



FEBRUARY 2012

HEALTH CARE ASSOCIATED INFECTIONS IN MASSACHUSETTS ACUTE CARE HOSPITALS

SECOND PUBLIC REPORT
JULY 1, 2009 – JUNE 30, 2011

EXECUTIVE OFFICE OF HEALTH AND HUMAN SERVICES
DEPARTMENT OF PUBLIC HEALTH, BUREAU OF HEALTH CARE SAFETY & QUALITY

Commonwealth of Massachusetts
Deval L. Patrick
Governor

Commonwealth of Massachusetts
Timothy P. Murray
Lt. Governor



Executive Office of Health and Human
Services
JudyAnn Bigby, MD
Secretary

Department of Public Health
John Auerbach
Commissioner



The Massachusetts Department of Public Health developed this report as a component of the Statewide Infection Prevention and Control Program created pursuant to Chapter 58 of the Acts of 2006.

Massachusetts law provides the Department of Public Health with the legal authority to conduct surveillance, and to investigate and control the spread of communicable and infectious diseases. (MGL c. 111, sections 6 & 7) The Department implements this responsibility in hospitals through the hospital licensing regulation. (105 CMR 130.000)

This document is the second in a series of reports representing a component of larger efforts to reduce preventable infections in health care settings. It presents an analysis of progress on infection prevention within Massachusetts acute care hospitals, and is based upon work supported by the Massachusetts legislature, the Centers for Disease Control and Prevention (CDC), as well as funding through the American Recovery and Reinvestment Act of 2009. The findings and conclusions contained within are those of the Department of Public Health and do not necessarily reflect positions or policies of these supporting agencies.

Readers and researchers are encouraged to quote or independently assess material from this publication in non-commercial settings. Proper attribution must be given to the Department of Public Health. A copy of any citing publications should be sent to:

Massachusetts Department of Public Health, 99
Chauncy Street, 11th Floor, Boston MA, 02111

Questions about this report should be directed to:

Eileen McHale
Healthcare Associated Infection
Program Coordinator

99 Chauncy Street, 11th Floor
Boston MA, 02111
617.753.7324
Eileen.McHale@State.MA.US

Healthcare Associated Infections in Massachusetts Acute Care Hospitals



SECOND PUBLIC REPORT

JULY 1, 2009 – JUNE 30, 2011



Acknowledgements

The Massachusetts Department of Public Health would like to acknowledge the work done by infection prevention professionals throughout the Commonwealth to address the issue of healthcare associated infections. This report is the result of collaboration between healthcare providers, the Bureau of Infectious Disease Prevention, Response, and Services, the Bureau of Health Care Safety and Quality, the Betsy Lehman Center for Patient Safety and Medical Error Reduction, and many community partners. The Technical Advisory Group has also provided valuable direction and guidance to the Department as we continue in our efforts to reduce healthcare associated infections.

With this iteration of the Healthcare Associated Infection report, the Department placed significant focus on increasing the accessibility of this highly technical report for lay audiences. The Department believes that it is important that all audiences, including consumers and their families, policy-makers, payers, physicians, and infection preventionists alike, share in lessons learned. To help coalesce this vision, a group of diverse stakeholders were consulted. For their expert advice on various components of the report, the Department would like to thank the Harvard Catalyst (Charles Deutsch, Richard Platt, Michael Klompas, Ken Kleinman, and Karen Kieser), Health Care for All (Deborah Wachenheim), the Massachusetts Coalition for the Prevention of Medical Errors (Paula Griswold), Brigham & Women's Hospital (Deborah Yokoe), Beth Israel Deaconess Medical Center (Ken Sands and Sharon Wright), John Snow, Inc (Lisa Hirschhorn), and the Institute for Healthcare Improvement (Karen Boudreau). Finally, within the Department, this report would not have been possible without the dedication and expertise of Alfred DeMaria, Shauna Onofrey, Johanna Vostok, Nora McElroy, William Lapsley, Elizabeth Daake, and Eileen McHale, the policy expertise and leadership of Iyah Romm, as well as the vision of Madeleine Biondolillo and Commissioner John Auerbach.

Table of Contents

February 2012

Acknowledgements	(2)
Letter to the Reader	(4)
Executive Summary	(5)
How to Use This Report	(9)
Introduction	(11)
Background: Surveillance and Overview of Reported Events	(17)
Risk Adjustment	(23)
Statewide Data: Central Line Associated Blood Stream Infections and Surgical Site Infections	(28)
Healthcare Associated Infection Activities in the Commonwealth	(40)
Looking to the Future: Roadmap for HAI Reporting in the Commonwealth	(49)
Appendix 1: Criteria 1 CLABSI and Hospital-specific SSIs	
Appendix 2: Hospital-specific Summary Sheets	
Appendix 3: Technical Methods	
Appendix 4: Development of the Massachusetts Infection Prevention and Control Program	
Appendix 5: Hospitals Providing Data for this Report	
Appendix 6: Glossary and Acronyms	
Appendix 7: SSI and CLABSI Informational Handouts	

Dear Reader,

This is the second in a series of reports summarizing the occurrence of healthcare associated infections (HAIs) in Massachusetts' hospitals. Nationally, more than 1 in 20 patients acquire an HAI while receiving treatment for other conditions. The effect of preventable HAIs on patients and families, and the associated cost to the healthcare system, remains a prominent issue. And as our ability to prevent HAIs improves, these infections are increasingly unacceptable.

Motivated by growing awareness that HAIs are often preventable, yet cause immeasurable patient harm and result in decreased efficiency of the healthcare system, members of the Massachusetts legislature took decisive action aimed at improving patient safety by directing the Massachusetts Department of Public Health (MDPH) to develop a statewide infection prevention and control program. Public reporting is a central component of this program and drives quality improvement by promoting transparency in hospital performance in preventing HAIs. Public reporting is thought to improve quality by providing an opportunity for benchmarking performance, helping patients to make informed choices about accessing safe care, in the right time, in the right place, and directing policymakers to incent and support high quality care.

In recognition of a need for contextualization of highly technical concepts for consumers and policymakers, great effort was taken to write this edition of the HAI report in a way that increases accessibility. The epidemiological and statistical analyses that provide the technical backdrop for this work are complex. HAI rates in Massachusetts are among the lowest in the country. In many instances, a reader cannot differentiate one hospital from another because HAI cases are relatively rare. Nonetheless, there is important and useful information to be shared, including both the infection control efforts by medical centers, statewide trends, and areas in which some hospitals may benefit from concentration on improvement.

Over the coming months and years, the MDPH Bureau of Health Care Safety and Quality will continue to work towards improving public reporting so as to maximize impact and accessibility. We are grateful to many supporting organizations, such as the Massachusetts Coalition for the Prevention of Medical Errors, Health Care for All, and the Department's HAI Technical Advisory Group, as well as many Massachusetts hospitals, for furthering these efforts. Collectively we care deeply about facilitating an environment in which each and every resident of the Commonwealth can access high-quality, safe, and cost-effective care. We look forward to your feedback on this report and will continue to promote quality improvement, safety, and transparency in health care settings across Massachusetts.

Yours,



Madeleine Biondolillo, MD
Director
Bureau of Health Care Safety and Quality
Massachusetts Department of Public Health



Executive Summary

The continued evolution and improvement of medicine has increased treatment options and improved overall outcomes for patients. However, many of these technological and pharmaceutical innovations carry the increased potential for infections. These healthcare associated infections (HAIs) are often mild, but can become severe or even life threatening. The medical community, consumers, and policy makers alike have gained increased awareness of these infections, and are working together to ensure that patients are protected from preventable causes of harm.

HAIs are not only a threat to patients' health, they are also expensive and further stretch an overburdened healthcare system. With nearly 4.5 HAIs occurring for every 100 hospital admissions, the cost savings of comprehensive prevention to the healthcare system was estimated to range from \$5.7 to \$6.8 billion in 2007.

In 2008, Massachusetts acute care hospitals began reporting healthcare associated infections to the Department of Public Health (MDPH). Several years later, Massachusetts' comprehensive statewide infection prevention and control program has made great strides in understanding and beginning to reduce the devastating impacts of preventable HAIs acquired during the course of receiving care.

Today, Massachusetts' public reporting system continues to be a valuable tool for uncovering individual and systems challenges and failures that facilitate adverse health outcomes. Sharing those

The medical community, consumers, and policy makers alike have gained increased awareness of health care associated infections, and are working together to ensure that patients are protected from preventable causes of harm.



lessons learned with facilities across the state has driven innovation and quality improvement. Across the Commonwealth, infection prevention professionals have been catalyzed to develop or join initiatives and collaboratives to tackle one of the most challenging adverse events.

One goal of this report is to help consumers better understand HAIs and the work being done to prevent their occurrence. Some of the data highlight individual hospitals' performance against statewide baselines, while others allow comparison of Massachusetts aggregate infection rates to those measured nationally. **The data are not designed to compare individual hospitals to one another, but are instead intended to facilitate analysis over time, to monitor trends, and to develop targeted improvement strategies.** The MDPH will use these data to identify pressing issues and to inform public health policy.

The selection of measures presented in this report was guided by recommendations of an expert panel convened in 2006 by the Betsy Lehman Center, which emphasized the importance of considering frequency, severity and preventability of HAIs, and the ability to detect and report them accurately. The initial measures that best meet these criteria are central line (venous catheter) associated bloodstream infections (CLABSIs) and surgical site infections (SSIs). Additional measures will be collected from a variety of health care settings in the future.

During the current reporting period of July 1, 2009 to June 30, 2011, a total of 464 CLABSI events were noted, 265 in Fiscal Year 2010 and 199 in Fiscal Year 2011, a 24% reduction in the standardized infection ratio (SIR), a measure that is used to compare how rates of infection compare to the predicted number of events. All SSIs associated with the monitored procedures decreased across the Commonwealth except for those associated with vaginal hysterectomies, which increased by nine percent.

During the current reporting period of July 1, 2009 to June 30, 2011, a total of 464 CLABSI events were noted, 265 in Fiscal Year 2010 and 199 in Fiscal Year 2011...

...All surgical site infections associated with the monitored procedures decreased across the Commonwealth except for vaginal hysterectomies, which increased by nine percent.

In other areas of infection prevention and control, Department of Public Health staff surveying hospital practices identified cross-system issues with high-level disinfection (HLD), the process of completely eliminating all microorganisms on an instrument, as an area in need of statewide improvement. In nearly all hospitals subject to an on-site assessment, the protocols used to reprocess reusable, heat-sensitive medical devices were called into question. The data collected prompted the Department to issue an advisory to all hospitals to review, and if necessary, update policies, procedures, and practices related to HLD.

This is the second MDPH report containing hospital-specific data. In future years, additional measures will be reported at the hospital level. All data are self-reported. The MDPH has and will continue to work with hospitals and the CDC to develop and implement ongoing improvements in data validation and definitions. Ensuring accuracy of data and standardization of

Future public reports will expand beyond specific areas of health care safety and quality, instead synthesizing a more complete picture of the state of Massachusetts hospitals

Overview of Massachusetts HAI History



definitions facilitates inter-comparability of hospitals, allowing for optimal interpretation.

This report contains the first iteration of Hospital Summary Sheets, succinct overviews of each Massachusetts acute care hospital's performance. **It is important to remember that the goal of public reporting is to influence and improve the quality of care provided across the Commonwealth, and trends within specific facilities may not be as meaningful as they first appear - because of the exceedingly small numbers of infections occurring in each institution, the sporadic occurrence of events may inflate the year-to-year shift in rates.**

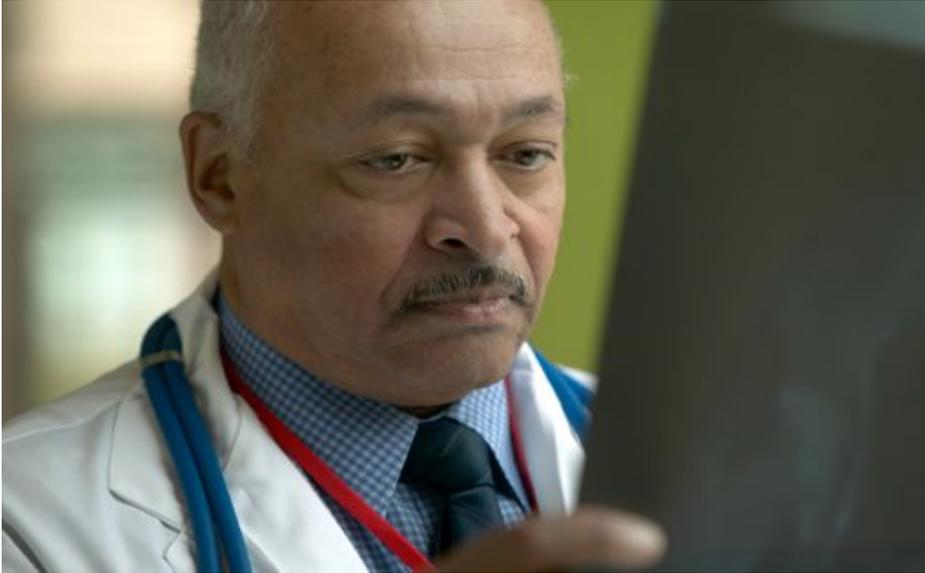
Prior to the inception of a public reporting system, statewide trends in HAI rates were not tracked. This system's omission limited dissemination of best practices as well as sharing of prevention and control strategies. The strong focus on accountability, facilitated by public reporting, has led to the development of key improvement initiatives. And while recent successes in HAI elimination have been encouraging, much more remains to be done.

Looking to the future, the Department will continue to explore ways to enhance reporting processes and their ability to inform consumers, policy-makers, and technical experts. And equally as important, the Department will support system-wide collaborations to facilitate dissemination of best practices in infection prevention and control, facilitating innovative research, using data to drive action, and working collectively to focus financial investments and resources where possible.

Massachusetts had made great advances in developing a robust HAI reporting system. Positive strides have been made to prevent and eliminate infections, but much remains to be done.



Cardo D, Dennehy PH, Halverson P, et al.,
ICHE 2010, 31:1101-1105



How to Use This Report

This report is but one of many resources available to describe health care quality and patient safety in Massachusetts. The report is designed to help patients and their families identify concerns to discuss with their providers, and to give policymakers insight into patient safety issues and activities in the Commonwealth.

While it is possible for anyone to acquire an HAI, some people are more susceptible. Consumers should use reports like these to identify situations of concern, to learn the causes of specific HAIs, and to understand how safe, high-quality health care should be delivered.

Factors that may contribute to the development of a healthcare associated infection include:

- Illnesses, such as cancer, diabetes and heart disease, which may make patients more at risk for infection and limit their immune systems ability to fight infections;
- Medical treatments such as chemotherapy which suppresses the immune system;
- Devices such as surgical implants and intravenous lines, which may lead to opportunities for microorganisms to enter the body;
- Long term or repetitive use of antibiotics, which may lead to infections that are difficult to prevent and treat.

Every member of the health care team, from the doctor to the patient and their family, has a role in prevention and elimination of HAIs

The data presented here are intended to provide important information to help you make informed decisions, but should not be used as a sole indicator of quality. Discuss this information with your health care provider, and remember that **many factors contribute to a hospital's quality of care. The overall quality and safety of a hospital is not determined only by HAI rates.** The measures presented in this report are also used by healthcare providers to identify areas in need of improvement, as well as to track statewide progress over time. The data allow hospitals and healthcare professionals to see how well other hospitals are performing as benchmarked against their own hospital's performance.

Trends across the health care system in Massachusetts are generally positive. Within the Commonwealth, hospitals generally perform better than national averages. Yet where the consequences are so grave, all strive for the complete elimination of infections.

We recognize that this is a lofty goal, yet among MDPH staff, hospitals, policymakers, and consumer groups alike, we share the common vision of a health system in which preventable infections are minimized.

Resources for Healthcare Quality & Safety

Massachusetts Department of Public Health

www.mass.gov/dph/dhca

Repository of patient safety and quality improvement information including public reports on a variety of safety measures.

Massachusetts Coalition for the Prevention of Medical Errors

www.macoalition.org

Public-private partnership whose mission is to improve patient safety and eliminate medical errors in Massachusetts.

My Health Care Options

www.hcqcc.hcf.state.ma.us

Website to learn more about and compare Massachusetts health care providers

Massachusetts Health Quality Partners

www.mhqp.org

Provides reliable information to help physicians improve the quality of care they provide and to help consumers take an active role in making informed decisions about their health care.



Introduction

The effect of preventable healthcare associated infection on patients and families, and the associated cost to the healthcare system, remain prominent national healthcare issues. In 1999, the Institute of Medicine (IOM) published *To Err is Human: Building a Safer Health System*, a groundbreaking report that raised awareness of the problems associated with the quality of healthcare in the United States.¹ In addition to identifying the significant harm to patients and financial costs associated with medical errors, it highlighted healthcare associated infections as an important problem affecting the American healthcare system. This document received widespread attention from the public, the healthcare industry, as well as state and federal policymakers, and catalyzed an increased focus on improving quality and safety in healthcare, including efforts to address HAI.

Improving quality and safety while reducing cost is one of the foremost challenges faced by the American healthcare system. At one time, the occurrence of HAIs was considered an unfortunate and unavoidable result of care. Recently, there has been a change in this perspective and the recognition that HAIs are a preventable and unacceptable problem. While there is no single cause of, or simple way to eliminate HAIs systemically, federal, state, and local leaders, as well as the public's demand for transparency, accountability, and reduction of healthcare costs

Improving quality and safety while reducing cost is one of the foremost challenges faced by the American healthcare system today

¹ National Academy of Science, Institute of Medicine

² Morbidity and Mortality Weekly Report (MMWR) Vital Signs: Central Line--Associated Blood Stream Infections ---

are providing the driving force toward their elimination. Reaching this zero-tolerance goal requires comprehensive monitoring and prevention programs, and a new level of cooperation among many partners including consumers, healthcare professionals, insurers, and policymakers.

HAIs are among the leading causes of preventable death in the United States, affecting 1 in 20 hospitalized patients, as well as accounting for an estimated 1.7 million infections and an associated 99,000 deaths in 2002.²³ These infections not only have a negative personal impact on patients and their families, they also contribute to the nation's escalating healthcare costs. In 2007, the annual economic burden of HAI in Massachusetts ranged from \$200 to \$400 million.⁴ A 2009 Centers for Disease Control and Prevention report estimates the U.S. direct medical cost of treating HAI ranges from \$35.7 billion to \$45 billion annually.⁵ Yet adherence to evidence based practices can reduce certain HAIs by as much as 70 percent.^{6,7}

Massachusetts hospitals have long been actively involved in HAI reduction activities intended to make care better and safer for patients. Since the 1970's, hospitals have been collecting and analyzing data on HAIs and on healthcare practices that have been shown to reduce the risk of these infections. Hospitals routinely collect these data internally, but historically they have not been shared across health systems.

HAIs are among the leading causes of preventable death in the United States, affecting 1 in 20 hospitalized patients

² Morbidity and Mortality Weekly Report (MMWR) Vital Signs: Central Line--Associated Blood Stream Infections --- United States, 2001, 2008, and 2009. March 4, 2011.

³ Klevens RM, Edwards J, Richards C, Horan T, Gaynes R, Pollock D, Cardo D. Estimating Health Care-Associated Infections and Deaths in U.S. Hospitals, 2002. *Public Health Reports* 2006; 122.

⁴ http://www.mass.gov/eohhs2/docs/dph/patient_safety/hai_pcp_final_report_pt1.pdf

⁵ http://www.cdc.gov/ncidod/dhqp/pdf/Scott_CostPaper.pdf

⁶ MMWR. Reduction in Central Line-Associated Bloodstream Infections Among Patients in Intensive Care Units; Pennsylvania, April 2001 – March 2005. October 14, 2005 / 54(40); 1013-1016.

⁷ Pronovost P, Needham D, Berenholtz S, et al. An Intervention to Decrease Catheter-Related Bloodstream Infections in the ICU. *NEJM* 2006; 355:2725.

In an effort to raise awareness, promote transparency for healthcare consumers, and motivate hospitals to prioritize infection prevention, the Massachusetts Legislature directed the Massachusetts Department of Public Health to develop a statewide infection prevention and control program. An HAI Expert Panel convened by the Betsy Lehman Center for Patient Safety and Medical Error Reduction, in collaboration with the MDPH, offered guidance to the development of programming across the Commonwealth. The Expert Panel conducted a comprehensive assessment of the key issues surrounding HAIs and formulated a substantial set of evidence-based recommendations and best practice guidelines including the public reporting of HAI measures by

hospitals. The recommendations provided the framework for the Statewide Infection Prevention and Control Program and are available at www.mass.gov/dph/dh cq.

In Massachusetts, the comprehensive program for statewide infection prevention was established with an emphasis on surveillance, outbreak investigation, mandatory public reporting of specific measures, support for prevention initiatives, collaborative learning, and the regulatory promotion of adherence to evidence-based best practices. The Massachusetts HAI Prevention and Control Program is comprised of major components of the MDPH, including the

Bureau of Health Care Safety and Quality (the Commonwealth's regulatory and survey agency), the Bureau of Infectious Diseases, and the Betsy Lehman Center for Patient Safety and Medical Error Reduction. Senior bureau directors lead strategic planning, development, program advancement, and the ongoing coordination of cross-bureau activities. A multidisciplinary Technical Advisory Group (TAG) of advisors whose members include hospital epidemiologists, infection preventionists, consumers and advocates, quality improvement professionals, representatives of insurers, and the hospital association,

Massachusetts has made great strides in developing a robust HAI reporting system. Positive strides have been made to prevent and eliminate infections, but much remains to be done.



meets quarterly to provide ongoing recommendations on HAI issues.

State law provides the health department with the legal and regulatory authority to monitor and investigate the causes of communicable and other infectious disease outbreaks (under 105 CMR 130) and positions MDPH to track HAI trends, as well as to identify and investigate outbreaks, recognize emerging pathogens and unsafe medical practices, and to ensure the implementation of known prevention strategies and improvement programs. Moreover, significant investments at the federal level, such as the 2009 American Recovery and Reinvestment Act funding, have allowed Massachusetts to further develop HAI prevention initiatives. Enhancements to the MDPH infrastructure including support for data collection, validation, and expansion of training activities to promote best practices have been critical to advancing the goal of HAI elimination.

HAI Public Reporting: The intentions of public reporting are to raise awareness, to promote transparency for consumers, to motivate hospitals to prioritize infection prevention, and to guide these prevention activities. Ongoing tracking, measuring, and reporting of HAI data are important to understanding statewide trends, identifying patterns of infection, and to ensuring readiness for the possible emergence of new or unusual organisms. It is important to remember that the collection and reporting of HAI data are only components of the MDPH HAI Infection Prevention Program. Reporting alone, without additional prevention activities, is insufficient to eliminate HAIs.

Massachusetts licensure regulations require acute care hospitals to report

Members of the HAI Technical Advisory Group

Chair

Alfred DeMaria Jr. MD, Medical Director, Bureau of Infectious Disease Response & Services; State Epidemiologist

Vice Chair

Laurie Kunches ANP, PhD, Director of Clinical Research, *John Snow, Inc*

Karen Boudreau, MD, Senior Vice President, *IHI*

Mari-Kim Bunnell, MD, *New England OB/GYN*

Wanda Carey, RN, BSN, CIC, Infection Preventionist, *Steward Norwood Hospital*

Philip Carling, MD, Director, Infectious Diseases and Hospital Epidemiology, *Steward Carney Hospital*

Linda Clayton, MD, MPH, Associate Medical Director, *Office of Medicaid/MassHealth*

Richard T. Ellison III, MD, Hospital Epidemiologist, *U Mass Memorial Medical Center*

Paula Griswold, MS, Executive Director, *Massachusetts Coalition for the Prevention of Medical Errors*

Lisa Hirschhorn, MD, Senior Clinical Consultant, *JSI*

David Hooper, MD, Internal Medicine/Infectious Diseases, *Massachusetts General Hospital*

Linda Kenney, President, Executive Director, *MITSS*

Tricia A. Lemon, BSN, MPH, CIC, Infection Preventionist, *Mount Auburn Hospital*

Selwyn Rogers, MD, MPH, Chief, Trauma, Burns, and Surgical Critical Care, *Brigham and Women's Hospital*

Thomas Sandora, MD, MPH, Pediatric Infectious Disease, *Children's Hospital Boston*

Mary Ellen Scales, RN, MSN, CIC, Infection Preventionist, *Baystate Medical Center*

David Smith, MHSA, Senior Director, Health Data Analysis & Research, *MHA*

Lauren Smith, MD, MPH, Medical Director, *MDPH*

Deborah Wachenheim, *Health Care For All*

Deborah Yokoe, MD, MPH, Epidemiologist, *Brigham & Women's Hospital*

specific HAI related data to the Centers for Disease Control and Prevention's National Healthcare Safety Network (NHSN). NHSN is a secure, internet-based surveillance system for healthcare facilities to submit information about HAI and to monitor patient safety. NHSN offers use of standardized definitions, built-in analytical tools, user training and support, as well as integrated data quality checks, and is free to all participants. Although not originally established as a system for mandatory reporting, NHSN has become the standard for HAI for monitoring in the United States with twenty-six states including Massachusetts mandating its use. The CDC made NHSN available to all United States healthcare facilities at no charge in June 2007 and is currently collecting data from more than 5,000 facilities in all fifty states.

Participation in NHSN requires a considerable commitment by each hospital. Qualified infection preventionists (IPs) conduct HAI surveillance. IPs are trained in nursing, microbiology, epidemiology, and/or medical technology, and have obtained additional education in infection prevention and control. Only NHSN users who have completed training on CDC's standard definitions and surveillance methodology may perform data entry, and all protocols must be followed precisely. These protocols provide a rigorous national and state standard to ensure consistent collection of comparable data. Once data are entered, they are immediately available to hospitals, to NHSN, and to the MDPH for viewing, analysis, and editing. Hospitals are authorized to view only their own facility or group-specific information.

When collecting HAI data, facilities must enter information on all of the required procedures, not just procedures resulting in infection. This detailed reporting ensures information is collected for every patient undergoing a procedure under

surveillance in a hospital, not just the small number of patients who develop infections.

Within the infection prevention community, a tension exists between the sometimes-divergent needs of surveillance and clinical practice. In the coming months, the Department will be engaging members of its HAI Technical Advisory Group as well as key provider stakeholders to build consensus and develop mechanisms to maximize the clinical utility of infection surveillance.

This report provides the second set of hospital-specific data and analysis of HAIs for acute care hospitals in Massachusetts and offers an overview of the multifaceted effort underway to address this complex issue. The report summarizes aggregated HAI rates in Massachusetts 72 acute care hospitals for the reporting period of July 1, 2009 – June 30, 2011 (Fiscal Years 2010 and 2011) compared with a series of state and national benchmarks. Hospital-specific data are found in Appendix 2, and are structured not to provide hospital-to-hospital comparisons, but rather intra-hospital benchmarks to track improvement over time. A list of all of the reporting hospitals can be found in Appendix 5.



Additional information
about NHSN is available at
www.cdc.gov/nhsn/index.html.



Surveillance & Overview of Reported Events

Surveillance of infectious disease is defined as the systematic collection, analysis, and interpretation of data on the occurrence of infectious diseases or events in order to determine if actions should be taken to protect public health from these potential causes of illness. All acute care hospitals collect data on specific infection types and report those data to the Massachusetts Department of Public Health (MDPH) and the CDC. These agencies then analyze the data for concerning trends or outliers not only for the state as a whole, but also within each individual facility.

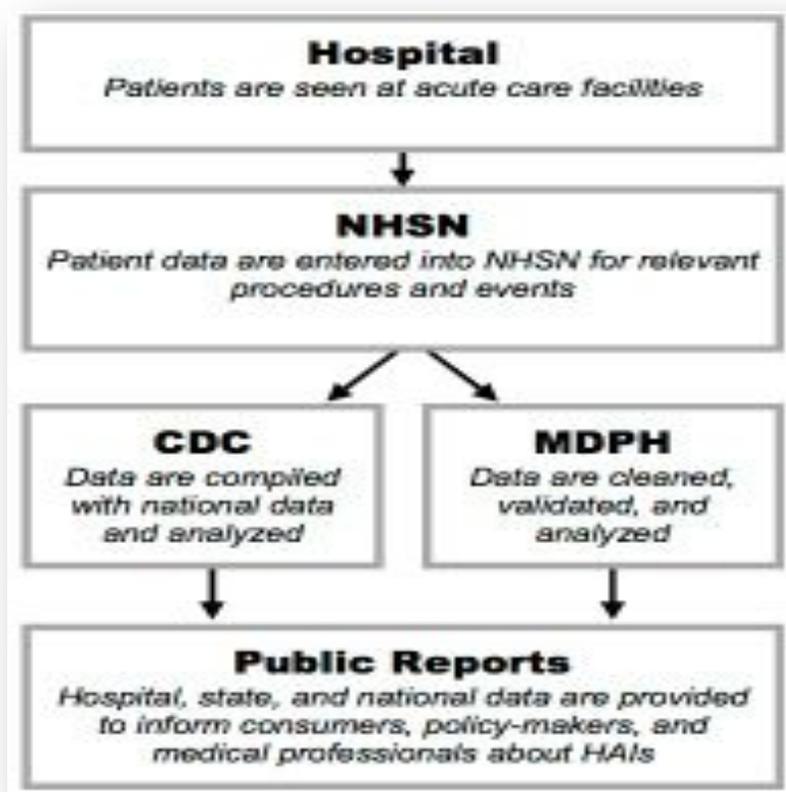
In order for surveillance to provide meaningful information, all healthcare facilities reporting data must use the same definitions of the reportable event or condition. These definitions must be based on objective findings and data available for a given case. Clinical judgments of what constitutes an infection may differ. These potential inconsistencies are the reason some people seek a second opinion when they are sick. For surveillance, however, data must be collected consistently, measuring the same thing in the same way to tell a meaningful story.

MDPH has chosen to use the definitions created by the CDC for the National Healthcare Safety Network. MDPH works to ensure that hospitals are all applying the definitions in the same way by checking the data for inconsistencies. This year, MDPH representatives visited all hospitals in the state and checked the hospital's on-site data to determine if any cases that

Surveillance is the practice of keeping a watchful eye for disease outbreaks or trends in infection rates and is essential to protecting public health

should have been identified were not reported or if any cases that were reported did not meet standardized definitions. This work substantially furthered comparability of data and improved reporting practices across the Commonwealth.

This report provides information on a specific set of infections. Surveillance data is only one component of the steps and successes that hospitals as well as the state as a whole are taking to improve patient safety. Other components include participating in collaboratives with other hospitals to determine best practices, or implementing initiatives to improve hand hygiene, disinfection procedures for medical equipment, and other preventive measures. These items are not covered in great detail in this report. To find out more about what your hospital is doing to improve patient safety contact the MDPH, (617) 753-8000.



NHSN: NATIONAL HEALTHCARE SAFETY NETWORK

MDPH: MASSACHUSETTS DEPARTMENT OF PUBLIC HEALTH

CDC: CENTERS FOR DISEASE CONTROL AND PREVENTION

PLEASE NOTE THAT PATIENT LEVEL DATA SUBMITTED TO NHSN ARE DEIDENTIFIED

FIGURE 1: HAI SURVEILLANCE IN MASSACHUSETTS

The data included in this report represent a subset of infections that are tracked by the CDC and reported to MDPH. They were selected for reporting because they relate to procedures that are performed frequently, may result in significant harm to patients, have consensus surveillance definitions, are easily identified and counted, and there are widely accepted methods that hospitals can use to reduce their frequency.

Central Line Associated Blood Stream Infections (CLABSIs): A central venous catheter (CVC), sometimes known as a central line, is a special type of flexible tube that is placed through the skin into a large vein in a patient's chest, arm, neck or groin and ends in or close to the heart or one of the major blood vessels. CVCs are used to administer fluids, nutrition, chemotherapy, antibiotics, blood and blood products, to monitor the cardiovascular system, or to draw blood. While central venous catheters are considered an essential part of providing critical care, their use also places patients at increased risk for infection. Central line associated blood stream infections (CLABSIs) are serious, costly, and most can be prevented by following accepted practices for inserting and caring for central lines.



“The CDC defines a CLABSI as recovery of a pathogen from a blood culture (a single blood culture for organisms not commonly present on the skin and two or more blood cultures for organisms commonly present on the skin) in a patient who had a central line at the time of infection or within the 48-hour period before development of infection”⁸

In 2009, the CDC estimated that the number of CLABSIs in intensive care units to ranged from

⁸ Morbidity and Mortality Weekly Report (MMWR) Vital Signs: Central Line--Associated Blood Stream Infections --- United States, 2001, 2008, and 2009. March 4, 2011 / 60(08);243-248



**HEALTHCARE
ASSOCIATED INFECTIONS
SUBJECT TO REPORTING**

...greater use of central lines means more opportunity for infections to occur in that ICU.

More than half of SSIs are not identified until patients are discharged from the hospital and patients with infection do not always return to the same hospital where the original surgery was performed.

12,000 to 28,000 per year. Each episode results in \$16,550 of additional healthcare costs.⁹

All Massachusetts acute care hospitals are required to monitor and report CLABSIs occurring in all patients in intensive care units (ICUs). Patients requiring intensive care are usually sicker, require more complex treatment, and are at increased risk for HAIs. There are many different types of ICUs, each with different types of patients. Not all hospitals have each type of ICU. Examples include medical, cardiac, trauma, and neurosurgical. Each type of ICU differs in how frequently they use central lines, which contributes to risk for infection - greater use of central lines means more opportunity for infections to occur in that ICU.

Surgical Site Infections (SSIs): Surgical site infections (SSIs) are infections that are directly related to an operative procedure. Some SSIs are less serious and only involve the skin or subcutaneous tissue. Other SSIs may be deeper and are more significant. Deep incisional and organ/space SSIs result in the greatest personal cost for patients and families, and additional financial burden on the health care system. For this reason, the MDPH specifically assesses the incidence of deep incisional SSIs and infections that affect body organs or spaces following specific procedures.

More than half of SSIs are not identified until patients are discharged from the hospital and patients with infection do not always return to the same hospital where the original surgery was performed. To identify infections after discharge and prevent underestimation of SSIs, hospital infection control programs routinely conduct a process known as post-discharge surveillance. Although there is no standard way to obtain this

⁹ Morbidity and Mortality Weekly Report (MMWR) Vital Signs: Central Line--Associated Blood Stream Infections --- United States, 2001, 2008, and 2009. March 4, 2011 / 60(08);243-248

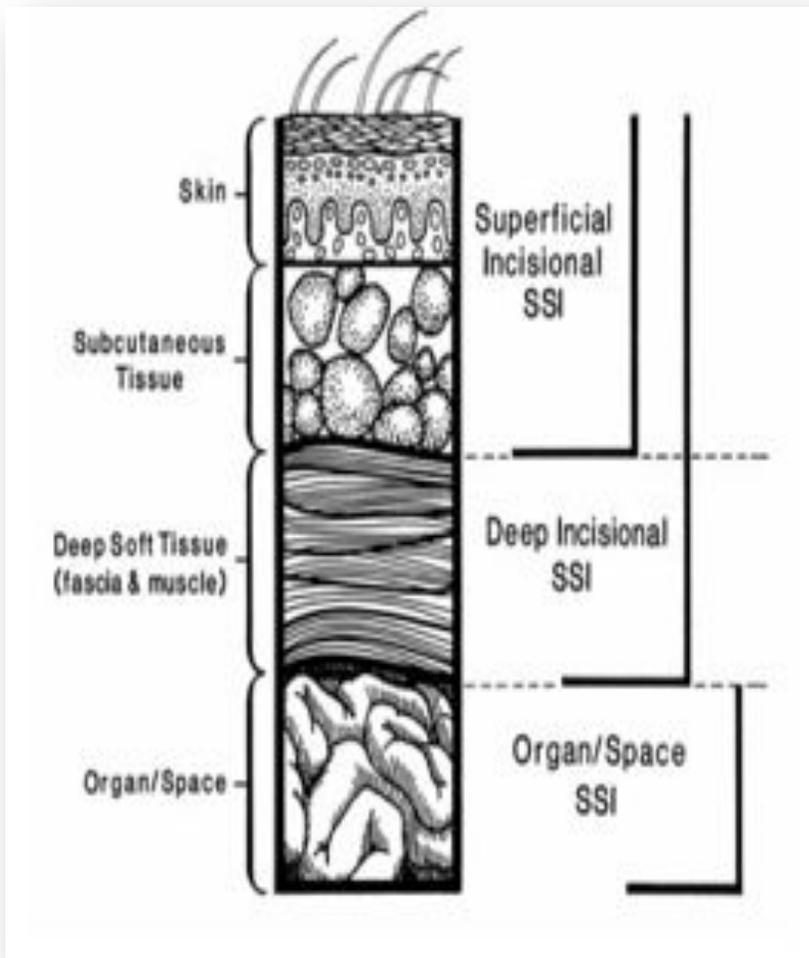


FIGURE 2: CROSS SECTION DEPICTING CLASSIFICATIONS OF SSIs¹⁰

information, hospitals use various approaches, including reviews of patient readmissions and emergency department visits, to improve the detection of SSIs. However, since not all patients who experience infections will seek treatment at an emergency department or be readmitted to a hospital, there may be infections that will not be identified by the hospital's reporting system.

Coronary Artery Bypass Graft (CABG): CABG surgery, commonly called "bypass surgery," improves blood flow to the heart. This procedure is one treatment used for people with narrowing and blockage of the heart arteries. During CABG surgery, a healthy vein or artery, usually taken from the patient's own leg, arm, or chest, is connected (grafted) to the blocked coronary artery. The graft allows blood to go around or bypass the blocked section of the artery creating a new route to deliver

¹⁰ Horan TC, Gaynes RP, Martone WJ, Jarvis WR, Emori TG. CDC definitions of nosocomial surgical site infections, 1992: a modification of CDC definitions of surgical wound infections. *Infect Control Hosp Epidemiol* 1992;13(10):606-8.

oxygen and nutrients to the heart muscle. The wires used to close the incision stay in the patient's body permanently and for the purposes of NHSN are considered to be an implant.

Hysterectomy: Vaginal hysterectomy is a surgical procedure where the uterus is removed through an incision made within the vagina, leaving no external (visible) scar. Abdominal hysterectomy is the surgical removal of the uterus through an incision in the abdominal wall.

Hip and Knee Arthroplasty: Hip and knee arthroplasty are surgeries to the hip or knee joint where the diseased or damaged joint tissue is removed and replaced with an artificial implant, or prosthesis.

Time to Infection: The surveillance definitions for SSI and CLABSI events include an element of time. For CLABSI, an infection is considered associated with the central line if it occurs within 48 hours of a central line being in place.

For SSIs, the time period for reporting depends on whether or not implanted material is necessary for the procedure. An implant can provide a surface that bacteria can adhere to and grow on. Some of these bacteria may grow slowly so infection may take a long time to become apparent. Therefore, without an implant in place, an infection is considered pertinent if it occurs within 30 days of the surgery. If an implant is placed, however, any infection that happens at that site within one year is considered to be a result of the surgery. For the purpose of this report, hysterectomies are followed for 30 days for infection, and knee replacements, hip replacements, and coronary artery bypass grafts are followed for one year. This means of data collection necessitates a delay in reporting of these implant-related procedures.



Risk Adjustment

Many factors may contribute to someone getting an infection, including prior health history, age, complications of a procedure, smoking, obesity, and others. Although having so many influences makes analyzing data difficult, the Centers for Disease Control and Prevention (CDC) has collected a large sample of nationwide data through NHSN. By assessing data collected between 2006 and 2008, the CDC has defined stratified risk and protective factors for each of the event types they review. Accounting for these factors is called “risk adjustment.” Through risk adjustment we are able to calculate a “predicted” number of events based on historical data and the relative aggregate risk factors of the population receiving care at each hospital. **Though the models used here attempt a correction for some degree of risk, they likely do not entirely eliminate differences between facilities that may result from this risk.**

For CLABSI, risk adjustment is based solely on the type of ICU where the central line was inserted. Because patient characteristics are not collected for blood stream infections, we cannot adjust for them. We know that *historically, for example, burn ICUs have had higher rates of infection than surgical ICUs, due to the difference in underlying risks for burn patients.* Therefore, we calculate a different ‘predicted’ number of infections dependent on the type of ICU. Previous reports prepared by MDPH

Risk adjustment is the process by which infection rates in hospitals or other sites of care are compared with one another in the context of how sick patients and their predispositions for infection when they first arrive for care

have shown that, as a state, Massachusetts has lower overall rates of infection than the nationwide averages. To encourage progress towards zero infections, we have chosen to use Massachusetts's historical data to calculate the predicted number of infections for each ICU type in addition to using the national data. This allows us to compare hospitals to their close peers in the Commonwealth, to themselves, and to national performance measures, driving progress toward zero infections.

For SSI events, the CDC has reviewed historical data on each surgery type and identified factors that put someone at increased or decreased risk for infection. Each of these factors are included in an equation (a model) that allows us to determine a "predicted" number of events based on the individual data for each person who had a given surgery-type in a given hospital. Some of these factors are hospital characteristics. These categorizations help clarify why it may be reasonable for a given hospital to have a higher or lower rate of infection. Teaching hospitals, for example, generally have higher predicted rates of infection than community hospitals. This is not because teaching hospitals are more likely to make you sick, but rather because these hospitals often treat sicker patients with more complications and risk factors. Therefore, the patients seen in teaching hospitals are already at

greater risk for infection when they enter the hospital, they are not placed at greater risk as a result of choosing to receive care in a teaching hospital.

Standardized Infection Ratio

The standardized infection ratio (SIR) is a measure that is used to compare how a single hospital's rate of infection compares to the predicted number of infections based upon the previously described risk adjustment modeling. If the SIR is 1, there is no difference between the number of infections at the location in question and the predicted number of events. If the SIR is less than 1, there were fewer infections at that location than predicted, and if the SIR is above 1, there were more infections at that location than predicted.

The SIR is a 'standard ratio' that can be used to compare hospital performance over time. It is not designed to explicitly compare hospitals to one another as hospitals differ in ways that are hard to measure.

FIGURE 3: STANDARDIZED INFECTION RATIO (SIR) EQUATION

$$\text{Standardized Infection Ratio (SIR)} = \frac{\text{Actual Number of Infections}}{\text{Predicted Number of Infections}}$$

Evaluation of the SIR: Statistical Significance and Confidence Intervals

We use the SIR to compare Massachusetts's hospitals to national or state-based predictors. As previously noted, an SIR of 1 would indicate that a hospital is doing exactly as predicted, no better, no worse. However, what does an SIR of 1.7 mean? Based upon this simple interpretation, the hospital has more events than expected. But how do we define "more?" To answer this question, **statistical testing is used to determine if "more" has meaning or if the variation is likely due to chance.** Throughout the data section the terms **"higher" or "lower" will appear to indicate when the number of infections is different in a meaningful or "statistically significant"** way from the number predicted on the basis of the national or state averages.

We use these tests because the predicted value is really an estimate. NHSN does not capture every infection in every hospital in the United States. Additionally, while we try to account for the various factors that place a patient at greater (or lesser) risk for infection, the system does not capture every detail about every person. Each patient and location has a different set of risks that cannot fully be accounted

for in the calculation of the SIR. Also, this report looks at infections in a hospital during a finite time period. These events may occur randomly in time, and the way the time period is defined may capture all events for one hospital and none for another. Statistics provide us with tools to interpret variability. We are able to calculate a range for the SIRs into which we are 95 percent sure that the "true value" of the SIR would fall with all variables considered. We call this a 95 percent confidence interval.

If the value "1" falls within the range of a 95 percent confidence interval, we say that the actual value is not statistically significantly different from 1, or "the same." If the range does not include 1 then the actual value is statistically significantly different from 1. The 95 percent confidence interval is largely based on the underlying sample, in this case, the number of central line days or the number of surgeries in a given location. With a larger sample, the confidence interval is narrower because the estimate is based on more observations.

Given the great diversity in patient populations, service lines offered, and the small overall number of HAIs, statistical analyses are applied to ensure that appropriate comparisons are made between hospitals

The shared goal of all hospitals in Massachusetts is eliminate preventable healthcare associated infections.

The goal of all hospitals in Massachusetts is zero infections. Some hospital locations have reported no infections during this reporting period. There could be many explanations for why other hospitals have reported one or more infections. It may not be due to any difference in infection prevention and control methods used, but rather because of risk profile of patients, the conditions for which they are treated, or the specialized levels of care required during this period. It is also important to note that the data included in this report were collected over a relatively short time period, and that even a single infection makes a significant impact on the rates reported. MDPH continues to improve the processes for identifying and reporting infections.

ADDITIONAL HAI REPORTING

In addition to reporting specific HAI outcome measures to MDPH through NHSN, all acute care Massachusetts hospitals are currently required to collect a uniform set of data on influenza vaccination rates of hospital employees.

Influenza (the flu) is a contagious respiratory illness caused by influenza viruses. Healthcare workers may be a source of transmission of the influenza virus in healthcare settings. The most effective method of preventing influenza and its potentially serious complications is annual immunization. Achieving and sustaining high influenza vaccination coverage among healthcare workers (HCWs) has been shown to reduce influenza infection and absenteeism among healthy HCWs, protects patients and leads to reduced disease burden and healthcare costs. Despite the strong recommendation of major public health agencies, professional societies and healthcare organizations for annual, universal immunization of healthcare workers against influenza, the overall rates of immunization among healthcare workers has remained low. According to a survey

conducted by the CDC estimates of influenza vaccination coverage among healthcare personnel was 63.5% during the 2010-2011 influenza season.¹¹

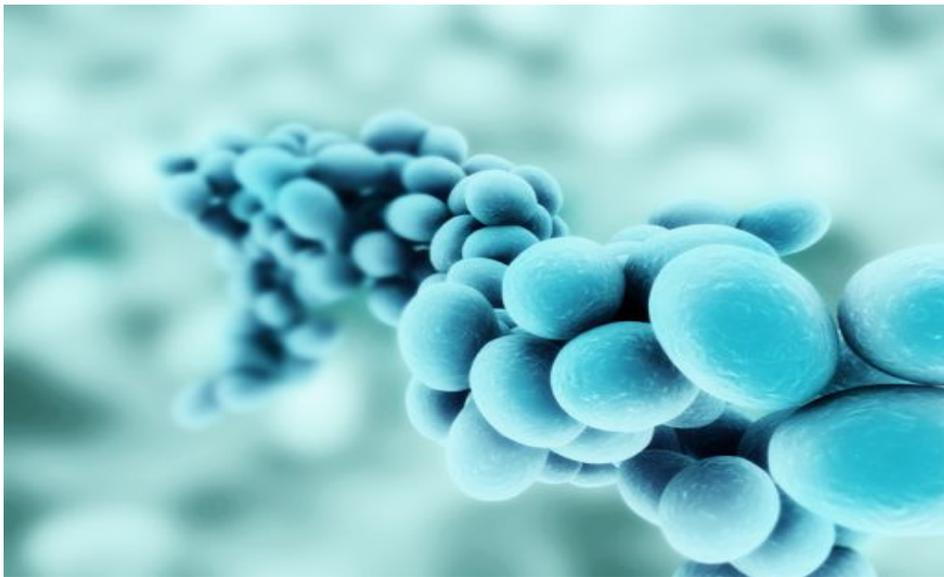
To address this serious threat to the safety of patients, in 2008 the MDPH required all licensed healthcare facilities to offer, free-of charge, annual influenza vaccine to all personnel. Healthcare facilities must also annually report specific data on influenza vaccination to MDPH. Annual public reports are used to benchmark improvement in the number of healthcare workers vaccinated in the Commonwealth are used to guide policy development and to set public health priorities. Based on results of data collected during the 2010-2011 influenza season, the MDPH has established an overall minimum performance goal for acute care hospital healthcare employee vaccination rates for the 2011-2012 influenza season. Statewide, the MDPH expects that a 90% influenza vaccination coverage rate will be reached for all acute care hospital employees, with no facility reporting a rate less than 73%. This goal is two percentage points above the Massachusetts acute care hospital average reported rate of 71% in 2010-2011, to advance patient safety by ensuring optimal healthcare employee vaccination coverage of those who do not have a medical contraindication.

As a mechanism to meet and indeed exceed these goals as a measure of patient safety, two Boston-area institutions, Beth Israel Deaconess Medical Center and Boston Children's Hospital have recently mandated influenza vaccination as a condition of employment. Others, such as Lahey Clinic, have instituted stringent "vaccination or mask" programs, which also have increased vaccination rates to include nearly all employees of the medical center. Hospital-specific flu vaccination rates are included in the Hospital Summary Sheets in Appendix 2.

	Mean (%)	Range (%) Minimum - Maximum
Vaccinated	70.8	37.5-96.1
Declination Rate	20.1	3.4-36.4
Vaccinated at Hospital of Employment	60.6	36.9-85.2
Vaccinated Outside Hospital of Employment	10.2	0.5-25.2

TABLE 1: ACUTE CARE HOSPITAL 2010-2011 EMPLOYEE INFLUENZA VACCINATION RATES

¹¹ Influenza Vaccination Coverage Among Health-Care Personnel --- United States, 2010--11 Influenza Season. MMWR. August 19, 2011/60(32); 1073-1077



Statewide Aggregate Data: CLABSI & SSI

CENTRAL LINE ASSOCIATED BLOOD STREAM INFECTIONS (CLABSI)

Tables 2-4 and Figures 4-7 display aggregated data on central line associated blood stream infection (CLABSI) rates in Massachusetts. Where possible, data in the Fiscal Year 2011 (July 1, 2010 to June 30, 2011) reporting period have been compared to aggregated statewide data from July 1, 2008 through June 30, 2010, the 'state baseline rate.' To assess overall statewide trends against national performance, the CLABSI data have also been compared to the national baseline data published by the Centers for Disease Control and Prevention in 2010. These baseline rates are multiplied by the number of 'central line days'¹² to calculate the predicted number of events. Due to potential inaccuracy of small sample sizes, hospitals with a predicted number of infections (less than 0.5) have been withheld from this report.

Overall, intensive care units (ICUs) in the Commonwealth appear to have either improved or maintained their rates of CLABSI, both compared to the historical data in the state baseline rate and to national data. Such stability or improvement is true in adult, pediatric, and neonatal ICUs.

Individual hospital data, including depiction of relative statistical significance, are displayed in Appendix 2. The following tables and figures do not

Overall, intensive care units (ICUs) in the Commonwealth have either improved or maintained their rates of CLABSI.

¹² The "Central Line Day" figure is determined by summation of the total number of days that a central line has been placed or maintained in all patients.

differentiate between criteria 1 and all-cause CLABSI.¹³ Massachusetts acute care hospitals reported 199 CLABSIs during FY11, an overall decrease in SIR of 24% from FY10 (see Appendix 1 for 2010 data).

