centers for Disease Control and Prevention (CDC), about 41,000 CLABSI occur each year. [4] These infections can cost anywhere from $5,734 to $22,939 per patient,[5] result in longer hospital stays, and cause significant adverse effects in patient mental and physical health. As a result, several states have mandated the public disclosure of CLABSI and other HAI by healthcare facilities and the Center for Medicare and Medicaid Services (CMS) has

initiated rules to hold facilities accountable for reporting HAI and for meeting other healthcare quality standards that improve patient care.[6]

Proponents of publicly reported HAI argue that tracking HAI improves healthcare quality by encouraging transparency of infection prevention practices and focusing on process issues that contribute to infections.[7,8] While few studies supporting this contention have been published, analyses of data submitted to NHSN have demonstrated that CLABSI rates have declined in states where HAI disclosure legislation was enacted.

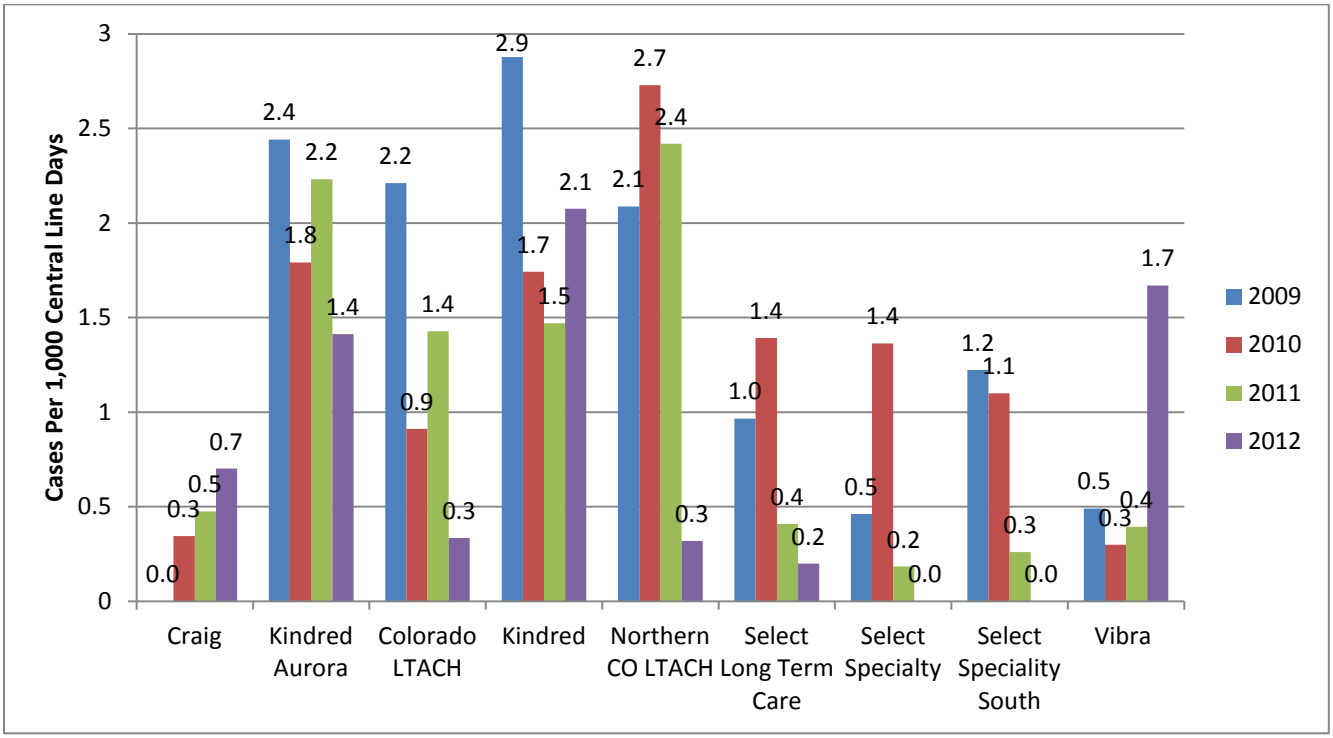
CLABSI in LTACH**.** The average length of stay for an LTACH patient is 25 days.[9] LTACH patients often transfer from critical care units in traditional hospitals. Services provided in LTACH typically include comprehensive rehabilitation, respiratory therapy, head trauma treatment, and pain management. Patients may require prolonged dialysis treatment for kidney failure, and complex nursing care for wounds and/or burns. Based on their extended hospital stays and need for fluid management, LTACH patients frequently have central lines. They may also have urinary catheters to drain urine from the body and ventilators (machines to assist with breathing), which provide additional pathways for bacteria and other infectious organisms to enter the body. The higher severity of illness and multi-system complications typical of LTACH patients pose significant challenges for infection control staff.

