

Massachusetts Calendar Year 2015 HAI Data Summary

Statewide Hospital Summary

This document is designed to help you better understand the data presented on the Summary Page that follows.

Standardized Infection Ratio (SIR): This measure indicates how the actual number of healthcare-associated infections at a location compares to the predicted number of infections at that location. If a hospital experiences the same number of infections as predicted, the SIR has a value of 1. If a hospital experiences more infections, the SIR is greater than 1, and vice versa. A statistical interpretation is included with each SIR to indicate if the hospital experienced a statistically significant higher or lower number of infections than anticipated. Statistical significance means that the number of infections observed was unlikely to have occurred by chance alone.

Hospital Survey Statistics

These statistics aim to provide a broad sense of patient care capacity and staffing in Massachusetts acute care hospitals. Every hospital in Massachusetts has Infection Preventionists who work to reduce healthcare-associated infections at their hospital. The Society for Healthcare Epidemiology of America (SHEA) recommends that there be at least one Infection Preventionist per 125 hospital beds.

Central Line-Associated Blood Stream Infection (CLABSI)

CLABSI data are reported by ICU type since the risk of infection can vary greatly from one ICU to another depending on the type of patients in the unit and the type of treatments they receive. In addition to adult and pediatric ICUs, 10 hospitals in the state have neonatal ICUs, or NICUs.

The table included shows CLABSI data by ICU type. **Each location strives for zero infections.** The data presented in this table is from calendar year 2015 (January 1, 2015 through December 31, 2015). The predicted number of infections is calculated by multiplying the state baseline infection rate from 2013 and 2014 by the number of device days. The SIR and confidence interval of ICUs with a predicted number of infections less than 0.5 have been suppressed (not calculable).

The **central line utilization ratio** measures how often and for how long acute care patients have a central venous catheter in place. This statistic is important because **fewer central lines mean fewer chances for infection.** A downward trend may indicate that hospitals across the state have implemented interventions to try to reduce CLABSIs by removing central lines when not absolutely necessary.

The **State CLABSI SIRs** chart shows how the state SIR has changed over time across three ICU types. The SIRs in this chart use predicted values calculated by multiplying the average rate of infection for a given location from the 2013 national data by the number of device days, so they are different from the values found in the table above. **As CLABSIs are prevented, the state SIRs should decrease.**

Catheter-Associated Urinary Tract Infections (CAUTI)

CAUTI data are reported by ICU type since the risk of infection can vary greatly from one ICU to another depending on the type of patients in the unit and the type of treatments they receive. CAUTI data are new to this statewide summary. MDPH reporting requirements expanded in November 2014 to include CAUTI data reports starting in January 2012.

The table included shows CAUTI data by ICU type. **Each location strives for zero infections.** The data presented in this table is from calendar year 2015 (January 1, 2015 through December 31, 2015). **Note that there were significant definition changes for CAUTI in 2015; therefore, comparisons to 2013-2014 data are limited.** The predicted number of infections is calculated by multiplying the state baseline infection rate from 2013 and 2014 by the number of device days. The SIR and confidence interval of ICUs with a predicted number of infections less than 0.5 have been suppressed (not calculable).

The **catheter utilization ratio** measures how often and for how long acute care patients have a urinary catheter in place. This statistic is important because **fewer urinary catheters mean fewer chances for infection.** A downward trend may indicate that hospitals across the state have implemented interventions to try to reduce CAUTIs by removing urinary catheters when not absolutely necessary.

The **State CAUTI SIRs** chart shows how the state SIR have changed over time across two ICU types. The SIRs in this chart use predicted values calculated by multiplying the average rate of infection for a given location from the 2009 national data by the number of device days, so they are different from the values found in the table above. **As CAUTIs are prevented, the state SIRs should decrease.**

Surgical Site Infection (SSI)

The risk for SSI varies by procedure type as well as individual patient and hospital factors. The CDC uses a formula that takes into account important risk factors to determine the predicted number of infections used to calculate the SIR. **All deep incisional primary and organ/space infections are included in this report.** In previous years, procedures with implants were observed for infection a full year after the procedure. These procedures included CABG, HPRO, and KPRO procedures. Beginning in 2013, the surveillance period was changed to 90 days for deep incisional and organ/space SSI for these three procedure types. Abdominal and vaginal hysterectomies continued to be observed for 30 days after procedure, as in previous years. Colon procedures (COLO) also observed for 30 days are new to this report. Data reporting for colon procedures began in the year 2012; therefore, you will not see COLO data for 2011.

The table entitled **State SSI SIRs by Procedure Type** contains data for 2015 available for each procedure currently under surveillance. **Each hospital strives for zero infections.** A statistical interpretation of Same or Lower means that the number of infections was comparable or better than expected, while an interpretation of Higher means that the number of infections was worse than the expected.

The chart included depicts SSI statistical interpretations for 2011 through 2015. It is meant to be used as a quick assessment of significant variation of infection rates over time. This chart does not capture change in infection rates that were not statistically significant.

Facility Wide LabID Events

The LabID event section includes overall inpatient facility-wide (FacWideIn) Clostridium difficile infection (CDI) and MRSA bacteremia surveillance LabID event data reported from acute care facilities. Due to variability of hospital-onset incidence in these data over time, risk modeling was performed at the facility level and calendar year quarter level using negative binomial regression models. **LabID events are new to the data summary and are provided as proxy surveillance measures of healthcare acquisition, exposure burden, and infection burden, based on laboratory and limited admission data and should be evaluated as such. When interpreting pediatric CDI data, asymptomatic colonization in children less than one year of age may confound pediatric CDI rates.** LabID events are new to the data summary. Reporting requirements were implemented in November 2014 for January 2013 data to date.

The table entitled **State CDI and MRSA SIRs for 2015 Calendar Year** contain data from calendar year 2015 (January 1, 2015 through December 31, 2015). **Each hospital strives for zero infections.** A statistical interpretation of Same or Lower means that the number of infections was comparable or better than expected, while an interpretation of Higher means that the number of infections was worse than the expected.

The chart included depicts SIR statistical variations from the predicted number of LabID Events (CDI and MRSA) for years 2013 through 2015. It is meant to be used as a quick assessment of significant variation of infection rates over time. This chart does not capture change in infection rates that were not statistically significant.