Of these:

CLABSI KEY HIGHLIGHTS

- ALL ICU TYPES HAD STANDARDIZED INFECTION RATIOS (SIRs) THAT WERE STATISTICALLY SIGNIFICANTLY THE SAME OR LOWER THAN PREDICTED WHEN COMPARED WITH BOTH STATE BASELINE AND NATIONAL RATES
- COMPARED WITH THE STATE BASELINE RATE, THE SIR OF MEDICAL ICUs IN MAJOR TEACHING HOSPITALS WERE STATISTICALLY SIGNIFICANTLY IMPROVED IN FY11, AS WAS THE SIR OF NEONATAL ICUs AMONG BABIES WITH A BIRTH WEIGHT OF 751-1000G.
 - All other ICU types were statistically the same as predicted in FY11
- COMPARED WITH NATIONAL BASELINE RATES, THE SIRs IN THE FOLLOWING ICU TYPES WERE STATISTICALLY SIGNIFICANTLY LOWER THAN PREDICTED:
 - MEDICAL - MAJOR TEACHING (2010 & 2011)
 - MEDICAL CARDIAC (2011)
 - MEDICAL/SURGICAL-MAJOR TEACHING (2011)
 - MEDICAL/SURGICAL- NOT MAJOR TEACHING (2010 & 2011)
 - NEUROSURGICAL (2010 & 2011)
 - PEDIATRIC MEDICAL OR MEDICAL/SURGICAL (2011)
 - SURGICAL (2010 & 2011)
 - SURGICAL CARDIOTHORACIC (2011)
 - TRAUMA (2010 & 2011)
- CENTRAL LINE UTILIZATION RATES ONLY MODESTLY DECREASED ACROSS ICU TYPES

Massachusetts acute care hospitals reported 199 CLABSIs during FY11, an overall decrease in SIR of 24% from FY10

¹³ NHSN categorizes CLABSIs into 3 categories; criteria 1, 2 and 3. In a criteria 1 infection, the patient has a recognized "true" pathogen cultured from one or more blood cultures and the organism cultured from blood is not related to an infection at another site.

ICU Type	Number of Locations	All Criteria BSI Events	BSI per 1,000 Central Line Days	Predicted Events	SIR	95% Confidence Interval	Compared to Predicted
Burn	2	12	8.00	7.71	1.56	0.80 - 2.71	Same
Medical Cardiac	12	16	1.09	24.20	0.66	0.37 - 1.07	Same
Surgical cardiothoracic	10	20	0.86	20.70	0.97	0.59 - 1.49	Same
Medical (not major teaching)	2	0	0.00	0.00	.	.	***
Medical (major teaching)	14	41	1.19	57.17	0.72	0.51 - 0.97	Lower
Medical/surgical (not major teaching)	47	43	1.03	46.02	0.93	0.67 - 1.25	Same
Medical/surgical (major teaching)	7	12	0.82	16.40	0.73	0.37 - 1.27	Same
Pediatric medical or medical/surgical	7	16	1.56	21.73	0.74	0.42 - 1.19	Same
Neurosurgical	2	2	0.36	5.47	0.37	0.04 - 1.32	Same
Surgical	15	33	1.04	42.15	0.78	0.53 - 1.09	Same
Trauma	3	4	0.78	5.56	0.72	0.19 - 1.84	Same



This column describes the SIR relative to the predicted rate of infection. That is, infection rates are the "Same" as expected, "Lower" than expected (fewer infections), or "Higher" than expected (more infections) after adjustment for risk

TABLE 2: CLABSI RATES IN ICUS COMPARED TO STATE BASELINE RATES (FY11)

ICU Type	Fiscal Year	Number of Locations	All Criteria BSI	Central Line Days	BSI per 1,000 Central line days		95% Confidence Interval	Compared to Predicted	
					Predicted Events	SIR			
Burn	2010	2	9	1,717	5.24	9.44	0.95	0.43 - 1.80	Same
	2011	2	12	1,500	8.00	8.25	1.46	0.75 - 2.54	Same
Medical (major teaching)	2010	15	54	35,060	1.54	91.16	0.59	0.44 - 0.77	Lower
	2011	14	41	34,597	1.19	89.95	0.46	0.32 - 0.61	Lower
Medical (not major teaching)	2010	2	0	1,449	0.00	2.75	0.00	0.00 - 1.34	Same
	2011	2	0	1,779	0.00	3.38	0.00	0.00 - 1.09	Same
Medical Cardiac	2010	12	31	13,952	2.22	27.90	1.11	0.75 - 1.57	Same
	2011	12	16	14,691	1.09	29.38	0.55	0.31 - 0.88	Lower
Medical/surgical (major teaching)	2010	7	24	16,309	1.47	34.25	0.70	0.44 - 1.04	Same
	2011	7	12	14,601	0.82	30.66	0.39	0.20 - 0.68	Lower
Medical/surgical (not major teaching)	2010	47	44	41,325	1.06	61.99	0.71	0.51 - 0.95	Lower
	2011	47	43	41,881	1.03	62.82	0.68	0.49 - 0.92	Lower
Neurosurgical	2010	2	4	5,052	0.79	12.63	0.32	0.08 - 0.81	Lower
	2011	2	2	5,483	0.36	13.71	0.15	0.01 - 0.52	Lower
Pediatric medical or medical/surgical	2010	7	19	10,379	1.83	28.91	0.66	0.39 - 1.02	Same
	2011	7	16	10,286	1.56	28.24	0.57	0.32 - 0.92	Lower
Surgical	2010	17	47	31,251	1.50	71.88	0.65	0.48 - 0.87	Lower
	2011	15	33	31,631	1.04	72.75	0.45	0.31 - 0.63	Lower
Surgical cardiothoracic	2010	10	28	23,011	1.22	32.22	0.87	0.57 - 1.25	Same
	2011	10	20	23,134	0.86	32.39	0.62	0.37 - 0.95	Lower
Trauma	2010	3	5	5,463	0.92	19.67	0.25	0.08 - 0.59	Lower
	2011	3	4	5,121	0.78	18.44	0.22	0.05 - 0.55	Lower

TABLE 3: CLABSI RATES COMPARED TO NATIONAL BASELINE RATES (FY10-11)

From 2010 to 2011, CLABSI SIR seen in neonatal ICUs (NICUs) decreased by 32.14% (not statistically significant). CLABSI rates by birthweight can be found in Table 4.

Birth Weight	All Criteria BSI	Central Line Days	Rate per 1,000 Days	State Baseline Rate	Predicted Number of Infections	SIR	95% Confidence Interval	Compared to Predicted
<=750 g	20	5,552	3.60	3.51	19.46	1.03	0.62 - 1.58	Same
751-1000 g	10	5,654	1.77	3.95	22.32	0.45	0.21 - 0.82	Lower
1001-1500 g	12	5,248	2.29	2.37	12.44	0.97	0.49 - 1.68	Same
1501-2500 g	8	5,182	1.54	2.11	10.95	0.73	0.31 - 1.43	Same
>2500 g	0	3,818	.	0.91	3.48	0.00	0.00 - 1.06	***

Table 4: MA CLABSI RATES IN NICUS COMPARED TO STATE BASELINE BY BIRTHWEIGHT CATEGORY (FY11)

As previously described, Figure 4 depicts statewide improvements in CLABSI SIR, aggregated to include all ICU types.

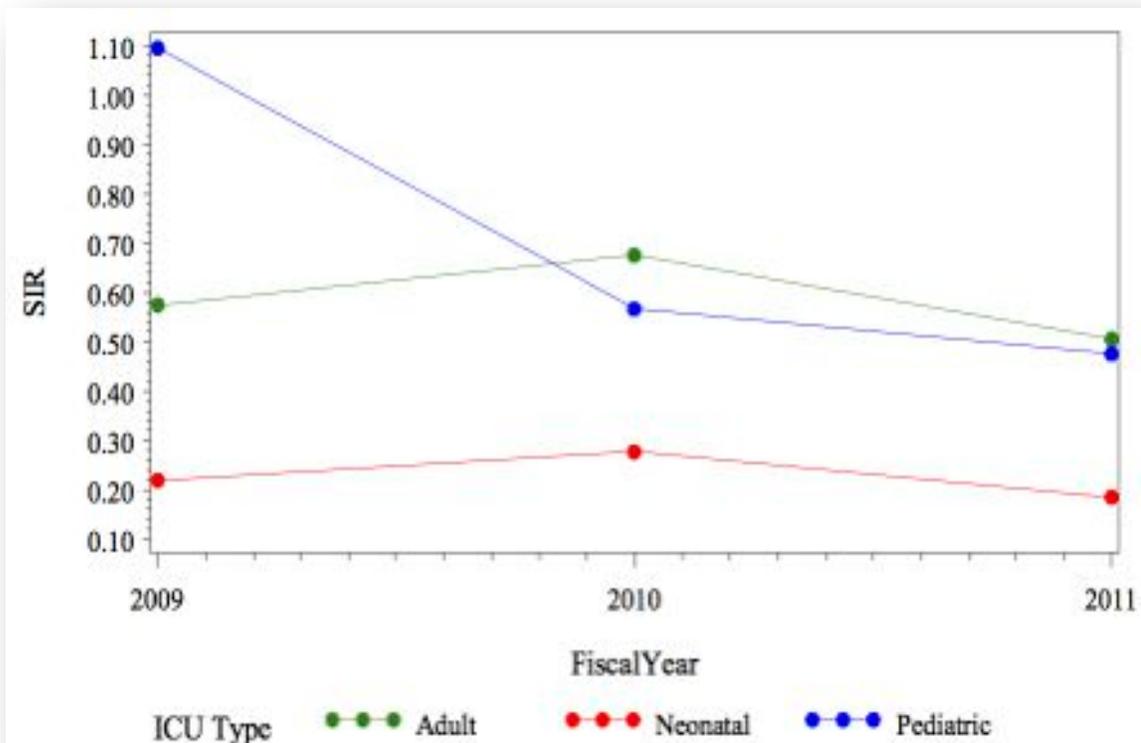


Figure 4: CLABSI Standardized Infection Ratio by ICU Type (All Ages)

Similarly, Figure 5 depicts stable infection rates over time in adult ICUs.

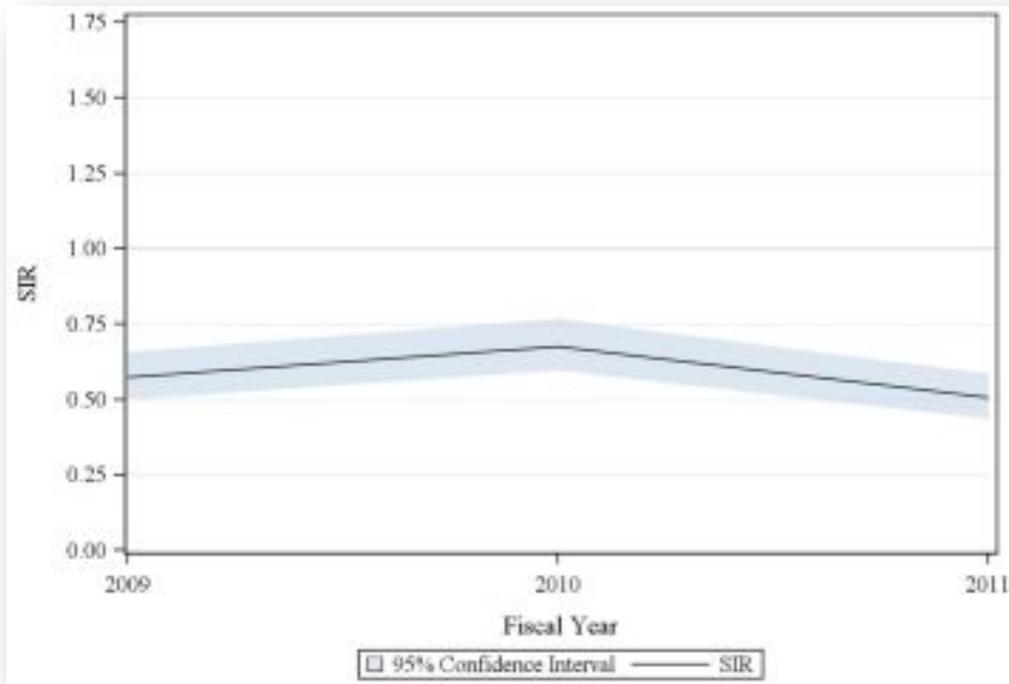


FIGURE 5: CLABSI SIR IN ADULT ICUS

Figure 6 depicts a statistically significant improvement in CLABSI rates in pediatric ICUs from 2010 to 2011.

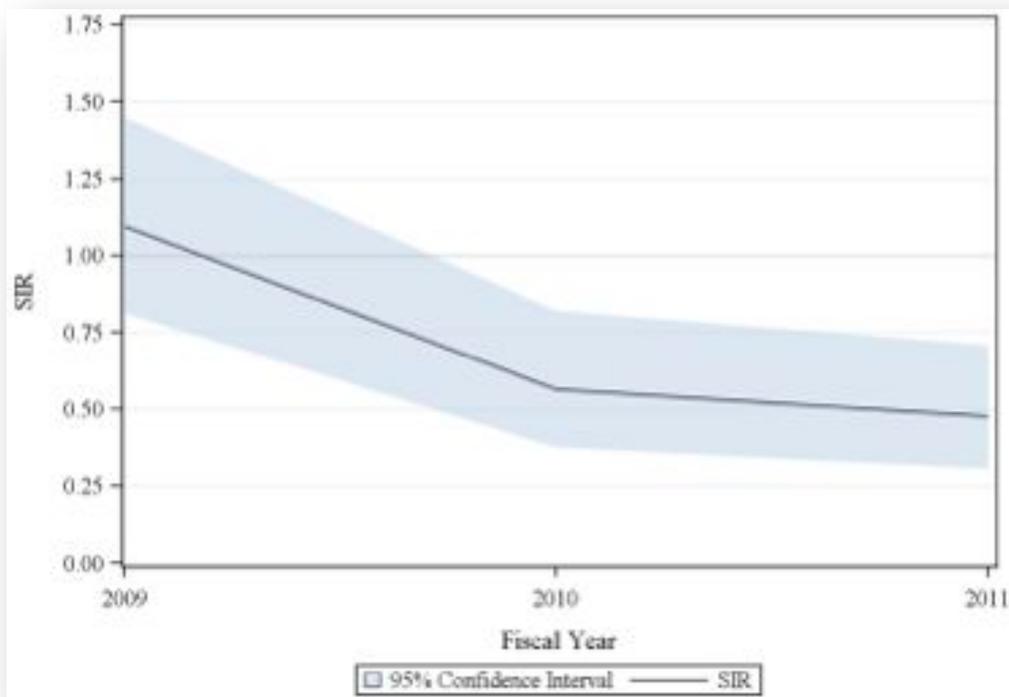
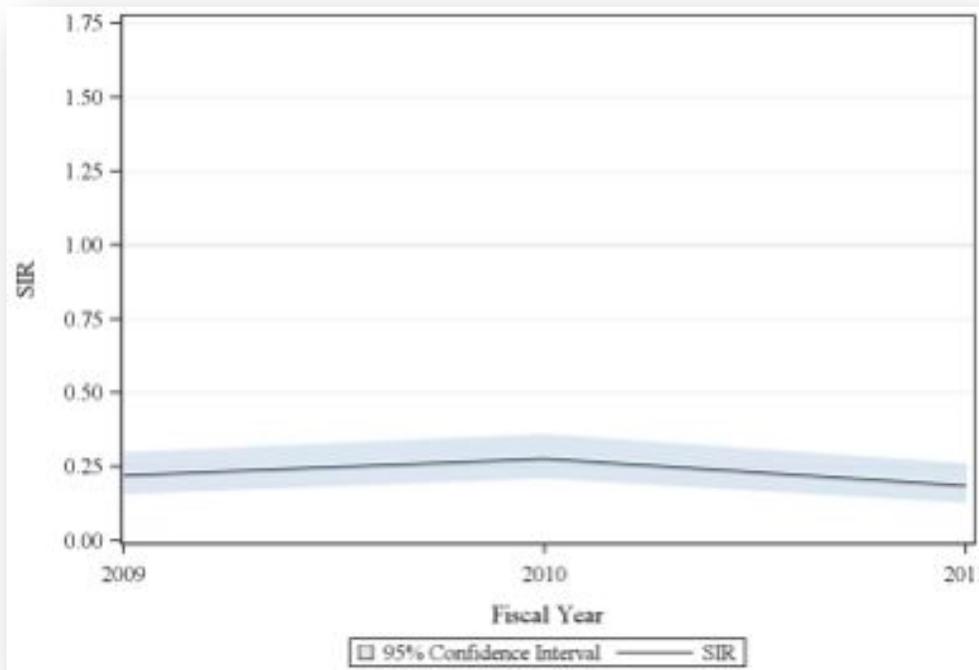


FIGURE 6: CLABSI SIR IN PEDIATRIC ICUS

Figure 7 shows that in aggregate, NICU CLABSI SIR has remained stable over time. Babies weighing between 751-1000g are statistically significantly less likely to contract a CLABSI than predicted (Table 4).



**FIGURE 7:
MASSACHUSETTS
CLABSI
STANDARDIZED
INFECTION
RATIO BY ICU
TYPE
(NEONATAL)**

One of the key CLABSI prevention methods is maximizing appropriate utilization of central lines – that is, reducing introduction of a known HAI risk agent unless clinical necessary. Overall, the reduction in central line days (seen in Table 5) was minimal from 2010 to 2011. The only location in which central line utilization reduction may be playing a role in driving CLABSI prevention in the Commonwealth is in medical/surgical ICUs in academic medical centers. In these teaching hospital Med/Surg ICUs, there was a 44% reduction in CLABSI from 2010 to 2011, and a 10.47% reduction in the use of central lines. However, central line reduction was coupled with other prevention and infection control interventions, and causality cannot be determined from these data.

One of the key CLABSI prevention methods is maximizing appropriate utilization of central lines – that is, reducing introduction of a known HAI risk agent unless clinical necessary...

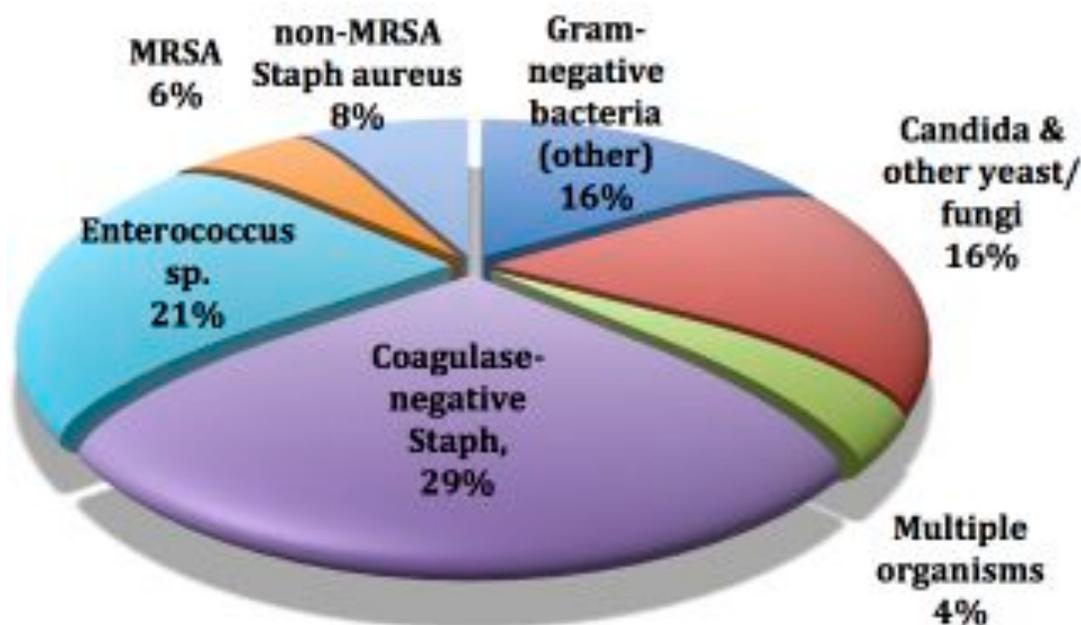
...Overall the reduction in central line days was minimal from 2010 to 2011

**TABLE 5:
CENTRAL LINE
DAYS BY ICU
TYPE**

Central Line Days	Adult & Pediatric	Med/Surg (Teaching)	Trauma	Pediatric	NICU
2010	184,968	16,309	5,463	10,379	25,454
2011	184,704	14,601	5,121	10,286	pending
Shift	0.14% ↓	10.47% ↓	6.26% ↓	0.9% ↓	***

A variety of different pathogens cause HAIs. Figures 8 - 9 show the pathogens identified in CLABSI from FY11. Many of the HAIs described in this report are caused by organisms commonly found on the skin. Methicillin-resistant *Staphylococcus aureus* (MRSA), a bacterial infection that is particularly resistant to antibiotics, and the most commonly discussed healthcare associated infective agent, is identified in only a relatively small proportion of these infections.

**FIGURE 8:
PATHOGENS
IDENTIFIED FROM
CLABSI IN
ADULT AND
PEDIATRIC ICUS
(FY11)**



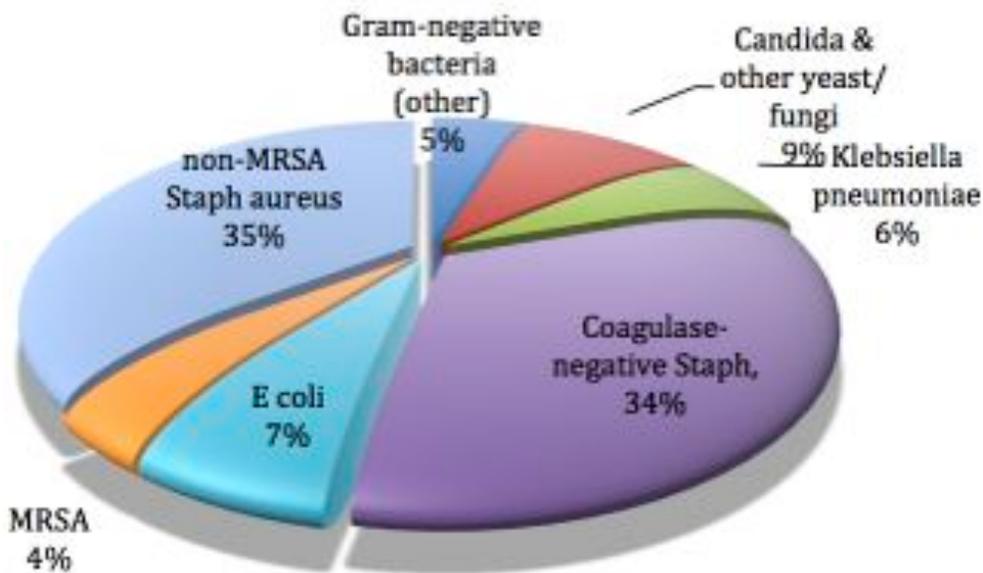


FIGURE 9: PATHOGENS IDENTIFIED IN CLABSI IN NICUs (FY11)

SURGICAL SITE INFECTIONS (SSIs)

SURGICAL SITE INFECTION KEY HIGHLIGHTS

- COMPARED WITH NATIONAL BASELINE RATES (NO STATE BASELINE EXISTS), HIP ARTHROPLASTY PROCEDURES WERE STATISTICALLY SIGNIFICANTLY LOWER THAN EXPECTED (2010).
- KNEE ARTHROPLASTY (2010), ABDOMINAL HYSTERECTOMY (2010 & 2011), AND CORONARY ARTERY BYPASS GRAFT (2010) PROCEDURES WERE STATISTICALLY THE SAME AS PREDICTED
- VAGINAL HYSTERECTOMY WAS STATISTICALLY SIGNIFICANTLY HIGHER THAN EXPECTED (2010 & 2011).
 - Several potential causes for this increase are described in the report. The Department has begun convening key stakeholders and outlier hospitals to assess commonalities and identify quality improvement opportunities

Table 6 and Figure 10 depict data on surgical site infections for Fiscal Years 2010 and 2011. Due to the implants involved in coronary artery bypass graft (CABG), and hip and knee arthroplasty (HPRO and KPRO), the follow up period of 365 days for those infections has not yet been completed, and only FY10 data are presented for those infections

Surgical Site Infections
have decreased across the
Commonwealth for all
procedures except vaginal
hysterectomy

All surgical infection types reported to the DPH with the exception of vaginal hysterectomy were statistically similar or lower in Massachusetts as compared with the NHSN national baseline. Further investigation is needed to determine the causes of the increase in rate VHYS infections, though it may in part be due to coding inconsistencies by which hysterectomies with an abdominal incision but a vaginal extraction are counted as vaginal hysterectomies. Additional analysis is required to understand the factors that may have influenced the higher than expected vaginal hysterectomy infection SIR.

Massachusetts is currently one of only three states that mandate the reporting of surgical site infection for vaginal hysterectomy procedures. In contrast, orthopedic and CABG procedures are reported by the majority of states with mandates in place. While many healthcare facilities report SSI data related to VHYS voluntarily, detection and reporting may be less robust than for other mandated SSIs.

CDC's *State-Specific Healthcare-Associated Infections Summary Report* indicates states with data validation programs such as Massachusetts were likely to have higher CLABSI rates than states without a data validation process. While a similar CDC report has not yet been presented for SSI, states validating SSIs might appear to have higher rates because of validation efforts rather than a truly higher rate of infection.¹⁴

MDPH data cleaning and validation protocols as well as prioritization of reporting by MA hospitals have resulted in improvements in case finding, application of surveillance definitions and data accuracy. Data validation promotes accurate reporting and may affect SSI SIRs especially when evaluated against other states without mandates or data validation processes. Doing a better job of counting all SSIs may give the appearance of

¹⁴ CDC, Division of Healthcare Quality Promotion. State-Specific Supplement to the National Healthcare-Associated Infection Standardized Infection Ration Report: July - December 2009

a higher infection rate because the national comparison includes hospitals that may not capture all infections.

In addition to the potential impact data validation may have on reported rates, another possible cause for higher than expected SSI data is related to the process called post discharge surveillance. With reductions in the length of postoperative hospitalization many SSIs are not identified until patients are discharged from the hospital and may not require admission to the admitting hospital. To identify infections after discharge and prevent underestimations of SSIs, hospital infection control programs routinely conduct a process known as post discharge surveillance. Although there is no standard way to obtain this information, hospitals use various approaches, including review of data sources for readmission and emergency room visits, clinic visit records and pharmacy records to improve the detection of SSIs. Post discharge surveillance (PDS) methods are highly variable across institutions,

are resource dependent and are influenced by the availability of electronic information systems. For these reasons NHSN excludes infections identified through PDS in their analysis.

MDPH recognizes reliance on inpatient case-finding and infection identified on readmission will result in underestimates of SSI. MDPH sees PDS is an important method to identify SSIs and does include their occurrence in data analysis. For example, hospitals with advanced electronic surveillance systems may have the capability of obtaining automated data for all patients who receive antibiotics or are seen as an outpatient. The availability and use of electronic medical records allows IPs to gain information that may lead to detection of infection that might otherwise not be captured. When reviewing published state and hospital specific data, it is important to be aware that case finding methods, access to electronic data bases and variations in methods of PDS may be important factors affecting the number of reported infections.



Hospital-specific trends for all of the SSIs are included in Appendix 1. Graphical depictions of statewide SIR, hospital specific SIR, and 95% confidence intervals are included. Given the limited number of infections that occur, plots are included both for FY09-FY10 data in aggregate for procedures including implants, and for FY09-FY11 where possible. Per the relatively robust aggregate data, the majority of hospitals perform neither better nor worse than predicted. Table 7 includes those hospitals that had statistically significantly more or less infections than predicted in aggregate.

Procedure	Fiscal Year	Number of Procedures	Number of Events	Predicted Number of Events	SIR	95% Confidence Interval	Compared to Predicted
CABG	2010	3883	47	48.18	0.98	0.72 - 1.30	Same
HPRO	2010	9615	56	73.35	0.76	0.58 - 0.99	Lower
KPRO	2010	13214	80	71.65	1.12	0.89 - 1.39	Same
HYST	2010	5424	38	37.21	1.02	0.72 - 1.40	Same
HYST	2011	5151	31	36.76	0.84	0.57 - 1.20	Same
VHYS	2010	2206	23	12.52	1.84	1.17 - 2.76	Higher
VHYS	2011	2107	25	11.69	2.14	1.38 - 3.16	Higher

CABG-Coronary Artery Bypass Graft; HPRO-Hip Arthroplasty; KPRO-Knee Arthroplasty; HYST-hysterectomy; VHYS-vaginal hysterectomy

TABLE 6: SURGICAL SITE INFECTIONS BY PROCEDURE TYPE (FY10 - FY11)

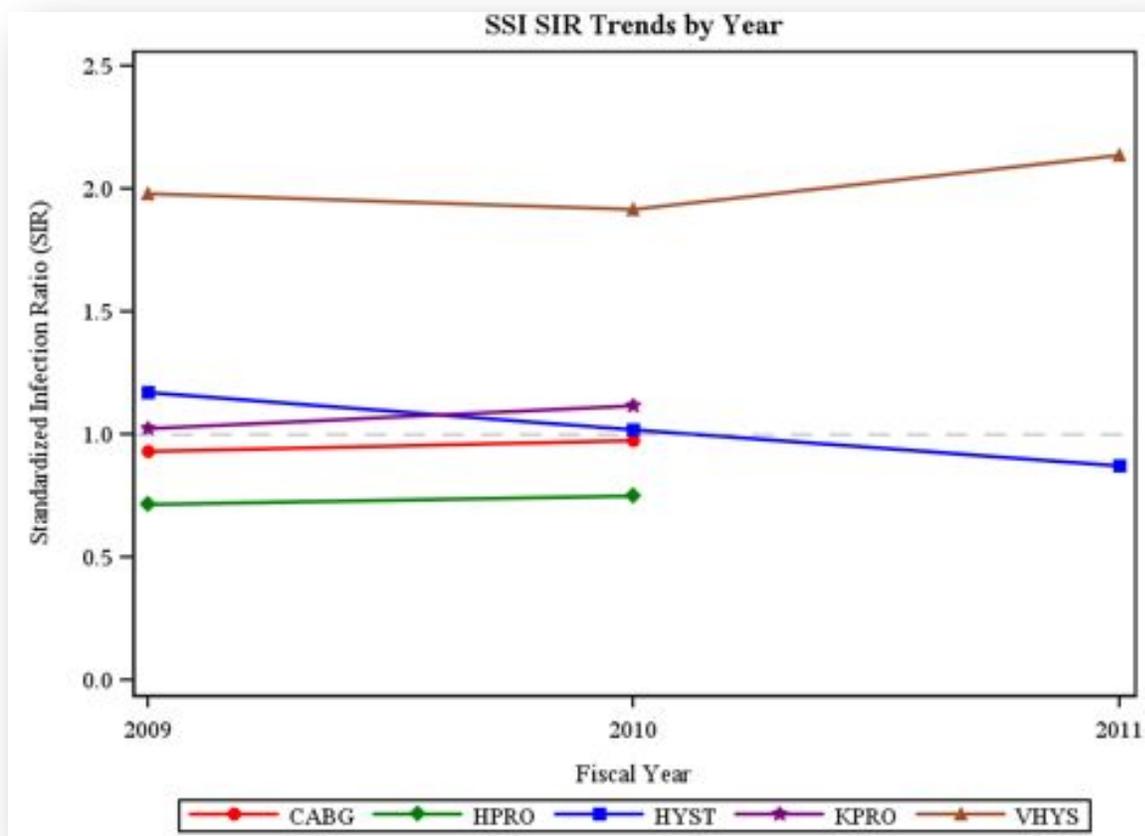


FIGURE 10: SURGICAL SITE INFECTIONS TRENDS BY YEARS (FY09- FY11)

Procedure Type	Statewide SIR	Hospitals With SIR Higher or Lower than Predicted (95% CI)	↑ or ↓	Hospital SIR
Vaginal Hysterectomy	1.98	Boston Medical Center	↑	3.95
		Baystate Medical Center	↑	3.14
Abdominal Hysterectomy	1.01	Lawrence General Hospital	↑	3.72
Knee Arthroplasty	1.07	Baystate Medical Center	↓	0.33
		Falmouth Hospital	↑	3.13
		Boston Medical Center	↑	2.55
Hip Arthroplasty	0.74	Cape Cod Hospital	↓	0
		New England Baptist Hospital	↓	0.30
Coronary Artery Bypass Graft	0.95	Lahey Clinic Hospital	↓	0.32
		UMass Memorial Medical Center	↓	0.12
		Beth Israel Deaconess Medical Center	↑	1.82

**TABLE 7: HOSPITAL OUTLIERS - VARIATION FROM PREDICTED SIR
FY10-FY11 AGGREGATE***

* The data underlying surgical site infection statistical outliers identified in Table 7 are detailed in Appendix 1. Outlier-status as identified in this table refers to a statistical deviation from the predicted value (high or low) within aggregated data from fiscal years 2010 and 2011. Year-specific outlier status, which is less statistically robust due to smaller sample sizes, is described on the hospital-specific fact sheets included in Appendix 2. Due to differences in both the numerator and denominator, hospitals may be identified as outliers in Table 7 and not on their hospital-specific sheet, or vice-versa.

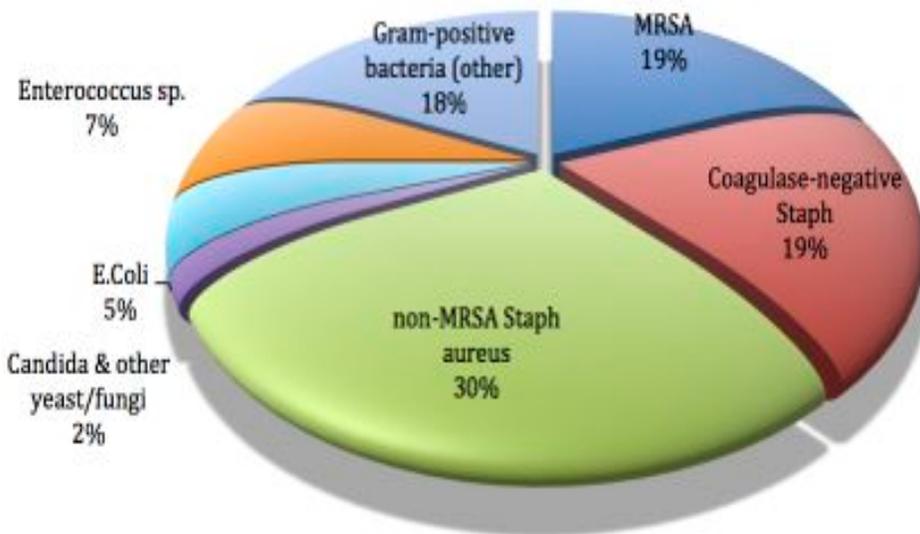


FIGURE 11: SURGICAL SITE INFECTIONS BY PATHOGEN



HAI Activities in the Commonwealth

The Department of Public Health and partner organizations actively collaborate to disseminate best practices and evidence based guidelines across the Commonwealth. A variety of activities are currently underway to drive HAI quality improvement and patient safety.

Infection Prevention Unit Activities

To actively support the use of the evidence-based best practices, MDPH implemented an Infection Prevention Unit within its Division of Health Care Quality. For their first project, MDPH infection preventionists (IPs) with extensive HAI experience developed an on-site assessment tool based on state and federal regulations and guidelines, as well as the recommendations and best practices identified by the Betsy Lehman Expert Panel. The IPs conducted onsite consultation visits in each acute care hospital using the assessment tool to promote an open discussion of current practices and innovative infection prevention initiatives. In addition, MDPH IPs provided guidance on implementation of best practices, collection and submission of HAI data, and addressed concerns.

In April 2010, MDPH IPs began unannounced infection prevention and control-focused surveys of all acute care hospitals. They conducted reviews to verify compliance with regulations, associated guidelines and relevant best practices. To date, 43 of the 77 acute care campuses have been surveyed.

MDPH nurse-surveyors conduct unannounced, on-site assessments of infection control programs, encouraging innovative programs and guiding best practices, as well as addressing deficiencies or concerns

When areas of deficiency are cited, each hospital is required to address noted issues and submit a detailed and acceptable plan of how its practices will be improved including identification of the person(s) responsible for ongoing monitoring.

Surveyors noted deficiencies related to a process called *high level disinfection (HLD)* in many of the hospitals visited. HLD is often used to reprocess reusable, heat sensitive medical devices that cannot undergo traditional sterilization processes. The findings prompted MDPH to issue an advisory to all hospital to review and if necessary update, policies, procedures and practices related to HLD.

Many other hospitals were cited for deficiencies in the environment of care, or the failure to consistently maintain a sanitary physical environment. For example, failure to separate clean items from soiled; observance of items that were visibly soiled would generate such a citation. Approximately half of hospitals surveyed were deficient at the *point of care*, defined as the failure to consistently implement manufacturer's instructions for disinfection of devices used between patients at their bedsides, such as glucometers.

Additionally, *medication management deficiencies*, in which consistent assurance of safe administration and storage of medications was not possible, were noted in several hospitals. A medication management deficiency may be triggered by the observance of outdated medications, or by a patient's medication vials not being dated when opened to ensure the medication did not exceed the recommended shelf life. Several citations for *sharps injury prevention* were also noted, in which hospitals failed to consistently provide safe needle devices or other technology that minimizes the risk of injury to health care workers. The relative occurrence of the five most common deficiencies is noted in Figure 13.

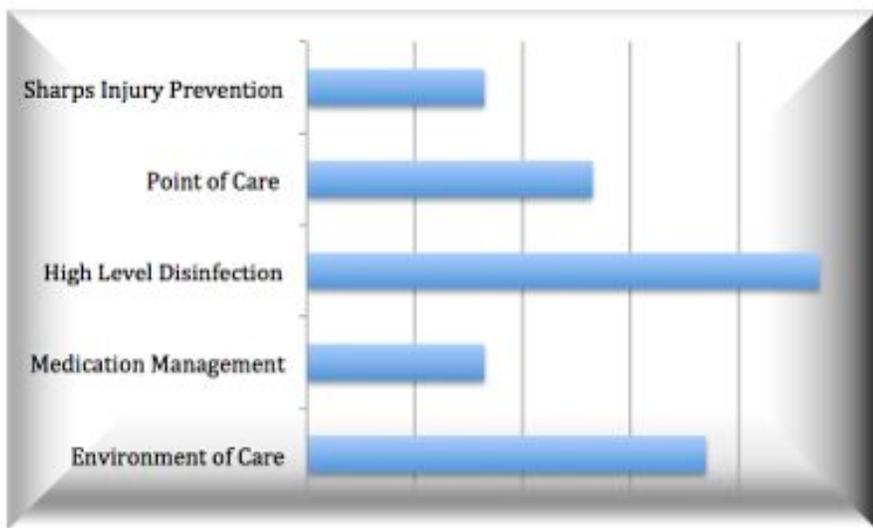


FIGURE 12: RELATIVE RATIO OF CITATIONS ISSUED DURING INFECTION PREVENTION SURVEYS THROUGH NOVEMBER 1, 2011 (N=43)



EDUCATION AND TRAINING

Support for Hospitals: Before statewide NHSN reporting began, hospitals completed user-specific CDC/NHSN training. Additionally, technical assistance and training on NHSN enrollment procedures, standard definitions and reporting measures has been provided for all hospitals. MDPH staff, in consultation with the CDC, provides ongoing support for hospitals.

Massachusetts Coalition for the Prevention of Medical Errors: MDPH supports the Massachusetts Coalition for the Prevention of Medical Errors' collaborative programming designed to help hospitals in their work to prevent HAIs. Working with the Massachusetts Hospital Association (MHA), MDPH, and the Betsy Lehman Center for Patient Safety, the Coalition's goal has been to enlist 100% of acute care hospitals, and accelerate progress in infection prevention in those hospitals by sharing local and national best practices, tools and resources, implementation strategies, as well as maintaining top leadership support.

The Coalition has hosted a number of seminars on infection prevention and approaches for promoting quality improvement. All hospitals participated in one or more of these trainings. Programs were also developed to ensure senior hospital leadership involvement in this initiative. As a result of these focused meetings senior leaders from all hospitals signed a letter of commitment prioritizing infection prevention for their facility. To promote the sharing of effective strategies the Coalition has published and distributed a collection of more than 30 successful prevention projects reported by more than 25 hospitals.

Massachusetts hospitals continue to be actively involved in HAI reduction activities intended to make care both safer and of higher quality. All hospitals licensed by MDPH are required to have a hospital-wide program for the prevention, control, and investigation of infectious diseases. Nurses, physicians, medical technologists, and other professionals who have acquired special training in infection control or epidemiology, manage these programs. Through their infection prevention and control programs, hospitals strive to improve the care and safety of patients by following the recommendations and standards of agencies such as the CDC. Hospitals routinely collect and analyze data on HAI above and beyond that reported to NHSN/MDPH, as well as on practices that have been shown to reduce the risk of HAI.

HAI is a focus of wide spread attention at the state and national levels. This attention has resulted in the development of several national HAI prevention programs, which offer participants opportunities for shared learning, support and tools to help eliminate HAI. Many Massachusetts healthcare facilities are participating in MDPH supported collaborative educational programs aimed at reducing specific HAIs. Interventions combine evidence-based prevention practices as well as additional approaches to promote quality improvement and a culture of patient safety and open reporting. Successful implementation of these models is dependent upon executive leadership guiding overall institutional commitment to foster, promote, and support collaborative goals of improvement.

Hospitals have also implemented prevention activities to eliminate HAI based on needs identified within their specific facilities.



HOSPITAL EFFORTS TO PREVENT & CONTROL HAIs



**PARTNERING FOR
INFECTION PREVENTION:
ARRA**

In August 2009, the CDC awarded MDPH a \$1.5 million grant to develop and implement programs to prevent and eliminate HAIs in Massachusetts hospitals.

In August 2009, the CDC announced the award of a \$1.5 million grant to Massachusetts with American Recovery & Reinvestment Act of 2009 (ARRA) funding, to carry out activities to meet the expectations described in the U.S. Department of Health and Human Services 2009 *Action Plan to Prevent Healthcare Associated Infections* (Figure 14). This funding facilitated the development of new and the furtherance of existing state efforts to address HAIs. ARRA funding supports the following activities:

- **Coordination and Reporting of State HAI Prevention Efforts:** Enhanced MDPH efforts to coordinate and implement HAI prevention activities;
- **Detection and Reporting of HAI Surveillance Data:** Improved the quality of NHSN-based reporting system with data cleaning and validation activities. Included hiring of JSI Research and Training Institute, Inc., to develop and implement a sustainable system of data validation;
- **Establishing a Prevention Collaborative:** MDPH partnered with the Massachusetts Coalition for the Prevention of Medical Errors to conduct two collaborative initiatives targeting reductions in central line associated blood stream infection (CLABSI), and *Clostridium difficile* infection. The comprehensive infection prevention training promoted measureable progress toward the national prevention targets. The innovative approach to collaborative learning includes a dual focus on evidence based- infection prevention practices and adaptive strategies to achieve better compliance with these practices. Key components of these initiatives also include engaging senior hospital leadership and promoting improvements in the organization's overall safety culture. To date, the 28 hospitals participating in the

collaborative have achieved an overall 30% reduction of hospital onset disease.

Massachusetts State HAI Action Plan: ARRA funding also required the development of a comprehensive statewide plan to reduce HAIs. The adoption of the *Massachusetts State HAI Prevention Plan* identified state-level long-range prevention targets and is consistent with national five-year HHS goals and objectives. The plan is available for review on the following website, www.mass.gov/dph/dhcq.

The challenges of eliminating HAIs are multi-faceted and ongoing progress towards the state and national goal of zero requires leveraging current initiatives and expansion to additional settings of care. Sustainable success requires working collaboratively with identified local, regional and national partners and engaging new stakeholders with the shared priority of eliminating HAI. In August 2011, through a competitive process, MDPH was selected to receive CDC funding to establish a quality improvement initiative furthering the previously described focus on preventing CDI. *C. difficile* is an anaerobic, spore forming toxigenic bacteria and an important cause of HAI. Symptoms range from mild gastrointestinal illness to severe life threatening disease. CDI results in increased length of hospitalization and higher readmission rates with associated additional healthcare costs. Risk factors include advanced age, exposure to antimicrobials and hospitalization making residents of long-term care facilities particularly vulnerable.

The challenges of eliminating HAIs are multi-faceted and ongoing progress towards the state and national goal of zero requires leveraging current initiatives and expansion to additional settings of care.



HIGHLIGHTING HAI PROGRAMS: INNOVATIVE INFECTION CONTROL AND PREVENTION INITIATIVES IN TWO MASSACHUSETTS HOSPITALS

Eastern Massachusetts Medical Center

- Currently conducting bedside, operational research to determine the best methods for disinfecting central line ports used to administer medications, blood or nutrition. The results from this study will help guide overall hospital policies.
- Developed the “5 off the Top” initiative, which moved five of the most common drugs administered to post-operative cardiac patients from being delivered through a central line to an intravenous line where the chance for serious infection is significantly less.
- Implemented a standardized process in a neonatal intensive care unit for obtaining specimens from a central line to minimize the number of times the line is entered.

Western Massachusetts Medical Center

- Enhanced hand hygiene initiatives including providing comprehensive feedback to healthcare workers.
- CLABSI prevention initiative – formatted “Getting to Zero,” a multidisciplinary task group working on five sub-projects:
 - Standardization of supplies and availability at the point of use.
 - Standardized documentation with retrievable information on best practices and bundle measures.
 - Education of central line inserters and bedside staff.
 - Engagement of bedside staff to speak up for patient safety.
 - Establish criteria for insertion, to limit unnecessary use of central venous access.
- CLABSI Prevention - conducts multi-disciplinary Root Cause Analyses for each CLABSI event.
- CLABSI Prevention - collects compliance data to ensure adherence to best practices to prevent a CLABSI; coupled with outcome measures.
- SSI Prevention:
 - Aseptic technique observation performed monthly (Association for Professionals in Infection Control and Epidemiology tools).
 - Reduction in use of immediate sterilization (formerly called flash sterilization).
 - Adoption of expanded Surgical Care Improvement Project measures.
 - Development of specialty surgical population teams.
 - Programs to ensure best practice measures in all surgical services areas.

Massachusetts Activities to Prevent Healthcare-associated Infections

Financial and/or technical support provided by CDC

Massachusetts



- The percent of healthcare facilities in this state reporting data on at least one [HAI](#) to CDC's [NHSN](#): 86%
- Facilities in this state are required by law to report [HAI](#) data to [NHSN](#)
- State health department is involved with a [CUSP](#) initiative^{SP} to prevent [CLABSI](#) and/or [CAUTI](#)
- This state was selected for a 2011 [CDC Prevention Epicenter program](#) to support innovative approaches to reducing HAIs
 - [Translation Prevention Research Epicenter](#)
- Harvard Pilgrim Health Care, Wellesley, Mass.
- State has implemented a [CDI](#) Prevention Collaborative
- State has implemented a [CLABSI](#) Prevention Collaborative
- [Dialysis facilities](#) in this state are participating in prevention and/or reporting initiatives for HAIs
- 2009-2011 Recovery Act funding amount: \$1,599,587
 - Activities A, B, and C: Infrastructure, Monitoring, and Prevention Projects ([see ELC Activities Funded for more information](#))
- 2011 Affordable Care Act (ACA) funding amount: \$521,472
 - Activities: HAI Prevention Infrastructure and HAI Prevention Initiatives ([see ACA Activities Funded for more information](#))

FIGURE 14: OVERVIEW OF CURRENT MASSACHUSETTS ACTIVITIES



Building on the prior successful CDI learning collaborative in acute care settings, a new CDI initiative to include the setting of long-term care was launched in November 2011. Expected project outcomes include greater understanding of the magnitude of the problem in participating long term care facilities (LTCFs) and “feeder” acute care hospitals by establishing baseline assessment for rates of CDI occurrence and transmission; enhancing communication between caregivers in both settings; adherence to proven prevention strategies; and introduction of important related prevention concepts such as antibiotic stewardship. LTCFs will work closely with acute care hospitals where residents are admitted when hospitalization is required.

Infection prevention work in Massachusetts is also enhanced by relationships with a variety of academic experts throughout the state. Most recently, infectious disease and pharmacy specialists from the University of Massachusetts Medical School, Brigham and Women’s Hospital and Tufts Medical Center joined the MDPH and the Coalition in planning and executing a statewide antibiotic stewardship workshop for almost 200 participants from more than 45 facilities.

Collaborative models of work across the Commonwealth, with partners such as the Massachusetts Coalition for the Prevention of Medical Errors, Brigham and Women’s Hospital, Tufts Medical Center, PatientCareLink, the Massachusetts Hospital Association, and many others, have led to unprecedented focus on HAI prevention and reduction in all settings of care



Looking to the Future: HAI Reporting in the Commonwealth

The Department is committed to driving internal and external continuous quality improvement processes with regard to public reporting, both of HAIs and other quality and safety measures. We firmly believe that publically reported data can be presented in ways that can motivate and facilitate improvements in quality, and that there are several distinct audiences that can benefit from the MDPH HAI report, with different but overlapping needs. We believe that data should be approachable, meaningful, and actionable for all of these audiences.

For consumers, MDPH seeks to use infection risk models to help individuals to estimate their own specific HAI risks to further inform decision-making. For example, patients should be able to weigh the pros and cons of a surgery, both deciding among different surgical options and sites. Moreover, patients should be empowered to become active participants in infection prevention, learning how to engage hospitals around HAI prevention efforts and to discuss one's own infection risks with providers.

For hospital leadership and providers, we must make the reported HAI data easily actionable so that reports may be used to more rapidly drive improvements. This may include developing thresholds for action and recommended next steps if these thresholds are reached, as well as

The Department believes that publically reported data must be presented in ways that motivates and facilitates improvements in quality. We believe that data should be approachable, meaningful and actionable for all.

benchmarking our state not against national averages, but against high-performers in the 80th percentile and higher. Moreover, proposals have been made to the Department to harness real-time surveillance methodologies, perhaps such as have been used for vaccine safety surveillance, to enhance impact on quality improvement activities. Using different surveillance periods based on data availability, and estimating expected counts based on varying length of surveillance period might be a way of facilitating such real-time models. Development of qualitative processes to assess factors associated with best and worst performers across the state, and to identify greatest improvers will facilitate highlighting specific practices and organizational culture characteristics to maximize prevention.

The Massachusetts Legislature provided funding for the Statewide Infection Prevention and Control Program beginning in 2007. Due to the economic down turn, the original \$1,000,000 provided for this program was reduced to \$568,820 by FY10. The current state budget appropriation for FY12 is \$251,281, representing an overall reduction of 75% since program inception. Investments at the federal level became available during the critical period of program implementation. Federal funding has been central to accelerating progress by complementing state funding, enhancing state HAI infrastructure and allowed expansion of statewide program efforts. Although expiration of federal funds and state budget reductions have threatened our sustainability, MDPH is resolute in its pursuit of eliminating every preventable HAI.