LTACH report infection data for patients with permanent and temporary central lines. Permanent lines, which are secured by tunneling under the skin, include certain dialysis lines and implanted catheters such as ports. Temporary lines are not tunneled. Permanent lines are commonly used in LTACH patients, and historically have had lower rates of infection than temporary lines.

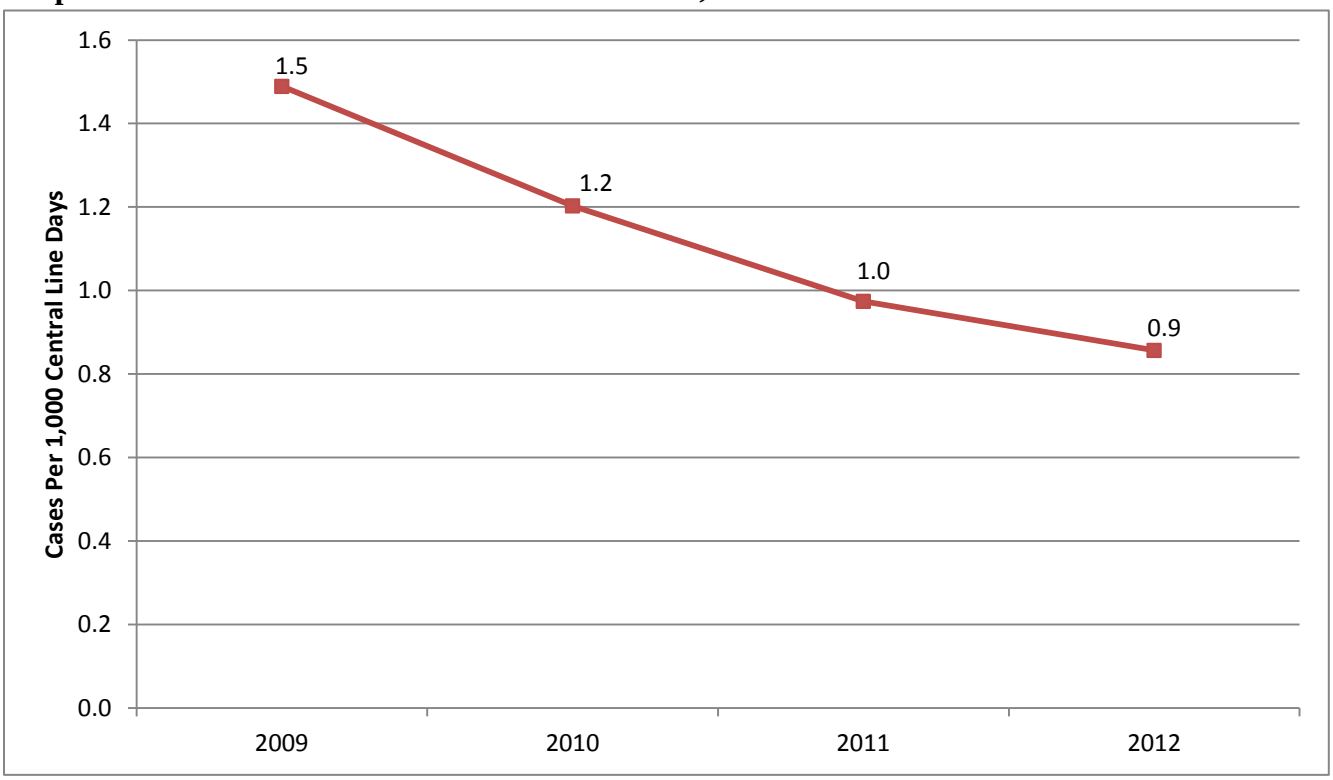
Results

The two graphs below show the results of data collected in each Colorado LTACH from January 1, 2009 through December 31, 2012. Graph 1 shows facility specific CLABSI rates for each LTACH; Graph 2 shows CLABSI rates aggregated across all nine LTACH. As shown in Graph 1, of Colorado's nine LTACH, six show considerably lower CLABSI rates in 2012 than in 2009; this includes four LTACH with consistent declines over the last three years and two with rates of zero in 2012. Graph 2 illustrates that annual CLABSI rates aggregated across all LTACH declined consistently over the four year period.

Graph 1: CLABSI Rates by LTACH Facility, 2009-2012



Graph 2: CLABSI Rates for all LTACH Combined, 2009-2012



Conclusion

Previous bulletins highlighted significant reductions in CLABSI in adult and neonatal critical care units since Colorado mandated CLABSI reporting in 2006. This bulletin shows that declining CLABSI rates have also been achieved in Colorado's LTACH. This is good news for Colorado, especially in light of Colorado's declaration of CLABSI reduction as part of its Winnable Battles campaign.[10]

CDPHE will continue its focus on reducing CLABSI and other HAI by: 1. monitoring HAI and publishing HAI data in semi-annual bulletins and the annual CDPHE Health Facilities-Acquired Infections Disclosure Report; 2. providing ongoing HAI education to infection preventionists and health care consumers; 3. completing validation studies of CLABSI and other HAI, and; 4. collaborating with infection prevention staff in facilities and with other state partners such as the Colorado Hospital Association (CHA), Colorado Foundation for Medical Care (CFMC), and Intermountain End-Stage Renal Disease (ESRD) Network 15.

