

Central Line Associated Bloodstream Infection (CLABSI) Rates: Technical Guide

This technical guide was developed to provide more detail about Vermont's public reporting of central line associated blood stream infection rates.

What is a Central Line Associated Bloodstream Infection (CLABSI)?

The CDC defines a central line associated bloodstream infection as an infection in a patient that had a central line inserted within the 48-hour period before the onset of infection.

Who is required to report data?

The CDC defines an Intensive Care Unit as a nursing care area in which at least 80% of the patients require intensive observation, diagnosis, and therapeutic procedures. Vermont hospitals with an Intensive Care Unit or Special Care Unit (or a portion of such a unit) meeting this definition are required to report CLABSI data.

How are data reported?

Data are reported in the CDC National Healthcare Safety Network (NHSN) System. The data are entered into the NHSN system by designated hospital staff. The NHSN System allows for data extraction and analysis, including benchmarking results against peer group and national data. The CDC excludes hospitals with fewer than 50 central line days a year from their benchmark calculations. Vermont excluded hospitals reporting fewer than 25 central line days during the six-month reporting period (November 1, 2006 through April 30, 2007) from this June 2007 public report due to concerns about small numbers.

How is the CLABSI Rate calculated and what does it mean?

The CLABSI Rate is reported as a rate per 1000 central line days and is calculated by dividing the number of CLABSI by the number of central line days and multiplying the result by 1000. Lower rates are better.

For example, if an ICU had 5 central line infections and 100 central line days, the CLABSI rate is calculated as follows: $5/100 \times 1,000 = 50$ central line infections per 1,000 central line days.

How do I interpret the comparison to hospitals reporting to NHSN?

The comparison is based on significance testing. Three categories are used to summarize how each hospital compares to the CLAB Infection Rate national average for hospitals reporting to NHSN:

- the infection rate is lower (better) than the CLAB Infection Rate for hospitals reporting to NHSN;
- the infection rate is similar to the CLAB Infection Rate for hospitals reporting to NHSN;
- the infection rate is higher (worse) than the CLAB Infection Rate for hospitals reporting to NHSN.

The following link leads to an article from the Centers for Disease Control and Prevention that contains NHSN national data from 2006:

http://www.cdc.gov/ncidod/dhqp/pdf/nhsn/2006_NHSN_Report.pdf

What is significance testing?

Tests of significance are needed to tell us whether the number of infections in a hospital is unusually high or low relative to the number of infections in a reference group (all NHSN hospitals).

One type of significance test consists of calculating a confidence interval (CI), or range of values, around the number of infections in the hospital. This CI can be thought of as the typical fluctuation in the number of infections in the hospital. If the CLAB Infection Rate for all NHSN hospitals falls within the CI, the hospital rate and the reference group rate are considered to be similar. If the CLAB Infection Rate for all NHSN hospitals is above the CI, the hospital rate is considered to be significantly lower than the U.S. CLAB Infection Rate. If the CLAB Infection Rate for all NHSN hospitals is lower than the CI, then the hospital rate is considered to be higher than the U.S. CLAB Infection Rate.