At the MDPH, we remain deeply committed to driving quality improvement and ensuring patient safety in all health care settings across the Commonwealth. Looking back over the last several years of public reporting, we are proud of the progress that has been made. Yet we are simultaneously deeply aware that every day, infections occur in hospitals in the Commonwealth. And so we continue forward.

At the MDPH, we remain deeply committed to driving quality improvement and ensuring patient safety in all health care settings across the Commonwealth.

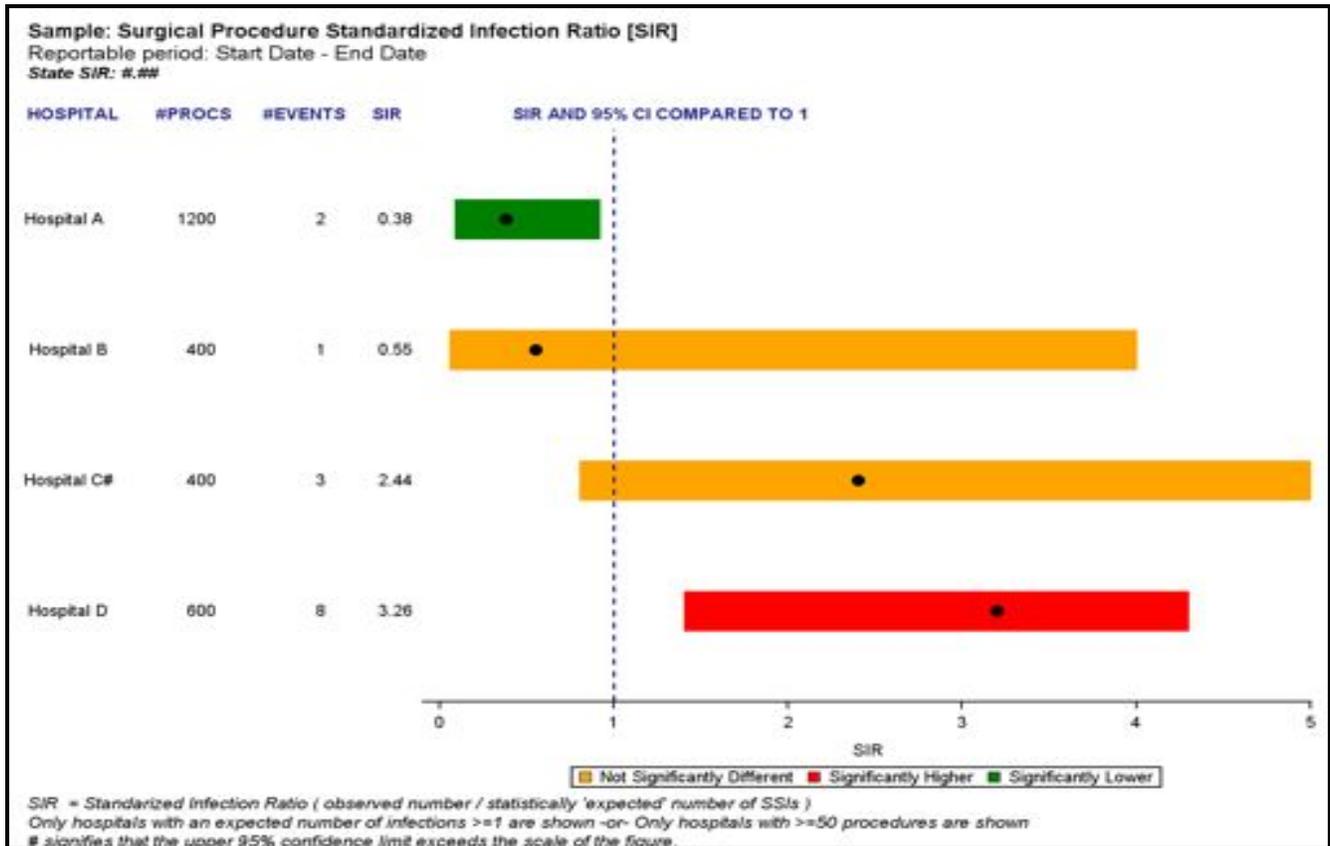


HEALTH CARE ASSOCIATED INFECTIONS IN MASSACHUSETTS ACUTE CARE HOSPITALS

SECOND PUBLIC REPORT
JULY 1, 2009 – JUNE 30, 2011

APPENDIX 1: ADDITIONAL DATA – CRITERIA 1 CLABSI AND HOSPITAL SPECIFIC SSI

HOW TO READ A HOSPITAL-SPECIFIC SIR FIGURE

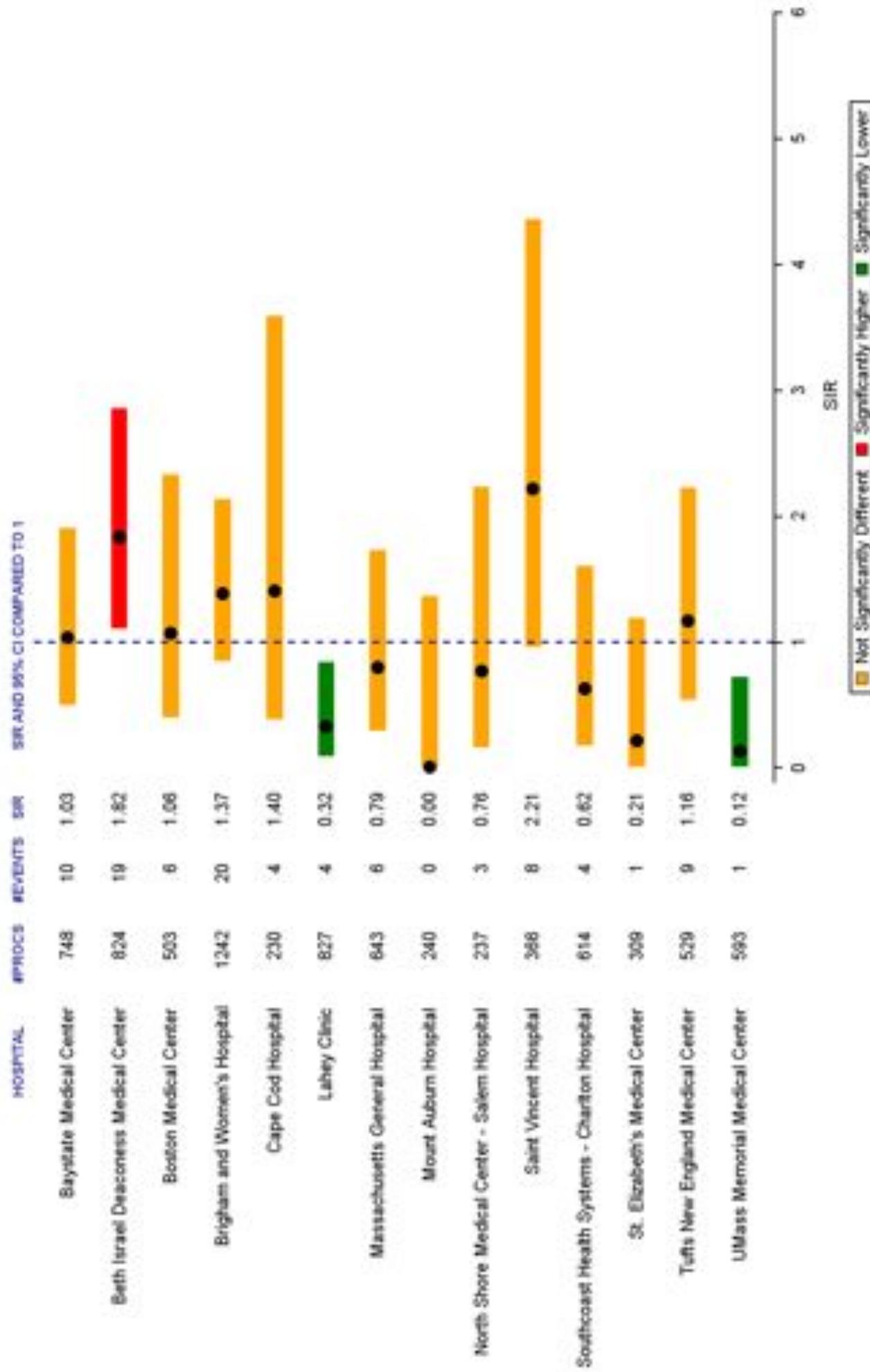


General Description

The hospital-specific SIR figures in this report provide a visual interpretation of the number of surgeries observed by each hospital during the time period compared to the predicted number based on the national models. This brief tutorial explains how to read these figures and describes what the data mean. In the figure header you will find the surgical procedure type, the timeframe during which the surgeries were performed, and the SIR comparing all observed infections for this surgery type in the state to the number predicted by applying the national model to the population who underwent that procedure of interest over that time period. The variables in the figure include: hospital, number of procedures performed (#PROCS), number of infections reported (#EVENTS), standardized infection ratio comparing the number of infections reported to the number predicted by the national model (SIR), and the bar plot of the SIR's 95% confidence interval (CI). In the bar plot portion, the black dot represents the SIR and the colored bar shows the range of the 95% CI. The dotted line in the plot is located at one, which is the SIR value for all hospitals if the number of infections observed is the same as the number predicted. Please note that figures showing cumulative data only include hospitals with an expected number of infections of one or greater, while figures for the most recent single year of data only include hospital with at least 50 procedures performed during that year.

- **Hospital A** – Hospital A performed 1200 surgical procedures, which resulted in two infection events. When the national model was applied to the 1200 surgical procedures, 5.2 infections were predicted. This yielded a SIR of 0.38 with a narrow 95% CI that has an upper limit less than 1.0. Since the 95% CI does not cross 1.0 (the dotted line) it means that the SIR is significantly lower than the predicted value of 1.0.
- **Hospital B** – Hospital B performed 400 procedures, resulting in one infection. The model predicted 1.8 infections based on the procedure information provided. This yielded a SIR of 0.55 with a wide 95% CI. The 95% CI is wider than in Hospital A because Hospital B performed many fewer procedures, making the SIR less stable. In this case, even though the SIR is less than one, the 95% CI crosses 1.0, meaning that the SIR is not statistically different than the predicted value of 1.0.
- **Hospital C** – Hospital C performed only 400 procedures, but they had three infections. The model applied to these 400 procedures predicted 1.2 infections. This yielded a high SIR of 2.44. Like Hospital B, Hospital C has a wide 95% CI because they performed relatively few procedures. Due to the wide 95% CI the SIR is not significantly different than the predicted, though it seems much higher than 1.0. The '#' symbol next to the hospital name denotes that the upper 95% confidence limit exceeds the scale of the figure.
- **Hospital D** – Hospital D performed 600 procedures, resulting in 8 infections. 2.5 infections were predicted. This yielded a SIR of 3.26. The entire 95% CI is greater than 1.0, meaning that the SIR is significantly higher than the predicted value of 1.0.

Coronary Artery Bypass Graft (w/ or w/o Chest and Donor Site Incision) [CABG] Standardized Infection Ratio (SIR)
 Reportable period: July 1, 2008 - June 30, 2010
 State SIR: 0.95

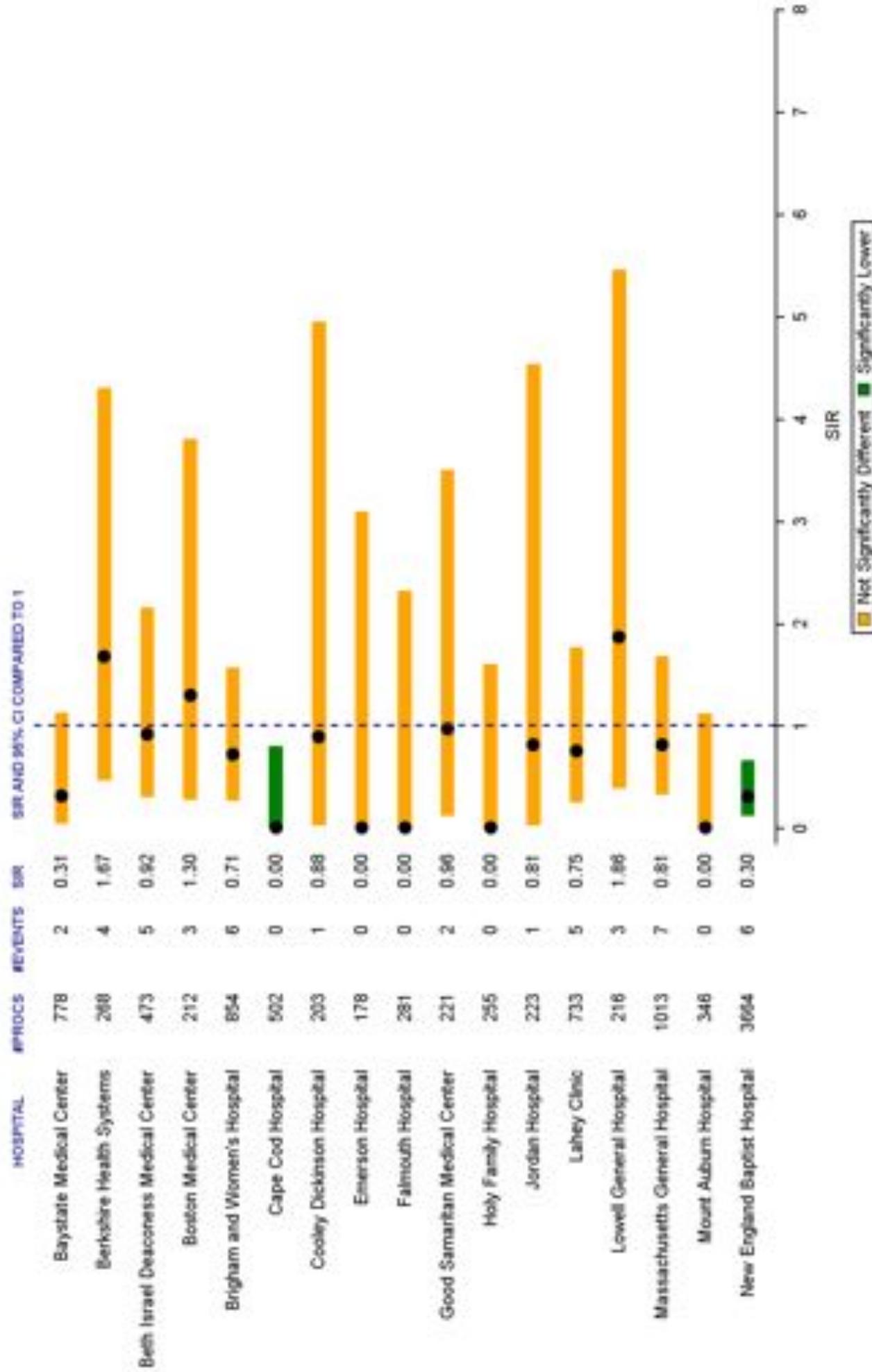


SIR = Standardized Infection Ratio (observed number / statistically expected number of SIs)
 Only hospitals with an expected number of infections >= 1 are shown
 * signifies that the upper 95% confidence limit exceeds 1

Hip Prosthesis [HPRO] Standardized Infection Ratio [SIR]

Reportable period: July 1, 2008 - June 30, 2010

State SIR: 0.74



SIR = Standardized Infection Ratio (observed number / statistically expected number of SIs)

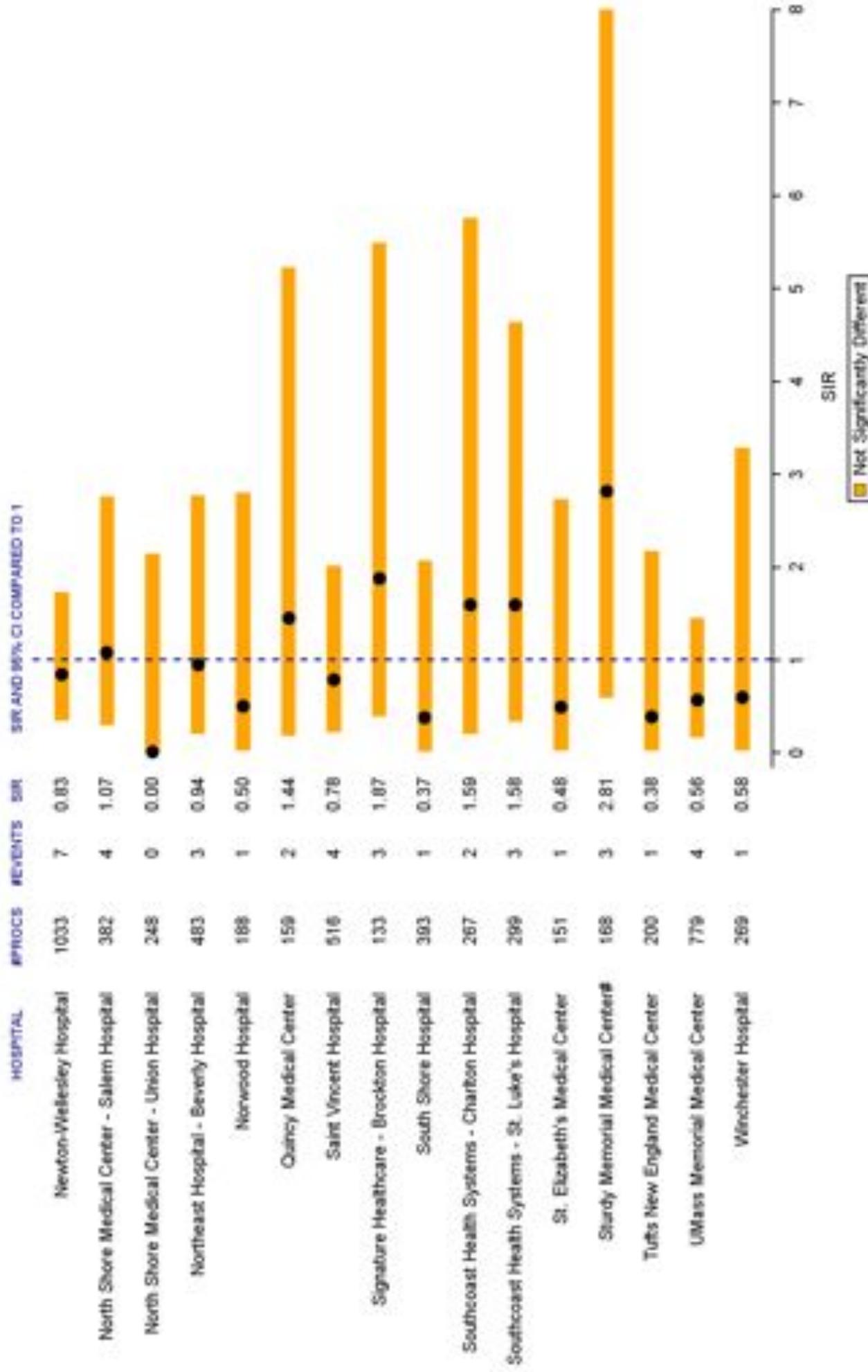
Only hospitals with an expected number of infections >= 1 are shown

signifies that the upper 95% confidence limit exceeds 1

Hip Prosthesis [ePRO] Standardized Infection Ratio [SIR] (cont'd)

Reportable period: July 1, 2008 - June 30, 2010

State SIR: 0.74



SIR = Standardized Infection Ratio (observed number / statistically expected number of SIs)

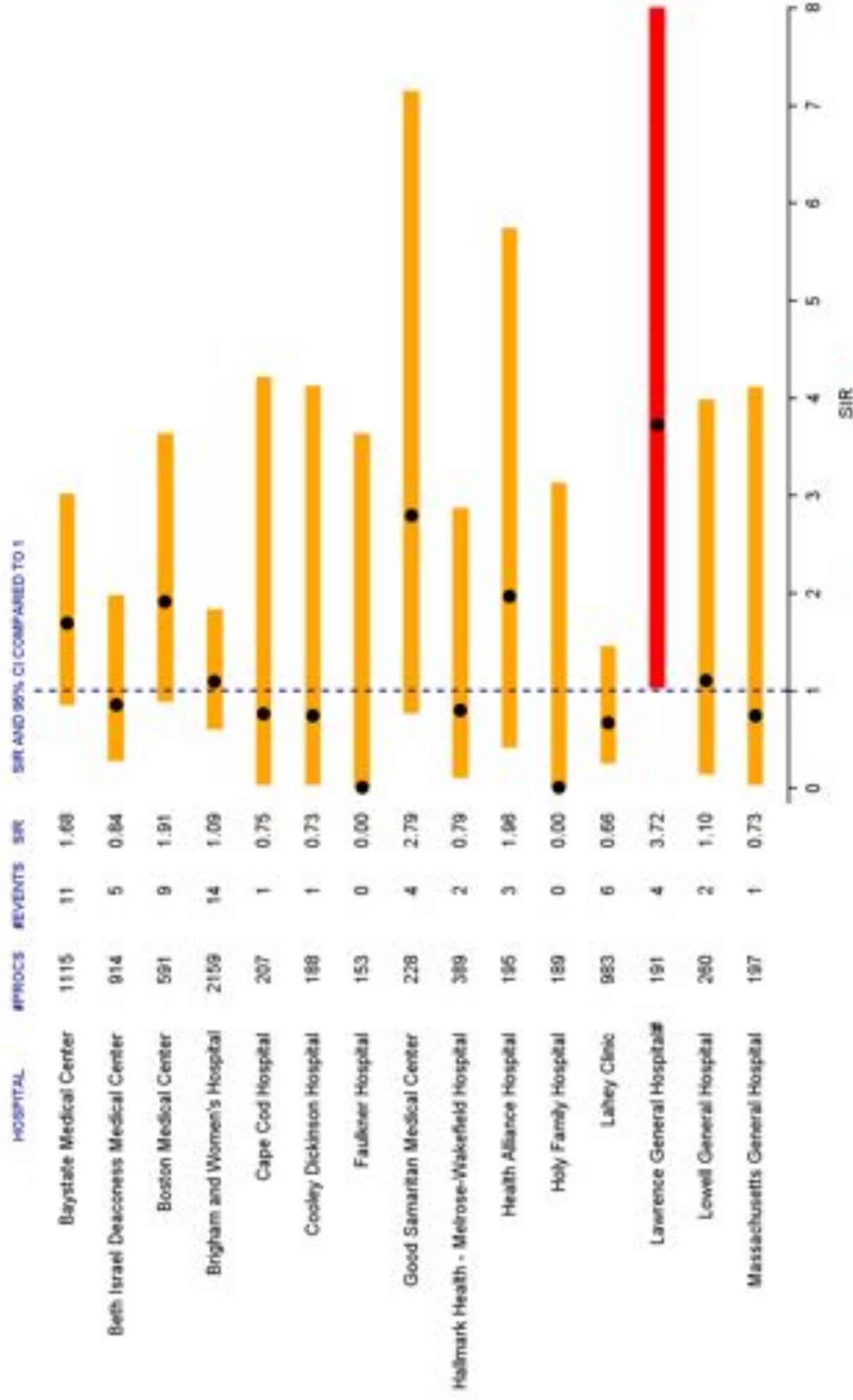
Only hospitals with an expected number of infections >= 1 are shown

signifies that the upper 95% confidence limit exceeds 8

Abdominal Hysterectomy [HYST] Standardized Infection Ratio [SIR]

Reportable period: July 1, 2008 - June 30, 2011

State SIR: 1.01



SIR = Standardized Infection Ratio (observed number / statistically expected number of SIs)

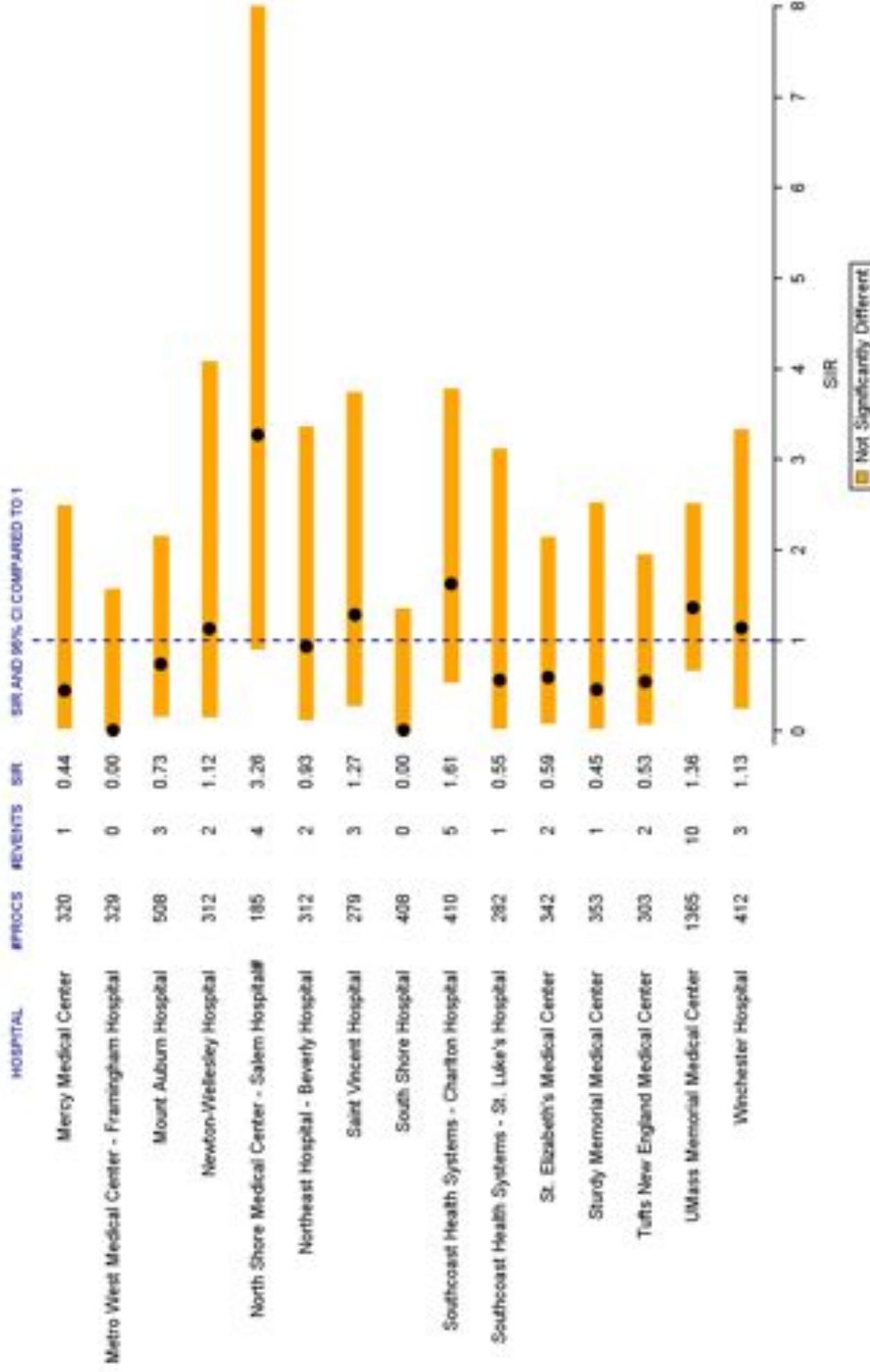
Only hospitals with an expected number of infections >= 1 are shown

signifies that the upper 95% confidence limit exceeds 8

Abdominal Hysterectomy [HYST] Standardized Infection Ratio [SIR] (cont'd)

Reportable period: July 1, 2008 - June 30, 2011

State SIR: 1.01



SIR = Standardized Infection Ratio (observed number / statistically expected number of SSIs.)

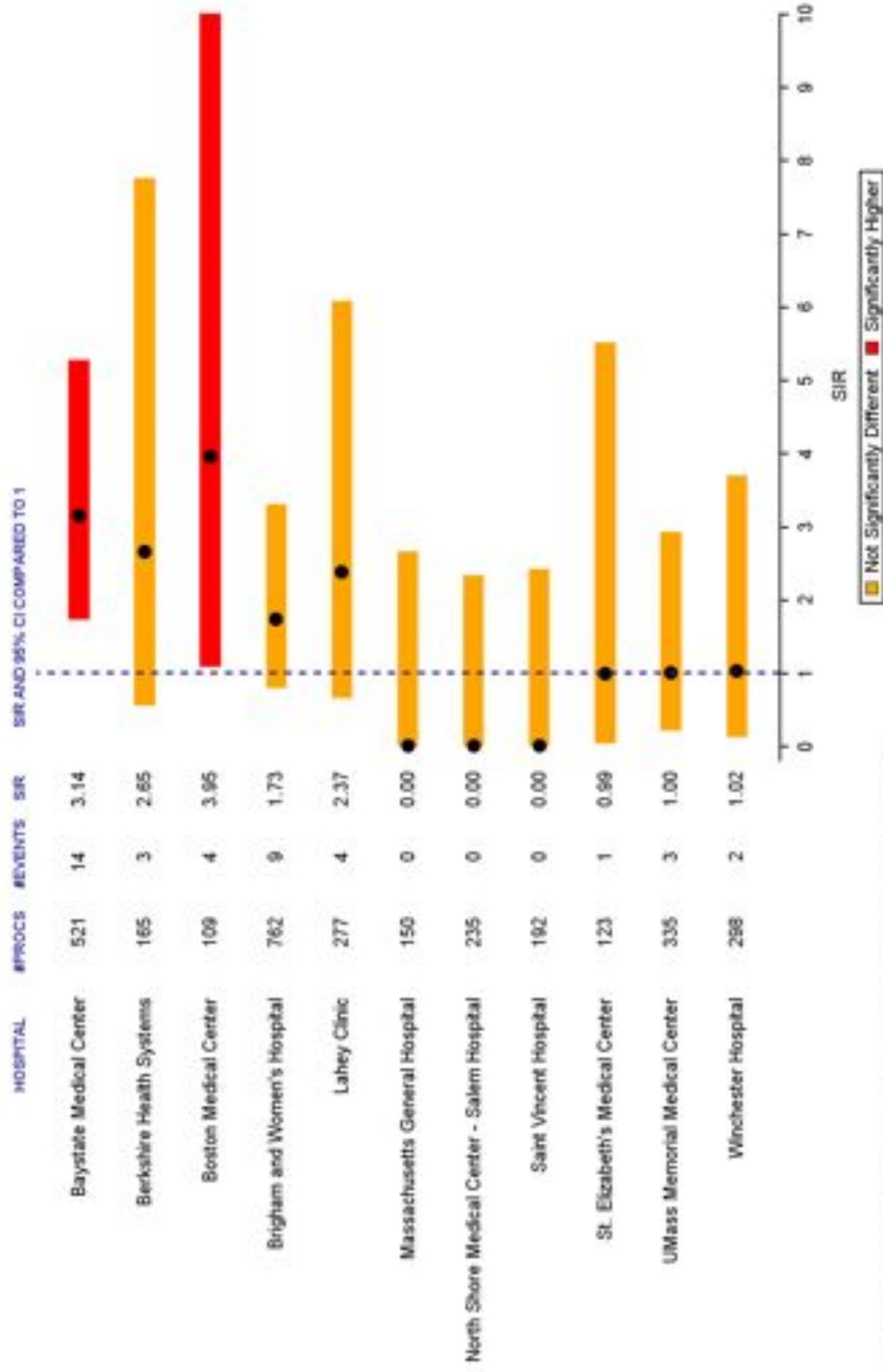
Only hospitals with an expected number of infections >= 7 are shown.

signifies that the upper 95% confidence limit exceeds 8.

Vaginal Hysterectomy [MYS] Standardized Infection Ratio [SIR]

Reportable period: July 1, 2008 - June 30, 2011

State SIR: 1.98

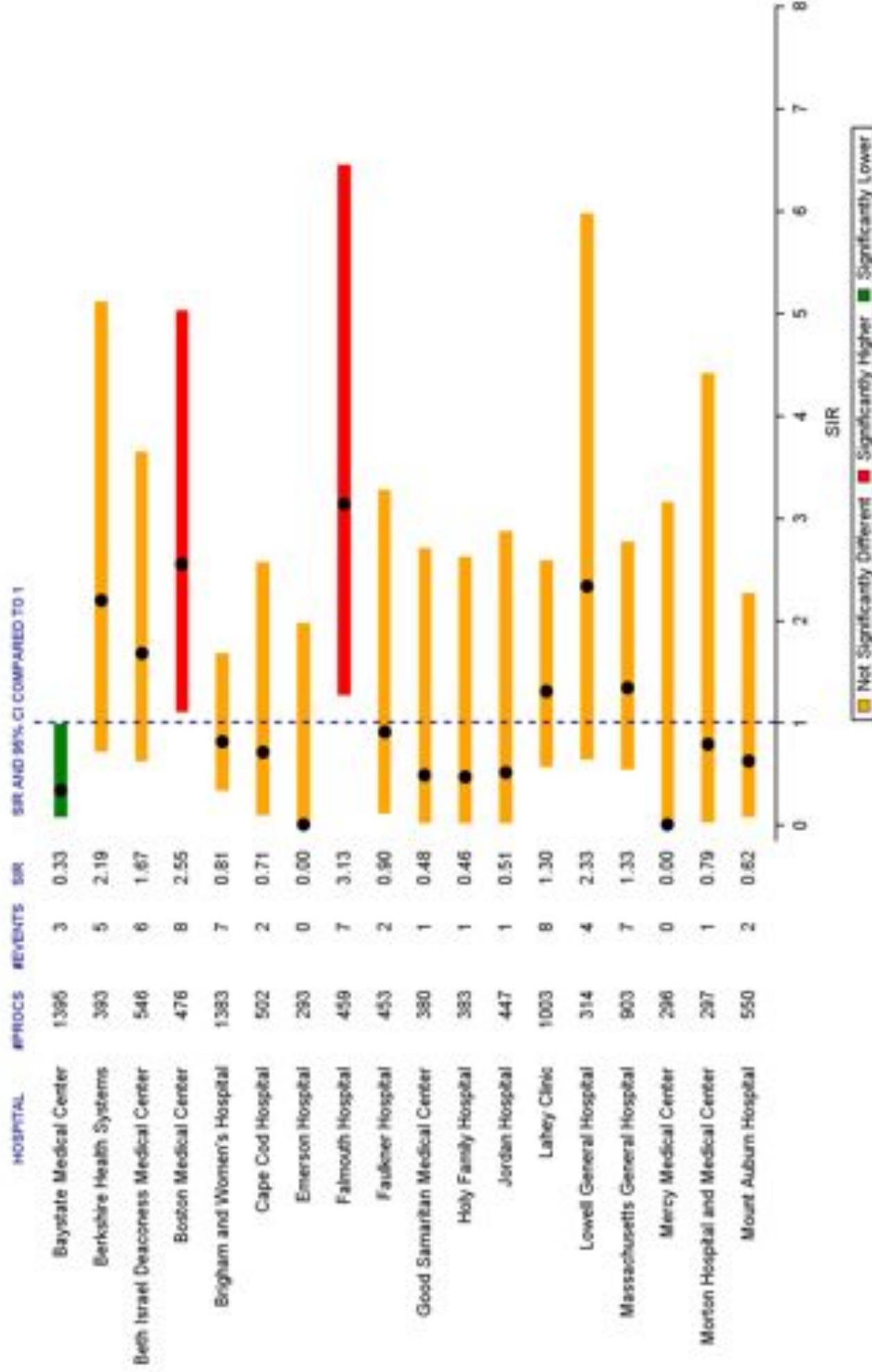


SIR = Standardized Infection Ratio (observed number / statistically expected number of SDRs)
Only hospitals with an expected number of infections >= 1 are shown.

Knee Prosthesis [KPRO] Standardized Infection Ratio [SIR]

Reportable period: July 1, 2008 - June 30, 2010

State SIR: 1.07

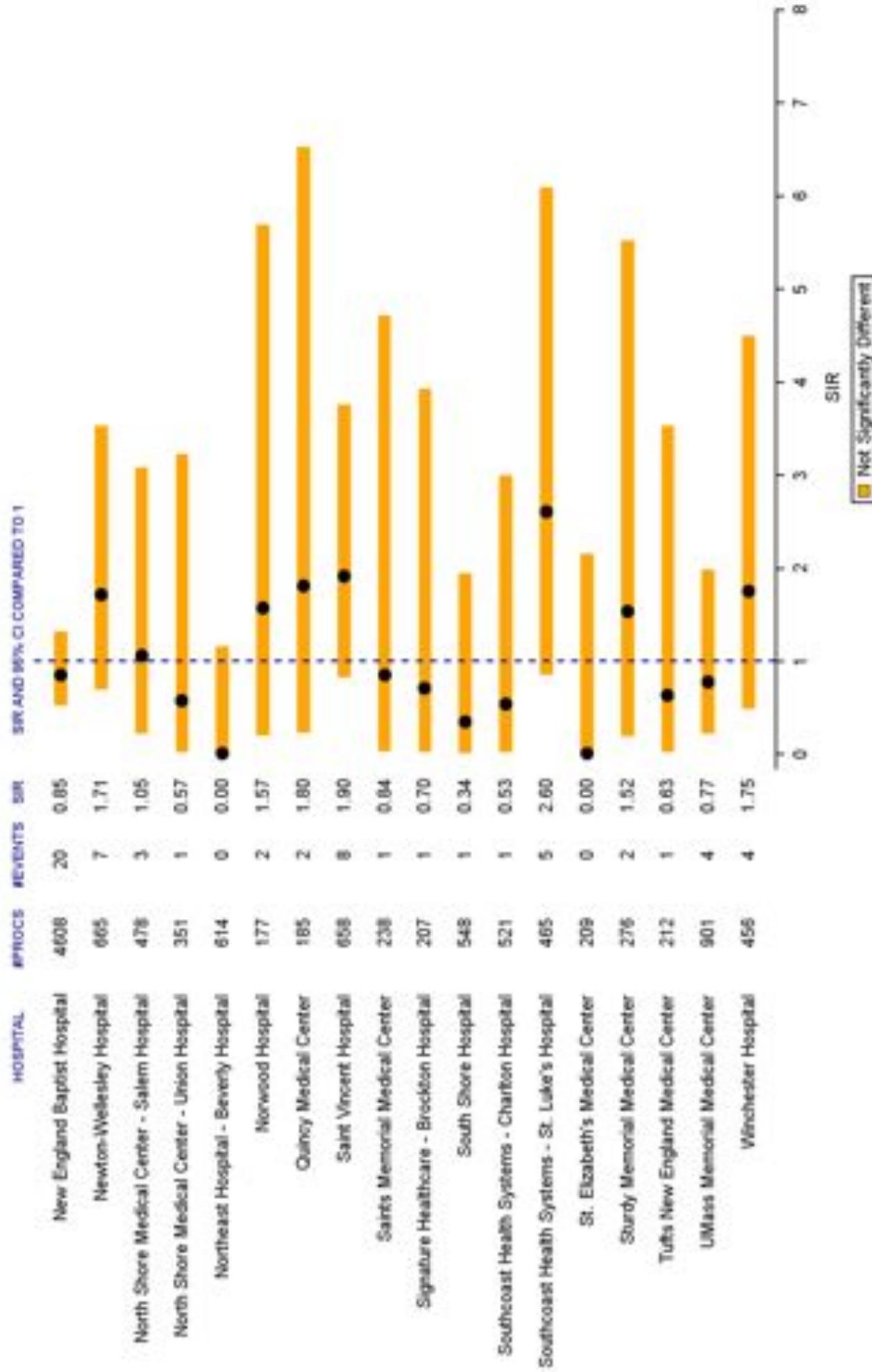


SIR = Standardized Infection Ratio (observed number / statistically expected number of SIs)

Only hospitals with an expected number of infections >= 1 are shown

signifies that the upper 95% confidence limit exceeds 1

Knee Prosthesis [KPRO] Standardized Infection Ratio [SIR] (cont'd)
 Reportable period: July 1, 2008 - June 30, 2010
 State SIR: 1.07



SIR = Standardized Infection Ratio (observed number / statistically expected number of SSIs)
 Only hospitals with an expected number of infections >= 7 are shown
 * signifies that the upper 95% confidence limit exceeds 1

CRITERIA 1 CLABSI

NHSN categorizes CLABSIs into 3 categories; criteria 1, 2 and 3. In a criteria 1 infection, the patient has a recognized “true” pathogen cultured from one or more blood cultures and the organism cultured from blood is not related to an infection at another site. Infections classified as criteria 2 or 3 when an organism commonly found on the skin (i.e., diphtheroids [*Corynebacterium spp.*], *Bacillus* [not *B. anthracis*] spp., *Propionibacterium spp.*, coagulase-negative staphylococci [including *S. epidermidis*], viridans-group *Streptococci*, *Aerococcus spp.*, *Micrococcus spp.*) is cultured from two or more blood cultures drawn on separate occasions and the patient is symptomatic for a blood infection. The requirement of a second positive culture and symptoms for the criteria 2 and 3 infections are to insure the initial positive culture was not due to contamination of the specimen during collection or processing

In the body of this report, criterion 1 CLABSIs are presented as part of the total CLABSI reporting. The initial recommendation of the HAI Expert Panel was to report only criterion 1 for public reporting, as the definition is the most easily applied across hospitals and there is less room for mis-classification of infections. The tables from the body of the report are repeated here, with only criteria 1 cases.

As in the rest of the report, state baseline data was from July 1, 2008 through June 30, 2010. National comparison data was taken from the 2010 CDC publication. State fiscal year 2010 is from July 1, 2009 through June 30, 2010; fiscal year 2011 is from July 1, 2010 through June 30, 2011. Hospitals with a predicted number of infections less than 0.5 have been suppressed.

**TABLE 1.1: MASSACHUSETTS CRITERION 1 CLABSI RATES IN ICUS COMPARED TO STATE BASELINE RATES
JULY 1, 2010-JUNE 30, 2011**

ICU Type	Number of Locations	Criterion 1 BSI	BSI per 1,000 Central Line Days	Predicted Events	SIR	95% Confidence Interval	Compared to Predicted
Burn	2	11	7.33333333	7.328362	1.50	0.74 - 2.68	Same
Medical Cardiac	12	11	0.7487577	15.488156	0.71	0.35 - 1.27	Same
Surgical cardiothoracic	10	14	0.6051699	16.663145	0.84	0.45 - 1.41	Same
Medical (not major teaching)	2	0	0	0	.	.	***
Medical (major teaching)	14	34	0.9827442	38.448981	0.88	0.61 - 1.23	Same
Medical/surgical (not major teaching)	47	36	0.8595783	32.165526	1.12	0.78 - 1.55	Same
Medical/surgical (major teaching)	7	8	0.5479077	13.298218	0.60	0.26 - 1.18	Same
Pediatric medical or medical/surgical	7	9	0.8749757	16.738964	0.54	0.24 - 1.02	Same
Neurosurgical	2	1	0.1823819	4.3776447	0.23	0.00 - 1.27	Same
Surgical	15	16	0.5058329	19.534194	0.82	0.46 - 1.33	Same
Trauma	3	2	0.3905487	3.244366	0.62	0.07 - 2.22	Same

TABLE 2: MASSACHUSETTS CRITERION 1 CLABSI RATES COMPARED TO NATIONAL RATES IN ICUS

ICU Type	Fiscal Year	Number of Locations	Criterion 1 BSI	Central Line Days	BSI per 1,000 Central line days	Predicted Events	SIR	95% Confidence Interval	Compared to Predicted
Burn	2010	2	9	1,717	5.24	8.24	1.09	0.49 - 2.07	Same
	2011	2	11	1,500	7.33	7.20	1.53	0.76 - 2.73	Same
Medical (major teaching)	2010	15	32	35,060	0.91	77.13	0.42	0.28 - 0.58	Lower
	2011	14	34	34,597	0.98	76.11	0.45	0.30 - 0.62	Lower
Medical (not major teaching)	2010	2	0	1,449	0.00	2.17	.	.	***
	2011	2	0	1,779	0.00	2.67	.	.	***
Medical Cardiac	2010	12	20	13,952	1.43	22.32	0.90	0.54 - 1.38	Same
	2011	12	11	14,691	0.75	23.51	0.47	0.23 - 0.83	Lower
Medical/surgical (major teaching)	2010	7	21	16,309	1.29	26.09	0.81	0.49 - 1.23	Same
	2011	7	8	14,601	0.55	23.36	0.34	0.14 - 0.67	Lower
Medical/surgical (not major teaching)	2010	47	28	41,325	0.68	45.46	0.62	0.40 - 0.89	Lower
	2011	47	36	41,881	0.86	46.07	0.78	0.54 - 1.08	Same
Neurosurgical	2010	2	4	5,052	0.79	9.60	0.42	0.11 - 1.06	Same
	2011	2	1	5,483	0.18	10.42	0.10	0.00 - 0.53	Lower
Pediatric medical or medical/surgical	2010	7	16	10,379	1.54	23.34	0.69	0.39 - 1.11	Same
	2011	7	9	10,286	0.87	22.84	0.39	0.18 - 0.74	Lower
Surgical	2010	17	27	31,251	0.86	59.38	0.46	0.3 - 0.66	Lower
	2011	15	16	31,631	0.51	60.10	0.27	0.15 - 0.43	Lower
Surgical cardiothoracic	2010	10	22	23,011	0.96	25.31	0.87	0.54 - 1.31	Same
	2011	10	14	23,134	0.61	25.45	0.55	0.30 - 0.92	Lower
Trauma	2010	3	4	5,463	0.73	16.94	0.24	0.06 - 0.60	Lower
	2011	3	2	5,121	0.39	15.88	0.13	0.01 - 0.45	Lower

TABLE 3: MASSACHUSETTS CRITERION 1 LINE INFECTION RATES IN NICUs COMPARED TO STATE BASELINE RATES, BY BIRTH WEIGHT CATEGORY AND LINE TYPE

Birth Weight	Line Type	Criterion 1 BSI	Line Days	Rate per 1,000 Days	Predicted Number of Infections	SIR	95% Confidence Interval	Compared to Predicted
<=750 g	Central Line	8	2,788	2.87	6.22	1.29	0.55 - 2.53	Same
	Umbilical Catheter	2	925	2.16	2.71	0.74	0.08 - 2.66	Same
	CL and UC	10	3,713	2.69	8.93	1.12	0.53 - 2.06	Same
751-1000 g	Central Line	2	2,855	0.70	8.20	0.24	0.03 - 0.88	Lower
	Umbilical Catheter	1	993	1.01	1.07	0.94	0.02 - 5.22	Same
	CL and UC	3	3,848	0.78	9.26	0.32	0.06 - 0.94	Lower
1001-1500 g	Central Line	4	2,641	1.51	5.37	0.75	0.20 - 1.90	Same
	Umbilical Catheter	1	2,141	0.47	2.49	0.40	0.01 - 2.23	Same
	CL and UC	5	4,782	1.05	7.86	0.64	0.20 - 1.48	Same
1501-2500 g	Central Line	2	2,609	0.77	4.96	0.40	0.04 - 1.45	Same
	Umbilical Catheter	0	1,073	0.00	0.50	0.00	0.00 - 7.31	Same
	CL and UC	2	3,682	0.54	5.47	0.37	0.04 - 1.32	Same
>2500 g	Central Line	0	1,916	0.00	0.58	0.00	0.00 - 6.33	***
	Umbilical Catheter	0	1,084	0.00	1.27	0.00	0.00 - 2.89	***
	CL and UC	0	3,000	0.00	1.86	0.00	0.00 - 1.98	Same

TABLE 4: HOSPITALS PERFORMING PROCEDURES RESULTING IN ZERO INFECTIONS

Hospital	Procedure Type	Number of Procedures	Number of Infections	Predicted Events
Cape Cod Hospital	HPRO	502	0	4.62
Emerson Hospital	HPRO	178	0	1.19
Emerson Hospital	KRPO	293	0	1.88
Falmouth Hospital	HRPO	281	0	1.60
Faulkner Hospital	HYST	153	0	1.02
Holy Family Hospital	HPRO	255	0	2.31
Holy Family Hospital	HYST	189	0	1.18
Mass General Hospital	VHYS	150	0	1.39
Mercy Medical Center	KPRO	296	0	1.17
Metro West Medical Center	HYST	329	0	2.35
Mount Auburn Hospital	CABG	240	0	2.71
Mount Auburn Hospital	HPRO	346	0	3.32
Northeast Hospital - Beverly Hospital	KPRO	614	0	3.20
North Shore Medical Center - Union Hospital	HPRO	248	0	1.72
North Shore Medical Center - Salem Hospital	VHYS	235	0	1.59
Saint Vincent Hospital	VHYS	192	0	1.52
South Shore Hospital	HYST	408	0	2.74
St. Elizabeth's Medical Center	KPRO	209	0	1.72

TABLE 5: TIME TO DETECTION OF HAIS

Procedure	# Infections	Average Days to Detection	Minimum Days to Detection	Maximum Days to Detection
CABG	95	32.8	5	183
HPRO	104	59.0	1	344
HYST	112	11.9	1	30
KPRO	148	112.8	1	357
VHYS	76	12.5	1	29

TABLE 6: LOCATION DETECTION OF HAIS

Procedure	CABG	HPRO	HYST	KPRO	VHYS	Total
Admission	19	3	8	2	6	38
Post Discharge Surveillance	8	13	19	19	17	76
Readmission	68	88	85	127	53	421
Total	95	104	112	148	76	535

**HEALTH CARE ASSOCIATED
INFECTIONS IN MASSACHUSETTS
ACUTE CARE HOSPITALS**

SECOND PUBLIC REPORT
JULY 1, 2009 – JUNE 30, 2011

**APPENDIX 2: HOSPITAL-SPECIFIC
SUMMARY SHEETS**

MASSACHUSETTS 2011 HAI REPORT

THIS DOCUMENT IS DESIGNED TO HELP YOU BETTER UNDERSTAND THE DATA PRESENTED ON THE HOSPITAL SUMMARY PAGES THAT FOLLOW

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. More information on the SIR can be found [here](#).

Hospital Survey Statistics

These statistics aim to provide a broad sense of a hospital's patient care capacity and staffing. When reviewing this data, keep in mind that a single infection at a smaller hospital may have a larger impact on infection rates than a larger hospital. Every hospital in Massachusetts has Infection Preventionists who work to reduce healthcare-associated infections at their hospital.

Influenza Vaccination

Hospitals are required to report their healthcare worker (HCW) influenza vaccination rate annually. **Individual hospital vaccination and declination rates for the 2010-2011 influenza season are compared to the state average.** Massachusetts has set a goal for acute care hospitals to have 90% of their HCWs receive the influenza vaccine each year. Vaccination rates include those vaccinated both within and outside of the hospital. It is possible that the vaccination and declination rates do not add up to 100% due to changes in personnel over the course of the vaccination campaign period. For more information on HCW influenza vaccination please see the full report [here](#).

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 each ICU type. **Each location strives for zero infections.** A statistical interpretation of *Same* or *Lower* means that the number of infections was comparable or better than the predicted number of infection, while an interpretation of *Higher* means that the number of infections was worse than the predicted number. The data presented in this table are from July 1, 2010 through June 30, 2011. The predicted number of infections is calculated by multiplying the state baseline data for a given location (the average rate across hospitals, ICU type and years (July 2008 – June 2010)) by the number of device days.

