

KEY FINDINGS AND PUBLIC HEALTH ACTIONS

Central Line-Associated Bloodstream Infections in California Hospitals, 2011

Introduction

Central line-associated bloodstream infection (CLABSI) rates are important markers for patient safety and the focus of increasing public health, payer, regulatory, and public interest. This data release is the third by the California Department of Public Health (CDPH) on CLABSIs, and the second [1] using information submitted by California hospitals to the Centers for Disease Control and Prevention (CDC) National Healthcare Safety Network (NHSN).

In this release, we present California average (pooled mean) CLABSI rates and hospital-specific CLABSI rates for the reporting period January through December 2011. This reporting period overlaps by 1 quarter the reporting period for the previous CDPH release (April 2010 through March 2011). As in prior releases, all data are reported by patient care locations where patients with similar medical conditions receive similar levels of care. New in this release, we calculate percentage changes in California average rates using the California rate comparison period of 2010 (April through December) to 2011 (January through December). Other important details about the definitions, methods and limitations of the data in this release are described in the Technical Notes [2].

Annual summary measures, published by CDC, estimate the frequency of CLABSIs over time for the US [3,4] and compare the estimated frequency of CLABSIs in 2010 in California to a US baseline [4]. Although these measures provide important information for comparing California to US baselines, the 2011 CLABSI rates presented here provide more specific information for assessing CLABSI rates within and between California hospitals and for targeting and monitoring CLABSI prevention efforts within California hospitals.

Beginning 2011, the Centers for Medicare and Medicaid Services' (CMS) required hospitals participating in the Hospital Inpatient Quality Reporting Program to report CLABSI data to NHSN from critical care areas to qualify for annual payment updates, and for public reporting on the Hospital Compare website (<http://www.hospitalcompare.hhs.gov/>). While this did not affect the reporting mandate for California hospitals, the implementation of this new CMS mandate precipitated important changes in reported data that shape the interpretation of 2011 rates. These changes included revisions to patient care location designations within some institutions and the addition of newly created patient care locations in NHSN (for long term acute care hospitals). The interpretation of CLABSI rates and rate changes should include consideration of CLABSI prevention efforts, payer and regulatory pressures, and/or systematic changes in data quality over time. Continued monitoring and reporting of California rates by patient care locations will provide important information for targeting CLABSI prevention actions in California.

Key Findings

The national picture

- CDC estimates that the frequency of CLABSIs, nationwide, was 32% lower in 2010 than in the CDC's baseline comparison period of 2006 through 2008; these are the most current US data available [4]. CDC also estimates that the frequency of CLABSIs in critical care settings, nationwide, was 58% lower in 2009 than in 2001 [3]. This decrease is attributed to the use of evidence-based CLABSI prevention and control practices.

The California picture

- CDC estimates that the frequency of CLABSIs in California was 36% lower in 2010 than the CDC's baseline comparison period of 2006 through 2008 [4]. This 36% reduction is modestly better than the 32% reduction seen nationwide and indicates that, in 2010, reductions in the frequency of CLABSI in California hospitals appear to be at least on pace with the US, as a whole. National data for 2011 will likely be available in early 2013.
- The number of CLABSIs reported in California was 10% lower in 2011 (3163 cases) than in the previous CDPH release (3519 cases) [1].
- The overall California average CLABSI rate in critical care areas was 10% lower in 2011 (1.03 per 1000) than in the California rate comparison period, April through December 2010 (1.15 per 1000). Similarly, the overall California average rate in 2011 was 8% lower (1.01 vs. 1.10 per 1000) in neonatal critical care areas, 15% lower (0.82 vs. 0.97 per 1000) in general care areas (wards) and 1% lower (1.95 vs. 1.96 per 1000) in special care areas, than the rate comparison period. NHSN locations revised between 2010 and 2011 (long term acute care) were excluded from comparisons.
- California average rates in 2011 were lower than the California rate comparison period in 17 (74%) of 23 CDPH patient care locations reported by at least 10 hospitals. In spite of the decreases in CLABSI rates seen in most patient care locations, 6 (26%) of 23 patient care locations (reported by at least 10 hospitals) had higher CLABSI rates in 2011 than in the California rate comparison period.
- Decreases in statewide CLABSI case counts and rates in 2011 appear to extend the national trajectory downward but not uniformly over all California patient care locations. These decreases suggest progress towards CLABSI prevention in most patient care locations although more time is needed to determine if reported reductions will be sustained.