Health care personnel can help prevent CLABSI by practicing good hand hygiene and adhering to evidence-based practices for the care of central lines. Patients and visitors can also help by following the actions listed below[11]:

1. Research the hospital, if possible, to learn about its CLABSI rate.
2. Speak up about concerns to remind healthcare personnel to follow recommended infection prevention practices.
3. Ask healthcare providers if the central line is absolutely necessary. If so, ask them to help you understand the need for it and how long it will be in place.
4. Do not let the central line or insertion site get wet.
5. Pay attention to the bandage and surrounding area. If the bandage comes off, or if the bandage or surrounding area becomes wet or dirty, tell a healthcare worker immediately.
6. Tell a healthcare worker if the catheter area is sore or red or if the patient has fever or chills.
7. Avoid touching the catheter or central line tubing as much as possible.
8. Do not let any visitors touch the catheter or central line tubing.
9. Ask visitors to wash their hands before and after their visit.
10. Practice good hygiene, weight control, and management of diabetes, if present, to help decrease risk factors prior to a central line placement.

This report should be used as one of many healthcare quality evaluation tools and cannot, on its own, provide a complete picture of healthcare in Colorado. Readers of this report should not base conclusions about healthcare quality on a single source, but should consider information from multiple sources including their personal physicians and other data sources (e.g., CMS Hospital Compare website, Colorado Hospital Report Card website). For more information about HAI in Colorado, please visit the HAI webpage at www.healthfacilities.info and click on the Healthcare-Associated Infections (HAI) tab.

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