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 a hospital has implemented an intervention to try to reduce CLABSIs by removing central lines when not absolutely necessary. An upward trend does not necessarily indicate a change that is within the hospital's control.

The **Hospital and State CLABSI SIRs** chart shows how the hospital SIR and the state SIR have changed over time in adult and pediatric ICUs. 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 CLABSIs are prevented, the SIR for a hospital should decrease.** However, data validation efforts made in 2010 may have increased the values starting in that year.

Surgical Site Infection (SSI)

The risk for SSI varies by the type of procedure as well as by individual patient and hospital factors. The CDC recently developed a formula that takes into account important risk factors to determine the predicted number of infections used to calculate the SIR. Infections following surgical procedures can take days to months to develop depending on patient factors and the procedure performed. Procedures that involve implantable devices or hardware are followed for one year to identify infections - these procedures include coronary artery bypass graft, hip prosthesis, and knee prosthesis. Abdominal and vaginal hysterectomies are monitored for infections for 30 days following the procedure. Due to variation in follow up period, reporting for procedures that require implants lags behind the other procedures by a year for completion of monitoring.

The table entitled **Hospital SSI SIRs by Procedure Type** contains hospital data for all years 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 graph included depicts the SSI statistical interpretations over time. This graph is intended to be used as a quick assessment of significant variation of infection rates from predicted values within surgical type over the captured time period. This does not capture change in infection rates that are not statistically significant. Comparisons should be made within a given hospital, not across systems. The annual rates of infection and SIRs are available in the table above.



Massachusetts 2011 HAI Data Report

General Hospital - Town, MA

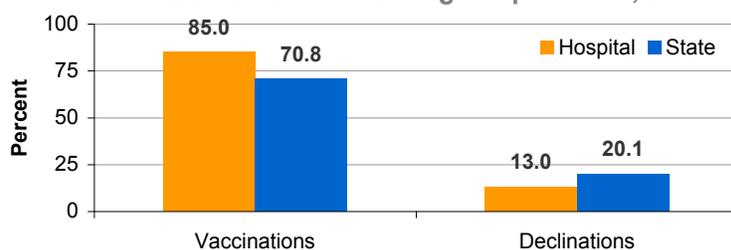
Report Release Date: February 2012

2010 Hospital Survey Statistics

Medical School Affiliation	Yes
Hospital Type	Major teaching
Profit Status	Not-for-profit
Number of Beds	600
Number of ICU Beds	100
Number of Admissions	50,000
Number of Patient Days	200,000
Beds per Infection Preventionist	130.0

Influenza Vaccination

Influenza Vaccination Among Hospital Staff, 2010

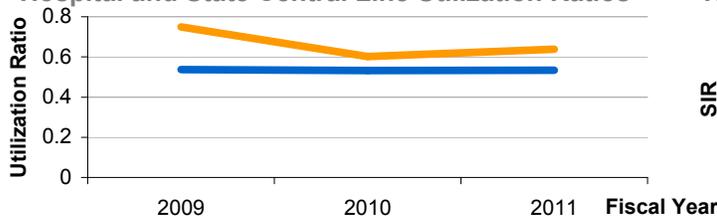


Central Line-Associated Blood Stream Infection

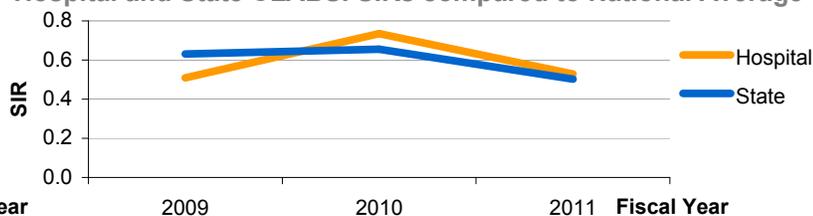
CLABSI Rates by ICU Type for Fiscal Year 2011, Compared to State Baseline Data from Fiscal Years 2009-2010

ICU Type	Infections	Line Days	Rate	Predicted Infections	SIR	Confidence Interval	Interpretation
Neurosurgical	1	2,373	0.42	2.37	0.42	(0.01 - 2.35)	Same
Trauma	2	1,588	1.26	1.72	1.16	(0.14 - 4.18)	Same
Surgical	3	3,016	0.99	3.92	0.77	(0.15 - 2.23)	Same
Medical/surgical	3	1,943	1.54	2.18	1.38	(0.28 - 4.01)	Same
Medical Cardiac	3	1,815	1.65	2.93	1.02	(0.21 - 2.99)	Same
Neonatal	6	2,164	2.77	6.75	0.89	(0.32 - 1.93)	Same

Hospital and State Central Line Utilization Ratios



Hospital and State CLABSI SIRs compared to National Average

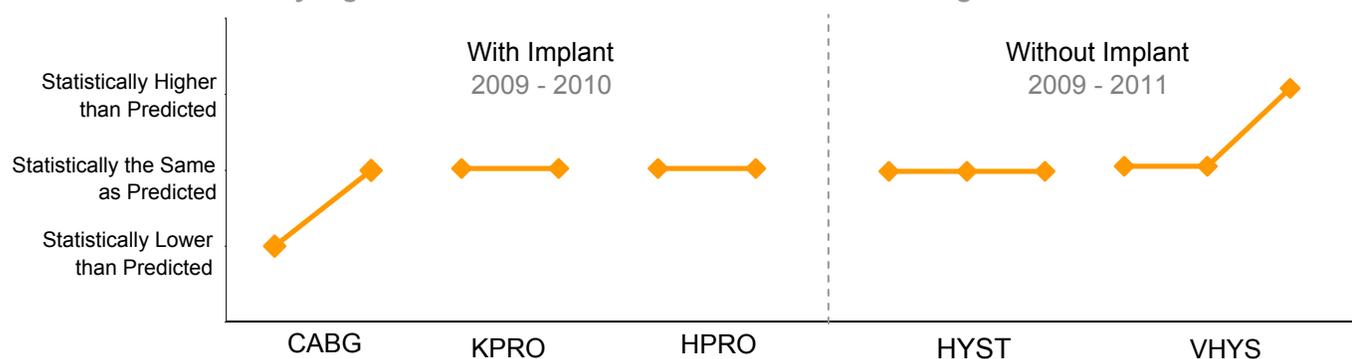


Surgical Site Infection

Hospital SSI SIRs by Procedure Type for All Fiscal Years Available

Procedure	Fiscal Year	Infections	Procedures	Predicted Infections	SIR	Confidence Interval	Interpretation
Coronary Artery Bypass (CABG)	2009	1	362	4.50	0.22	(0.24 - 2.27)	Lower
	2010	6	386	5.18	1.16	(0.42 - 2.52)	Same
Knee Prosthesis (HPRO)	2009	3	267	2.66	1.13	(0.23 - 3.3)	Same
	2010	1	249	2.44	0.41	(0.01 - 2.28)	Same
Hip Prosthesis (KPRO)	2009	0	85	0.63	0.00	(0.00 - 5.83)	Same
	2010	1	127	0.95	1.05	(0.02 - 5.87)	Same
Abdominal Hysterectomy (HYST)	2009	6	489	2.49	2.41	(0.88 - 5.24)	Same
	2010	3	431	2.29	1.31	(0.27 - 3.83)	Same
	2011	1	445	2.56	0.39	(0.01 - 2.17)	Same
Vaginal Hysterectomy (VHYS)	2009	2	142	1.32	1.52	(0.18 - 5.48)	Same
	2010	3	197	1.67	1.79	(0.36 - 5.23)	Same
	2011	9	182	1.46	6.15	(2.81 - 11.67)	Higher

Statistically Significant Variation from Predicted Number of Surgical Site Infections Over Time



CAUTION

Care must be taken in interpreting the SIR and its statistical significance. A high SIR may actually represent very few infections. The value of the SIR as a measure of the surgical site infection rate is very much influenced by the number of predicted infections, which is related to the number of surgical procedures. A small number of procedures may lead to a very low number of predicted infections (even less than one), so any infections that happen to occur during the time period observed may give a high SIR which might be significantly lower over a longer period of observation. For example, if the predicted is 0.5 infections and one infection occurs in the year represented, the SIR may be 2.0, but if that one infection was the only one in four years (for which 2 might be predicted), then the same hospital would have an SIR lower than one, at 0.5. Likewise, zero infections out of 50 procedures has a very different meaning than zero infections out of 500 procedures. The column on the right of the table above indicates whether the value of the SIR is the “same” as predicted (not statistically different from the predicted), “higher” (higher than the predicted regardless of number of procedures) or “lower” (lower than predicted), and should be consulted in interpreting the SIR values in the table and figure. Remember, these calculations are only one measure of quality and other factors must be considered.



Massachusetts 2011 HAI Data Report

Anna Jaques Hospital - Newburyport, MA

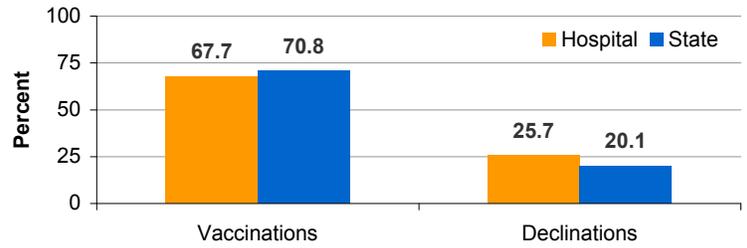
Report Release Date: February 2012

2010 Hospital Survey Statistics

Medical School Affiliation	No
Hospital Type	Nonteaching
Profit Status	Not-for-profit
Number of Beds	111
Number of ICU Beds	8
Number of Admissions	7,456
Number of Patient Days	29,352
Beds per Infection Preventionist	111.0

Influenza Vaccination

Influenza Vaccination Among Hospital Staff, 2010

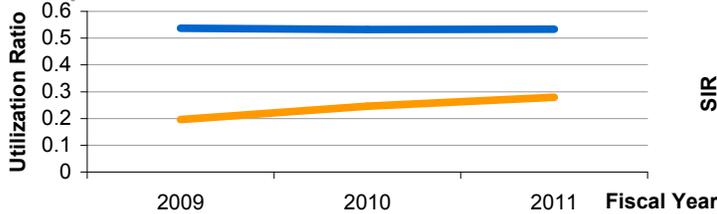


Central Line-Associated Blood Stream Infection

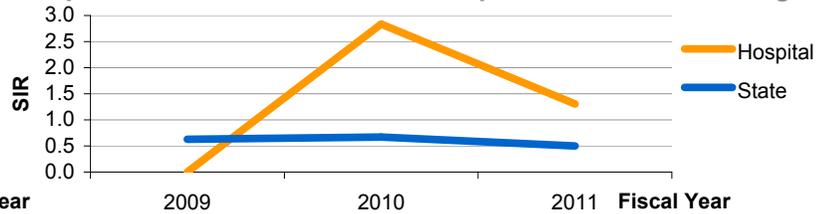
CLABSI Rates by ICU Type for Fiscal Year 2011, Compared to State Baseline Data from Fiscal Years 2009-2010

ICU Type	Infections	Line Days	Rate	Predicted Infections	SIR	Confidence Interval	Interpretation
Medical/surgical	1	510	1.96	0.56	1.78	(0.04 - 9.94)	Same

Hospital and State Central Line Utilization Ratios



Hospital and State CLABSI SIRs compared to National Average

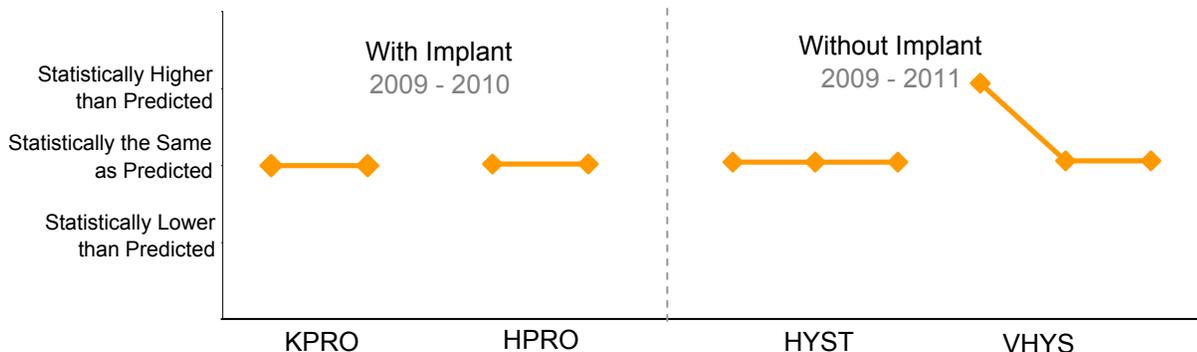


Surgical Site Infection

Hospital SSI SIRs by Procedure Type for All Fiscal Years Available

Procedure	Fiscal Year	Infections	Procedures	Predicted Infections	SIR	Confidence Interval	Interpretation
Knee Prosthesis (KPRO)	2009	1	65	0.28	3.62	(0.09 - 20.18)	Same
	2010	1	63	0.26	3.84	(0.09 - 21.38)	Same
Hip Prosthesis (HPRO)	2009	1	68	0.32	3.11	(0.07 - 17.30)	Same
	2010	2	65	0.40	5.01	(0.60 - 18.11)	Same
Abdominal Hysterectomy (HYST)	2009	0	45	0.30	0.00	(0.00 - 12.27)	Same
	2010	0	55	0.38	0.00	(0.00 - 9.62)	Same
	2011	0	46	0.32	0.00	(0.00 - 11.67)	Same
Vaginal Hysterectomy (VHYS)	2009	2	39	0.16	12.52	(1.51 - 45.21)	Higher
	2010	1	27	0.10	10.22	(0.25 - 56.91)	Same
	2011	0	41	0.11	0.00	(0.00 - 32.96)	Same

Statistically Significant Variation from Predicted Number of Surgical Site Infections Over Time





Massachusetts 2011 HAI Data Report

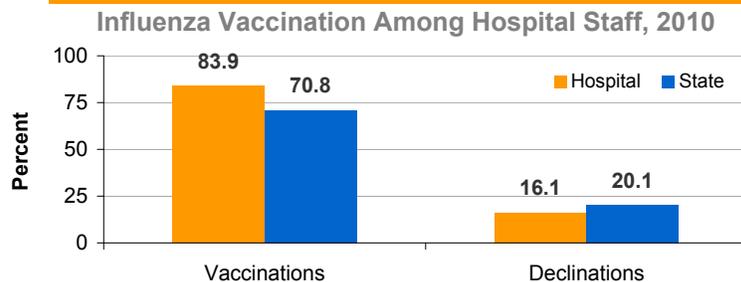
Athol Memorial Hospital - Athol, MA

Report Release Date: February 2012

2010 Hospital Survey Statistics

Medical School Affiliation	No
Hospital Type	Nonteaching
Profit Status	Not-for-profit
Number of Beds	25
Number of ICU Beds	3
Number of Admissions	927
Number of Patient Days	2,457
Beds per Infection Preventionist	25.0

Influenza Vaccination

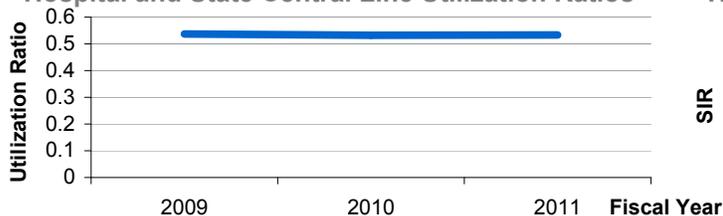


Central Line-Associated Blood Stream Infection

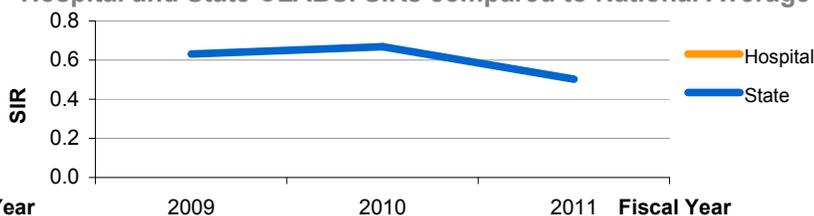
CLABSI Rates by ICU Type for Fiscal Year 2011, Compared to State Baseline Data from Fiscal Years 2009-2010

ICU Type	Infections	Line Days	Rate	Predicted Infections	SIR	Confidence Interval	Interpretation
Surgical	0	0	0.00	0.00	***	***	***

Hospital and State Central Line Utilization Ratios



Hospital and State CLABSI SIRs compared to National Average

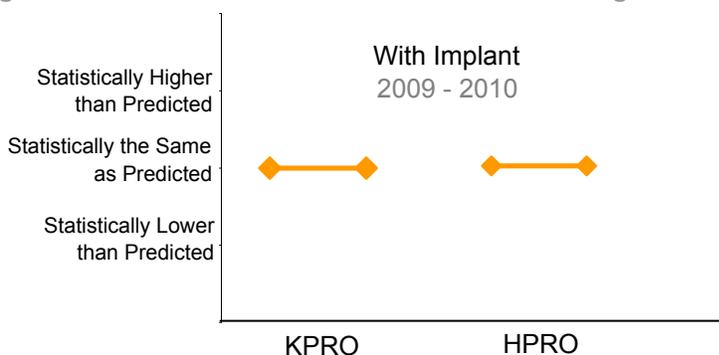


Surgical Site Infection

Hospital SSI SIRs by Procedure Type for All Fiscal Years Available

Procedure	Fiscal Year	Infections	Procedures	Predicted Infections	SIR	Confidence Interval	Interpretation
Knee Prosthesis (KPRO)	2009	0	1	0.01	0.00	(0.00 - 737.7)	Same
	2010	0	6	0.04	0.00	(0.00 - 105.3)	Same
Hip Prosthesis (HPRO)	2009	0	4	0.02	0.00	(0.00 - 150.5)	Same
	2010	0	1	0.01	0.00	(0.00 - 636.0)	Same

Statistically Significant Variation from Predicted Number of Surgical Site Infections Over Time





Massachusetts 2011 HAI Data Report

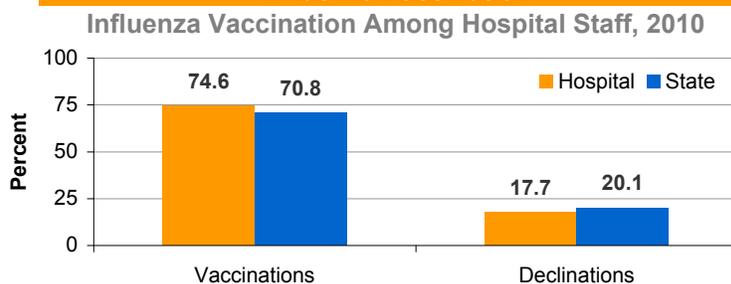
Baystate Franklin Medical Center - Greenfield, MA

Report Release Date: February 2012

2010 Hospital Survey Statistics

Medical School Affiliation	No
Hospital Type	Nonteaching
Profit Status	Not-for-profit
Number of Beds	90
Number of ICU Beds	6
Number of Admissions	4,220
Number of Patient Days	18,103
Beds per Infection Preventionist	90.0

Influenza Vaccination

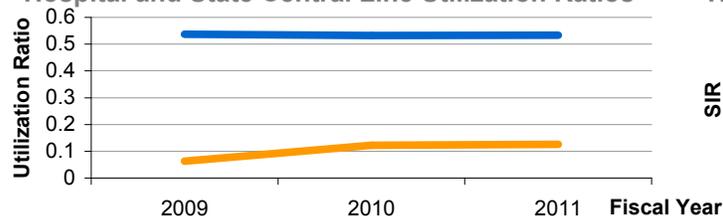


Central Line-Associated Blood Stream Infection

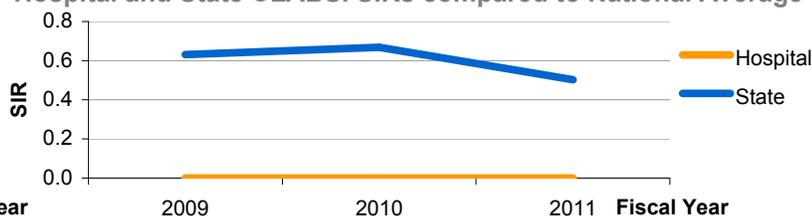
CLABSI Rates by ICU Type for Fiscal Year 2011, Compared to State Baseline Data from Fiscal Years 2009-2010

ICU Type	Infections	Line Days	Rate	Predicted Infections	SIR	Confidence Interval	Interpretation
Medical cardiac	0	119	0.00	0.20	0.00	(0.00 - 18.81)	Same

Hospital and State Central Line Utilization Ratios



Hospital and State CLABSI SIRs compared to National Average

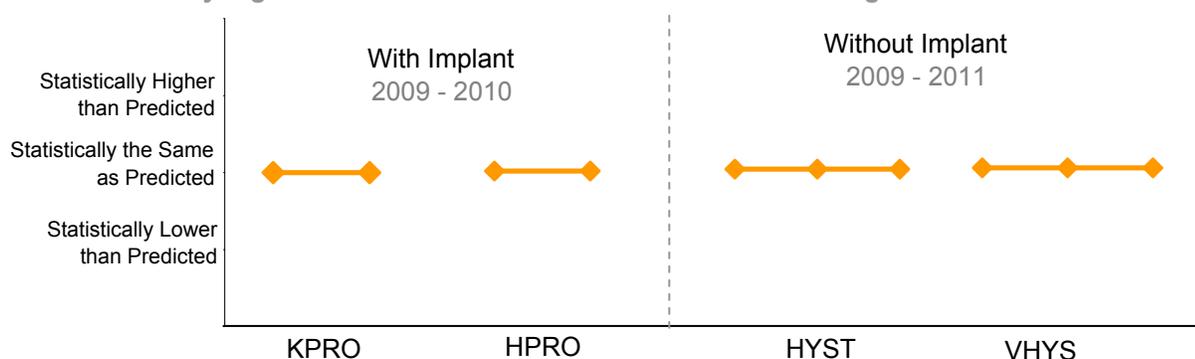


Surgical Site Infection

Hospital SSI SIRs by Procedure Type for All Fiscal Years Available

Procedure	Fiscal Year	Infections	Procedures	Predicted Infections	SIR	Confidence Interval	Interpretation
Knee Prosthesis (KPRO)	2009	1	30	0.11	9.32	(0.23 - 51.92)	Same
	2010	1	47	0.20	4.98	(0.12 - 27.73)	Same
Hip Prosthesis (HPRO)	2009	0	29	0.17	0.00	(0.00 - 22.18)	Same
	2010	1	22	0.17	5.75	(0.14 - 32.03)	Same
Abdominal Hysterectomy (HYST)	2009	0	33	0.25	0.00	(0.00 - 14.75)	Same
	2010	0	38	0.28	0.00	(0.00 - 12.96)	Same
	2011	1	34	0.30	3.38	(0.08 - 18.85)	Same
Vaginal Hysterectomy (VHYS)	2009	0	33	0.13	0.00	(0.00 - 29.51)	Same
	2010	0	35	0.12	0.00	(0.00 - 31.50)	Same
	2011	0	31	0.11	0.00	(0.00 - 32.10)	Same

Statistically Significant Variation from Predicted Number of Surgical Site Infections Over Time





Massachusetts 2011 HAI Data Report

Baystate Mary Lane Hospital - Ware, MA

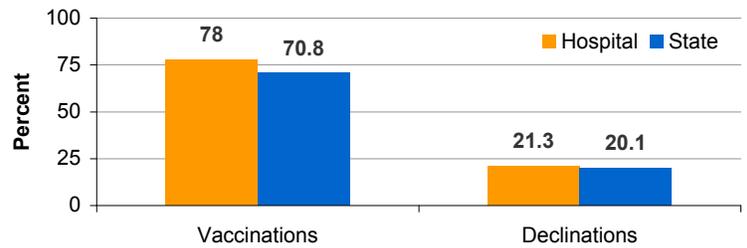
Report Release Date: February 2012

2010 Hospital Survey Statistics

Medical School Affiliation	No
Hospital Type	Nonteaching
Profit Status	Not-for-profit
Number of Beds	25
Number of ICU Beds	4
Number of Admissions	1,373
Number of Patient Days	3,947
Beds per Infection Preventionist	25.0

Influenza Vaccination

Influenza Vaccination Among Hospital Staff, 2010

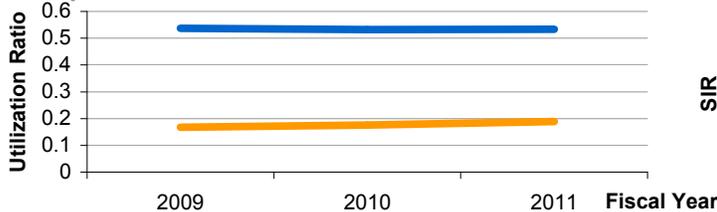


Central Line-Associated Blood Stream Infection

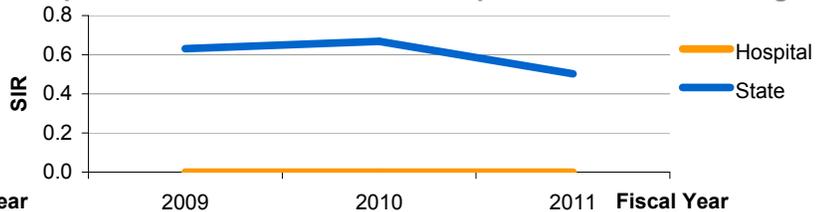
CLABSI Rates by ICU Type for Fiscal Year 2011, Compared to State Baseline Data from Fiscal Years 2009-2010

ICU Type	Infections	Line Days	Rate	Predicted Infections	SIR	Confidence Interval	Interpretation
Medical cardiac	0	79	0.00	0.13	0.00	(0.00 - 28.34)	Same

Hospital and State Central Line Utilization Ratios



Hospital and State CLABSI SIRs compared to National Average

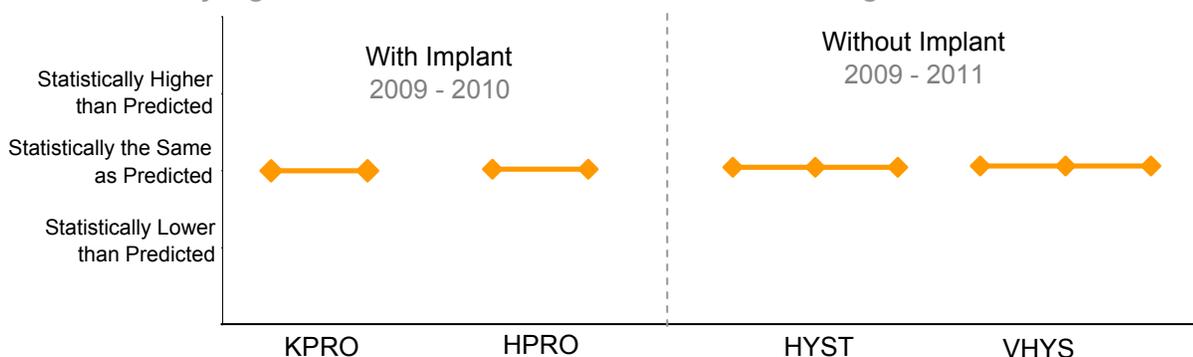


Surgical Site Infection

Hospital SSI SIRs by Procedure Type for All Fiscal Years Available

Procedure	Fiscal Year	Infections	Procedures	Predicted Infections	SIR	Confidence Interval	Interpretation
Knee Prosthesis (KPRO)	2009	0	9	0.07	0.00	(0.00 - 49.78)	Same
	2010	0	2	0.01	0.00	(0.00 - 315.2)	Same
Hip Prosthesis (HPRO)	2009	0	2	0.02	0.00	(0.00 - 161.7)	Same
	2010	0	1	0.01	0.00	(0.00 - 341.5)	Same
Abdominal Hysterectomy (HYST)	2009	1	10	0.08	11.86	(0.3 - 66.09)	Same
	2010	1	13	0.11	9.09	(0.23 - 50.65)	Same
	2011	0	12	0.12	0.00	(0.00 - 32.02)	Same
Vaginal Hysterectomy (VHYS)	2009	0	9	0.03	0.00	(0.00 - 114.9)	Same
	2010	0	10	0.05	0.00	(0.00 - 77.82)	Same
	2011	0	19	0.07	0.00	(0.00 - 50.60)	Same

Statistically Significant Variation from Predicted Number of Surgical Site Infections Over Time





Massachusetts 2011 HAI Data Report

Baystate Medical Center - Springfield, MA

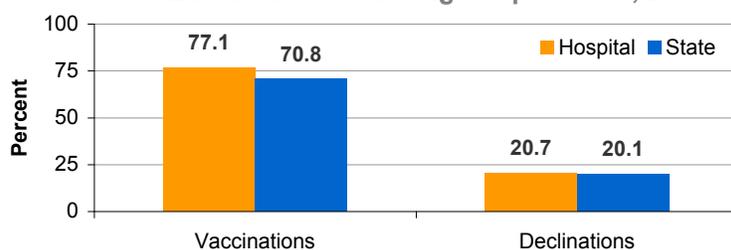
Report Release Date: February 2012

2010 Hospital Survey Statistics

Medical School Affiliation	Yes
Hospital Type	Major teaching
Profit Status	Not-for-profit
Number of Beds	659
Number of ICU Beds	106
Number of Admissions	37,558
Number of Patient Days	182,934
Beds per Infection Preventionist	131.8

Influenza Vaccination

Influenza Vaccination Among Hospital Staff, 2010

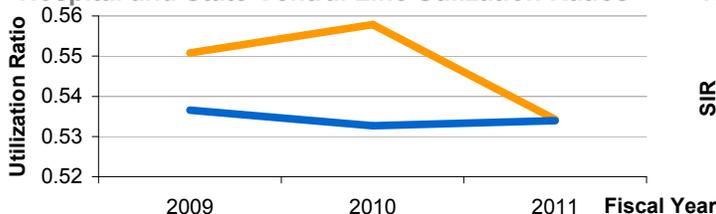


Central Line-Associated Blood Stream Infection

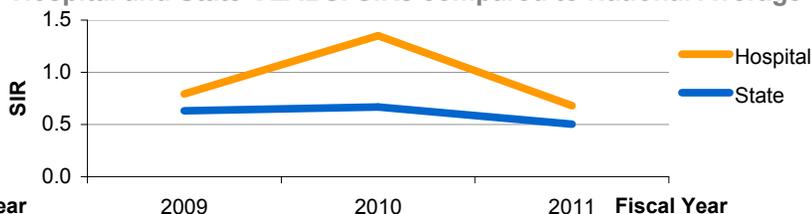
CLABSI Rates by ICU Type for Fiscal Year 2011, Compared to State Baseline Data from Fiscal Years 2009-2010

ICU Type	Infections	Line Days	Rate	Predicted Infections	SIR	Confidence Interval	Interpretation
Medical cardiac	1	770	1.30	1.27	0.79	(0.02 - 4.39)	Same
Surgical cardiothoracic	5	1,939	2.58	1.74	2.88	(0.93 - 6.72)	Same
Medical/surgical	1	3,995	0.25	4.49	0.22	(0.00 - 1.24)	Same
Pediatric medical/surgical	3	687	4.37	1.48	2.02	(0.41 - 5.90)	Same
Neonatal	1	1,877	0.53	5.10	0.20	(0.00 - 1.09)	Same

Hospital and State Central Line Utilization Ratios



Hospital and State CLABSI SIRs compared to National Average

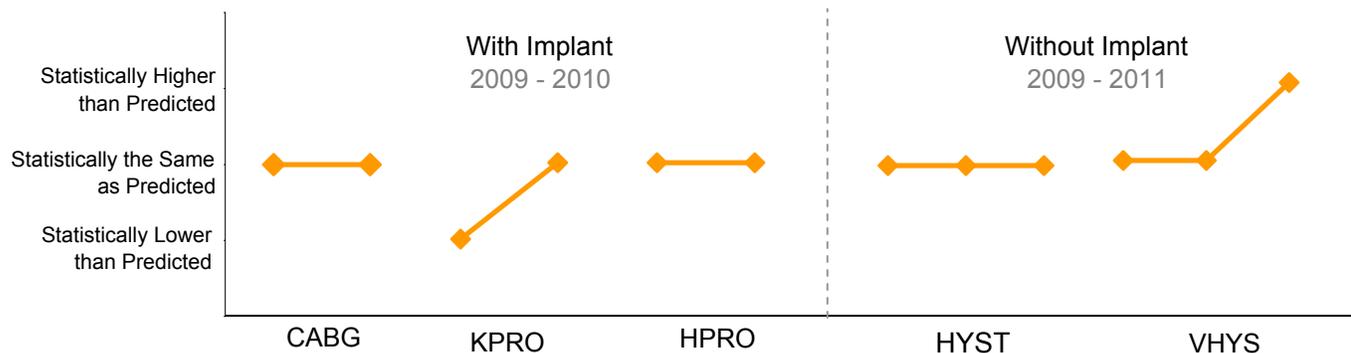


Surgical Site Infection

Hospital SSI SIRs by Procedure Type for All Fiscal Years Available

Procedure	Fiscal Year	Infections	Procedures	Predicted Infections	SIR	Confidence Interval	Interpretation
Coronary Artery Bypass (CABG)	2009	4	362	4.50	0.89	(0.24 - 2.27)	Same
	2010	6	386	5.18	1.16	(0.42 - 2.52)	Same
Knee Prosthesis (KPRO)	2009	0	622	3.94	0.00	(0.00 - 0.93)	Lower
	2010	3	773	4.91	0.61	(0.12 - 1.78)	Same
Hip Prosthesis (HPRO)	2009	0	395	3.11	0.00	(0.00 - 1.18)	Same
	2010	2	383	3.31	0.60	(0.07 - 2.18)	Same
Abdominal Hysterectomy (HYST)	2009	1	412	2.40	0.42	(0.01 - 2.32)	Same
	2010	5	408	2.39	2.09	(0.67 - 4.88)	Same
	2011	5	295	1.74	2.88	(0.93 - 6.71)	Same
Vaginal Hysterectomy (VHYS)	2009	2	142	1.32	1.52	(0.18 - 5.48)	Same
	2010	3	197	1.67	1.79	(0.36 - 5.23)	Same
	2011	9	182	1.46	6.15	(2.81 - 11.67)	Higher

Statistically Significant Variation from Predicted Number of Surgical Site Infections Over Time





Massachusetts 2011 HAI Data Report

Berkshire Health System - Pittsfield, MA

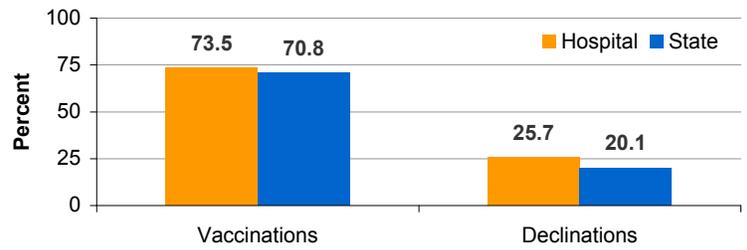
Report Release Date: February 2012

2010 Hospital Survey Statistics

Medical School Affiliation	Yes
Hospital Type	Major teaching
Profit Status	Not-for-profit
Number of Beds	304
Number of ICU Beds	20
Number of Admissions	11,949
Number of Patient Days	54,032
Beds per Infection Preventionist	152.0

Influenza Vaccination

Influenza Vaccination Among Hospital Staff, 2010

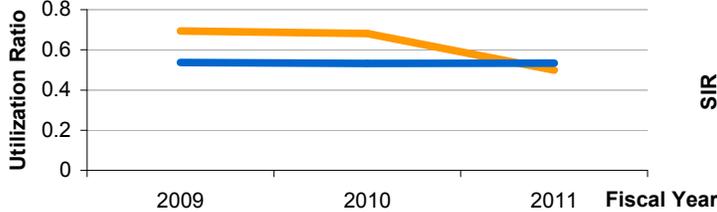


Central Line-Associated Blood Stream Infection

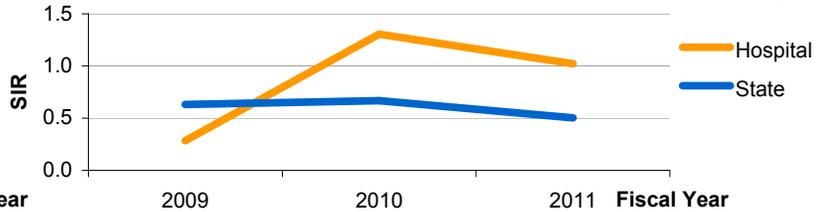
CLABSI Rates by ICU Type for Fiscal Year 2011, Compared to State Baseline Data from Fiscal Years 2009-2010

ICU Type	Infections	Line Days	Rate	Predicted Infections	SIR	Confidence Interval	Interpretation
Medical/surgical	5	2,334	2.14	2.62	1.91	(0.61 - 4.45)	Same

Hospital and State Central Line Utilization Ratios



Hospital and State CLABSI SIRs compared to National Average

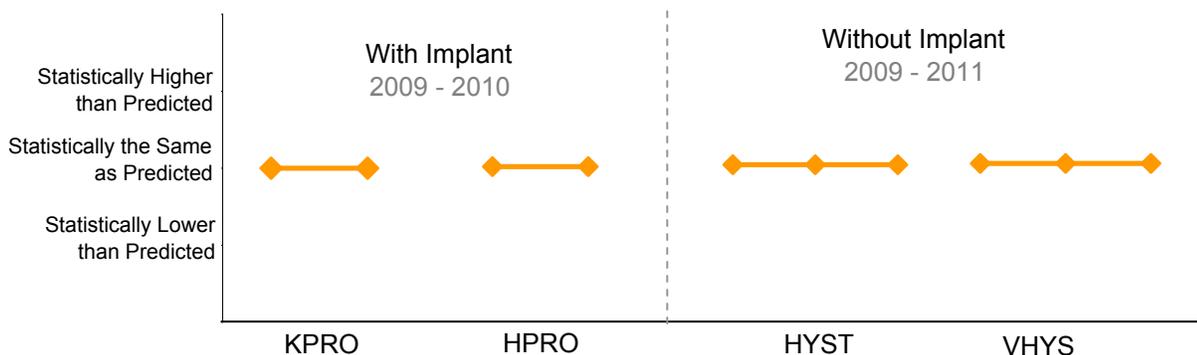


Surgical Site Infection

Hospital SSI SIRs by Procedure Type for All Fiscal Years Available

Procedure	Fiscal Year	Infections	Procedures	Predicted Infections	SIR	Confidence Interval	Interpretation
Knee Prosthesis (KPRO)	2009	1	168	0.98	1.02	(0.02 - 5.66)	Same
	2010	4	225	1.30	3.08	(0.84 - 7.89)	Same
Hip Prosthesis (HPRO)	2009	4	142	1.27	3.14	(0.85 - 8.03)	Same
	2010	0	126	1.11	0.00	(0.00 - 3.32)	Same
Abdominal Hysterectomy (HYST)	2009	0	49	0.39	0.00	(0.00 - 9.56)	Same
	2010	1	44	0.37	2.68	(0.06 - 14.90)	Same
	2011	0	23	0.20	0.00	(0.00 - 18.19)	Same
Vaginal Hysterectomy (VHYS)	2009	0	59	0.40	0.00	(0.00 - 9.27)	Same
	2010	1	55	0.36	2.79	(0.07 - 15.52)	Same
	2011	2	51	0.37	5.35	(0.64 - 19.32)	Same

Statistically Significant Variation from Predicted Number of Surgical Site Infections Over Time





Massachusetts 2011 HAI Data Report

Beth Israel Deaconess Medical Center - Boston, MA

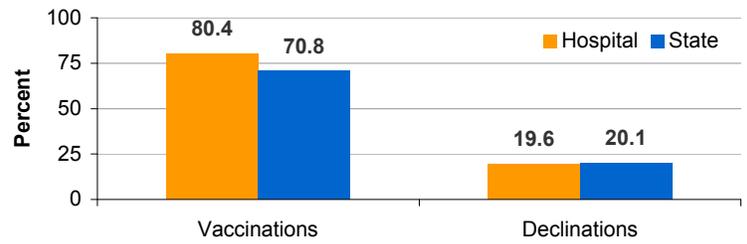
Report Release Date: February 2012

2010 Hospital Survey Statistics

Medical School Affiliation	Yes
Hospital Type	Major teaching
Profit Status	Not-for-profit
Number of Beds	685
Number of ICU Beds	117
Number of Admissions	51,402
Number of Patient Days	207,219
Beds per Infection Preventionist	171.3

Influenza Vaccination

Influenza Vaccination Among Hospital Staff, 2010

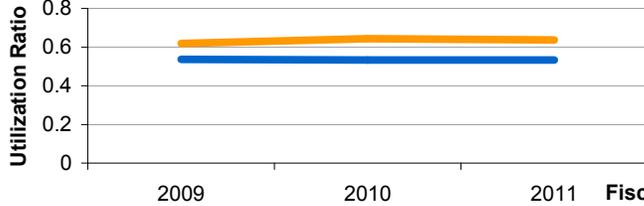


Central Line-Associated Blood Stream Infection

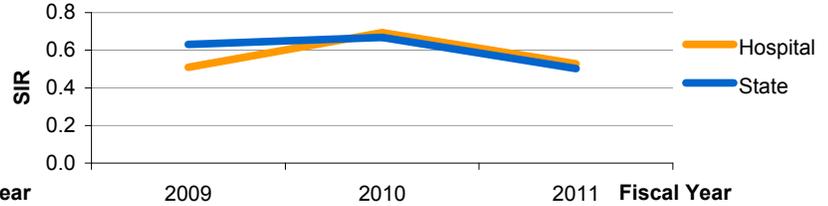
CLABSI Rates by ICU Type for Fiscal Year 2011, Compared to State Baseline Data from Fiscal Years 2009-2010

ICU Type	Infections	Line Days	Rate	Predicted Infections	SIR	Confidence Interval	Interpretation
Medical cardiac	0	1,074	0.00	1.77	0.00	(0.00 - 2.08)	Same
Surgical cardiothoracic	1	2,632	0.38	2.36	0.43	(0.01 - 2.36)	Same
Medical	7	2,972	2.36	4.95	1.41	(0.56 - 2.91)	Same
Medical/surgical	3	1,943	1.54	2.18	1.38	(0.28 - 4.01)	Same
Surgical	3	3,016	0.99	4.07	0.74	(0.15 - 2.15)	Same
Trauma	2	1,588	1.26	1.72	1.16	(0.14 - 4.18)	Same
Neonatal	3	2,034	1.47	5.52	0.54	(0.11 - 1.58)	Same

Hospital and State Central Line Utilization Ratios



Hospital and State CLABSI SIRs compared to National Average

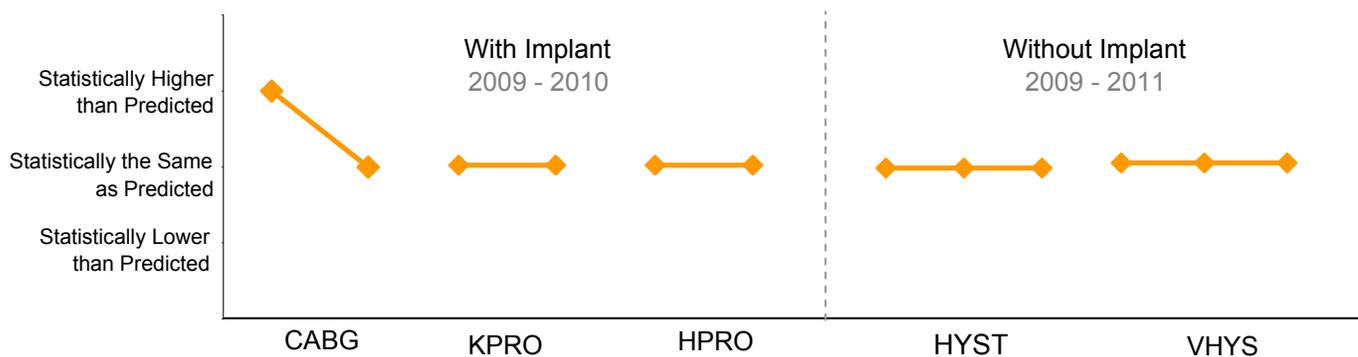


Surgical Site Infection

Hospital SSI SIRs by Procedure Type for All Fiscal Years Available

Procedure	Fiscal Year	Infections	Procedures	Predicted Infections	SIR	Confidence Interval	Interpretation
Coronary Artery Bypass (CABG)	2009	11	423	5.42	2.03	(1.01 - 3.63)	Higher
	2010	8	401	4.98	1.61	(0.69 - 3.16)	Same
Knee Prosthesis (KPRO)	2009	2	265	1.64	1.22	(0.14 - 4.40)	Same
	2010	4	281	1.94	2.06	(0.56 - 5.27)	Same
Hip Prosthesis (HPRO)	2009	4	212	2.39	1.68	(0.45 - 4.29)	Same
	2010	1	261	3.04	0.33	(0.00 - 1.83)	Same
Abdominal Hysterectomy (HYST)	2009	1	316	1.82	0.55	(0.01 - 3.06)	Same
	2010	1	273	1.78	0.56	(0.01 - 3.13)	Same
	2011	3	325	2.32	1.30	(0.26 - 3.78)	Same
Vaginal Hysterectomy (VHYS)	2009	1	45	0.28	3.57	(0.09 - 19.90)	Same
	2010	0	12	0.12	0.00	(0.00 - 32.04)	Same
	2011	0	63	0.55	0.00	(0.00 - 6.74)	Same

Statistically Significant Variation from Predicted Number of Surgical Site Infections Over Time





Massachusetts 2011 HAI Data Report

Beth Israel Deaconess Medical Center Needham - Needham, MA

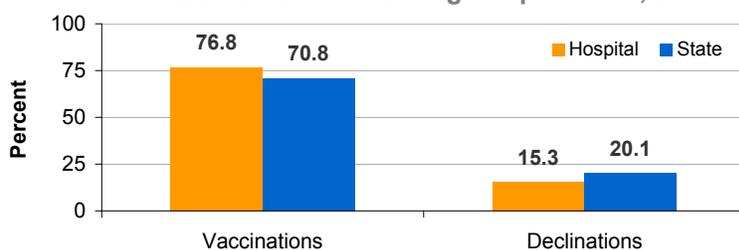
Report Release Date: February 2012

2010 Hospital Survey Statistics

Medical School Affiliation	No
Hospital Type	Nonteaching
Profit Status	Not-for-profit
Number of Beds	58
Number of ICU Beds	7
Number of Admissions	2,394
Number of Patient Days	7,436
Beds per Infection Preventionist	58.0

Influenza Vaccination

Influenza Vaccination Among Hospital Staff, 2010

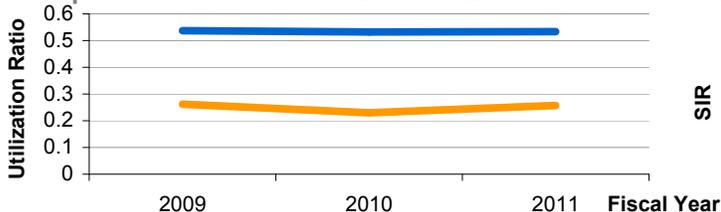


Central Line-Associated Blood Stream Infection

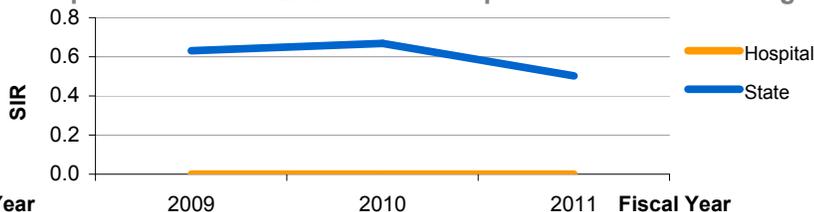
CLABSI Rates by ICU Type for Fiscal Year 2011, Compared to State Baseline Data from Fiscal Years 2009-2010

ICU Type	Infections	Line Days	Rate	Predicted Infections	SIR	Confidence Interval	Interpretation
Medical/surgical	0	449	0.00	0.49	0.00	(0.00 - 7.47)	Same

Hospital and State Central Line Utilization Ratios



Hospital and State CLABSI SIRs compared to National Average

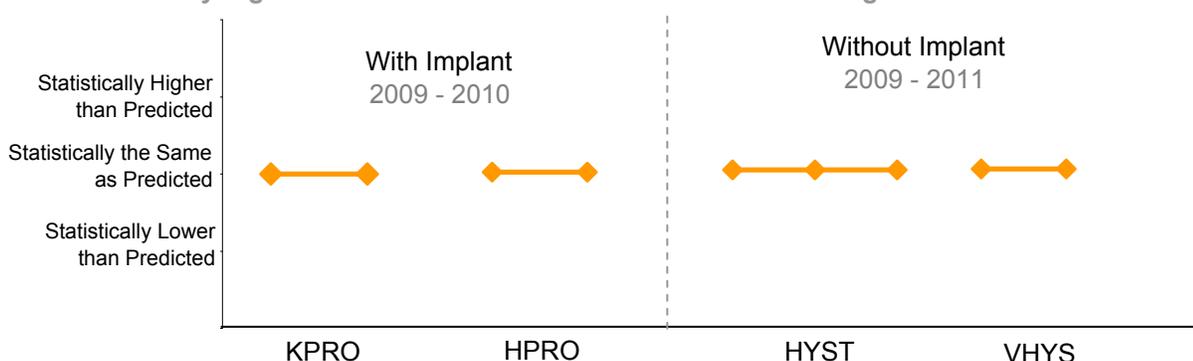


Surgical Site Infection

Hospital SSI SIRs by Procedure Type for All Fiscal Years Available

Procedure	Fiscal Year	Infections	Procedures	Predicted Infections	SIR	Confidence Interval	Interpretation
Knee Prosthesis (KPRO)	2009	0	23	0.11	0.00	(0.00 - 34.76)	Same
	2010	1	49	0.25	4.03	(0.10 - 22.44)	Same
Hip Prosthesis (HPRO)	2009	0	42	0.32	0.00	(0.00 - 11.51)	Same
	2010	0	38	0.29	0.00	(0.00 - 12.69)	Same
Abdominal Hysterectomy (HYST)	2009	0	7	0.06	0.00	(0.00 - 65.06)	Same
	2010	0	5	0.03	0.00	(0.00 - 124.2)	Same
	2011	0	14	0.09	0.00	(0.00 - 43.29)	Same
Vaginal Hysterectomy (VHYS)	2009	0	5	0.02	0.00	(0.00 - 203.8)	Same
	2010	0	3	0.01	0.00	(0.00 - 670.7)	Same

Statistically Significant Variation from Predicted Number of Surgical Site Infections Over Time