California hospital-specific findings

- Of 386 California hospitals in continuous operation in 2011, 14 reported no central line-days (i.e., had no patients at risk for developing infection). Of the remaining 372 hospitals, 1 (<1%) submitted no data to NHSN and 371 (100%) reported at least 1 central line-day or 1 CLABSI. Of these latter 371 hospitals, 368 (99%) were included in this data release and 3 were excluded in their entirety because of incomplete data or data that could not be risk stratified. The percentage of hospitals included in this 2011 data release (99%) was slightly higher than the percentage (97%) included in the previous CDPH release [1].

- Hospitals reported 3163 CLABSIs in 2011; 3138 (99%) CLABSIs were included in this data release and 25 were excluded because of incomplete or insufficient data reported. The percentage of reported CLABSI included in this 2011 data release (99%) was higher than the percentage (95%) included in the previous CDPH release [1].
- In 2011, 53 (14%) of 368 hospitals had at least 1 patient care location CLABSI rate that was statistically higher than the comparable state average – this percentage is similar to the percentage (15%) reported in the previous CDPH data release [1]. Among these 53 hospitals, 39 (74%) hospitals had only 1 patient care location that was statistically high; the remaining 14 (26%) hospitals had 2-5 statistically high-rate patient-care locations. Also among these 53 hospitals, 16 (30%) had at least 1 patient care location that was statistically higher than the state average in 2011 and in the previous CDPH data release. These hospital-specific patient care locations appear to have consistently high rates.
- In 2011, 28 (8%) of 368 hospitals had at least 1 patient care location CLABSI rate that was statistically lower than the comparable state average – this percentage is similar to the percentage (7%) reported in the previous data release [1].

Important context for interpreting key findings

- CLABSI rates are affected by clinical and infection control practices related to central line insertion and maintenance practices, risk factors related to a patient care locations, and surveillance methods. While stratifying CLABSI rates by patient care location makes rates more comparable, it cannot control for all individual patient factors that can affect CLABSI rates.
- It is important to consider the overall context of these rates. A low CLABSI rate may reflect greater diligence with infection prevention or may reflect less effective surveillance methods that detect fewer infections, including failure to appropriately apply standardized surveillance definitions and protocols. Similarly, a high rate may reflect failure to consistently implement all recommended infection prevention practices or more aggressive infection surveillance including more consistent application of standardized surveillance definitions and protocols. Additionally, reporting changes that may have occurred in 2011 as a result of new CMS reporting mandates should be considered. Comparisons between only two time periods (especially those that overlap) should be considered cautiously as more time is needed to determine if changes will be sustained.

Public Health Actions

In follow up to this report, CDPH will:

- Engage with hospitals that have patient care locations with CLABSI rates statistically higher than statewide averages to explore opportunities to improve CLABSI prevention and control;
- Continue to monitor the accuracy and completeness of reported data;
- Engage with stakeholders to explore opportunities to use these data for evaluating the effectiveness of California CLABSI prevention strategies.

All hospitals should review these data and consider:

- Ensuring the accuracy and completeness of reported data by reviewing data collection processes and strictly following NHSN definitions and protocols for the identification, classification, and reporting of CLABSI and central line-days;
- Investigating patient care locations with the highest and lowest rates of CLABSI to ensure complete and accurate reporting and to identify opportunities to improve CLABSI prevention and control; and
- Reviewing hospital-wide implementation of evidence-based CLABSI prevention measures aimed at choosing the best catheter, insertion and maintenance practices, and promptly removing catheters that are no longer necessary.

The public should consider:

- Reviewing the information presented for your hospital, including the context for interpreting CLABSI rates;
- Asking your health care provider about the actions your provider and your hospital are taking to ensure patient safety, including steps to protect patients against CLABSIs; and
- Asking your health care provider about the actions you can take to ensure your safety in the hospital, including protecting against CLABSIs.

REFERENCES

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