Massachusetts 2011 HAI Data Report

Boston Medical Center - Boston, MA

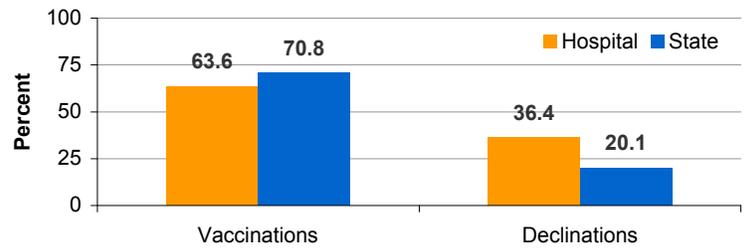
Report Release Date: February 2012

2010 Hospital Survey Statistics

Medical School Affiliation	Yes
Hospital Type	Major teaching
Profit Status	Not-for-profit
Number of Beds	626
Number of ICU Beds	81
Number of Admissions	30,215
Number of Patient Days	136,849
Beds per Infection Preventionist	156.5

Influenza Vaccination

Influenza Vaccination Among Hospital Staff, 2010

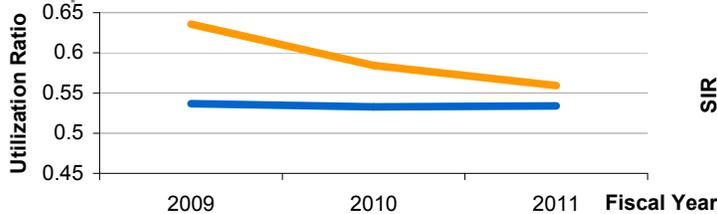


Central Line-Associated Blood Stream Infection

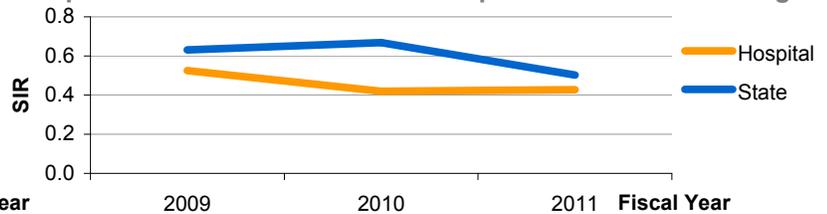
CLABSI Rates by ICU Type for Fiscal Year 2011, Compared to State Baseline Data from Fiscal Years 2009-2010

ICU Type	Infections	Line Days	Rate	Predicted Infections	SIR	Confidence Interval	Interpretation
Medical cardiac	5	1,540	3.25	2.54	1.97	(0.64 - 4.6)	Same
Medical	4	4,660	0.86	7.77	0.52	(0.14 - 1.31)	Same
Pediatric medical/surgical	0	157	0.00	0.34	0.00	(0.00 - 10.87)	Same
Surgical	2	2,667	0.75	3.60	0.56	(0.06 - 2.00)	Same
Trauma	1	1,729	0.58	1.88	0.53	(0.01 - 2.96)	Same
Neonatal	1	1,046	0.96	2.92	0.34	(0.00 - 1.90)	Same

Hospital and State Central Line Utilization Ratios



Hospital and State CLABSI SIRs compared to National Average

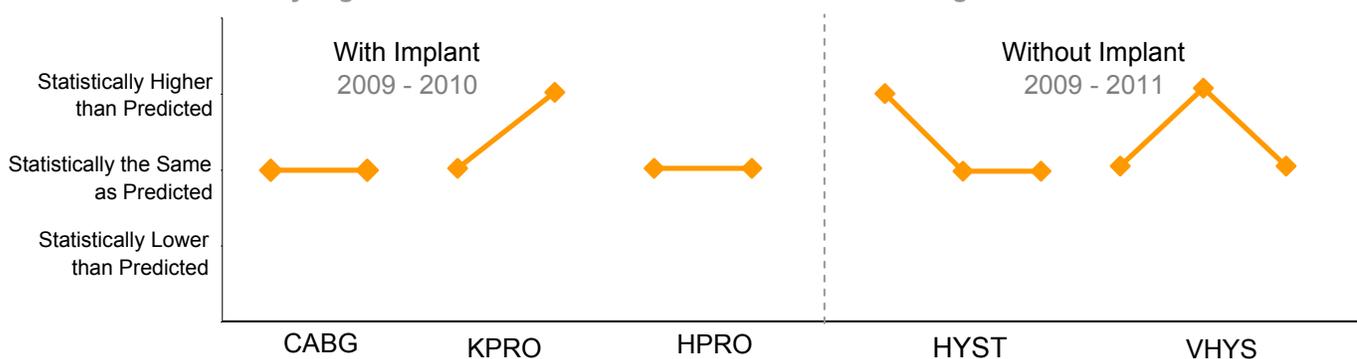


Surgical Site Infection

Hospital SSI SIRs by Procedure Type for All Fiscal Years Available

Procedure	Fiscal Year	Infections	Procedures	Predicted Infections	SIR	Confidence Interval	Interpretation
Coronary Artery Bypass (CABG)	2009	5	291	3.25	1.54	(0.5 - 3.59)	Same
	2010	1	212	2.37	0.42	(0.01 - 2.35)	Same
Knee Prosthesis (KPRO)	2009	3	235	1.58	1.89	(0.39 - 5.53)	Same
	2010	5	241	1.55	3.22	(1.04 - 7.51)	Higher
Hip Prosthesis (HPRO)	2009	1	101	1.13	0.88	(0.02 - 4.91)	Same
	2010	2	111	1.17	1.71	(0.20 - 6.16)	Same
Abdominal Hysterectomy (HYST)	2009	6	198	1.56	3.83	(1.40 - 8.34)	Higher
	2010	3	180	1.38	2.18	(0.44 - 6.36)	Same
	2011	0	213	1.77	0.00	(0.00 - 2.08)	Same
Vaginal Hysterectomy (VHYS)	2009	0	37	0.34	0.00	(0.00 - 10.69)	Same
	2010	3	30	0.29	10.32	(2.12 - 30.15)	Higher
	2011	1	42	0.38	2.67	(0.06 - 14.84)	Same

Statistically Significant Variation from Predicted Number of Surgical Site Infections Over Time





Massachusetts 2011 HAI Data Report

Brigham and Women's Hospital - Boston, MA

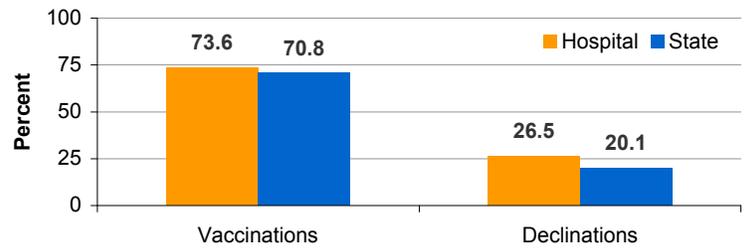
Report Release Date: February 2012

2010 Hospital Survey Statistics

Medical School Affiliation	Yes
Hospital Type	Major teaching
Profit Status	Not-for-profit
Number of Beds	787
Number of ICU Beds	156
Number of Admissions	55,691
Number of Patient Days	279,014
Beds per Infection Preventionist	196.8

Influenza Vaccination

Influenza Vaccination Among Hospital Staff, 2010

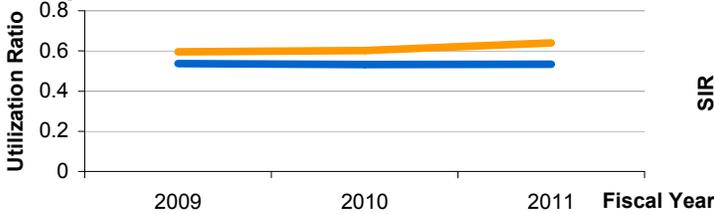


Central Line-Associated Blood Stream Infection

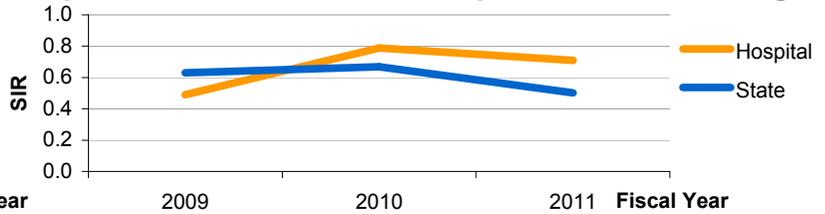
CLABSI Rates by ICU Type for Fiscal Year 2011, Compared to State Baseline Data from Fiscal Years 2009-2010

ICU Type	Infections	Line Days	Rate	Predicted Infections	SIR	Confidence Interval	Interpretation
Medical cardiac	3	1,815	1.65	2.99	1.00	(0.20 - 2.93)	Same
Surgical cardiothoracic	3	4,796	0.63	4.29	0.70	(0.14 - 2.04)	Same
Medical	9	4,056	2.22	6.76	1.33	(0.60 - 2.52)	Same
Neurosurgical	1	2,373	0.42	2.37	0.42	(0.01 - 2.35)	Same
Surgical	12	5,498	2.18	7.42	1.62	(0.83 - 2.82)	Same
Neonatal	3	2,413	1.24	6.39	0.47	(0.09 - 1.37)	Same

Hospital and State Central Line Utilization Ratios



Hospital and State CLABSI SIRs compared to National Average

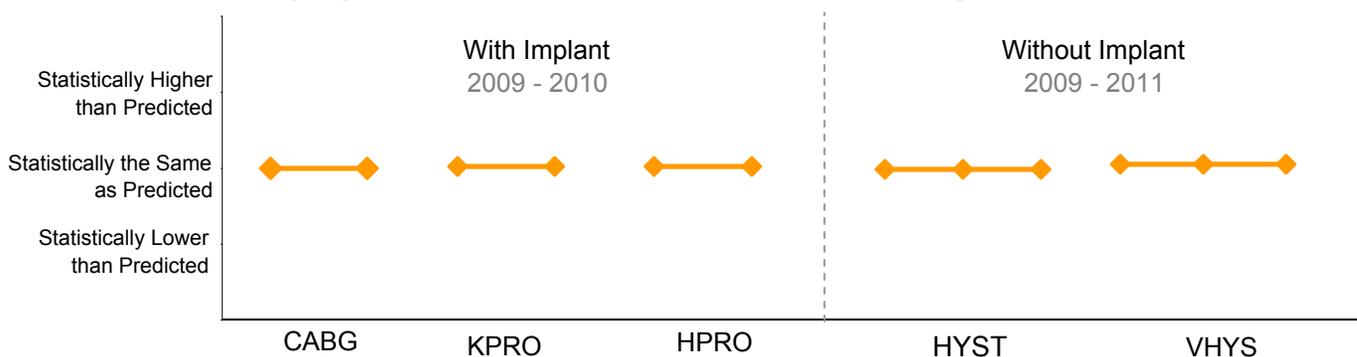


Surgical Site Infection

Hospital SSI SIRs by Procedure Type for All Fiscal Years Available

Procedure	Fiscal Year	Infections	Procedures	Predicted Infections	SIR	Confidence Interval	Interpretation
Coronary Artery Bypass (CABG)	2009	9	644	7.29	1.24	(0.56 - 2.34)	Same
	2010	11	598	7.20	1.53	(0.76 - 2.73)	Same
Knee Prosthesis (KPRO)	2009	1	720	4.45	0.23	(0.00 - 1.25)	Same
	2010	6	663	4.14	1.45	(0.53 - 3.15)	Same
Hip Prosthesis (HPRO)	2009	1	421	4.10	0.24	(0.00 - 1.36)	Same
	2010	6	433	4.26	1.41	(0.51 - 3.06)	Same
Abdominal Hysterectomy (HYST)	2009	6	768	4.56	1.32	(0.48 - 2.86)	Same
	2010	6	723	4.24	1.41	(0.51 - 3.07)	Same
	2011	4	669	4.04	0.99	(0.27 - 2.53)	Same
Vaginal Hysterectomy (VHYS)	2009	1	252	1.61	0.62	(0.01 - 3.46)	Same
	2010	4	249	1.76	2.27	(0.61 - 5.80)	Same
	2011	5	261	1.81	2.76	(0.89 - 6.44)	Same

Statistically Significant Variation from Predicted Number of Surgical Site Infections Over Time





Massachusetts 2011 HAI Data Report

Cape Cod Hospital - Hyannis, MA

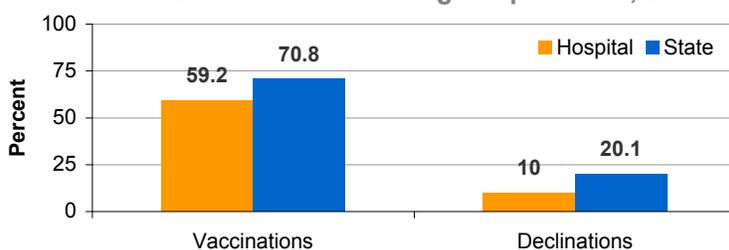
Report Release Date: February 2012

2010 Hospital Survey Statistics

Medical School Affiliation	No
Hospital Type	Nonteaching
Profit Status	Not-for-profit
Number of Beds	259
Number of ICU Beds	33
Number of Admissions	17,255
Number of Patient Days	68,468
Beds per Infection Preventionist	259.0

Influenza Vaccination

Influenza Vaccination Among Hospital Staff, 2010

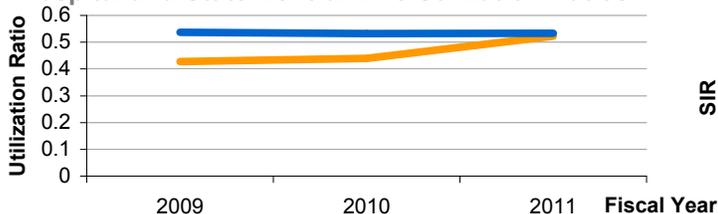


Central Line-Associated Blood Stream Infection

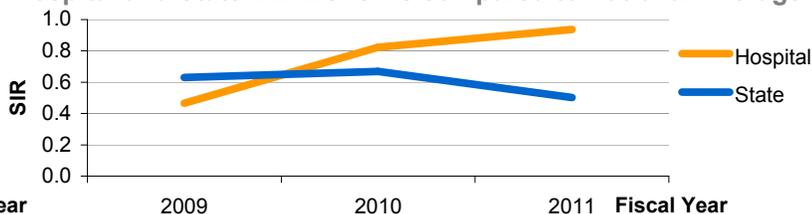
CLABSI Rates by ICU Type for Fiscal Year 2011, Compared to State Baseline Data from Fiscal Years 2009-2010

ICU Type	Infections	Line Days	Rate	Predicted Infections	SIR	Confidence Interval	Interpretation
Surgical cardiothoracic	3	1,746	1.72	1.56	1.92	(0.39 - 5.61)	Same
Medical/surgical	1	1,213	0.82	1.33	0.75	(0.01 - 4.18)	Same

Hospital and State Central Line Utilization Ratios



Hospital and State CLABSI SIRs compared to National Average

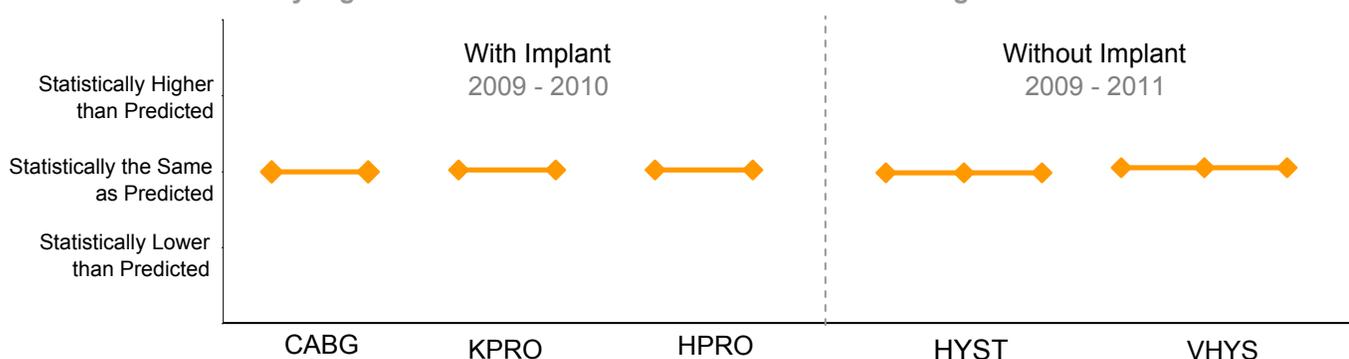


Surgical Site Infection

Hospital SSI SIRs by Procedure Type for All Fiscal Years Available

Procedure	Fiscal Year	Infections	Procedures	Predicted Infections	SIR	Confidence Interval	Interpretation
Coronary Artery Bypass (CABG)	2009	2	151	2.08	0.96	(0.11 - 3.47)	Same
	2010	2	155	1.91	1.05	(0.12 - 3.78)	Same
Knee Prosthesis (KPRO)	2009	1	230	1.28	0.78	(0.02 - 4.33)	Same
	2010	1	272	1.53	0.65	(0.01 - 3.63)	Same
Hip Prosthesis (HPRO)	2009	0	227	2.21	0.00	(0.00 - 1.66)	Same
	2010	0	275	2.41	0.00	(0.00 - 1.53)	Same
Abdominal Hysterectomy (HYST)	2009	0	86	0.54	0.00	(0.00 - 6.81)	Same
	2010	1	73	0.47	2.11	(0.05 - 11.74)	Same
	2011	0	48	0.31	0.00	(0.00 - 12.03)	Same
Vaginal Hysterectomy (VHYS)	2009	1	69	0.17	5.98	(0.15 - 33.32)	Same
	2010	0	43	0.10	0.00	(0.00 - 37.22)	Same
	2011	0	45	0.08	0.00	(0.00 - 44.76)	Same

Statistically Significant Variation from Predicted Number of Surgical Site Infections Over Time





Massachusetts 2011 HAI Data Report

Carney Hospital - Boston, MA

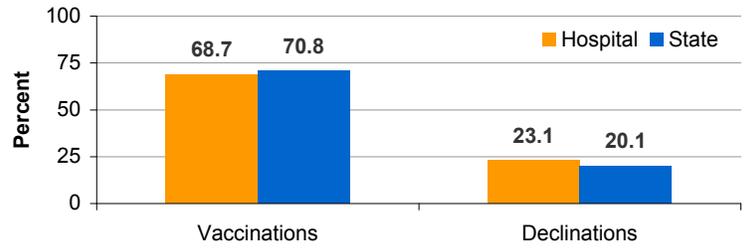
Report Release Date: February 2012

2010 Hospital Survey Statistics

Medical School Affiliation	Yes
Hospital Type	Limited teaching
Profit Status	For-profit
Number of Beds	120
Number of ICU Beds	15
Number of Admissions	6,421
Number of Patient Days	36,631
Beds per Infection Preventionist	120.0

Influenza Vaccination

Influenza Vaccination Among Hospital Staff, 2010

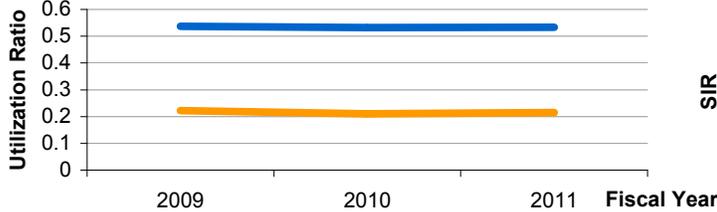


Central Line-Associated Blood Stream Infection

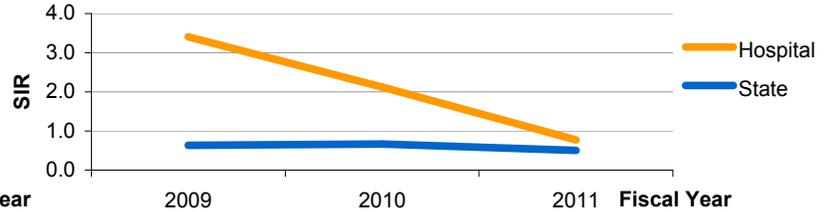
CLABSI Rates by ICU Type for Fiscal Year 2011, Compared to State Baseline Data from Fiscal Years 2009-2010

ICU Type	Infections	Line Days	Rate	Predicted Infections	SIR	Confidence Interval	Interpretation
Medical/surgical	1	866	1.15	0.95	1.05	(0.02 - 5.85)	Same

Hospital and State Central Line Utilization Ratios



Hospital and State CLABSI SIRs compared to National Average

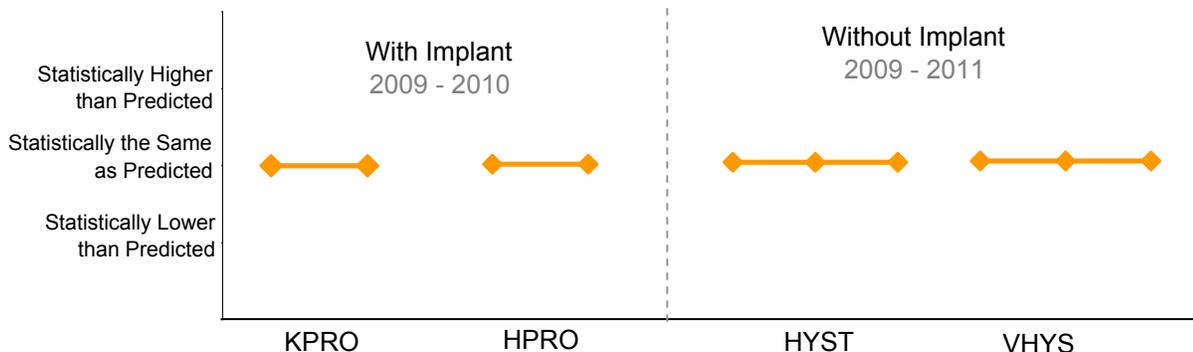


Surgical Site Infection

Hospital SSI SIRs by Procedure Type for All Fiscal Years Available

Procedure	Fiscal Year	Infections	Procedures	Predicted Infections	SIR	Confidence Interval	Interpretation
Knee Prosthesis (KPRO)	2009	0	50	0.33	0.00	(0.00 - 11.09)	Same
	2010	0	58	0.34	0.00	(0.00 - 11.01)	Same
Hip Prosthesis (HPRO)	2009	0	41	0.29	0.00	(0.00 - 12.91)	Same
	2010	0	26	0.20	0.00	(0.00 - 18.89)	Same
Abdominal Hysterectomy (HYST)	2009	0	10	0.07	0.00	(0.00 - 53.30)	Same
	2010	0	17	0.14	0.00	(0.00 - 26.52)	Same
	2011	0	17	0.13	0.00	(0.00 - 28.01)	Same
Vaginal Hysterectomy (VHYS)	2009	0	3	0.02	0.00	(0.00 - 203.8)	Same
	2010	0	1	0.01	0.00	(0.00 - 295.1)	Same
	2011	0	7	0.06	0.00	(0.00 - 65.75)	Same

Statistically Significant Variation from Predicted Number of Surgical Site Infections Over Time





Massachusetts 2011 HAI Data Report

Cambridge Health Alliance - Cambridge Hospital - Cambridge, MA

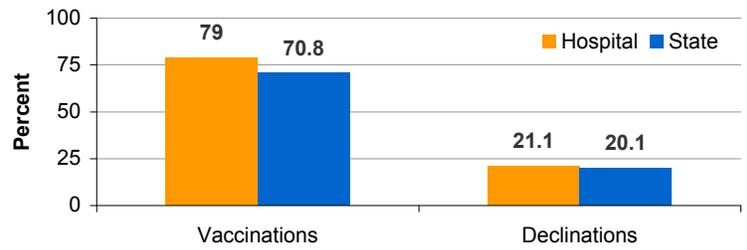
Report Release Date: February 2012

2010 Hospital Survey Statistics

Medical School Affiliation	Yes
Hospital Type	Graduate teaching
Profit Status	Not-for-profit
Number of Beds	153
Number of ICU Beds	10
Number of Admissions	8,921
Number of Patient Days	36,363
Beds per Infection Preventionist	153.0

Influenza Vaccination

Influenza Vaccination Among Hospital Staff, 2010

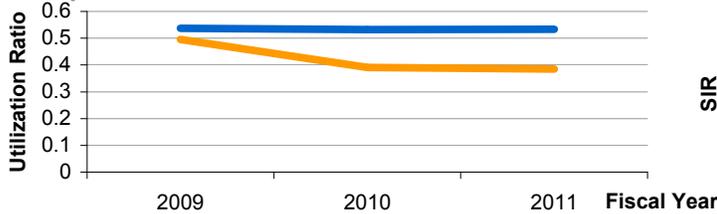


Central Line-Associated Blood Stream Infection

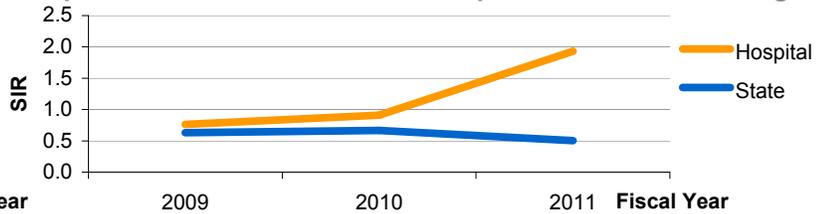
CLABSI Rates by ICU Type for Fiscal Year 2011, Compared to State Baseline Data from Fiscal Years 2009-2010

ICU Type	Infections	Line Days	Rate	Predicted Infections	SIR	Confidence Interval	Interpretation
Medical/surgical	2	690	2.90	0.76	2.64	(0.31 - 9.52)	Same

Hospital and State Central Line Utilization Ratios



Hospital and State CLABSI SIRs compared to National Average

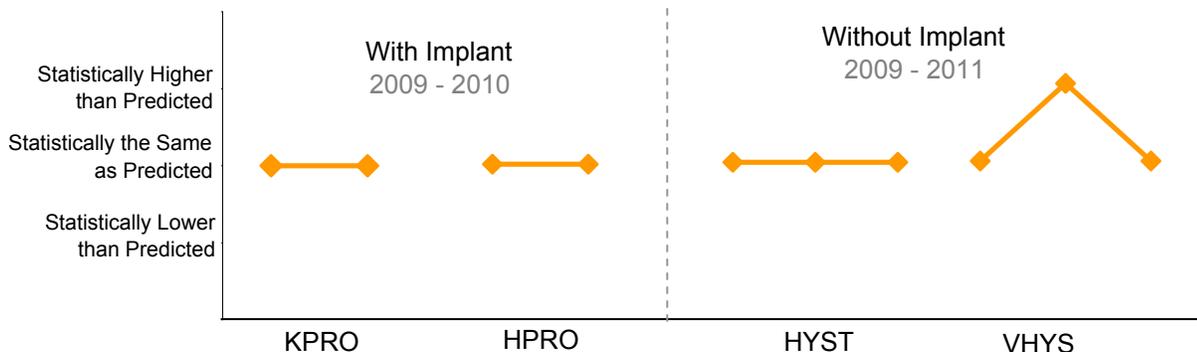


Surgical Site Infection

Hospital SSI SIRs by Procedure Type for All Fiscal Years Available

Procedure	Fiscal Year	Infections	Procedures	Predicted Infections	SIR	Confidence Interval	Interpretation
Knee Prosthesis (KPRO)	2009	1	46	0.28	3.57	(0.09 - 19.89)	Same
	2010	2	68	0.35	5.78	(0.7 - 20.88)	Same
Hip Prosthesis (HPRO)	2009	0	38	0.33	0.00	(0.00 - 11.25)	Same
	2010	0	39	0.33	0.00	(0.00 - 11.07)	Same
Abdominal Hysterectomy (HYST)	2009	0	38	0.29	0.00	(0.00 - 12.88)	Same
	2010	0	31	0.27	0.00	(0.00 - 13.57)	Same
	2011	1	39	0.31	3.21	(0.08 - 17.90)	Same
Vaginal Hysterectomy (VHYS)	2009	0	8	0.08	0.00	(0.00 - 44.12)	Same
	2010	2	15	0.11	17.70	(2.14 - 63.93)	Higher
	2011	0	9	0.08	0.00	(0.00 - 49.18)	Same

Statistically Significant Variation from Predicted Number of Surgical Site Infections Over Time





Massachusetts 2011 HAI Data Report

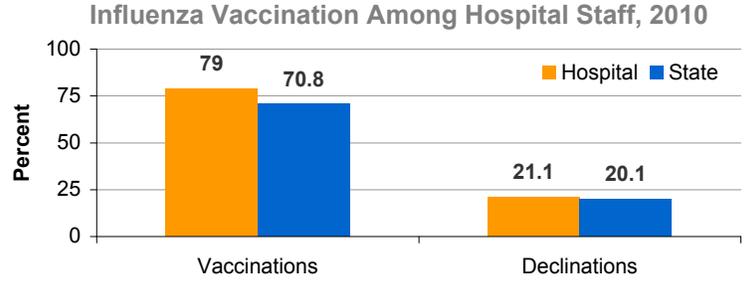
Cambridge Health Alliance - Whidden Memorial Hospital - Everett, MA

Report Release Date: February 2012

2010 Hospital Survey Statistics

Medical School Affiliation	Yes
Hospital Type	Graduate teaching
Profit Status	Not-for-profit
Number of Beds	140
Number of ICU Beds	10
Number of Admissions	5,634
Number of Patient Days	29,084
Beds per Infection Preventionist	140.0

Influenza Vaccination

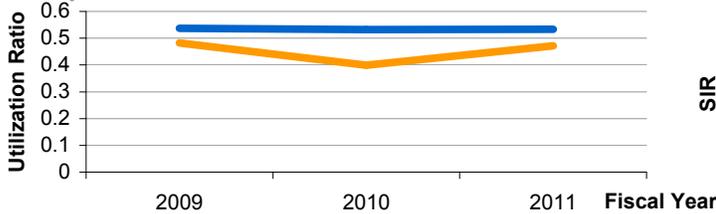


Central Line-Associated Blood Stream Infection

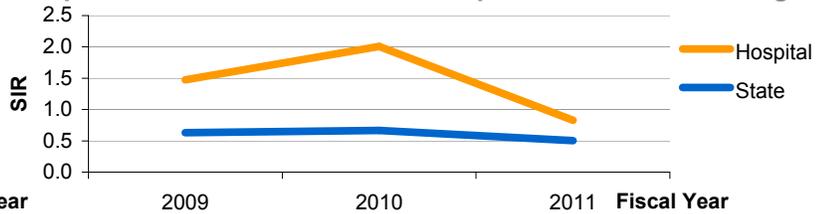
CLABSI Rates by ICU Type for Fiscal Year 2011, Compared to State Baseline Data from Fiscal Years 2009-2010

ICU Type	Infections	Line Days	Rate	Predicted Infections	SIR	Confidence Interval	Interpretation
Medical/surgical	1	805	1.24	0.88	1.13	(0.02 - 6.29)	Same

Hospital and State Central Line Utilization Ratios



Hospital and State CLABSI SIRs compared to National Average

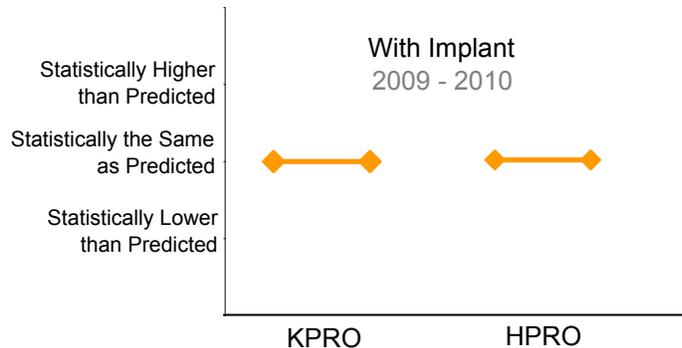


Surgical Site Infection

Hospital SSI SIRs by Procedure Type for All Fiscal Years Available

Procedure	Fiscal Year	Infections	Procedures	Predicted Infections	SIR	Confidence Interval	Interpretation
Knee Prosthesis (KPRO)	2009	0	6	0.04	0.00	(0.00 - 86.39)	Same
	2010	0	6	0.05	0.00	(0.00 - 77.49)	Same
Hip Prosthesis (HPRO)	2009	0	18	0.19	0.00	(0.00 - 19.34)	Same
	2010	0	22	0.23	0.00	(0.00 - 16.04)	Same

Statistically Significant Variation from Predicted Number of Surgical Site Infections Over Time





Massachusetts 2011 HAI Data Report

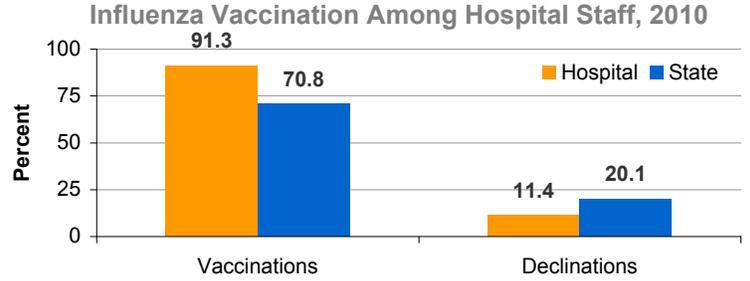
Children's Hospital - Boston, MA

Report Release Date: February 2012

2010 Hospital Survey Statistics

Medical School Affiliation	Yes
Hospital Type	Major teaching
Profit Status	Not-for-profit
Number of Beds	396
Number of ICU Beds	91
Number of Admissions	18,634
Number of Patient Days	115,472
Beds per Infection Preventionist	99.0

Influenza Vaccination

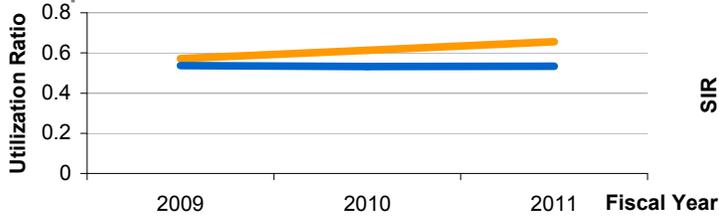


Central Line-Associated Blood Stream Infection

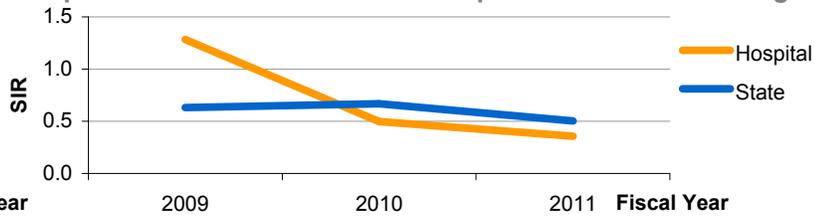
CLABSI Rates by ICU Type for Fiscal Year 2011, Compared to State Baseline Data from Fiscal Years 2009-2010

ICU Type	Infections	Line Days	Rate	Predicted Infections	SIR	Confidence Interval	Interpretation
Pediatric cardiothoracic	8	6,733	1.19	20.05	0.40	(0.17 - 0.78)	Lower
Pediatric medical/surgical	5	5,874	0.85	12.69	0.39	(0.12 - 0.92)	Lower
Pediatric medical	2	1,540	1.30	2.84	0.70	(0.08 - 2.54)	Same
Neonatal	10	3,788	2.64	8.90	1.12	(0.53 - 2.06)	Same

Hospital and State Central Line Utilization Ratios



Hospital and State CLABSI SIRs compared to National Average





Massachusetts 2011 HAI Data Report

Cooley Dickinson Hospital - Northampton, MA

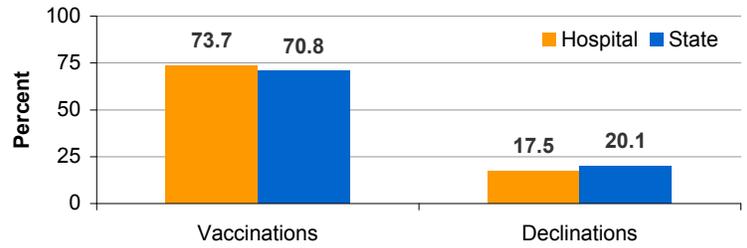
Report Release Date: February 2012

2010 Hospital Survey Statistics

Medical School Affiliation	No
Hospital Type	Nonteaching
Profit Status	Not-for-profit
Number of Beds	108
Number of ICU Beds	11
Number of Admissions	9,112
Number of Patient Days	36,024
Beds per Infection Preventionist	54.0

Influenza Vaccination

Influenza Vaccination Among Hospital Staff, 2010

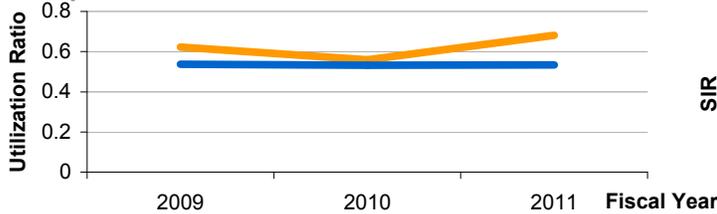


Central Line-Associated Blood Stream Infection

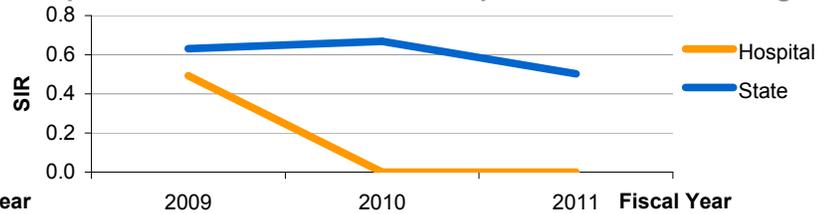
CLABSI Rates by ICU Type for Fiscal Year 2011, Compared to State Baseline Data from Fiscal Years 2009-2010

ICU Type	Infections	Line Days	Rate	Predicted Infections	SIR	Confidence Interval	Interpretation
Medical/surgical	0	1,675	0.00	1.84	0.00	(0.00 - 2.00)	Same

Hospital and State Central Line Utilization Ratios



Hospital and State CLABSI SIRs compared to National Average

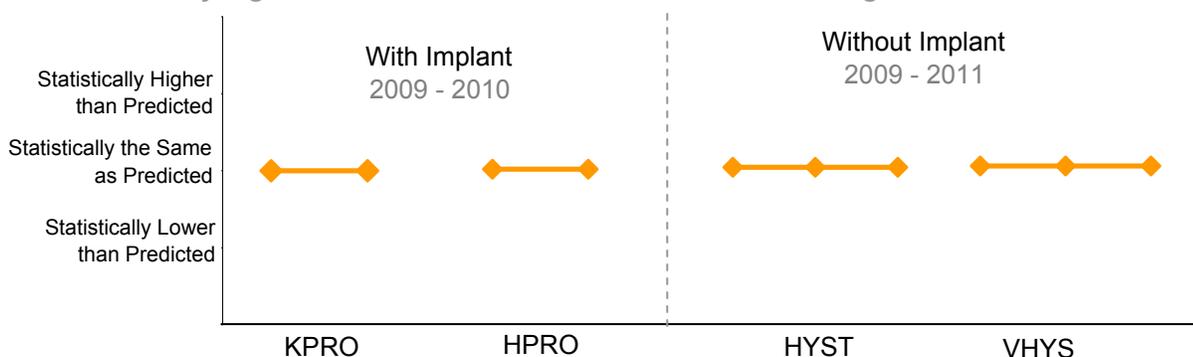


Surgical Site Infection

Hospital SSI SIRs by Procedure Type for All Fiscal Years Available

Procedure	Fiscal Year	Infections	Procedures	Predicted Infections	SIR	Confidence Interval	Interpretation
Knee Prosthesis (KPRO)	2009	0	96	0.35	0.00	(0.00 - 10.40)	Same
	2010	0	132	0.47	0.00	(0.00 - 7.83)	Same
Hip Prosthesis (HPRO)	2009	0	103	0.59	0.00	(0.00 - 6.20)	Same
	2010	1	100	0.53	1.88	(0.04 - 10.48)	Same
Abdominal Hysterectomy (HYST)	2009	0	64	0.46	0.00	(0.00 - 7.96)	Same
	2010	0	69	0.47	0.00	(0.00 - 7.83)	Same
	2011	1	55	0.42	2.39	(0.06 - 13.30)	Same
Vaginal Hysterectomy (VHYS)	2009	0	39	0.14	0.00	(0.00 - 26.42)	Same
	2010	0	22	0.08	0.00	(0.00 - 48.09)	Same
	2011	1	29	0.10	9.79	(0.24 - 54.51)	Same

Statistically Significant Variation from Predicted Number of Surgical Site Infections Over Time





Massachusetts 2011 HAI Data Report

Emerson Hospital - Concord, MA

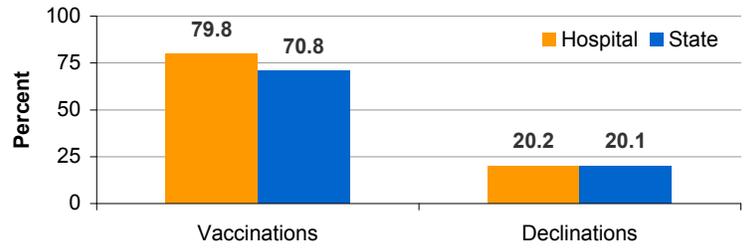
Report Release Date: February 2012

2010 Hospital Survey Statistics

Medical School Affiliation	No
Hospital Type	Nonteaching
Profit Status	Not-for-profit
Number of Beds	177
Number of ICU Beds	14
Number of Admissions	9,103
Number of Patient Days	38,718
Beds per Infection Preventionist	177.0

Influenza Vaccination

Influenza Vaccination Among Hospital Staff, 2010

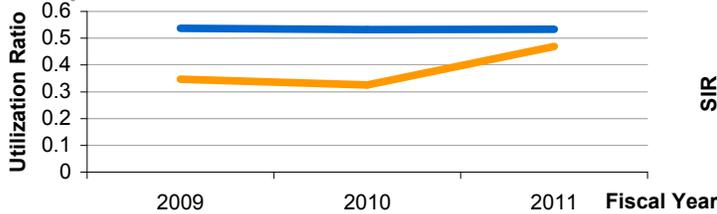


Central Line-Associated Blood Stream Infection

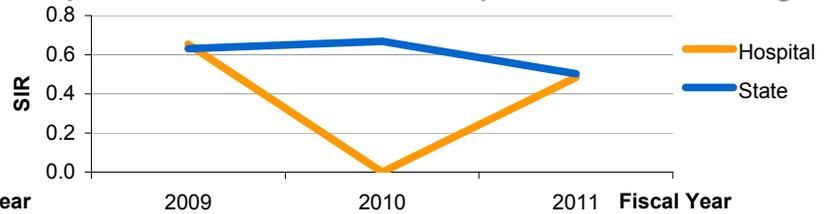
CLABSI Rates by ICU Type for Fiscal Year 2011, Compared to State Baseline Data from Fiscal Years 2009-2010

ICU Type	Infections	Line Days	Rate	Predicted Infections	SIR	Confidence Interval	Interpretation
Medical/surgical	1	1,376	0.73	1.51	0.66	(0.01 - 3.68)	Same

Hospital and State Central Line Utilization Ratios



Hospital and State CLABSI SIRs compared to National Average

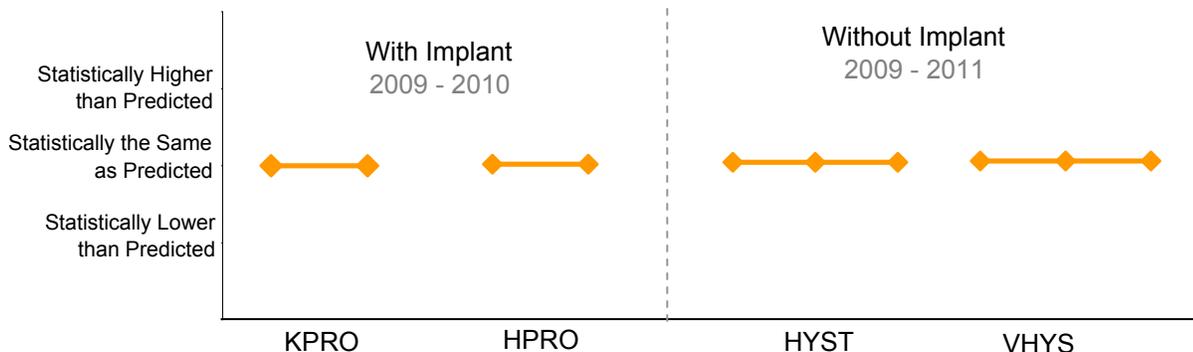


Surgical Site Infection

Hospital SSI SIRs by Procedure Type for All Fiscal Years Available

Procedure	Fiscal Year	Infections	Procedures	Predicted Infections	SIR	Confidence Interval	Interpretation
Knee Prosthesis (KPRO)	2009	0	121	0.80	0.00	(0.00 - 4.63)	Same
	2010	0	172	1.08	0.00	(0.00 - 3.42)	Same
Hip Prosthesis (HPRO)	2009	0	56	0.38	0.00	(0.00 - 9.76)	Same
	2010	0	122	0.82	0.00	(0.00 - 4.52)	Same
Abdominal Hysterectomy (HYST)	2009	0	22	0.13	0.00	(0.00 - 27.48)	Same
	2010	0	53	0.42	0.00	(0.00 - 8.84)	Same
	2011	0	35	0.23	0.00	(0.00 - 16.28)	Same
Vaginal Hysterectomy (VHYS)	2009	0	3	0.01	0.00	(0.00 - 466.9)	Same
	2010	0	5	0.01	0.00	(0.00 - 275.2)	Same
	2011	1	39	0.12	8.05	(0.20 - 44.82)	Same

Statistically Significant Variation from Predicted Number of Surgical Site Infections Over Time





Massachusetts 2011 HAI Data Report

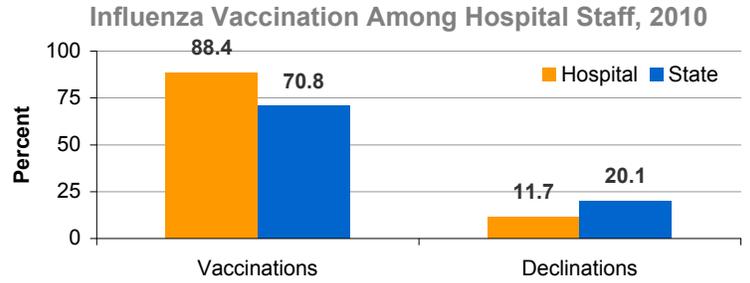
Fairview Hospital - Great Barrington, MA

Report Release Date: February 2012

2010 Hospital Survey Statistics

Medical School Affiliation	No
Hospital Type	Nonteaching
Profit Status	Not-for-profit
Number of Beds	25
Number of ICU Beds	3
Number of Admissions	1,186
Number of Patient Days	4,341
Beds per Infection Preventionist	25.0

Influenza Vaccination

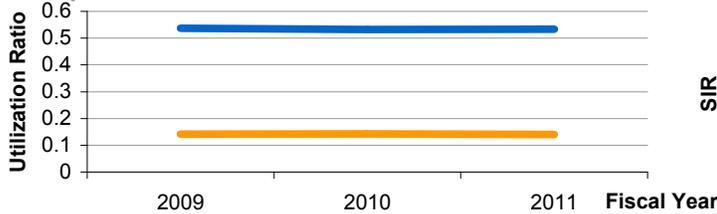


Central Line-Associated Blood Stream Infection

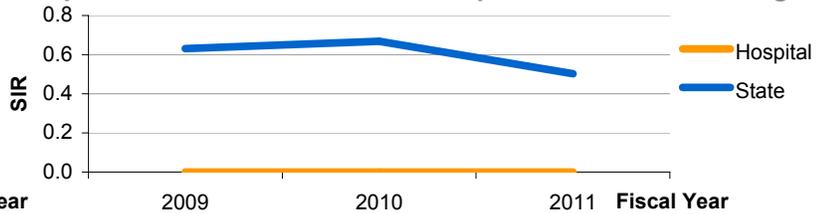
CLABSI Rates by ICU Type for Fiscal Year 2011, Compared to State Baseline Data from Fiscal Years 2009-2010

ICU Type	Infections	Line Days	Rate	Predicted Infections	SIR	Confidence Interval	Interpretation
Medical/surgical	0	78	0.00	0.09	0.00	(0.00 - 43.03)	Same

Hospital and State Central Line Utilization Ratios



Hospital and State CLABSI SIRs compared to National Average

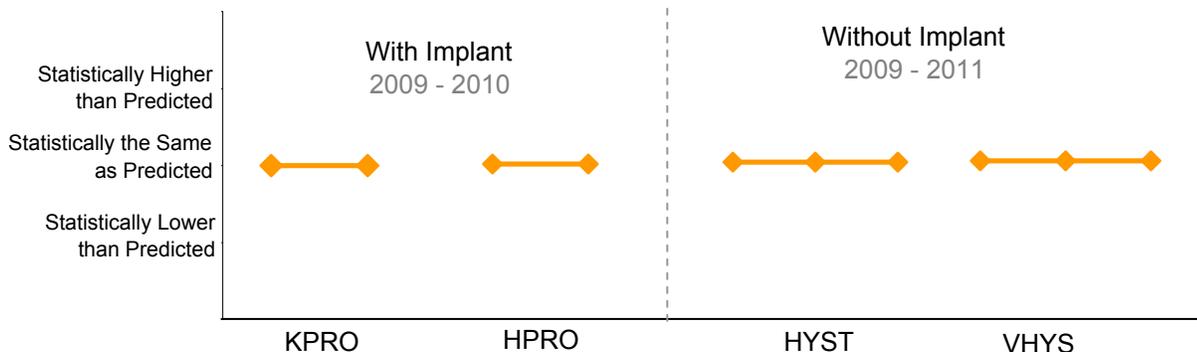


Surgical Site Infection

Hospital SSI SIRs by Procedure Type for All Fiscal Years Available

Procedure	Fiscal Year	Infections	Procedures	Predicted Infections	SIR	Confidence Interval	Interpretation
Knee Prosthesis (KPRO)	2009	0	23	0.11	0.00	(0.00 - 34.03)	Same
	2010	0	29	0.13	0.00	(0.00 - 28.73)	Same
Hip Prosthesis (HPRO)	2009	0	8	0.04	0.00	(0.00 - 91.76)	Same
	2010	0	6	0.03	0.00	(0.00 - 125.9)	Same
Abdominal Hysterectomy (HYST)	2009	0	13	0.09	0.00	(0.00 - 43.29)	Same
	2010	0	12	0.08	0.00	(0.00 - 44.98)	Same
	2011	0	16	0.11	0.00	(0.00 - 33.93)	Same
Vaginal Hysterectomy (VHYS)	2009	0	20	0.07	0.00	(0.00 - 49.78)	Same
	2010	0	2	0.01	0.00	(0.00 - 658.7)	Same
	2011	0	11	0.04	0.00	(0.00 - 100.2)	Same

Statistically Significant Variation from Predicted Number of Surgical Site Infections Over Time





Massachusetts 2011 HAI Data Report

Falmouth Hospital - Falmouth, MA

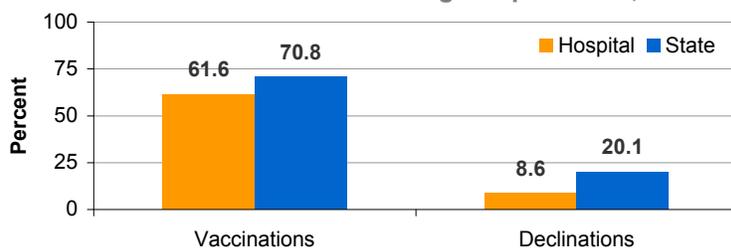
Report Release Date: February 2012

2010 Hospital Survey Statistics

Medical School Affiliation	No
Hospital Type	Nonteaching
Profit Status	Not-for-profit
Number of Beds	95
Number of ICU Beds	10
Number of Admissions	6,700
Number of Patient Days	27,246
Beds per Infection Preventionist	95.0

Influenza Vaccination

Influenza Vaccination Among Hospital Staff, 2010

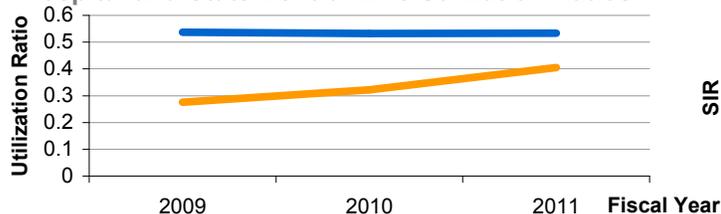


Central Line-Associated Blood Stream Infection

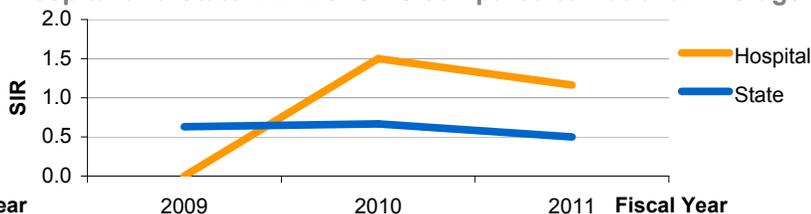
CLABSI Rates by ICU Type for Fiscal Year 2011, Compared to State Baseline Data from Fiscal Years 2009-2010

ICU Type	Infections	Line Days	Rate	Predicted Infections	SIR	Confidence Interval	Interpretation
Medical/surgical	2	1,147	1.74	1.26	1.59	(0.19 - 5.73)	Same

Hospital and State Central Line Utilization Ratios



Hospital and State CLABSI SIRs compared to National Average

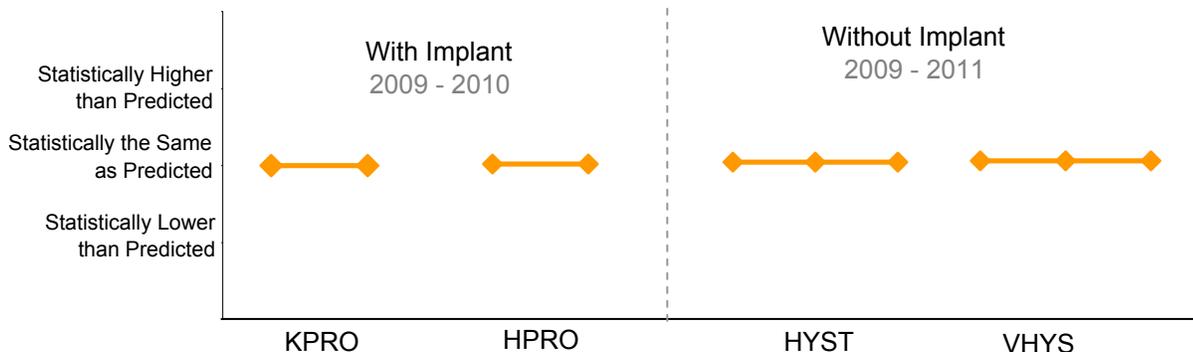


Surgical Site Infection

Hospital SSI SIRs by Procedure Type for All Fiscal Years Available

Procedure	Fiscal Year	Infections	Procedures	Predicted Infections	SIR	Confidence Interval	Interpretation
Knee Prosthesis (KPRO)	2009	3	226	1.14	2.63	(0.54 - 7.68)	Same
	2010	4	233	1.10	3.65	(0.99 - 9.35)	Same
Hip Prosthesis (HPRO)	2009	0	144	0.88	0.00	(0.00 - 4.17)	Same
	2010	0	137	0.71	0.00	(0.00 - 5.18)	Same
Abdominal Hysterectomy (HYST)	2009	0	43	0.29	0.00	(0.00 - 12.78)	Same
	2010	1	57	0.37	2.68	(0.06 - 14.95)	Same
	2011	0	27	0.17	0.00	(0.00 - 22.28)	Same
Vaginal Hysterectomy (VHYS)	2009	0	48	0.11	0.00	(0.00 - 32.99)	Same
	2010	1	40	0.09	10.75	(0.27 - 59.91)	Same
	2011	0	27	0.06	0.00	(0.00 - 58.18)	Same

Statistically Significant Variation from Predicted Number of Surgical Site Infections Over Time





Massachusetts 2011 HAI Data Report

Faulkner Hospital - Boston, MA

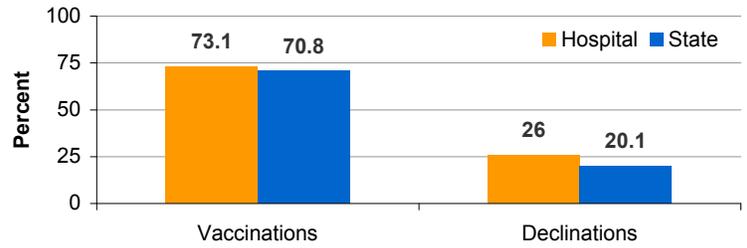
Report Release Date: February 2012

2010 Hospital Survey Statistics

Medical School Affiliation	Yes
Hospital Type	Major teaching
Profit Status	Not-for-profit
Number of Beds	153
Number of ICU Beds	12
Number of Admissions	9,024
Number of Patient Days	36,730
Beds per Infection Preventionist	153.0

Influenza Vaccination

Influenza Vaccination Among Hospital Staff, 2010

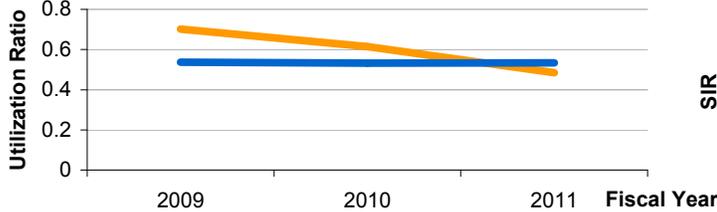


Central Line-Associated Blood Stream Infection

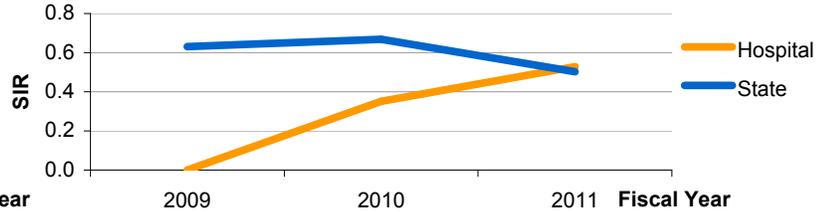
CLABSI Rates by ICU Type for Fiscal Year 2011, Compared to State Baseline Data from Fiscal Years 2009-2010

ICU Type	Infections	Line Days	Rate	Predicted Infections	SIR	Confidence Interval	Interpretation
Medical/surgical	1	901	1.11	1.01	0.99	(0.02 - 5.50)	Same

Hospital and State Central Line Utilization Ratios



Hospital and State CLABSI SIRs compared to National Average

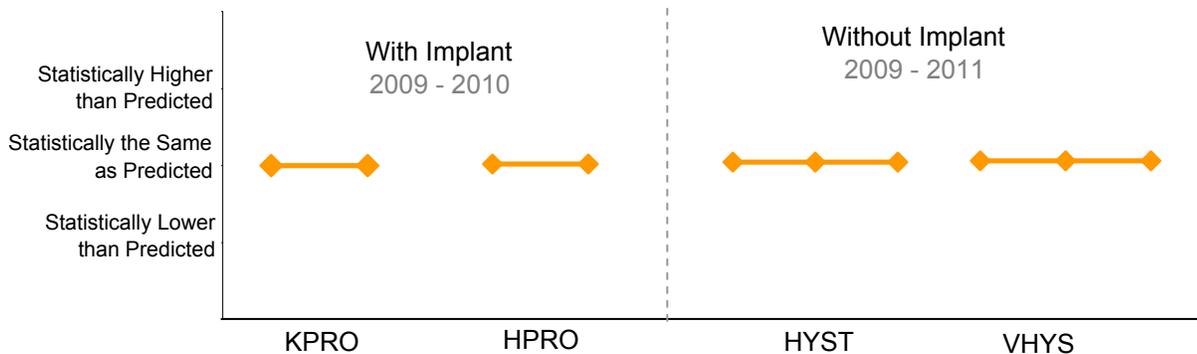


Surgical Site Infection

Hospital SSI SIRs by Procedure Type for All Fiscal Years Available

Procedure	Fiscal Year	Infections	Procedures	Predicted Infections	SIR	Confidence Interval	Interpretation
Knee Prosthesis (KPRO)	2009	0	229	1.14	0.00	(0.00 - 3.22)	Same
	2010	2	224	1.06	1.88	(0.22 - 6.8)	Same
Hip Prosthesis (HPRO)	2009	0	69	0.42	0.00	(0.00 - 8.78)	Same
	2010	0	60	0.35	0.00	(0.00 - 10.62)	Same
Abdominal Hysterectomy (HYST)	2009	0	61	0.44	0.00	(0.00 - 8.38)	Same
	2010	0	42	0.26	0.00	(0.00 - 14.39)	Same
	2011	0	50	0.32	0.00	(0.00 - 11.47)	Same
Vaginal Hysterectomy (VHYS)	2009	0	3	0.02	0.00	(0.00 - 183.5)	Same
	2010	1	6	0.03	35.59	(0.90 - 198.2)	Same
	2011	0	3	0.01	0.00	(0.00 - 323.5)	Same

Statistically Significant Variation from Predicted Number of Surgical Site Infections Over Time





Massachusetts 2011 HAI Data Report

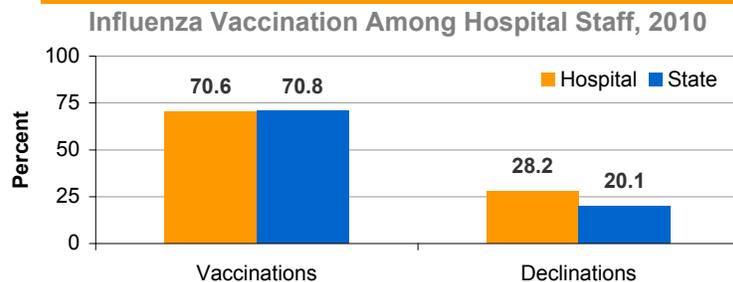
Good Samaritan Medical Center - Brockton, MA

Report Release Date: February 2012

2010 Hospital Survey Statistics

Medical School Affiliation	No
Hospital Type	Nonteaching
Profit Status	For-profit
Number of Beds	248
Number of ICU Beds	18
Number of Admissions	15,755
Number of Patient Days	66,673
Beds per Infection Preventionist	124.0

Influenza Vaccination

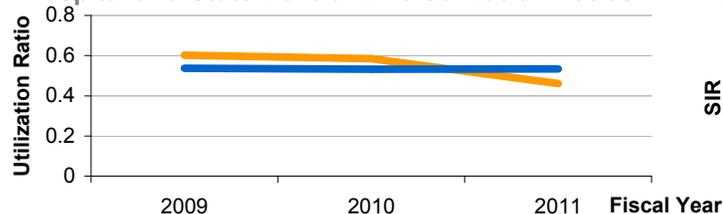


Central Line-Associated Blood Stream Infection

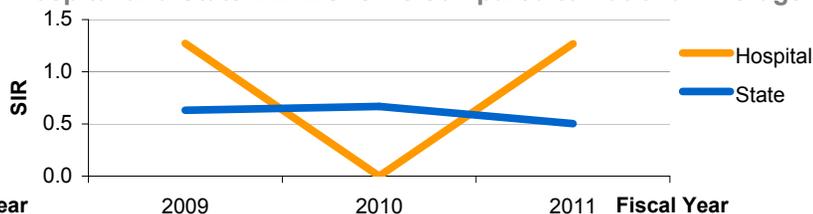
CLABSI Rates by ICU Type for Fiscal Year 2011, Compared to State Baseline Data from Fiscal Years 2009-2010

ICU Type	Infections	Line Days	Rate	Predicted Infections	SIR	Confidence Interval	Interpretation
Medical/surgical	4	2,104	1.90	2.31	1.73	(0.47 - 4.43)	Same

Hospital and State Central Line Utilization Ratios



Hospital and State CLABSI SIRs compared to National Average

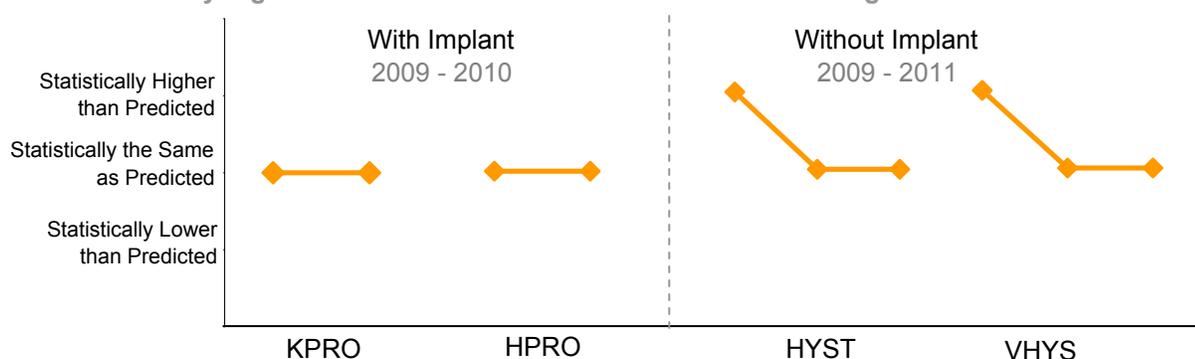


Surgical Site Infection

Hospital SSI SIRs by Procedure Type for All Fiscal Years Available

Procedure	Fiscal Year	Infections	Procedures	Predicted Infections	SIR	Confidence Interval	Interpretation
Knee Prosthesis (KPRO)	2009	1	168	0.91	1.10	(0.02 - 6.14)	Same
	2010	0	212	1.16	0.00	(0.00 - 3.19)	Same
Hip Prosthesis (HPRO)	2009	0	100	0.93	0.00	(0.00 - 3.94)	Same
	2010	2	121	1.13	1.77	(0.21 - 6.38)	Same
Abdominal Hysterectomy (HYST)	2009	4	100	0.63	6.34	(1.72 - 16.22)	Higher
	2010	0	75	0.47	0.00	(0.00 - 7.89)	Same
	2011	0	53	0.33	0.00	(0.00 - 11.04)	Same
Vaginal Hysterectomy (VHYS)	2009	3	126	0.38	7.99	(1.64 - 23.35)	Higher
	2010	1	99	0.31	3.25	(0.08 - 18.10)	Same
	2011	0	99	0.29	0.00	(0.00 - 12.69)	Same

Statistically Significant Variation from Predicted Number of Surgical Site Infections Over Time





Massachusetts 2011 HAI Data Report

Harrington Memorial Hospital - Southbridge, MA

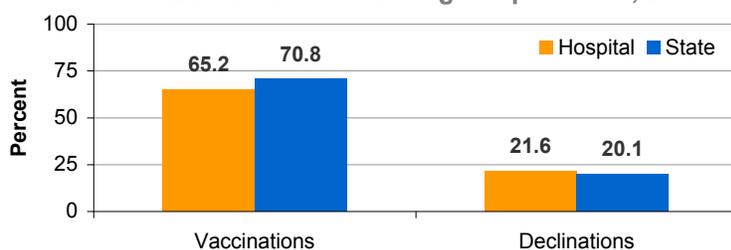
Report Release Date: February 2012

2010 Hospital Survey Statistics

Medical School Affiliation	Yes
Hospital Type	Limited teaching
Profit Status	Not-for-profit
Number of Beds	114
Number of ICU Beds	6
Number of Admissions	3,689
Number of Patient Days	15,129
Beds per Infection Preventionist	114.0

Influenza Vaccination

Influenza Vaccination Among Hospital Staff, 2010

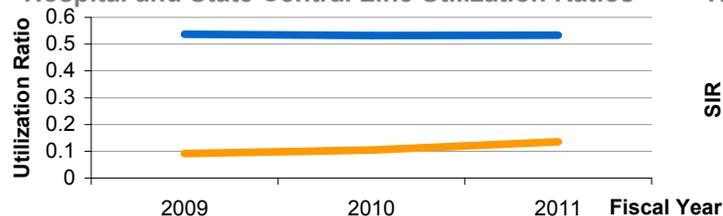


Central Line-Associated Blood Stream Infection

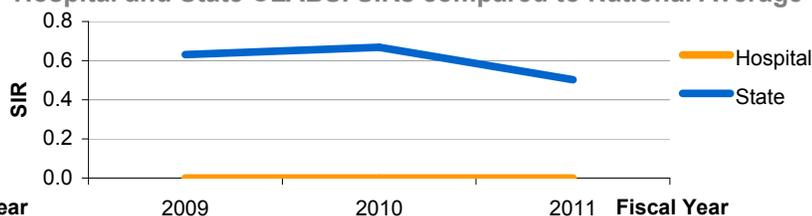
CLABSI Rates by ICU Type for Fiscal Year 2011, Compared to State Baseline Data from Fiscal Years 2009-2010

ICU Type	Infections	Line Days	Rate	Predicted Infections	SIR	Confidence Interval	Interpretation
Medical/surgical	0	196	0.00	0.22	0.00	(0.00 - 17.12)	Same

Hospital and State Central Line Utilization Ratios



Hospital and State CLABSI SIRs compared to National Average

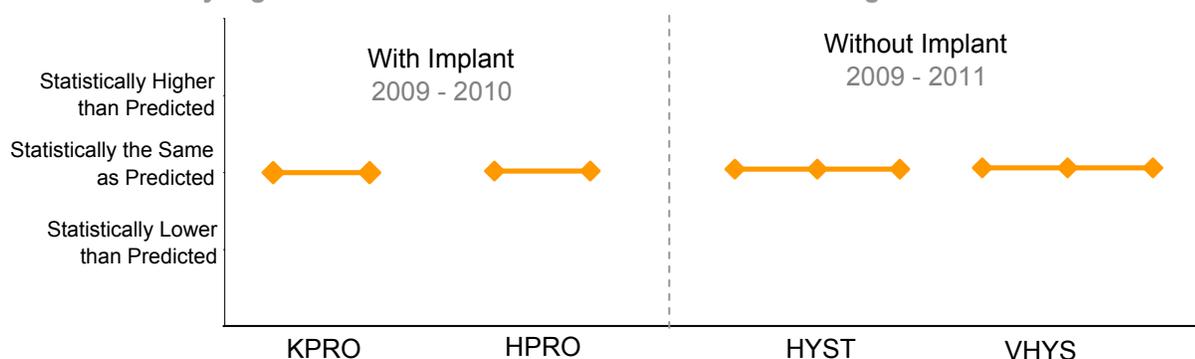


Surgical Site Infection

Hospital SSI SIRs by Procedure Type for All Fiscal Years Available

Procedure	Fiscal Year	Infections	Procedures	Predicted Infections	SIR	Confidence Interval	Interpretation
Knee Prosthesis (KPRO)	2009	1	31	0.14	6.94	(0.17 - 38.69)	Same
	2010	0	25	0.13	0.00	(0.00 - 27.52)	Same
Hip Prosthesis (HPRO)	2009	0	14	0.07	0.00	(0.00 - 49.85)	Same
	2010	0	38	0.23	0.00	(0.00 - 15.96)	Same
Abdominal Hysterectomy (HYST)	2009	0	20	0.11	0.00	(0.00 - 33.05)	Same
	2010	0	43	0.25	0.00	(0.00 - 14.55)	Same
	2011	0	42	0.27	0.00	(0.00 - 13.68)	Same
Vaginal Hysterectomy (VHYS)	2009	0	17	0.16	0.00	(0.00 - 22.71)	Same
	2010	0	2	0.01	0.00	(0.00 - 285.9)	Same
	2011	0	17	0.12	0.00	(0.00 - 29.99)	Same

Statistically Significant Variation from Predicted Number of Surgical Site Infections Over Time





Massachusetts 2011 HAI Data Report

Health Alliance Hospital - Leominster, MA

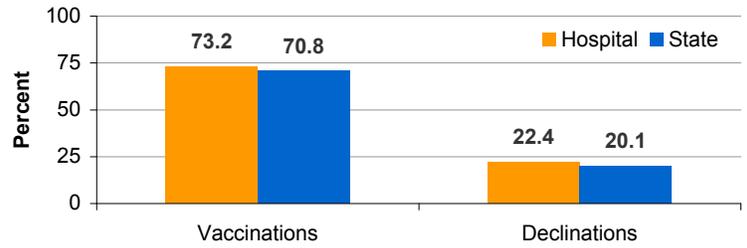
Report Release Date: February 2012

2010 Hospital Survey Statistics

Medical School Affiliation	Yes
Hospital Type	Graduate teaching
Profit Status	Not-for-profit
Number of Beds	110
Number of ICU Beds	10
Number of Admissions	6,582
Number of Patient Days	26,917
Beds per Infection Preventionist	110.0

Influenza Vaccination

Influenza Vaccination Among Hospital Staff, 2010

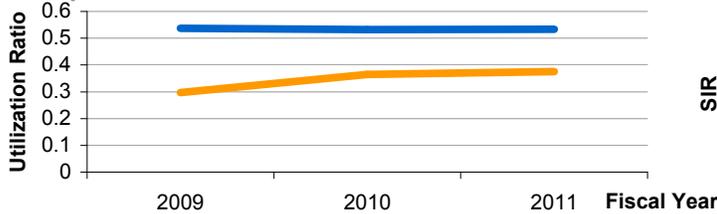


Central Line-Associated Blood Stream Infection

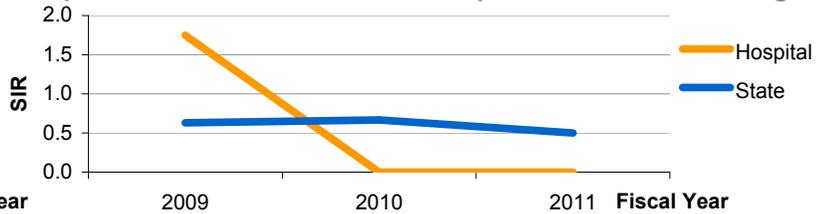
CLABSI Rates by ICU Type for Fiscal Year 2011, Compared to State Baseline Data from Fiscal Years 2009-2010

ICU Type	Infections	Line Days	Rate	Predicted Infections	SIR	Confidence Interval	Interpretation
Medical/surgical	0	1,116	0.00	1.23	0.00	(0.00 - 3.00)	Same

Hospital and State Central Line Utilization Ratios



Hospital and State CLABSI SIRs compared to National Average

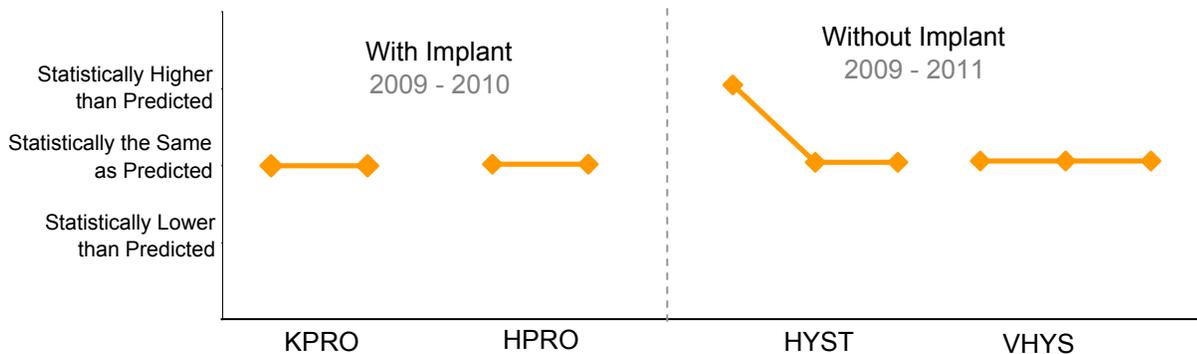


Surgical Site Infection

Hospital SSI SIRs by Procedure Type for All Fiscal Years Available

Procedure	Fiscal Year	Infections	Procedures	Predicted Infections	SIR	Confidence Interval	Interpretation
Knee Prosthesis (KPRO)	2009	0	90	0.41	0.00	(0.00 - 8.91)	Same
	2010	0	136	0.58	0.00	(0.00 - 6.30)	Same
Hip Prosthesis (HPRO)	2009	0	39	0.22	0.00	(0.00 - 16.91)	Same
	2010	0	47	0.21	0.00	(0.00 - 17.57)	Same
Abdominal Hysterectomy (HYST)	2009	3	74	0.61	4.93	(1.01 - 14.39)	Higher
	2010	0	54	0.40	0.00	(0.00 - 9.30)	Same
	2011	0	67	0.52	0.00	(0.00 - 7.04)	Same
Vaginal Hysterectomy (VHYS)	2009	0	16	0.11	0.00	(0.00 - 33.62)	Same
	2010	0	20	0.12	0.00	(0.00 - 29.53)	Same
	2011	0	12	0.08	0.00	(0.00 - 44.87)	Same

Statistically Significant Variation from Predicted Number of Surgical Site Infections Over Time





Massachusetts 2011 HAI Data Report

Heywood Hospital - Gardner, MA

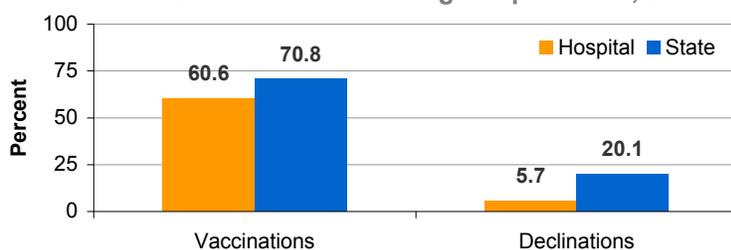
Report Release Date: February 2012

2010 Hospital Survey Statistics

Medical School Affiliation	No
Hospital Type	Nonteaching
Profit Status	Not-for-profit
Number of Beds	134
Number of ICU Beds	8
Number of Admissions	7,467
Number of Patient Days	32,115
Beds per Infection Preventionist	134.0

Influenza Vaccination

Influenza Vaccination Among Hospital Staff, 2010

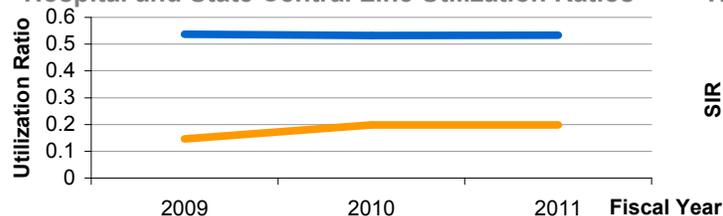


Central Line-Associated Blood Stream Infection

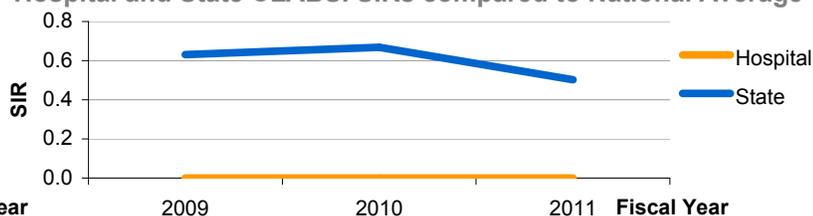
CLABSI Rates by ICU Type for Fiscal Year 2011, Compared to State Baseline Data from Fiscal Years 2009-2010

ICU Type	Infections	Line Days	Rate	Predicted Infections	SIR	Confidence Interval	Interpretation
Medical/surgical	0	242	0.00	0.27	0.00	(0.00 - 13.87)	Same

Hospital and State Central Line Utilization Ratios



Hospital and State CLABSI SIRs compared to National Average

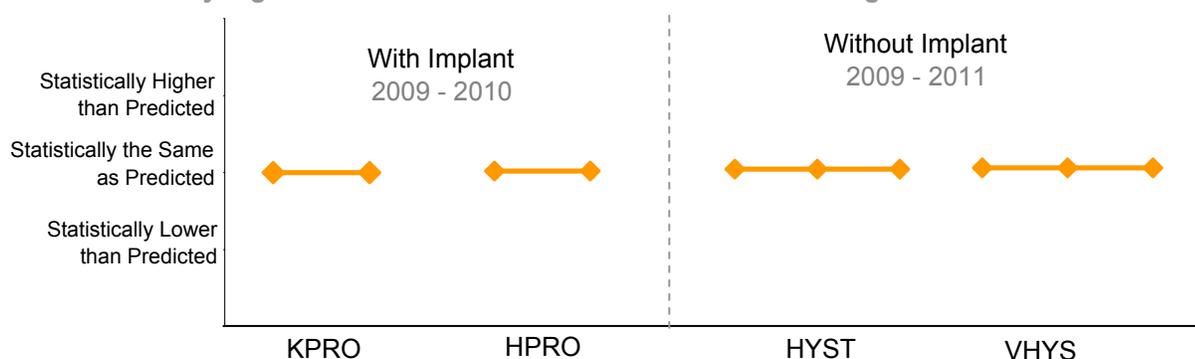


Surgical Site Infection

Hospital SSI SIRs by Procedure Type for All Fiscal Years Available

Procedure	Fiscal Year	Infections	Procedures	Predicted Infections	SIR	Confidence Interval	Interpretation
Knee Prosthesis (KPRO)	2009	0	79	0.42	0.00	(0.00 - 8.86)	Same
	2010	1	99	0.50	1.99	(0.05 - 11.06)	Same
Hip Prosthesis (HPRO)	2009	0	23	0.15	0.00	(0.00 - 24.07)	Same
	2010	0	59	0.35	0.00	(0.00 - 10.44)	Same
Abdominal Hysterectomy (HYST)	2009	0	22	0.13	0.00	(0.00 - 28.86)	Same
	2010	0	10	0.06	0.00	(0.00 - 57.81)	Same
	2011	0	10	0.09	0.00	(0.00 - 39.24)	Same
Vaginal Hysterectomy (VHYS)	2009	0	52	0.16	0.00	(0.00 - 22.42)	Same
	2010	0	42	0.15	0.00	(0.00 - 24.79)	Same
	2011	0	36	0.11	0.00	(0.00 - 34.60)	Same

Statistically Significant Variation from Predicted Number of Surgical Site Infections Over Time





Massachusetts 2011 HAI Data Report

Holy Family Hospital - Methuen, MA

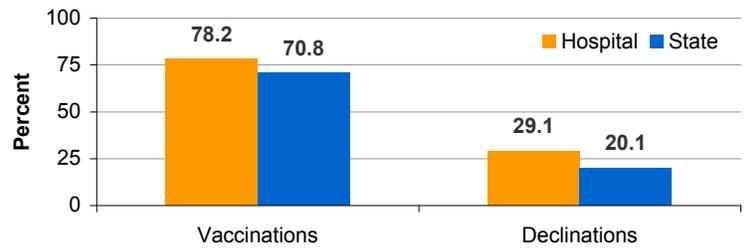
Report Release Date: February 2012

2010 Hospital Survey Statistics

Medical School Affiliation	No
Hospital Type	Nonteaching
Profit Status	For-profit
Number of Beds	279
Number of ICU Beds	19
Number of Admissions	10,426
Number of Patient Days	44,899
Beds per Infection Preventionist	279.0

Influenza Vaccination

Influenza Vaccination Among Hospital Staff, 2010

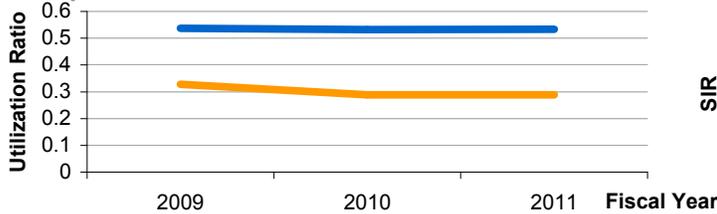


Central Line-Associated Blood Stream Infection

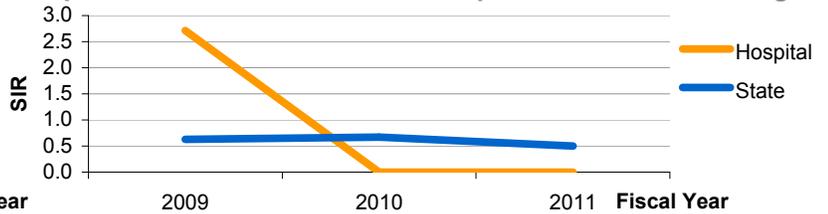
CLABSI Rates by ICU Type for Fiscal Year 2011, Compared to State Baseline Data from Fiscal Years 2009-2010

ICU Type	Infections	Line Days	Rate	Predicted Infections	SIR	Confidence Interval	Interpretation
Medical/surgical	0	936	0.00	1.03	0.00	(0.00 - 3.58)	Same

Hospital and State Central Line Utilization Ratios



Hospital and State CLABSI SIRs compared to National Average

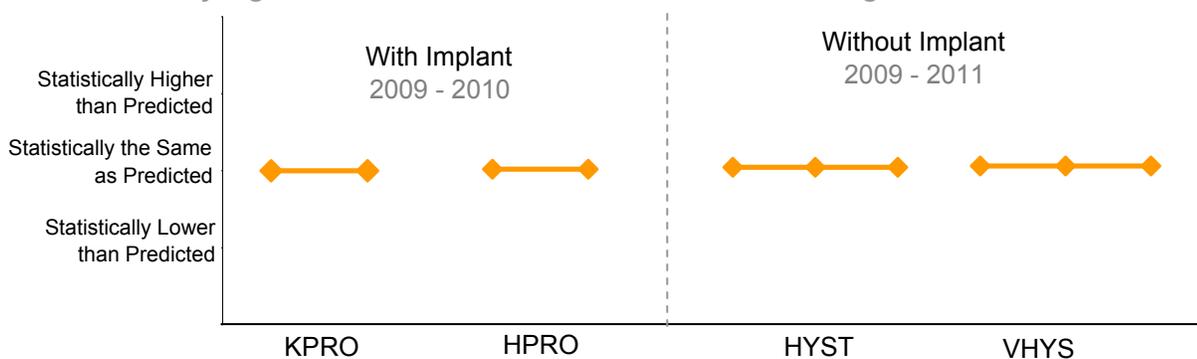


Surgical Site Infection

Hospital SSI SIRs by Procedure Type for All Fiscal Years Available

Procedure	Fiscal Year	Infections	Procedures	Predicted Infections	SIR	Confidence Interval	Interpretation
Knee Prosthesis (KPRO)	2009	1	189	1.05	0.96	(0.02 - 5.32)	Same
	2010	0	194	1.08	0.00	(0.00 - 3.40)	Same
Hip Prosthesis (HPRO)	2009	0	126	1.13	0.00	(0.00 - 3.26)	Same
	2010	0	129	1.18	0.00	(0.00 - 3.11)	Same
Abdominal Hysterectomy (HYST)	2009	0	89	0.51	0.00	(0.00 - 7.17)	Same
	2010	0	54	0.37	0.00	(0.00 - 10.02)	Same
	2011	0	46	0.30	0.00	(0.00 - 12.27)	Same
Vaginal Hysterectomy (VHYS)	2009	0	27	0.06	0.00	(0.00 - 57.72)	Same
	2010	0	43	0.12	0.00	(0.00 - 30.76)	Same
	2011	0	32	0.10	0.00	(0.00 - 36.59)	Same

Statistically Significant Variation from Predicted Number of Surgical Site Infections Over Time





Massachusetts 2011 HAI Data Report

Holyoke Medical Center - Holyoke, MA

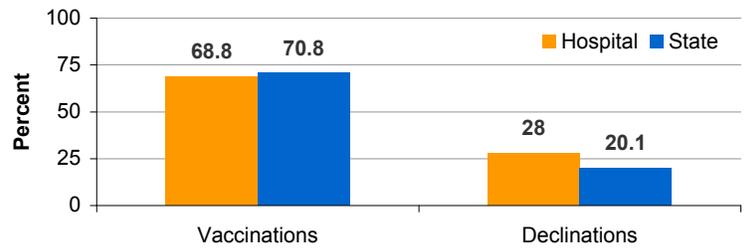
Report Release Date: February 2012

2010 Hospital Survey Statistics

Medical School Affiliation	No
Hospital Type	Nonteaching
Profit Status	Not-for-profit
Number of Beds	203
Number of ICU Beds	10
Number of Admissions	6,063
Number of Patient Days	23,360
Beds per Infection Preventionist	101.5

Influenza Vaccination

Influenza Vaccination Among Hospital Staff, 2010

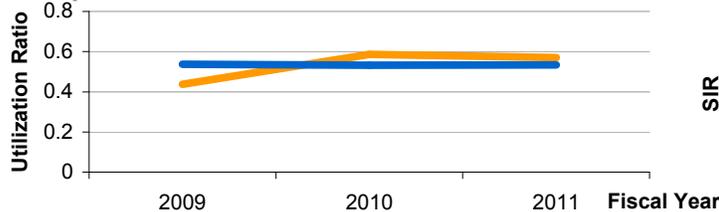


Central Line-Associated Blood Stream Infection

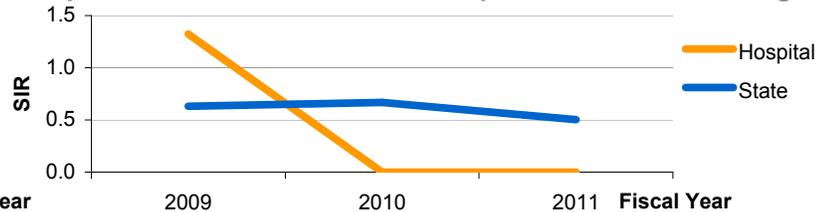
CLABSI Rates by ICU Type for Fiscal Year 2011, Compared to State Baseline Data from Fiscal Years 2009-2010

ICU Type	Infections	Line Days	Rate	Predicted Infections	SIR	Confidence Interval	Interpretation
Medical/surgical	0	919	0.00	1.01	0.00	(0.00 - 3.65)	Same

Hospital and State Central Line Utilization Ratios



Hospital and State CLABSI SIRs compared to National Average

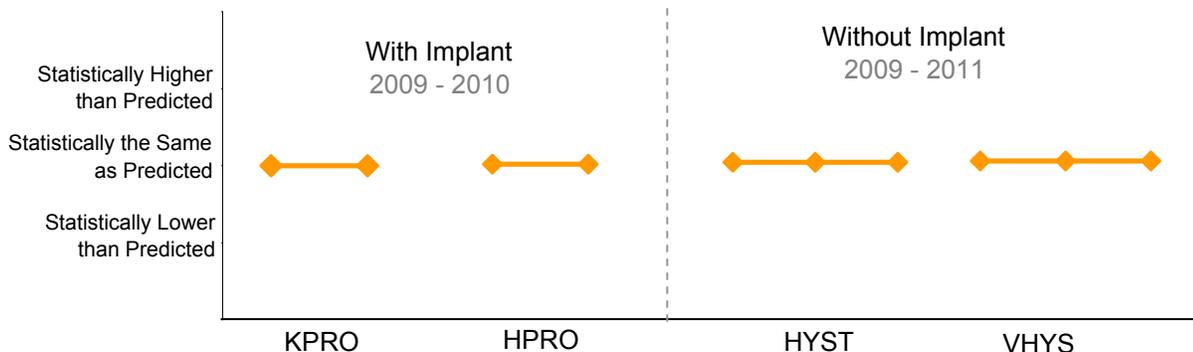


Surgical Site Infection

Hospital SSI SIRs by Procedure Type for All Fiscal Years Available

Procedure	Fiscal Year	Infections	Procedures	Predicted Infections	SIR	Confidence Interval	Interpretation
Knee Prosthesis (KPRO)	2009	1	69	0.35	2.84	(0.07 - 15.80)	Same
	2010	0	47	0.21	0.00	(0.00 - 17.23)	Same
Hip Prosthesis (HPRO)	2009	2	49	0.46	4.35	(0.52 - 15.69)	Same
	2010	0	40	0.36	0.00	(0.00 - 10.25)	Same
Abdominal Hysterectomy (HYST)	2009	0	19	0.13	0.00	(0.00 - 28.07)	Same
	2010	0	24	0.17	0.00	(0.00 - 21.86)	Same
	2011	0	16	0.10	0.00	(0.00 - 36.13)	Same
Vaginal Hysterectomy (VHYS)	2009	1	15	0.05	20.41	(0.51 - 113.7)	Same
	2010	0	17	0.05	0.00	(0.00 - 67.56)	Same
	2011	1	14	0.04	22.32	(0.56 - 124.3)	Same

Statistically Significant Variation from Predicted Number of Surgical Site Infections Over Time





Massachusetts 2011 HAI Data Report

Jordan Hospital - Plymouth, MA

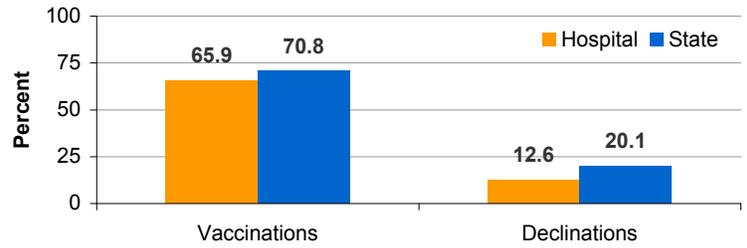
Report Release Date: February 2012

2010 Hospital Survey Statistics

Medical School Affiliation	No
Hospital Type	Nonteaching
Profit Status	Not-for-profit
Number of Beds	168
Number of ICU Beds	13
Number of Admissions	11,451
Number of Patient Days	47,264
Beds per Infection Preventionist	84.0

Influenza Vaccination

Influenza Vaccination Among Hospital Staff, 2010

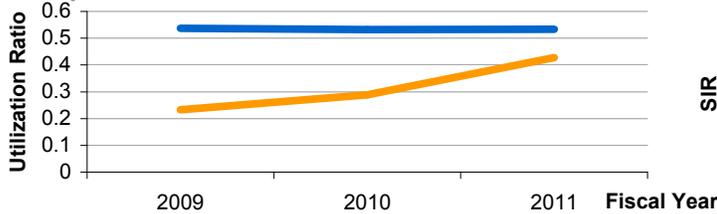


Central Line-Associated Blood Stream Infection

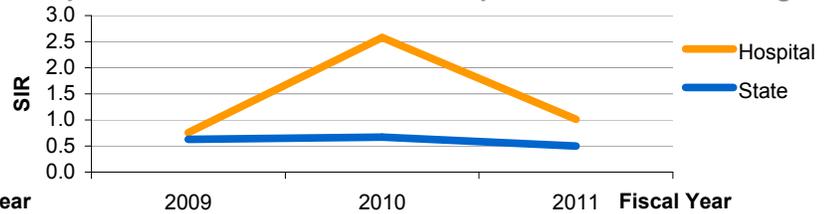
CLABSI Rates by ICU Type for Fiscal Year 2011, Compared to State Baseline Data from Fiscal Years 2009-2010

ICU Type	Infections	Line Days	Rate	Predicted Infections	SIR	Confidence Interval	Interpretation
Medical/surgical	2	1,319	1.52	1.45	1.38	(0.16 - 4.98)	Same

Hospital and State Central Line Utilization Ratios



Hospital and State CLABSI SIRs compared to National Average

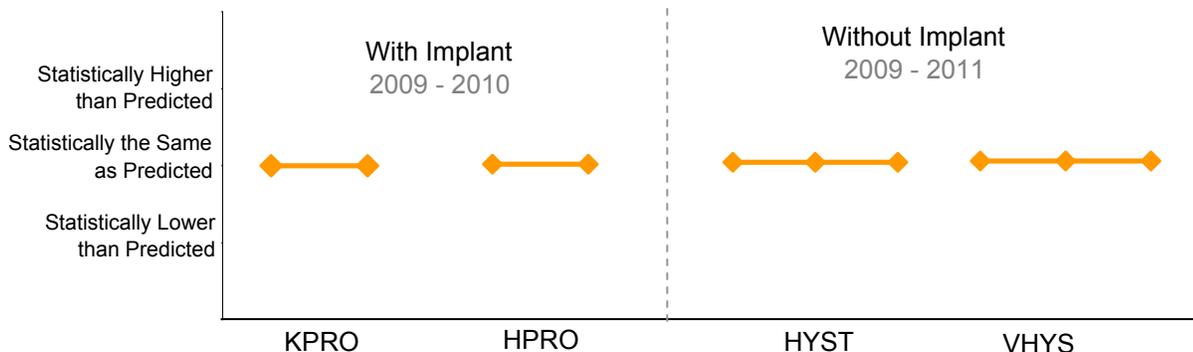


Surgical Site Infection

Hospital SSI SIRs by Procedure Type for All Fiscal Years Available

Procedure	Fiscal Year	Infections	Procedures	Predicted Infections	SIR	Confidence Interval	Interpretation
Knee Prosthesis (KPRO)	2009	1	207	0.88	1.14	(0.02 - 6.35)	Same
	2010	0	240	1.06	0.00	(0.00 - 3.46)	Same
Hip Prosthesis (HPRO)	2009	0	101	0.50	0.00	(0.00 - 7.31)	Same
	2010	1	122	0.73	1.38	(0.03 - 7.67)	Same
Abdominal Hysterectomy (HYST)	2009	0	46	0.27	0.00	(0.00 - 13.89)	Same
	2010	0	24	0.17	0.00	(0.00 - 21.59)	Same
	2011	0	27	0.22	0.00	(0.00 - 16.89)	Same
Vaginal Hysterectomy (VHYS)	2009	0	25	0.07	0.00	(0.00 - 54.97)	Same
	2010	0	14	0.03	0.00	(0.00 - 134.1)	Same
	2011	0	9	0.01	0.00	(0.00 - 302.3)	Same

Statistically Significant Variation from Predicted Number of Surgical Site Infections Over Time





Massachusetts 2011 HAI Data Report

Lahey Clinic - Burlington, MA

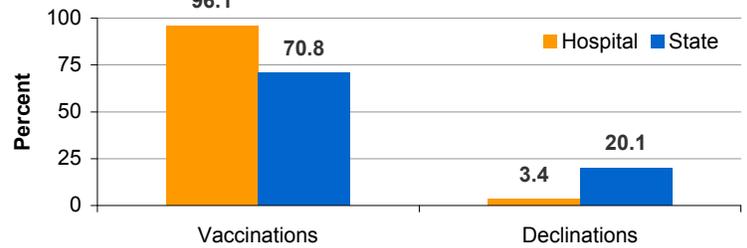
Report Release Date: February 2012

2010 Hospital Survey Statistics

Medical School Affiliation	Yes
Hospital Type	Major teaching
Profit Status	Not-for-profit
Number of Beds	327
Number of ICU Beds	52
Number of Admissions	22,209
Number of Patient Days	103,668
Beds per Infection Preventionist	163.5

Influenza Vaccination

Influenza Vaccination Among Hospital Staff, 2010

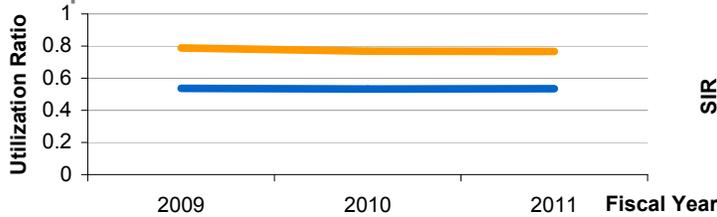


Central Line-Associated Blood Stream Infection

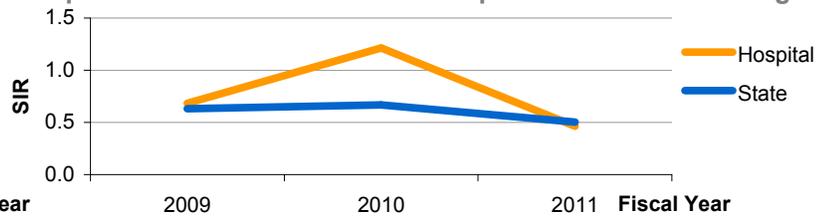
CLABSI Rates by ICU Type for Fiscal Year 2011, Compared to State Baseline Data from Fiscal Years 2009-2010

ICU Type	Infections	Line Days	Rate	Predicted Infections	SIR	Confidence Interval	Interpretation
Medical cardiac	1	755	1.32	1.24	0.80	(0.02 - 4.48)	Same
Surgical cardiothoracic	2	1,482	1.35	1.33	1.51	(0.18 - 5.44)	Same
Medical	2	4,604	0.43	7.67	0.26	(0.03 - 0.94)	Lower
Surgical	7	4,491	1.56	6.06	1.16	(0.46 - 2.38)	Same

Hospital and State Central Line Utilization Ratios



Hospital and State CLABSI SIRs compared to National Average

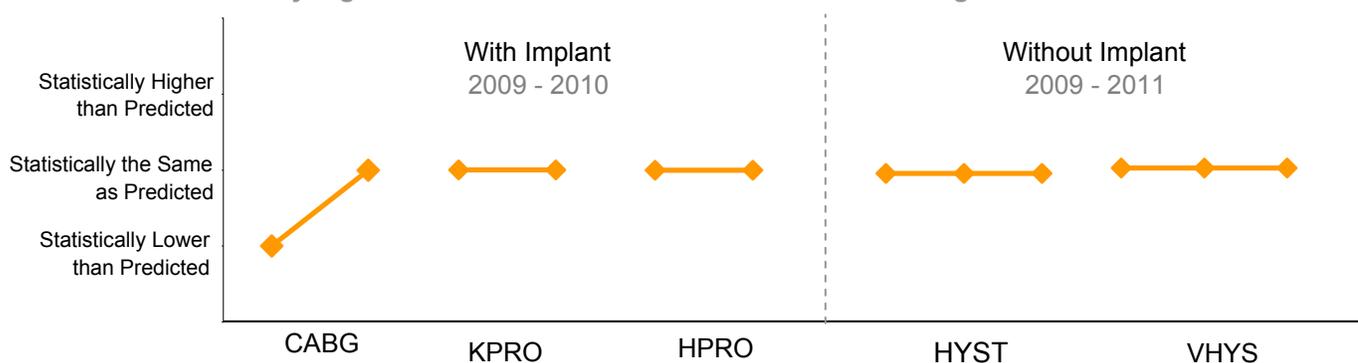


Surgical Site Infection

Hospital SSI SIRs by Procedure Type for All Fiscal Years Available

Procedure	Fiscal Year	Infections	Procedures	Predicted Infections	SIR	Confidence Interval	Interpretation
Coronary Artery Bypass (CABG)	2009	0	373	6.59	0.00	(0.00 - 0.55)	Lower
	2010	4	454	5.66	0.71	(0.19 - 1.80)	Same
Knee Prosthesis (KPRO)	2009	3	516	3.39	0.89	(0.18 - 2.58)	Same
	2010	5	487	2.73	1.83	(0.59 - 4.27)	Same
Hip Prosthesis (HPRO)	2009	1	353	3.32	0.30	(0.00 - 1.67)	Same
	2010	4	380	3.31	1.21	(0.32 - 3.09)	Same
Abdominal Hysterectomy (HYST)	2009	1	380	3.69	0.27	(0.00 - 1.50)	Same
	2010	3	282	2.42	1.24	(0.25 - 3.62)	Same
	2011	2	321	2.92	0.68	(0.08 - 2.47)	Same
Vaginal Hysterectomy (VHYS)	2009	3	113	0.73	4.09	(0.84 - 11.95)	Same
	2010	0	86	0.51	0.00	(0.00 - 7.27)	Same
	2011	1	78	0.44	2.25	(0.05 - 12.55)	Same

Statistically Significant Variation from Predicted Number of Surgical Site Infections Over Time





Massachusetts 2011 HAI Data Report

Lawrence General Hospital - Lawrence, MA

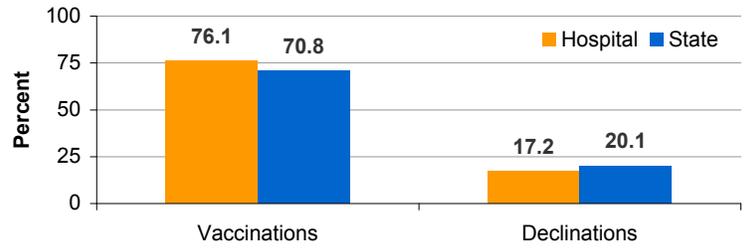
Report Release Date: February 2012

2010 Hospital Survey Statistics

Medical School Affiliation	No
Hospital Type	Nonteaching
Profit Status	Not-for-profit
Number of Beds	189
Number of ICU Beds	19
Number of Admissions	12,202
Number of Patient Days	47,741
Beds per Infection Preventionist	189.0

Influenza Vaccination

Influenza Vaccination Among Hospital Staff, 2010

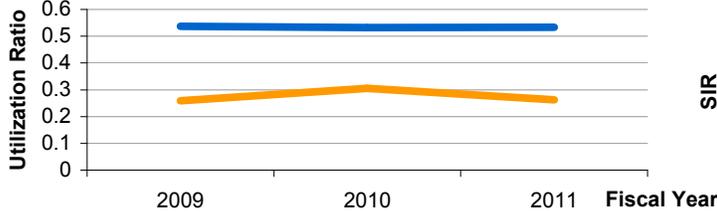


Central Line-Associated Blood Stream Infection

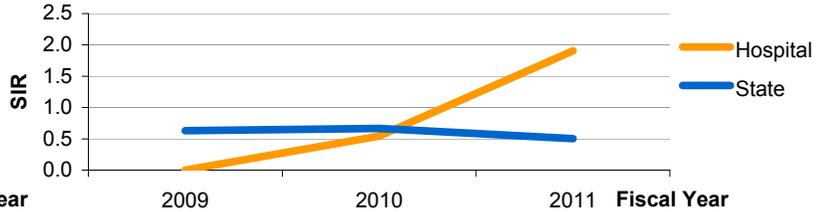
CLABSI Rates by ICU Type for Fiscal Year 2011, Compared to State Baseline Data from Fiscal Years 2009-2010

ICU Type	Infections	Line Days	Rate	Predicted Infections	SIR	Confidence Interval	Interpretation
Medical/surgical	3	1,049	2.86	1.15	2.60	(0.53 - 7.60)	Same

Hospital and State Central Line Utilization Ratios



Hospital and State CLABSI SIRs compared to National Average

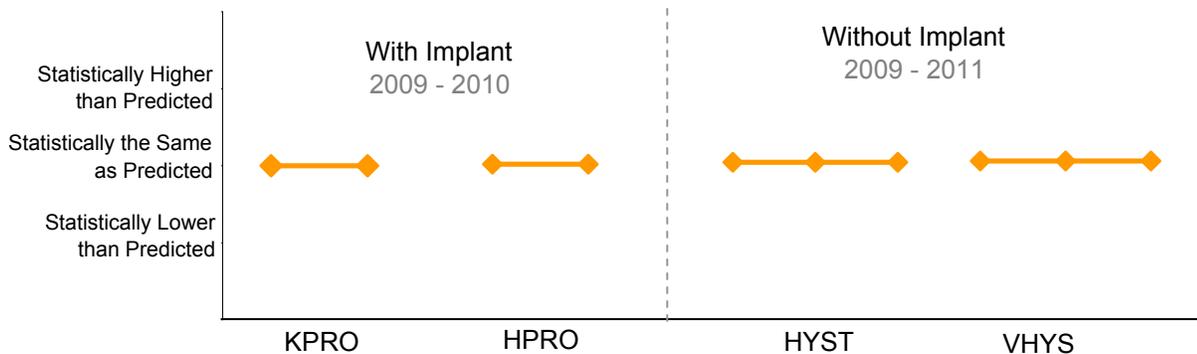


Surgical Site Infection

Hospital SSI SIRs by Procedure Type for All Fiscal Years Available

Procedure	Fiscal Year	Infections	Procedures	Predicted Infections	SIR	Confidence Interval	Interpretation
Knee Prosthesis (KPRO)	2009	0	13	0.05	0.00	(0.00 - 71.76)	Same
	2010	0	24	0.12	0.00	(0.00 - 30.33)	Same
Hip Prosthesis (HPRO)	2009	1	40	0.26	3.78	(0.09 - 21.05)	Same
	2010	0	26	0.15	0.00	(0.00 - 24.33)	Same
Abdominal Hysterectomy (HYST)	2009	2	79	0.46	4.34	(0.52 - 15.66)	Same
	2010	2	63	0.34	5.88	(0.71 - 21.23)	Same
	2011	0	49	0.27	0.00	(0.00 - 13.52)	Same
Vaginal Hysterectomy (VHYS)	2009	0	25	0.09	0.00	(0.00 - 40.31)	Same
	2010	0	14	0.05	0.00	(0.00 - 73.77)	Same
	2011	0	8	0.03	0.00	(0.00 - 128.0)	Same

Statistically Significant Variation from Predicted Number of Surgical Site Infections Over Time





Massachusetts 2011 HAI Data Report

Lawrence Memorial Hospital - Medford, MA

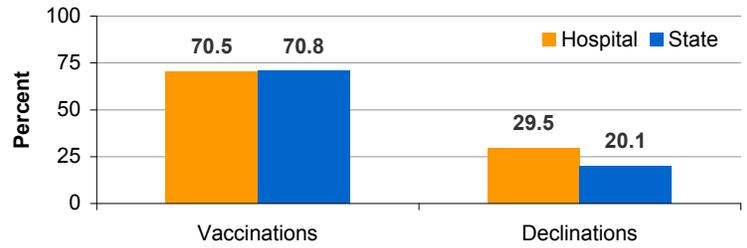
Report Release Date: February 2012

2010 Hospital Survey Statistics

Medical School Affiliation	No
Hospital Type	Nonteaching
Profit Status	Not-for-profit
Number of Beds	132
Number of ICU Beds	10
Number of Admissions	5,763
Number of Patient Days	30,562
Beds per Infection Preventionist	132.0

Influenza Vaccination

Influenza Vaccination Among Hospital Staff, 2010

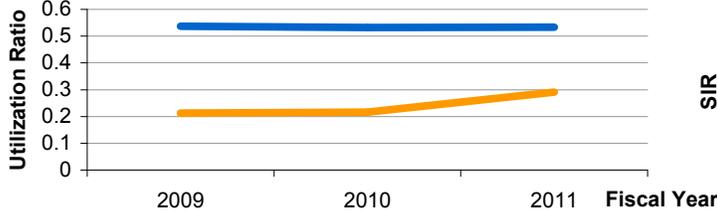


Central Line-Associated Blood Stream Infection

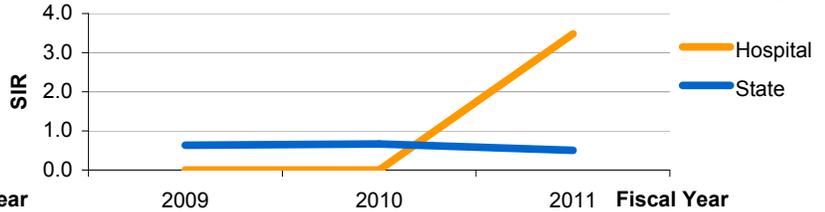
CLABSI Rates by ICU Type for Fiscal Year 2011, Compared to State Baseline Data from Fiscal Years 2009-2010

ICU Type	Infections	Line Days	Rate	Predicted Infections	SIR	Confidence Interval	Interpretation
Medical/surgical	3	575	5.22	0.63	4.75	(0.97 - 13.87)	Same

Hospital and State Central Line Utilization Ratios



Hospital and State CLABSI SIRs compared to National Average

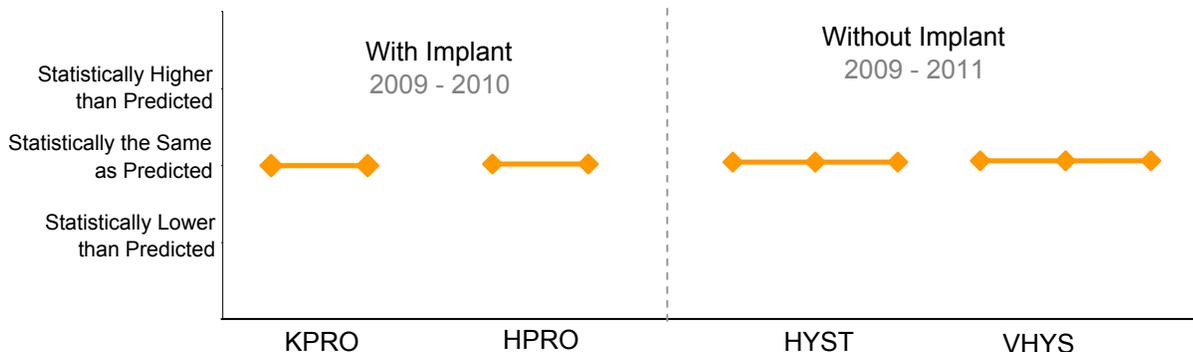


Surgical Site Infection

Hospital SSI SIRs by Procedure Type for All Fiscal Years Available

Procedure	Fiscal Year	Infections	Procedures	Predicted Infections	SIR	Confidence Interval	Interpretation
Knee Prosthesis (KPRO)	2009	0	29	0.15	0.00	(0.00 - 25.23)	Same
	2010	1	25	0.14	7.13	(0.18 - 39.71)	Same
Hip Prosthesis (HPRO)	2009	0	27	0.15	0.00	(0.00 - 24.25)	Same
	2010	1	16	0.08	12.84	(0.32 - 71.52)	Same
Abdominal Hysterectomy (HYST)	2009	0	12	0.08	0.00	(0.00 - 46.34)	Same
	2010	0	7	0.04	0.00	(0.00 - 90.19)	Same
	2011	0	2	0.01	0.00	(0.00 - 323.5)	Same
Vaginal Hysterectomy (VHYS)	2009	0	3	0.01	0.00	(0.00 - 614.8)	Same
	2010	0	2	0.00	0.00	(0.00 - 857.8)	Same
	2011	0	1	0.00	0.00	(0.00 - 801.9)	Same

Statistically Significant Variation from Predicted Number of Surgical Site Infections Over Time





Massachusetts 2011 HAI Data Report

Lowell General Hospital - Lowell, MA

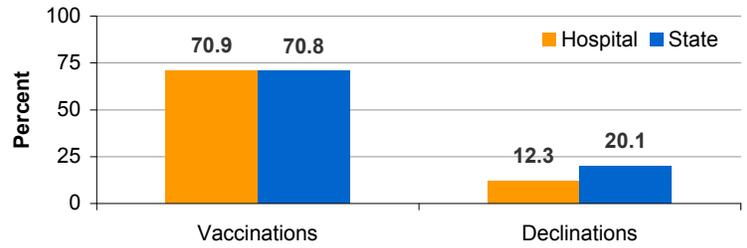
Report Release Date: February 2012

2010 Hospital Survey Statistics

Medical School Affiliation	No
Hospital Type	Nonteaching
Profit Status	Not-for-profit
Number of Beds	207
Number of ICU Beds	12
Number of Admissions	15,716
Number of Patient Days	53,537
Beds per Infection Preventionist	207.0

Influenza Vaccination

Influenza Vaccination Among Hospital Staff, 2010

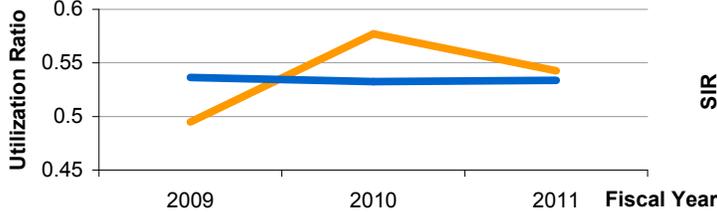


Central Line-Associated Blood Stream Infection

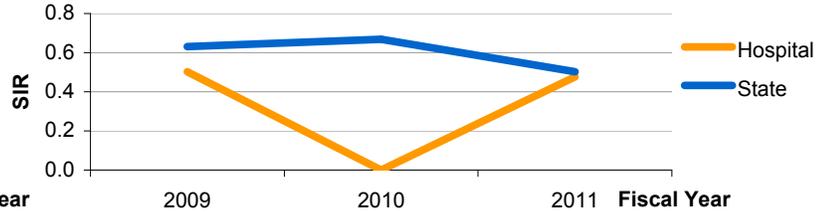
CLABSI Rates by ICU Type for Fiscal Year 2011, Compared to State Baseline Data from Fiscal Years 2009-2010

ICU Type	Infections	Line Days	Rate	Predicted Infections	SIR	Confidence Interval	Interpretation
Medical/surgical	1	1,401	0.71	1.54	0.65	(0.01 - 3.61)	Same

Hospital and State Central Line Utilization Ratios



Hospital and State CLABSI SIRs compared to National Average

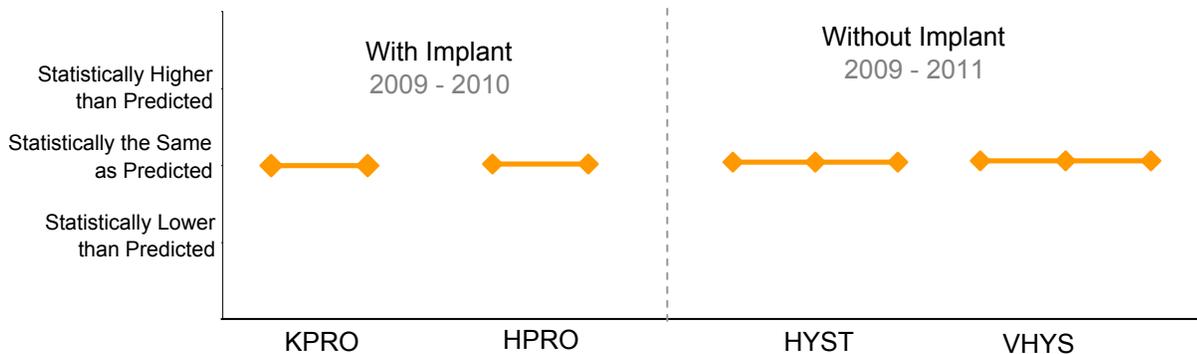


Surgical Site Infection

Hospital SSI SIRs by Procedure Type for All Fiscal Years Available

Procedure	Fiscal Year	Infections	Procedures	Predicted Infections	SIR	Confidence Interval	Interpretation
Knee Prosthesis (KPRO)	2009	3	147	0.78	3.84	(0.79 - 11.23)	Same
	2010	1	167	0.93	1.07	(0.02 - 5.96)	Same
Hip Prosthesis (HPRO)	2009	2	92	0.63	3.18	(0.38 - 11.48)	Same
	2010	1	124	0.98	1.02	(0.02 - 5.69)	Same
Abdominal Hysterectomy (HYST)	2009	1	72	0.50	2.01	(0.05 - 11.22)	Same
	2010	1	99	0.69	1.45	(0.03 - 8.07)	Same
	2011	0	89	0.63	0.00	(0.00 - 5.84)	Same
Vaginal Hysterectomy (VHYS)	2009	1	98	0.31	3.28	(0.08 - 18.25)	Same
	2010	1	70	0.22	4.46	(0.11 - 24.82)	Same
	2011	0	85	0.26	0.00	(0.00 - 14.37)	Same

Statistically Significant Variation from Predicted Number of Surgical Site Infections Over Time





Massachusetts 2011 HAI Data Report

Marlborough Hospital - Marlborough, MA

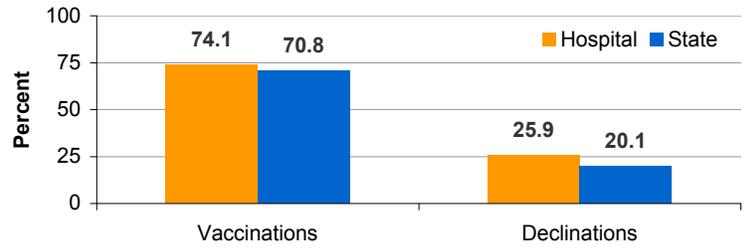
Report Release Date: February 2012

2010 Hospital Survey Statistics

Medical School Affiliation	Yes
Hospital Type	Limited teaching
Profit Status	Not-for-profit
Number of Beds	79
Number of ICU Beds	10
Number of Admissions	4,188
Number of Patient Days	17,485
Beds per Infection Preventionist	79.0

Influenza Vaccination

Influenza Vaccination Among Hospital Staff, 2010

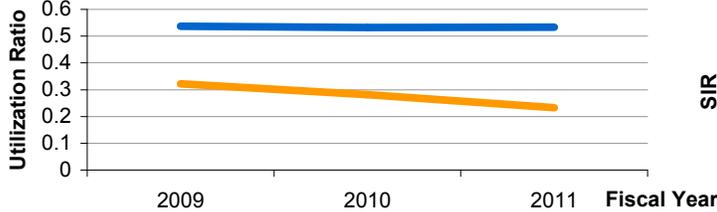


Central Line-Associated Blood Stream Infection

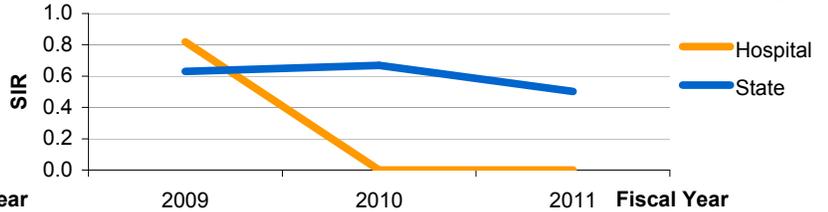
CLABSI Rates by ICU Type for Fiscal Year 2011, Compared to State Baseline Data from Fiscal Years 2009-2010

ICU Type	Infections	Line Days	Rate	Predicted Infections	SIR	Confidence Interval	Interpretation
Medical/surgical	0	581	0.00	0.64	0.00	(0.00 - 5.77)	Same

Hospital and State Central Line Utilization Ratios



Hospital and State CLABSI SIRs compared to National Average

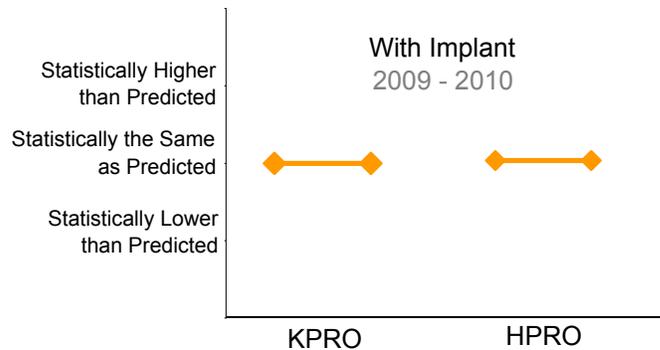


Surgical Site Infection

Hospital SSI SIRs by Procedure Type for All Fiscal Years Available

Procedure	Fiscal Year	Infections	Procedures	Predicted Infections	SIR	Confidence Interval	Interpretation
Knee Prosthesis (KPRO)	2009	1	79	0.38	2.62	(0.06 - 14.57)	Same
	2010	1	82	0.42	2.40	(0.06 - 13.37)	Same
Hip Prosthesis (HPRO)	2009	0	48	0.34	0.00	(0.00 - 10.70)	Same
	2010	1	62	0.51	1.95	(0.04 - 10.85)	Same

Statistically Significant Variation from Predicted Number of Surgical Site Infections Over Time





Massachusetts 2011 HAI Data Report

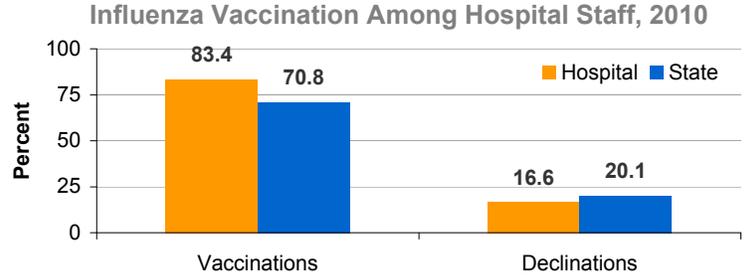
Martha's Vineyard Hospital - Oak Bluffs, MA

Report Release Date: February 2012

2010 Hospital Survey Statistics

Medical School Affiliation	No
Hospital Type	Nonteaching
Profit Status	Not-for-profit
Number of Beds	21
Number of ICU Beds	3
Number of Admissions	1,040
Number of Patient Days	1,043
Beds per Infection Preventionist	21.0

Influenza Vaccination

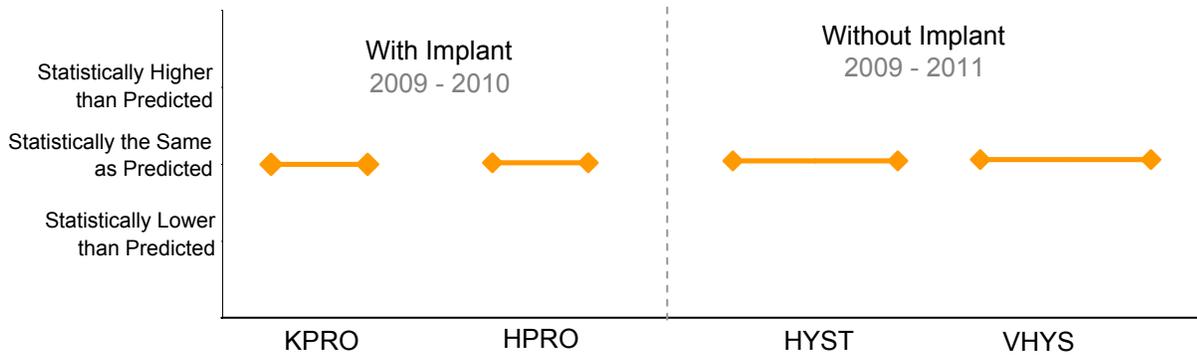


Surgical Site Infection

Hospital SSI SIRs by Procedure Type for All Fiscal Years Available

Procedure	Fiscal Year	Infections	Procedures	Predicted Infections	SIR	Confidence Interval	Interpretation
Knee Prosthesis (KPRO)	2009	0	6	0.05	0.00	(0.00 - 76.21)	Same
	2010	0	3	0.01	0.00	(0.00 - 252.6)	Same
Hip Prosthesis (HPRO)	2009	0	11	0.07	0.00	(0.00 - 53.77)	Same
	2010	0	1	0.00	0.00	(0.00 - 838.3)	Same
Abdominal Hysterectomy (HYST)	2009	0	3	0.01	0.00	(0.00 - 295.1)	Same
	2011	0	3	0.02	0.00	(0.00 - 190.1)	Same
Vaginal Hysterectomy (VHYS)	2009	0	1	0.00	0.00	(0.00 - 899.7)	Same
	2011	0	2	0.01	0.00	(0.00 - 338.4)	Same

Statistically Significant Variation from Predicted Number of Surgical Site Infections Over Time





Massachusetts 2011 HAI Data Report

Massachusetts General Hospital - Boston, MA

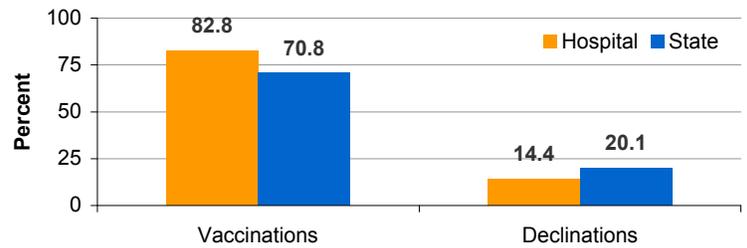
Report Release Date: February 2012

2010 Hospital Survey Statistics

Medical School Affiliation	Yes
Hospital Type	Major teaching
Profit Status	Not-for-profit
Number of Beds	951
Number of ICU Beds	126
Number of Admissions	47,243
Number of Patient Days	289,791
Beds per Infection Preventionist	158.5

Influenza Vaccination

Influenza Vaccination Among Hospital Staff, 2010

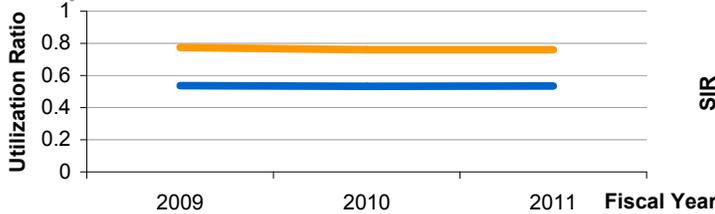


Central Line-Associated Blood Stream Infection

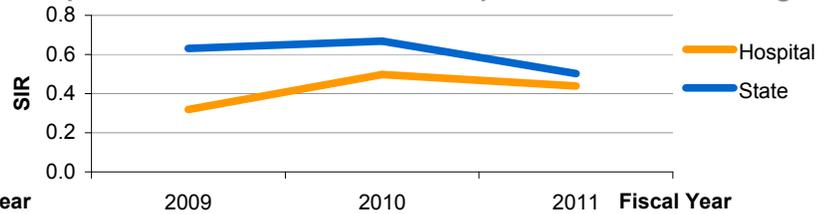
CLABSI Rates by ICU Type for Fiscal Year 2011, Compared to State Baseline Data from Fiscal Years 2009-2010

ICU Type	Infections	Line Days	Rate	Predicted Infections	SIR	Confidence Interval	Interpretation
Burn	2	727	2.75	3.74	0.54	(0.06 - 1.93)	Same
Medical cardiac	5	3,991	1.25	6.57	0.76	(0.24 - 1.77)	Same
Surgical cardiothoracic	4	4,196	0.95	3.76	1.07	(0.29 - 2.72)	Same
Medical	5	4,686	1.07	7.81	0.64	(0.20 - 1.49)	Same
Pediatric medical/surgical	5	886	5.64	1.91	2.61	(0.84 - 6.09)	Same
Neurosurgical	1	3,110	0.32	3.10	0.32	(0.00 - 1.79)	Same
Surgical	1	5,191	0.19	7.00	0.14	(0.00 - 0.79)	Lower
Neonatal	1	1,966	0.51	5.11	0.20	(0.00 - 1.09)	Same

Hospital and State Central Line Utilization Ratios



Hospital and State CLABSI SIRs compared to National Average

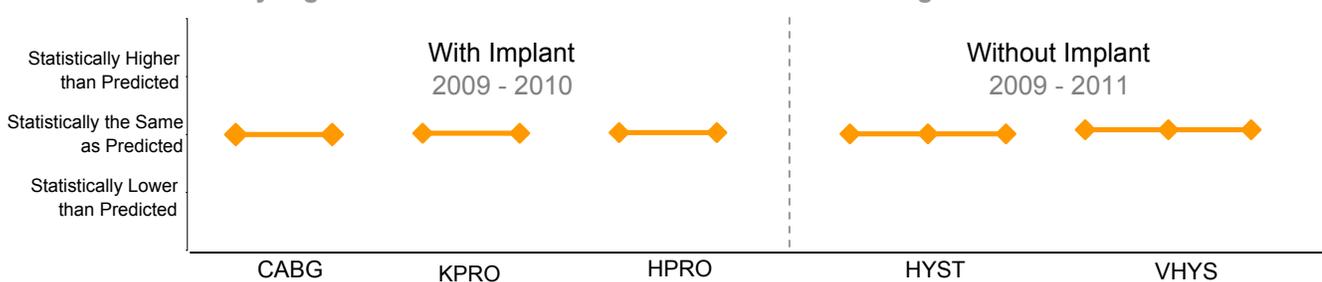


Surgical Site Infection

Hospital SSI SIRs by Procedure Type for All Fiscal Years Available

Procedure	Fiscal Year	Infections	Procedures	Predicted Infections	SIR	Confidence Interval	Interpretation
Coronary Artery Bypass (CABG)	2009	2	310	3.54	0.56	(0.06 - 2.03)	Same
	2010	4	333	4.03	0.99	(0.27 - 2.54)	Same
Knee Prosthesis (KPRO)	2009	2	464	2.58	0.78	(0.09 - 2.80)	Same
	2010	5	439	2.65	1.89	(0.61 - 4.40)	Same
Hip Prosthesis (HPRO)	2009	3	506	4.23	0.71	(0.14 - 2.07)	Same
	2010	4	507	4.39	0.91	(0.24 - 2.33)	Same
Abdominal Hysterectomy (HYST)	2009	0	57	0.36	0.00	(0.00 - 10.38)	Same
	2010	0	58	0.39	0.00	(0.00 - 9.48)	Same
	2011	1	82	0.61	1.64	(0.04 - 9.12)	Same
Vaginal Hysterectomy (VHYS)	2009	0	41	0.41	0.00	(0.00 - 8.94)	Same
	2010	0	73	0.63	0.00	(0.00 - 5.85)	Same
	2011	0	36	0.34	0.00	(0.00 - 10.71)	Same

Statistically Significant Variation from Predicted Number of Surgical Site Infections Over Time





Massachusetts 2011 HAI Data Report

Melrose-Wakefield Hospital - Melrose, MA

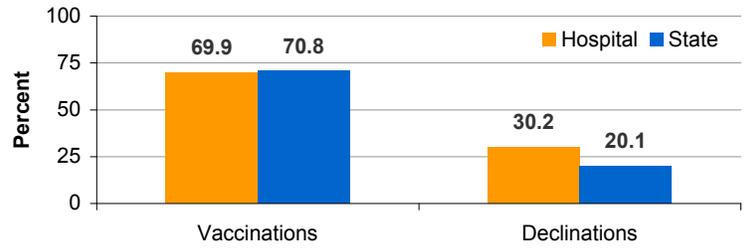
Report Release Date: February 2012

2010 Hospital Survey Statistics

Medical School Affiliation	No
Hospital Type	Nonteaching
Profit Status	Not-for-profit
Number of Beds	174
Number of ICU Beds	12
Number of Admissions	13,194
Number of Patient Days	50,469
Beds per Infection Preventionist	174.0

Influenza Vaccination

Influenza Vaccination Among Hospital Staff, 2010

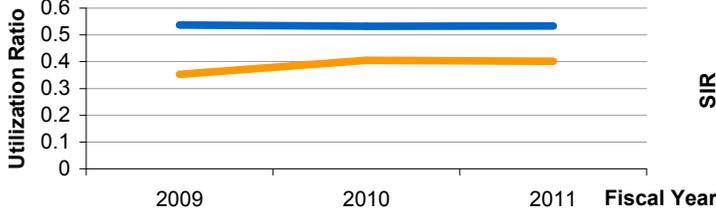


Central Line-Associated Blood Stream Infection

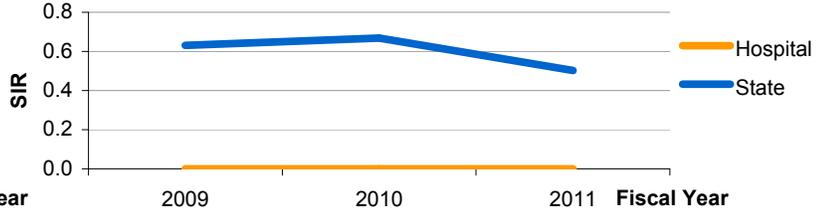
CLABSI Rates by ICU Type for Fiscal Year 2011, Compared to State Baseline Data from Fiscal Years 2009-2010

ICU Type	Infections	Line Days	Rate	Predicted Infections	SIR	Confidence Interval	Interpretation
Medical/surgical	0	753	0.00	0.83	0.00	(0.00 - 4.45)	Same

Hospital and State Central Line Utilization Ratios



Hospital and State CLABSI SIRs compared to National Average

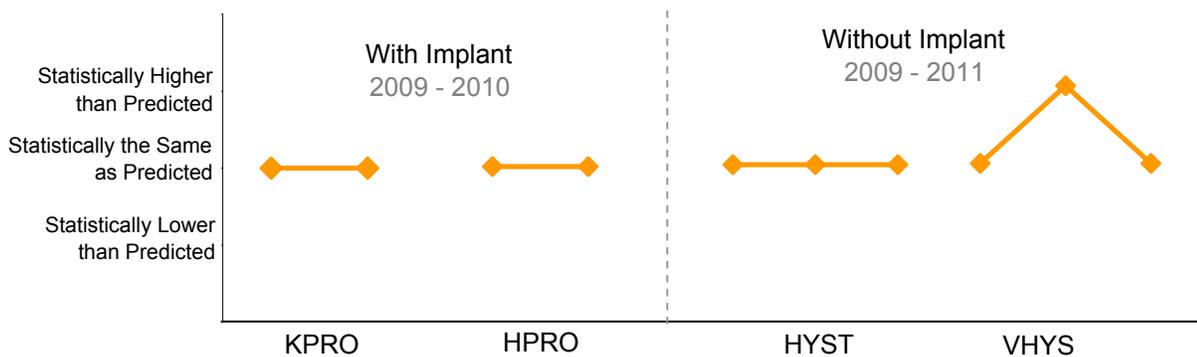


Surgical Site Infection

Hospital SSI SIRs by Procedure Type for All Fiscal Years Available

Procedure	Fiscal Year	Infections	Procedures	Predicted Infections	SIR	Confidence Interval	Interpretation
Knee Prosthesis (KPRO)	2009	2	95	0.43	4.70	(0.56 - 16.96)	Same
	2010	0	112	0.57	0.00	(0.00 - 6.46)	Same
Hip Prosthesis (HPRO)	2009	1	84	0.45	2.22	(0.05 - 12.34)	Same
	2010	0	59	0.26	0.00	(0.00 - 13.93)	Same
Abdominal Hysterectomy (HYST)	2009	0	144	0.92	0.00	(0.00 - 4.01)	Same
	2010	1	118	0.74	1.35	(0.03 - 7.49)	Same
	2011	1	127	0.86	1.16	(0.02 - 6.47)	Same
Vaginal Hysterectomy (VHYS)	2009	0	26	0.07	0.00	(0.00 - 54.16)	Same
	2010	2	52	0.15	13.35	(1.61 - 48.22)	Higher
	2011	0	36	0.09	0.00	(0.00 - 40.71)	Same

Statistically Significant Variation from Predicted Number of Surgical Site Infections Over Time





Massachusetts 2011 HAI Data Report

Mercy Medical Center - Springfield, MA

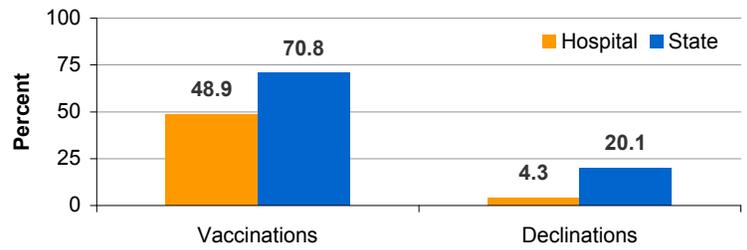
Report Release Date: February 2012

2010 Hospital Survey Statistics

Medical School Affiliation	No
Hospital Type	Nonteaching
Profit Status	Not-for-profit
Number of Beds	163
Number of ICU Beds	16
Number of Admissions	10,699
Number of Patient Days	53,139
Beds per Infection Preventionist	163.0

Influenza Vaccination

Influenza Vaccination Among Hospital Staff, 2010

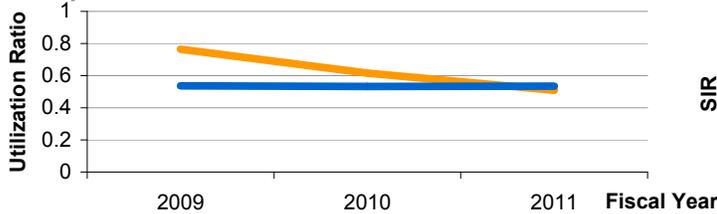


Central Line-Associated Blood Stream Infection

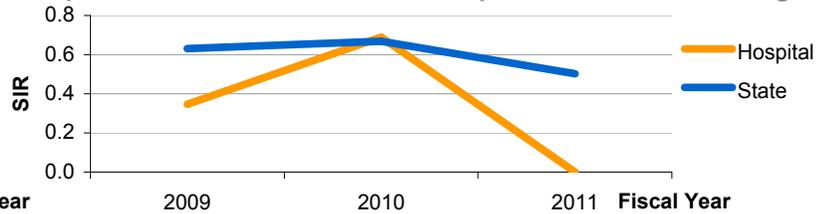
CLABSI Rates by ICU Type for Fiscal Year 2011, Compared to State Baseline Data from Fiscal Years 2009-2010

ICU Type	Infections	Line Days	Rate	Predicted Infections	SIR	Confidence Interval	Interpretation
Medical/surgical	0	1,099	0.00	1.21	0.00	(0.00 - 3.05)	Same

Hospital and State Central Line Utilization Ratios



Hospital and State CLABSI SIRs compared to National Average

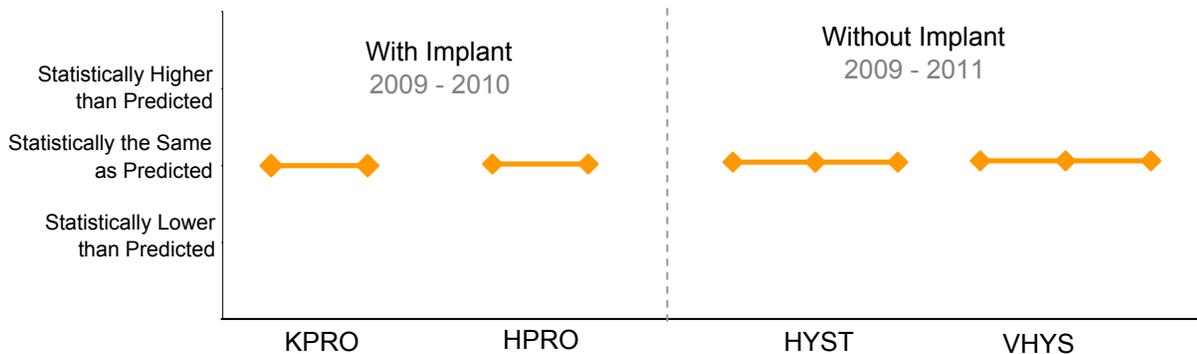


Surgical Site Infection

Hospital SSI SIRs by Procedure Type for All Fiscal Years Available

Procedure	Fiscal Year	Infections	Procedures	Predicted Infections	SIR	Confidence Interval	Interpretation
Knee Prosthesis (KPRO)	2009	0	130	0.53	0.00	(0.00 - 6.95)	Same
	2010	0	166	0.64	0.00	(0.00 - 5.75)	Same
Hip Prosthesis (HPRO)	2009	0	46	0.20	0.00	(0.00 - 18.65)	Same
	2010	0	64	0.29	0.00	(0.00 - 12.62)	Same
Abdominal Hysterectomy (HYST)	2009	1	118	0.84	1.20	(0.03 - 6.67)	Same
	2010	0	114	0.76	0.00	(0.00 - 4.82)	Same
	2011	0	88	0.64	0.00	(0.00 - 5.73)	Same
Vaginal Hysterectomy (VHYS)	2009	0	23	0.09	0.00	(0.00 - 41.77)	Same
	2010	0	15	0.05	0.00	(0.00 - 72.33)	Same
	2011	0	22	0.09	0.00	(0.00 - 42.84)	Same

Statistically Significant Variation from Predicted Number of Surgical Site Infections Over Time





Massachusetts 2011 HAI Data Report

Merrimack Valley Hospital - Haverhill, MA

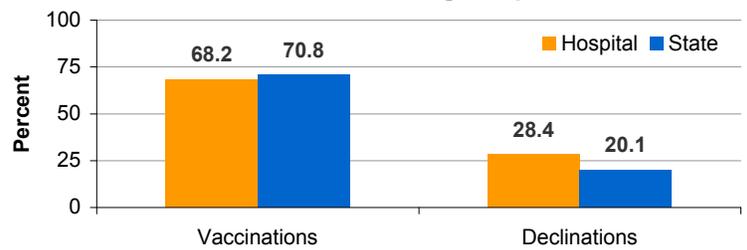
Report Release Date: February 2012

2010 Hospital Survey Statistics

Medical School Affiliation	No
Hospital Type	Nonteaching
Profit Status	For-profit
Number of Beds	82
Number of ICU Beds	10
Number of Admissions	3,860
Number of Patient Days	19,473
Beds per Infection Preventionist	82.0

Influenza Vaccination

Influenza Vaccination Among Hospital Staff, 2010

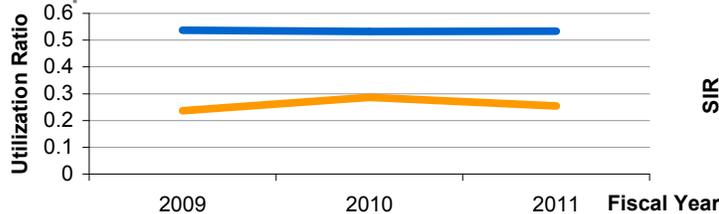


Central Line-Associated Blood Stream Infection

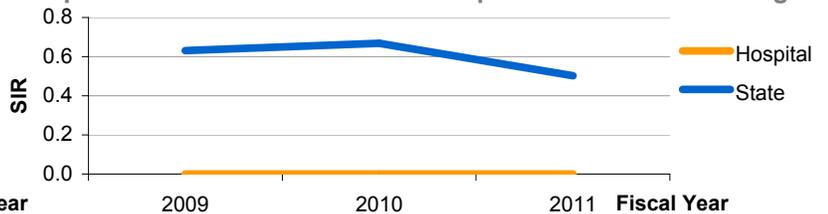
CLABSI Rates by ICU Type for Fiscal Year 2011, Compared to State Baseline Data from Fiscal Years 2009-2010

ICU Type	Infections	Line Days	Rate	Predicted Infections	SIR	Confidence Interval	Interpretation
Medical/surgical	0	289	0.00	0.32	0.00	(0.00 - 11.61)	Same

Hospital and State Central Line Utilization Ratios



Hospital and State CLABSI SIRs compared to National Average

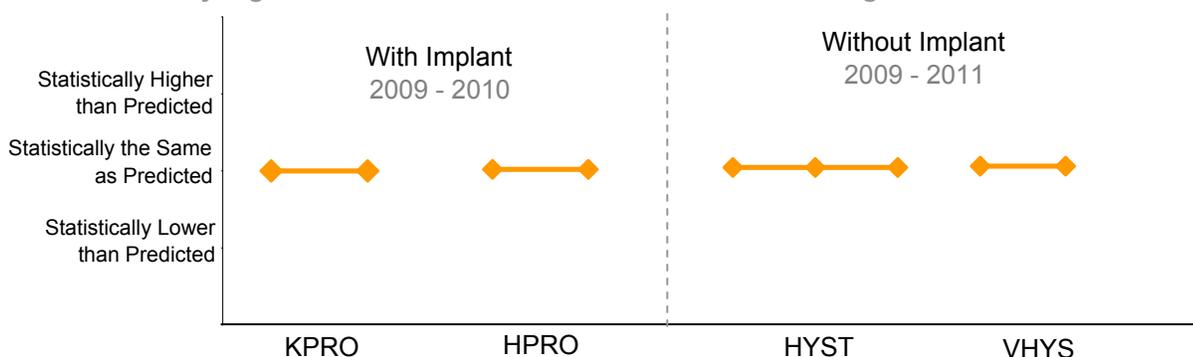


Surgical Site Infection

Hospital SSI SIRs by Procedure Type for All Fiscal Years Available

Procedure	Fiscal Year	Infections	Procedures	Predicted Infections	SIR	Confidence Interval	Interpretation
Knee Prosthesis (KPRO)	2009	0	48	0.19	0.00	(0.00 - 18.98)	Same
	2010	0	52	0.22	0.00	(0.00 - 17.02)	Same
Hip Prosthesis (HPRO)	2009	1	34	0.14	7.25	(0.18 - 40.37)	Same
	2010	1	38	0.22	4.52	(0.11 - 25.18)	Same
Abdominal Hysterectomy (HYST)	2009	0	34	0.19	0.00	(0.00 - 19.49)	Same
	2010	0	15	0.08	0.00	(0.00 - 44.82)	Same
	2011	0	20	0.11	0.00	(0.00 - 34.60)	Same
Vaginal Hysterectomy (VHYS)	2009	0	3	0.00	0.00	(0.00 - 1024.)	Same
	2010	0	4	0.02	0.00	(0.00 - 212.0)	Same

Statistically Significant Variation from Predicted Number of Surgical Site Infections Over Time





Massachusetts 2011 HAI Data Report

Milford Regional Medical Center - Milford, MA

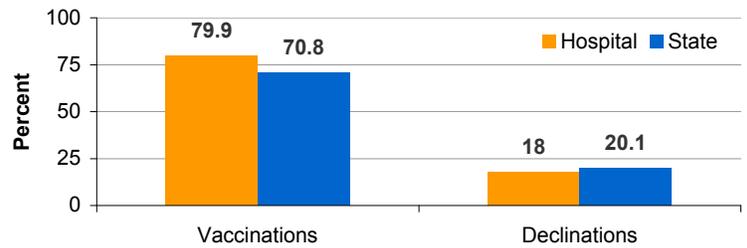
Report Release Date: February 2012

2010 Hospital Survey Statistics

Medical School Affiliation	Yes
Hospital Type	Major teaching
Profit Status	Not-for-profit
Number of Beds	132
Number of ICU Beds	10
Number of Admissions	8,380
Number of Patient Days	33,078
Beds per Infection Preventionist	132.0

Influenza Vaccination

Influenza Vaccination Among Hospital Staff, 2010

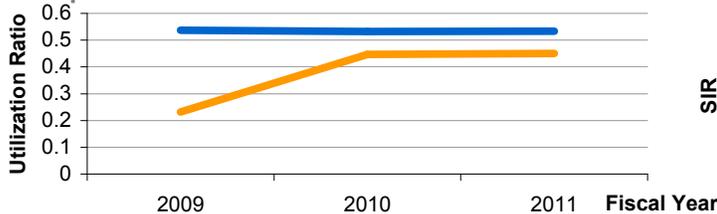


Central Line-Associated Blood Stream Infection

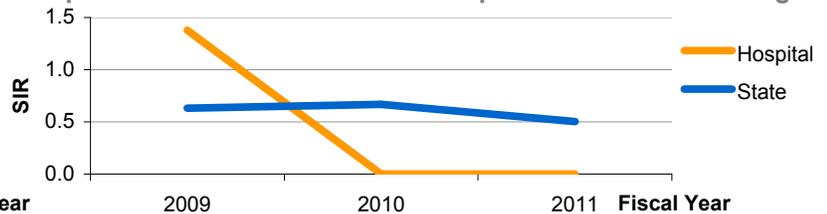
CLABSI Rates by ICU Type for Fiscal Year 2011, Compared to State Baseline Data from Fiscal Years 2009-2010

ICU Type	Infections	Line Days	Rate	Predicted Infections	SIR	Confidence Interval	Interpretation
Medical/surgical	0	1,283	0.00	1.44	0.00	(0.00 - 2.56)	Same

Hospital and State Central Line Utilization Ratios



Hospital and State CLABSI SIRs compared to National Average

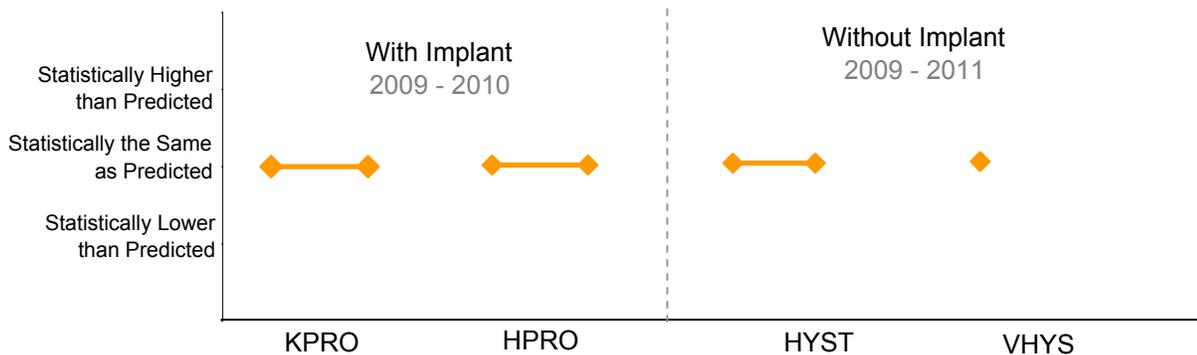


Surgical Site Infection

Hospital SSI SIRs by Procedure Type for All Fiscal Years Available

Procedure	Fiscal Year	Infections	Procedures	Predicted Infections	SIR	Confidence Interval	Interpretation
Knee Prosthesis (KPRO)	2009	0	95	0.40	0.00	(0.00 - 9.16)	Same
	2010	0	114	0.50	0.00	(0.00 - 7.31)	Same
Hip Prosthesis (HPRO)	2009	0	71	0.34	0.00	(0.00 - 10.97)	Same
	2010	0	60	0.29	0.00	(0.00 - 12.84)	Same
Abdominal Hysterectomy (HYST)	2009	2	95	0.54	3.72	(0.45 - 13.42)	Same
	2010	0	79	0.44	0.00	(0.00 - 8.39)	Same
Vaginal Hysterectomy (VHYS)	2009	0	24	0.22	0.00	(0.00 - 17.01)	Same

Statistically Significant Variation from Predicted Number of Surgical Site Infections Over Time





Massachusetts 2011 HAI Data Report

Milton Hospital - Milton, MA

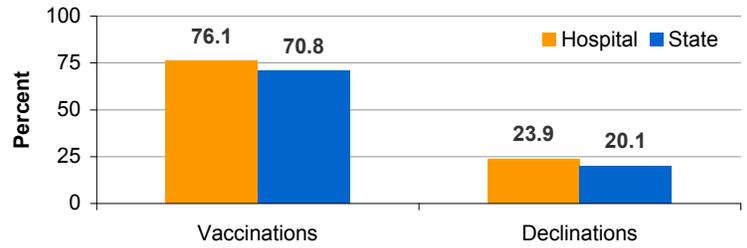
Report Release Date: February 2012

2010 Hospital Survey Statistics

Medical School Affiliation	No
Hospital Type	Nonteaching
Profit Status	Not-for-profit
Number of Beds	81
Number of ICU Beds	8
Number of Admissions	4,747
Number of Patient Days	16,191
Beds per Infection Preventionist	81.0

Influenza Vaccination

Influenza Vaccination Among Hospital Staff, 2010

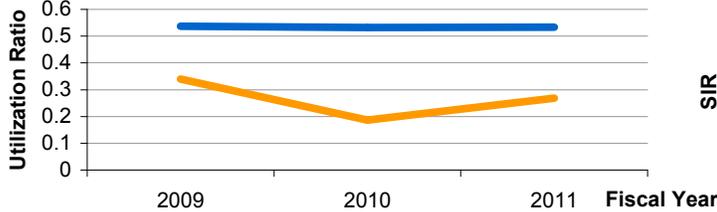


Central Line-Associated Blood Stream Infection

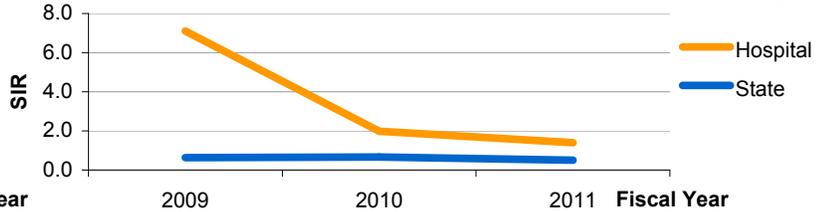
CLABSI Rates by ICU Type for Fiscal Year 2011, Compared to State Baseline Data from Fiscal Years 2009-2010

ICU Type	Infections	Line Days	Rate	Predicted Infections	SIR	Confidence Interval	Interpretation
Medical/surgical	1	476	2.10	0.52	1.91	(0.04 - 10.65)	Same

Hospital and State Central Line Utilization Ratios



Hospital and State CLABSI SIRs compared to National Average

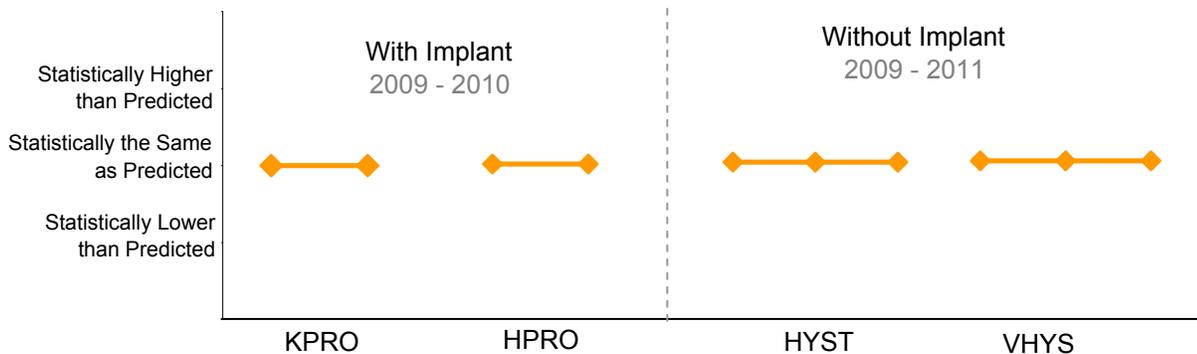


Surgical Site Infection

Hospital SSI SIRs by Procedure Type for All Fiscal Years Available

Procedure	Fiscal Year	Infections	Procedures	Predicted Infections	SIR	Confidence Interval	Interpretation
Knee Prosthesis (KPRO)	2009	0	70	0.38	0.00	(0.00 - 9.68)	Same
	2010	0	94	0.51	0.00	(0.00 - 7.27)	Same
Hip Prosthesis (HPRO)	2009	0	37	0.25	0.00	(0.00 - 14.87)	Same
	2010	0	62	0.39	0.00	(0.00 - 9.49)	Same
Abdominal Hysterectomy (HYST)	2009	0	28	0.29	0.00	(0.00 - 12.81)	Same
	2010	0	20	0.14	0.00	(0.00 - 26.07)	Same
	2011	0	8	0.06	0.00	(0.00 - 60.77)	Same
Vaginal Hysterectomy (VHYS)	2009	0	2	0.01	0.00	(0.00 - 737.7)	Same
	2010	0	6	0.02	0.00	(0.00 - 149.3)	Same
	2011	0	15	0.08	0.00	(0.00 - 47.72)	Same

Statistically Significant Variation from Predicted Number of Surgical Site Infections Over Time





Massachusetts 2011 HAI Data Report

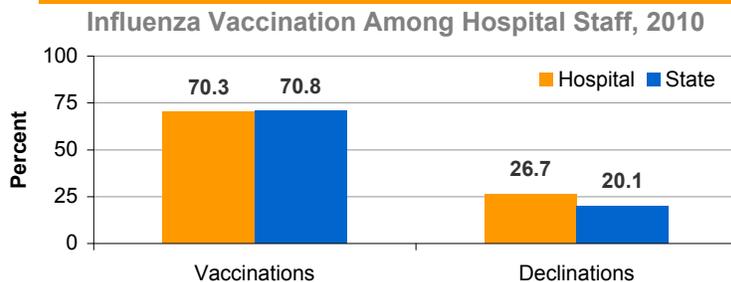
Morton Hospital and Medical Center - Taunton, MA

Report Release Date: February 2012

2010 Hospital Survey Statistics

Medical School Affiliation	No
Hospital Type	Nonteaching
Profit Status	Not-for-profit
Number of Beds	168
Number of ICU Beds	12
Number of Admissions	8,349
Number of Patient Days	36,404
Beds per Infection Preventionist	168.0

Influenza Vaccination

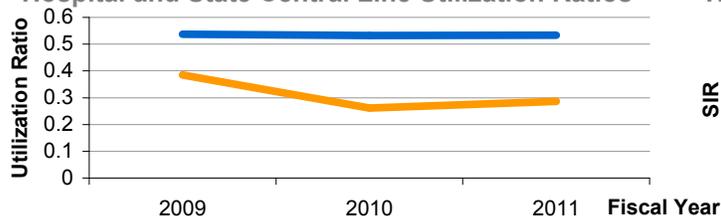


Central Line-Associated Blood Stream Infection

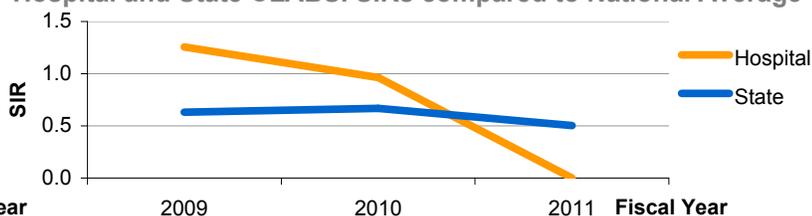
CLABSI Rates by ICU Type for Fiscal Year 2011, Compared to State Baseline Data from Fiscal Years 2009-2010

ICU Type	Infections	Line Days	Rate	Predicted Infections	SIR	Confidence Interval	Interpretation
Medical/surgical	0	589	0.00	0.65	0.00	(0.00 - 5.69)	Same

Hospital and State Central Line Utilization Ratios



Hospital and State CLABSI SIRs compared to National Average

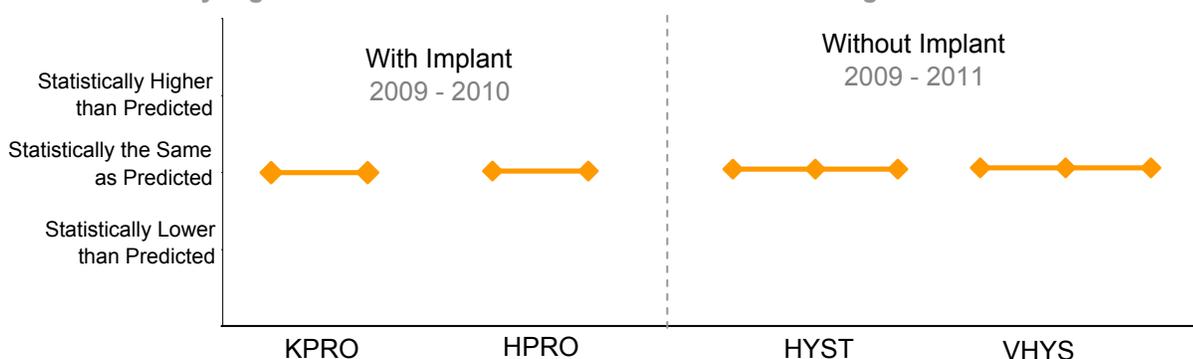


Surgical Site Infection

Hospital SSI SIRs by Procedure Type for All Fiscal Years Available

Procedure	Fiscal Year	Infections	Procedures	Predicted Infections	SIR	Confidence Interval	Interpretation
Knee Prosthesis (KPRO)	2009	0	136	0.56	0.00	(0.00 - 6.53)	Same
	2010	1	161	0.70	1.43	(0.03 - 7.97)	Same
Hip Prosthesis (HPRO)	2009	0	49	0.24	0.00	(0.00 - 15.29)	Same
	2010	0	57	0.29	0.00	(0.00 - 12.59)	Same
Abdominal Hysterectomy (HYST)	2009	2	42	0.26	7.78	(0.94 - 28.09)	Same
	2010	0	34	0.19	0.00	(0.00 - 19.87)	Same
	2011	2	34	0.26	7.57	(0.91 - 27.33)	Same
Vaginal Hysterectomy (VHYS)	2009	0	56	0.18	0.00	(0.00 - 20.60)	Same
	2010	1	48	0.16	6.42	(0.16 - 35.76)	Same
	2011	0	20	0.06	0.00	(0.00 - 65.40)	Same

Statistically Significant Variation from Predicted Number of Surgical Site Infections Over Time





Massachusetts 2011 HAI Data Report

Mount Auburn Hospital - Cambridge, MA

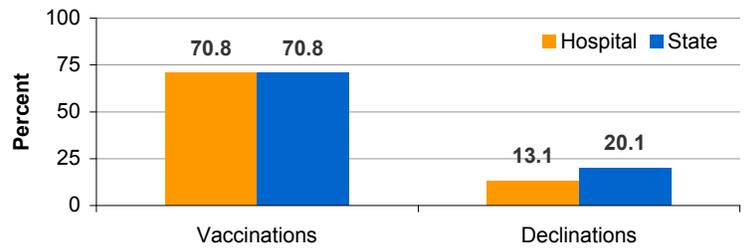
Report Release Date: February 2012

2010 Hospital Survey Statistics

Medical School Affiliation	Yes
Hospital Type	Major teaching
Profit Status	Not-for-profit
Number of Beds	202
Number of ICU Beds	20
Number of Admissions	19,546
Number of Patient Days	68,887
Beds per Infection Preventionist	101.0

Influenza Vaccination

Influenza Vaccination Among Hospital Staff, 2010

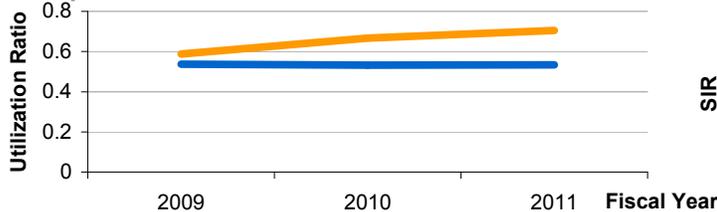


Central Line-Associated Blood Stream Infection

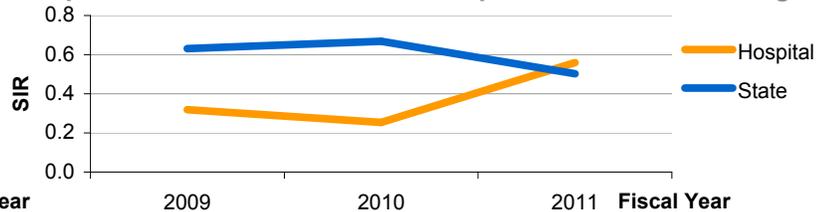
CLABSI Rates by ICU Type for Fiscal Year 2011, Compared to State Baseline Data from Fiscal Years 2009-2010

ICU Type	Infections	Line Days	Rate	Predicted Infections	SIR	Confidence Interval	Interpretation
Medical	3	1,668	1.80	2.78	1.08	(0.22 - 3.15)	Same
Surgical	2	2,004	1.00	2.70	0.74	(0.09 - 2.67)	Same

Hospital and State Central Line Utilization Ratios



Hospital and State CLABSI SIRs compared to National Average

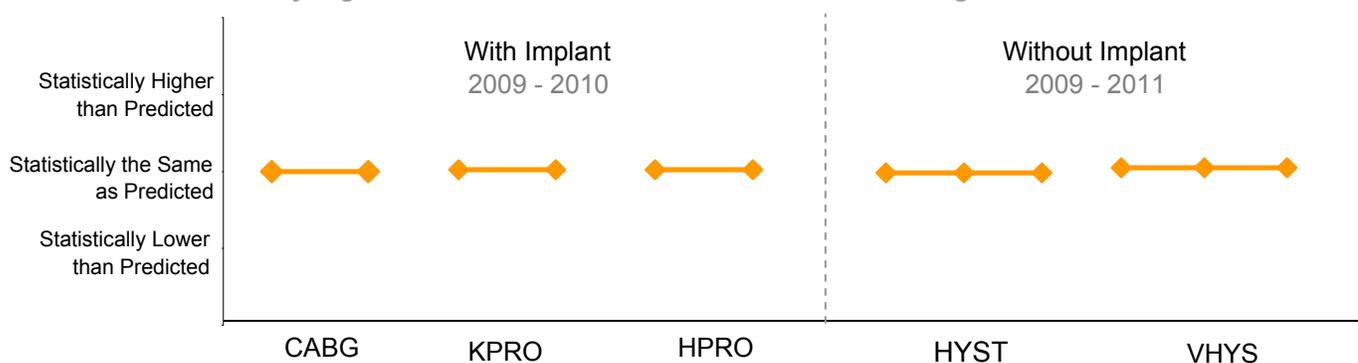


Surgical Site Infection

Hospital SSI SIRs by Procedure Type for All Fiscal Years Available

Procedure	Fiscal Year	Infections	Procedures	Predicted Infections	SIR	Confidence Interval	Interpretation
Coronary Artery Bypass (CABG)	2009	0	114	1.28	0.00	(0.00 - 2.88)	Same
	2010	0	126	1.43	0.00	(0.00 - 2.57)	Same
Knee Prosthesis (KPRO)	2009	3	308	1.82	1.65	(0.33 - 4.81)	Same
	2010	1	242	1.37	0.73	(0.01 - 4.06)	Same
Hip Prosthesis (HPRO)	2009	0	197	1.77	0.00	(0.00 - 2.07)	Same
	2010	0	149	1.54	0.00	(0.00 - 2.39)	Same
Abdominal Hysterectomy (HYST)	2009	1	143	1.17	0.86	(0.02 - 4.77)	Same
	2010	0	163	1.28	0.00	(0.00 - 2.87)	Same
	2011	2	202	1.64	1.22	(0.14 - 4.41)	Same
Vaginal Hysterectomy (VHYS)	2009	2	43	0.36	5.50	(0.66 - 19.86)	Same
	2010	0	43	0.36	0.00	(0.00 - 10.32)	Same
	2011	0	28	0.20	0.00	(0.00 - 18.77)	Same

Statistically Significant Variation from Predicted Number of Surgical Site Infections Over Time





Massachusetts 2011 HAI Data Report

Metro West Medical Center- Framingham Hospital - Framingham, MA

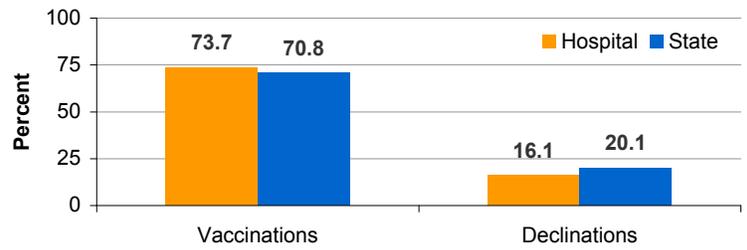
Report Release Date: February 2012

2010 Hospital Survey Statistics

Medical School Affiliation	Yes
Hospital Type	Limited teaching
Profit Status	For-profit
Number of Beds	147
Number of ICU Beds	12
Number of Admissions	14,829
Number of Patient Days	37,543
Beds per Infection Preventionist	147.0

Influenza Vaccination

Influenza Vaccination Among Hospital Staff, 2010

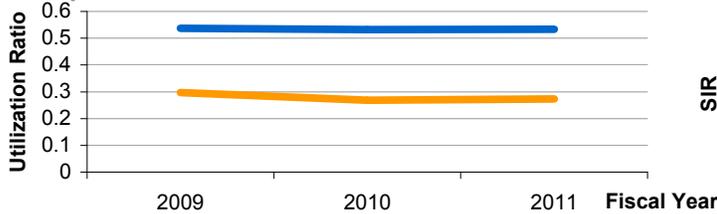


Central Line-Associated Blood Stream Infection

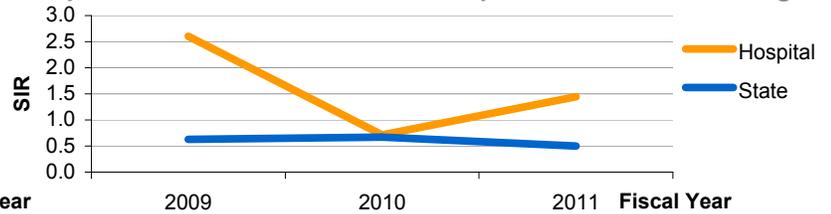
CLABSI Rates by ICU Type for Fiscal Year 2011, Compared to State Baseline Data from Fiscal Years 2009-2010

ICU Type	Infections	Line Days	Rate	Predicted Infections	SIR	Confidence Interval	Interpretation
Medical/surgical	2	923	2.17	1.01	1.97	(0.23 - 7.12)	Same

Hospital and State Central Line Utilization Ratios



Hospital and State CLABSI SIRs compared to National Average

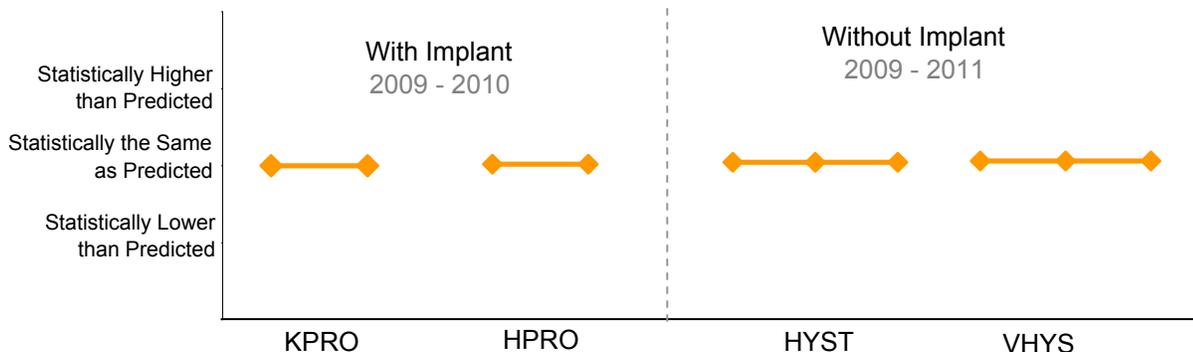


Surgical Site Infection

Hospital SSI SIRs by Procedure Type for All Fiscal Years Available

Procedure	Fiscal Year	Infections	Procedures	Predicted Infections	SIR	Confidence Interval	Interpretation
Knee Prosthesis (KPRO)	2009	0	24	0.12	0.00	(0.00 - 30.74)	Same
	2010	1	26	0.18	5.60	(0.14 - 31.19)	Same
Hip Prosthesis (HPRO)	2009	1	40	0.37	2.70	(0.06 - 15.03)	Same
	2010	0	31	0.30	0.00	(0.00 - 12.43)	Same
Abdominal Hysterectomy (HYST)	2009	0	76	0.51	0.00	(0.00 - 7.25)	Same
	2010	0	136	0.97	0.00	(0.00 - 3.78)	Same
	2011	0	117	0.87	0.00	(0.00 - 4.23)	Same
Vaginal Hysterectomy (VHYS)	2009	0	21	0.17	0.00	(0.00 - 22.34)	Same
	2010	0	26	0.20	0.00	(0.00 - 18.64)	Same
	2011	1	18	0.13	7.70	(0.19 - 42.92)	Same

Statistically Significant Variation from Predicted Number of Surgical Site Infections Over Time





Massachusetts 2011 HAI Data Report

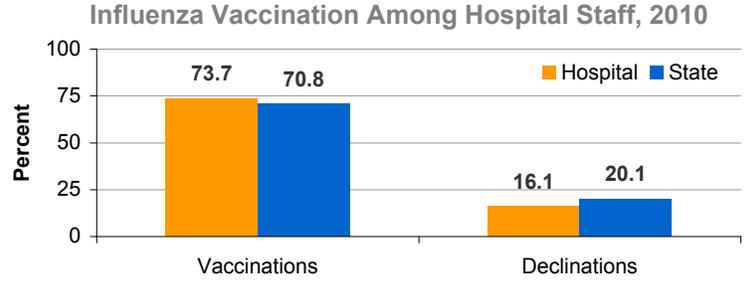
Metro West Medical Center - Leonard Morse Hospital - Natick, MA

Report Release Date: February 2012

2010 Hospital Survey Statistics

Medical School Affiliation	No
Hospital Type	Nonteaching
Profit Status	For-profit
Number of Beds	122
Number of ICU Beds	9
Number of Admissions	5,548
Number of Patient Days	25,916
Beds per Infection Preventionist	122.0

Influenza Vaccination

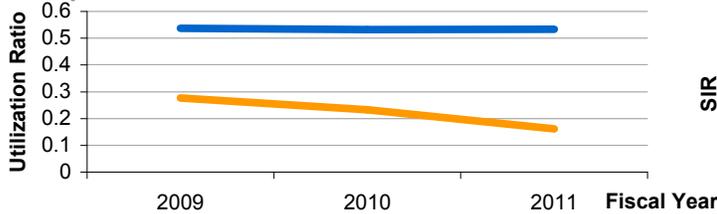


Central Line-Associated Blood Stream Infection

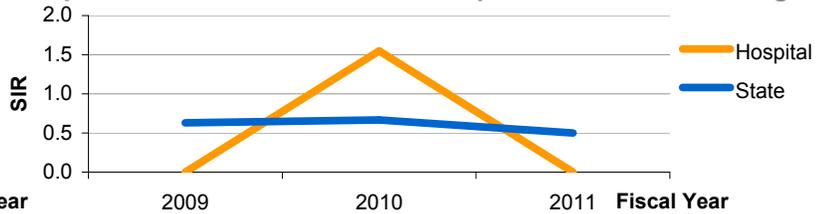
CLABSI Rates by ICU Type for Fiscal Year 2011, Compared to State Baseline Data from Fiscal Years 2009-2010

ICU Type	Infections	Line Days	Rate	Predicted Infections	SIR	Confidence Interval	Interpretation
Medical/surgical	1	324	3.09	0.36	2.81	(0.07 - 15.64)	Same

Hospital and State Central Line Utilization Ratios



Hospital and State CLABSI SIRs compared to National Average

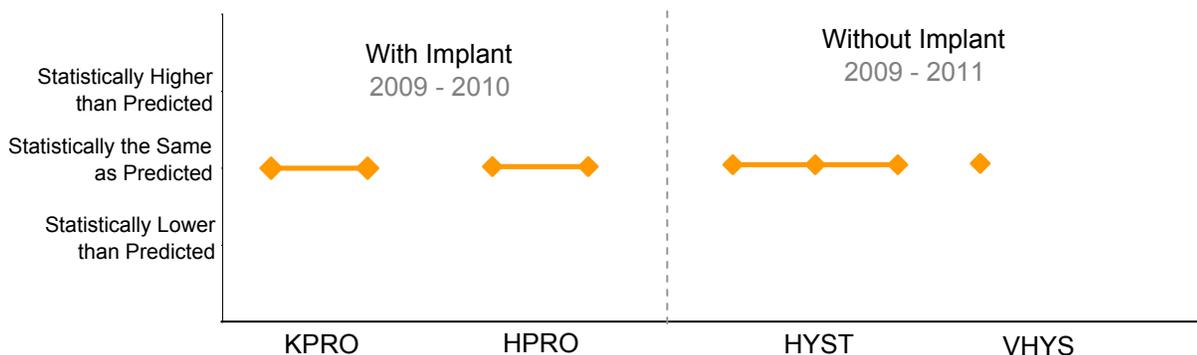


Surgical Site Infection

Hospital SSI SIRs by Procedure Type for All Fiscal Years Available

Procedure	Fiscal Year	Infections	Procedures	Predicted Infections	SIR	Confidence Interval	Interpretation
Knee Prosthesis (KPRO)	2009	1	92	0.44	2.28	(0.05 - 12.67)	Same
	2010	0	80	0.35	0.00	(0.00 - 10.54)	Same
Hip Prosthesis (HPRO)	2009	1	51	0.32	3.13	(0.07 - 17.42)	Same
	2010	0	81	0.49	0.00	(0.00 - 7.58)	Same
Abdominal Hysterectomy (HYST)	2009	0	4	0.02	0.00	(0.00 - 192.1)	Same
	2010	0	4	0.03	0.00	(0.00 - 118.2)	Same
	2011	0	2	0.01	0.00	(0.00 - 449.8)	Same
Vaginal Hysterectomy (VHYS)	2009	0	1	0.00	0.00	(0.00 - 1676.)	Same

Statistically Significant Variation from Predicted Number of Surgical Site Infections Over Time





Massachusetts 2011 HAI Data Report

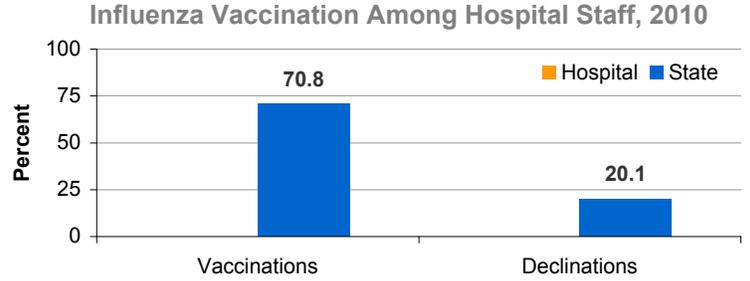
Metro West Medical Center - Leonard Morse Hospital - Natick, MA

Report Release Date: February 2012

2010 Hospital Survey Statistics

Medical School Affiliation	No
Hospital Type	Nonteaching
Profit Status	For-profit
Number of Beds	122
Number of ICU Beds	9
Number of Admissions	5,548
Number of Patient Days	25,916
Beds per Infection Preventionist	122.0

Influenza Vaccination

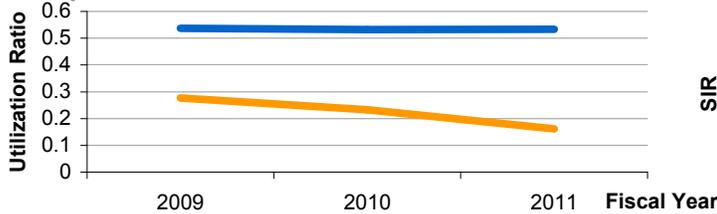


Central Line-Associated Blood Stream Infection

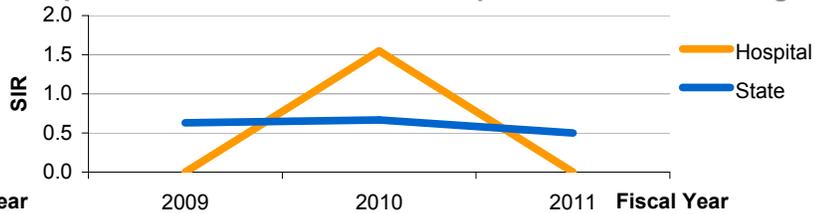
CLABSI Rates by ICU Type for Fiscal Year 2011, Compared to State Baseline Data from Fiscal Years 2009-2010

ICU Type	Infections	Line Days	Rate	Predicted Infections	SIR	Confidence Interval	Interpretation
Medical/surgical	1	324	3.09	0.36	2.81	(0.07 - 15.64)	Same

Hospital and State Central Line Utilization Ratios



Hospital and State CLABSI SIRs compared to National Average

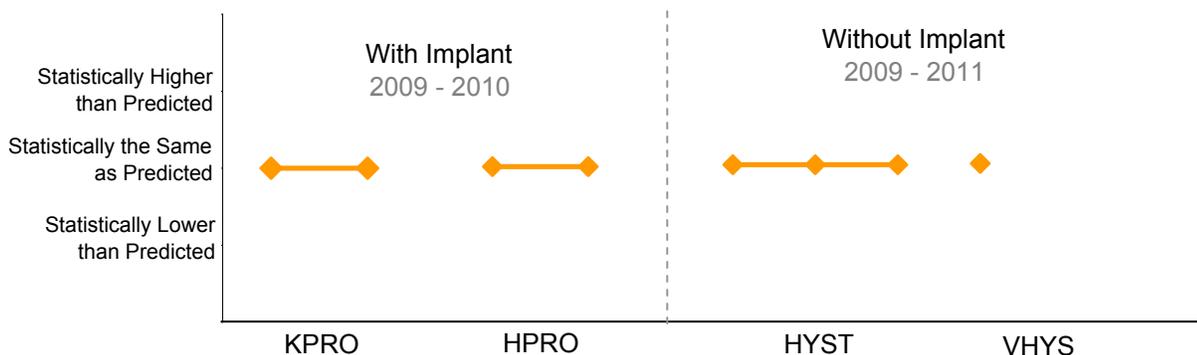


Surgical Site Infection

Hospital SSI SIRs by Procedure Type for All Fiscal Years Available

Procedure	Fiscal Year	Infections	Procedures	Predicted Infections	SIR	Confidence Interval	Interpretation
Knee Prosthesis (KPRO)	2009	1	92	0.44	2.28	(0.05 - 12.67)	Same
	2010	0	80	0.35	0.00	(0.00 - 10.54)	Same
Hip Prosthesis (HPRO)	2009	1	51	0.32	3.13	(0.07 - 17.42)	Same
	2010	0	81	0.49	0.00	(0.00 - 7.58)	Same
Abdominal Hysterectomy (HYST)	2009	0	4	0.02	0.00	(0.00 - 192.1)	Same
	2010	0	4	0.03	0.00	(0.00 - 118.2)	Same
	2011	0	2	0.01	0.00	(0.00 - 449.8)	Same
Vaginal Hysterectomy (VHYS)	2009	0	1	0.00	0.00	(0.00 - 1676.)	Same

Statistically Significant Variation from Predicted Number of Surgical Site Infections Over Time





Massachusetts 2011 HAI Data Report

Nashoba Valley Medical Center - Ayer, MA

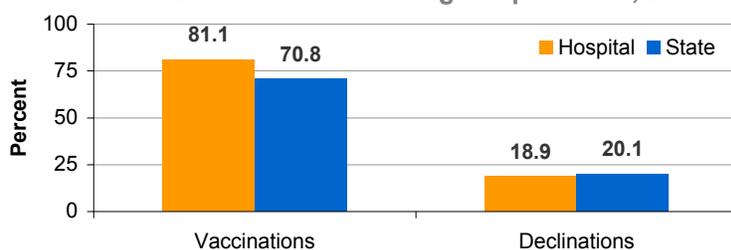
Report Release Date: February 2012

2010 Hospital Survey Statistics

Medical School Affiliation	No
Hospital Type	Nonteaching
Profit Status	For-profit
Number of Beds	51
Number of ICU Beds	6
Number of Admissions	1,777
Number of Patient Days	5,819
Beds per Infection Preventionist	51.0

Influenza Vaccination

Influenza Vaccination Among Hospital Staff, 2010

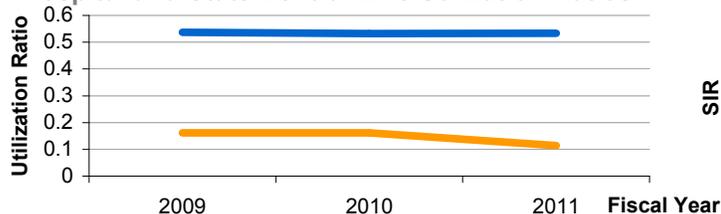


Central Line-Associated Blood Stream Infection

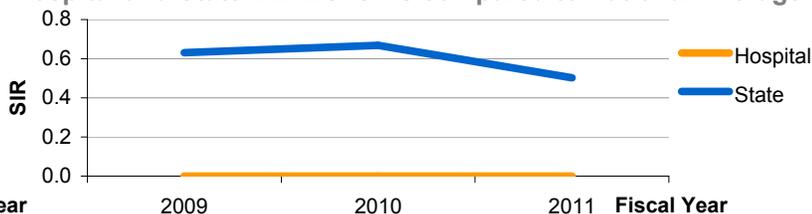
CLABSI Rates by ICU Type for Fiscal Year 2011, Compared to State Baseline Data from Fiscal Years 2009-2010

ICU Type	Infections	Line Days	Rate	Predicted Infections	SIR	Confidence Interval	Interpretation
Medical/surgical	0	160	0.00	0.18	0.00	(0.00 - 20.98)	Same

Hospital and State Central Line Utilization Ratios



Hospital and State CLABSI SIRs compared to National Average

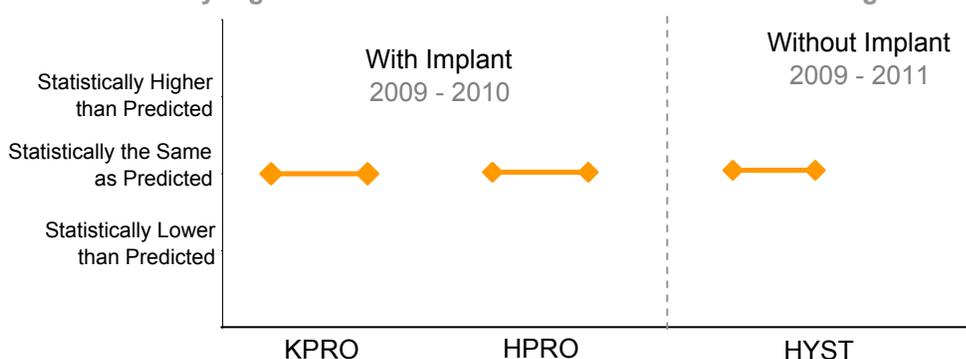


Surgical Site Infection

Hospital SSI SIRs by Procedure Type for All Fiscal Years Available

Procedure	Fiscal Year	Infections	Procedures	Predicted Infections	SIR	Confidence Interval	Interpretation
Knee Prosthesis (KPRO)	2009	0	27	0.21	0.00	(0.00 - 17.65)	Same
	2010	1	24	0.18	5.55	(0.14 - 30.90)	Same
Hip Prosthesis (HPRO)	2009	0	12	0.09	0.00	(0.00 - 40.62)	Same
	2010	0	26	0.24	0.00	(0.00 - 15.19)	Same
Abdominal Hysterectomy (HYST)	2009	0	2	0.02	0.00	(0.00 - 236.4)	Same
	2010	0	4	0.03	0.00	(0.00 - 120.5)	Same

Statistically Significant Variation from Predicted Number of Surgical Site Infections Over Time





Massachusetts 2011 HAI Data Report

New England Baptist Hospital - Boston, MA

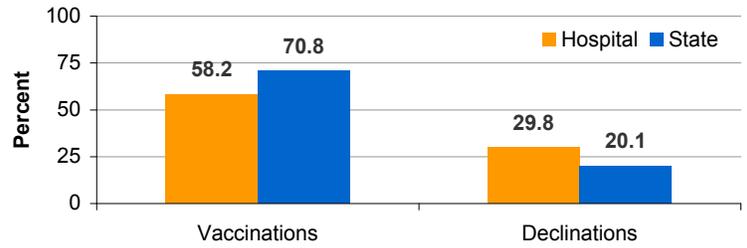
Report Release Date: February 2012

2010 Hospital Survey Statistics

Medical School Affiliation	Yes
Hospital Type	Graduate teaching
Profit Status	Not-for-profit
Number of Beds	118
Number of ICU Beds	10
Number of Admissions	7,194
Number of Patient Days	27,022
Beds per Infection Preventionist	118.0

Influenza Vaccination

Influenza Vaccination Among Hospital Staff, 2010

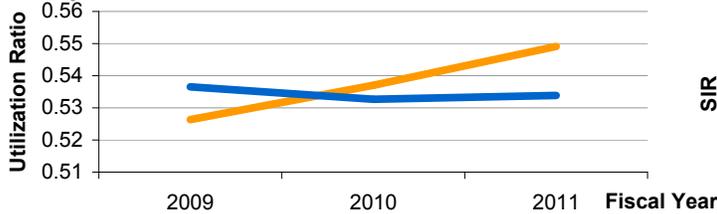


Central Line-Associated Blood Stream Infection

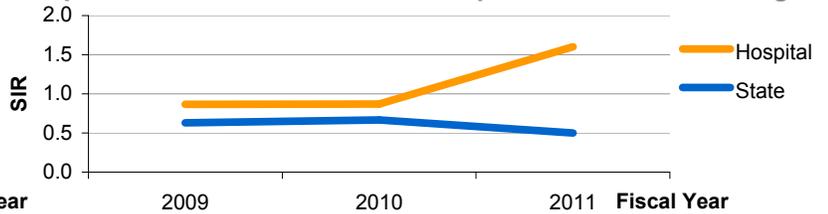
CLABSI Rates by ICU Type for Fiscal Year 2011, Compared to State Baseline Data from Fiscal Years 2009-2010

ICU Type	Infections	Line Days	Rate	Predicted Infections	SIR	Confidence Interval	Interpretation
Medical/surgical	2	833	2.40	0.92	2.19	(0.26 - 7.89)	Same

Hospital and State Central Line Utilization Ratios



Hospital and State CLABSI SIRs compared to National Average

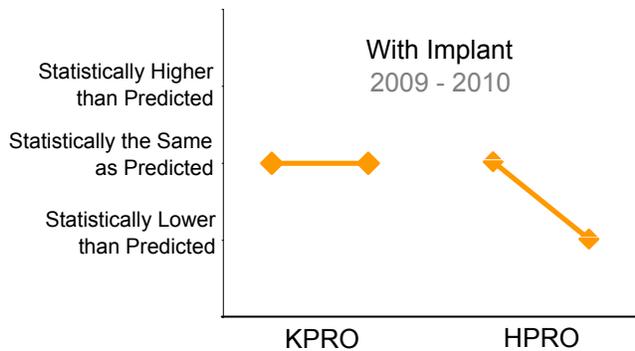


Surgical Site Infection

Hospital SSI SIRs by Procedure Type for All Fiscal Years Available

Procedure	Fiscal Year	Infections	Procedures	Predicted Infections	SIR	Confidence Interval	Interpretation
Knee Prosthesis (KPRO)	2009	9	2,159	11.17	0.81	(0.36 - 1.52)	Same
	2010	11	2,449	12.29	0.90	(0.44 - 1.60)	Same
Hip Prosthesis (HPRO)	2009	4	1,707	9.43	0.42	(0.11 - 1.08)	Same
	2010	2	1,957	10.28	0.20	(0.02 - 0.70)	Lower

Statistically Significant Variation from Predicted Number of Surgical Site Infections Over Time





Massachusetts 2011 HAI Data Report

Newton-Wellesley Hospital - Newton, MA

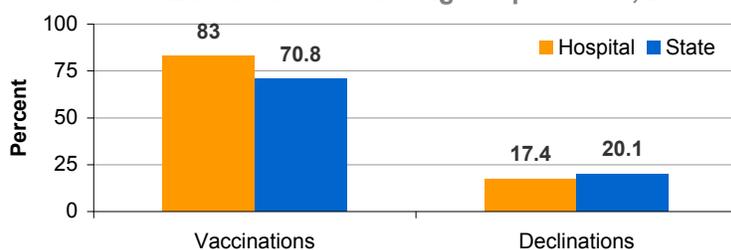
Report Release Date: February 2012

2010 Hospital Survey Statistics

Medical School Affiliation	Yes
Hospital Type	Major teaching
Profit Status	Not-for-profit
Number of Beds	258
Number of ICU Beds	12
Number of Admissions	8,079
Number of Patient Days	64,058
Beds per Infection Preventionist	129.0

Influenza Vaccination

Influenza Vaccination Among Hospital Staff, 2010

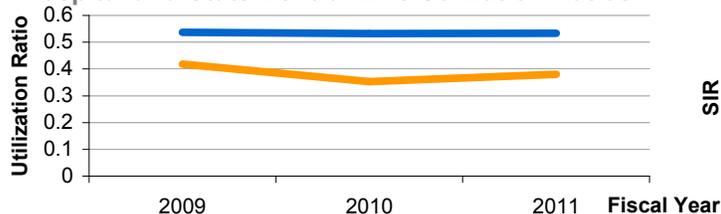


Central Line-Associated Blood Stream Infection

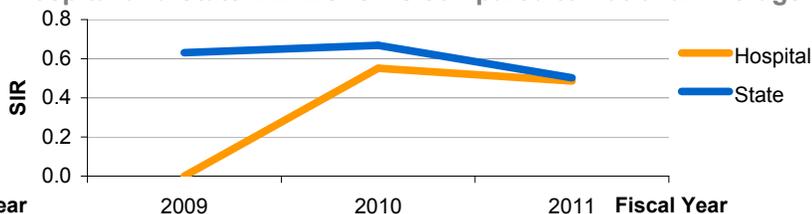
CLABSI Rates by ICU Type for Fiscal Year 2011, Compared to State Baseline Data from Fiscal Years 2009-2010

ICU Type	Infections	Line Days	Rate	Predicted Infections	SIR	Confidence Interval	Interpretation
Medical/surgical	1	980	1.02	1.10	0.91	(0.02 - 5.06)	Same

Hospital and State Central Line Utilization Ratios



Hospital and State CLABSI SIRs compared to National Average

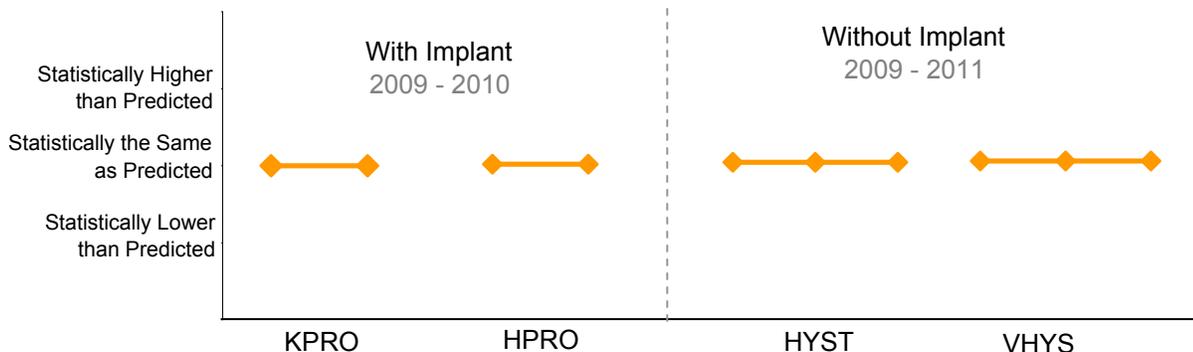


Surgical Site Infection

Hospital SSI SIRs by Procedure Type for All Fiscal Years Available

Procedure	Fiscal Year	Infections	Procedures	Predicted Infections	SIR	Confidence Interval	Interpretation
Knee Prosthesis (KPRO)	2009	4	318	1.96	2.05	(0.55 - 5.23)	Same
	2010	3	347	2.14	1.40	(0.28 - 4.10)	Same
Hip Prosthesis (HPRO)	2009	0	454	3.69	0.00	(0.00 - 1)	Same
	2010	7	579	4.67	1.50	(0.60 - 3.08)	Same
Abdominal Hysterectomy (HYST)	2009	0	123	0.69	0.00	(0.00 - 5.30)	Same
	2010	0	116	0.70	0.00	(0.00 - 5.30)	Same
	2011	2	73	0.38	5.22	(0.63 - 18.86)	Same
Vaginal Hysterectomy (VHYS)	2009	1	31	0.17	5.76	(0.14 - 32.09)	Same
	2010	0	37	0.22	0.00	(0.00 - 16.66)	Same
	2011	0	34	0.17	0.00	(0.00 - 21.21)	Same

Statistically Significant Variation from Predicted Number of Surgical Site Infections Over Time





Massachusetts 2011 HAI Data Report

Noble Hospital - Westfield, MA

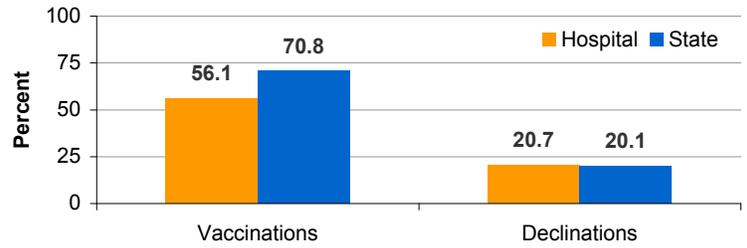
Report Release Date: February 2012

2010 Hospital Survey Statistics

Medical School Affiliation	No
Hospital Type	Nonteaching
Profit Status	Not-for-profit
Number of Beds	97
Number of ICU Beds	6
Number of Admissions	3,493
Number of Patient Days	20,255
Beds per Infection Preventionist	97.0

Influenza Vaccination

Influenza Vaccination Among Hospital Staff, 2010

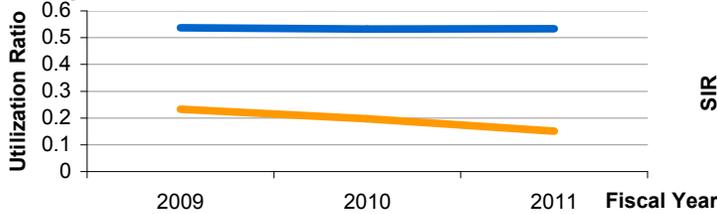


Central Line-Associated Blood Stream Infection

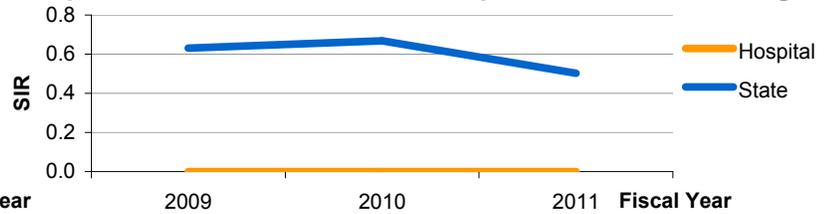
CLABSI Rates by ICU Type for Fiscal Year 2011, Compared to State Baseline Data from Fiscal Years 2009-2010

ICU Type	Infections	Line Days	Rate	Predicted Infections	SIR	Confidence Interval	Interpretation
Medical/surgical	0	138	0.00	0.15	0.00	(0.00 - 24.32)	Same

Hospital and State Central Line Utilization Ratios



Hospital and State CLABSI SIRs compared to National Average

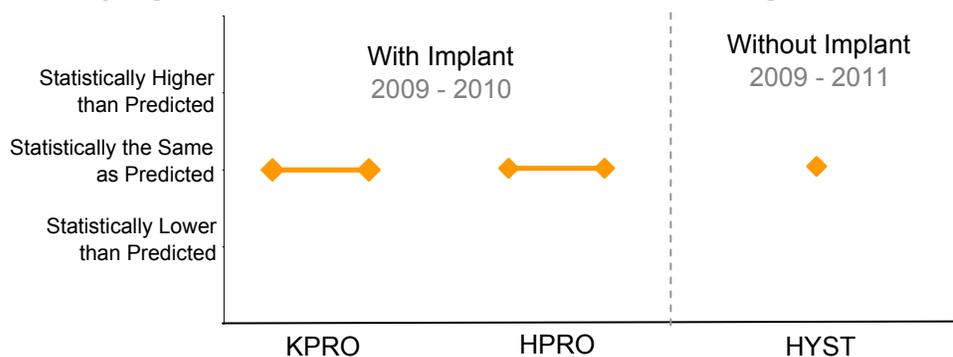


Surgical Site Infection

Hospital SSI SIRs by Procedure Type for All Fiscal Years Available

Procedure	Fiscal Year	Infections	Procedures	Predicted Infections	SIR	Confidence Interval	Interpretation
Knee Prosthesis (KPRO)	2009	0	36	0.20	0.00	(0.00 - 18.05)	Same
	2010	1	24	0.14	6.98	(0.17 - 38.88)	Same
Hip Prosthesis (HPRO)	2009	0	14	0.13	0.00	(0.00 - 29.23)	Same
	2010	0	11	0.11	0.00	(0.00 - 35.09)	Same
Abdominal Hysterectomy (HYST)	2010	0	1	0.01	0.00	(0.00 - 307.4)	Same

Statistically Significant Variation from Predicted Number of Surgical Site Infections Over Time





Massachusetts 2011 HAI Data Report

Northeast Hospital - Addison Gilbert Hospital - Gloucester, MA

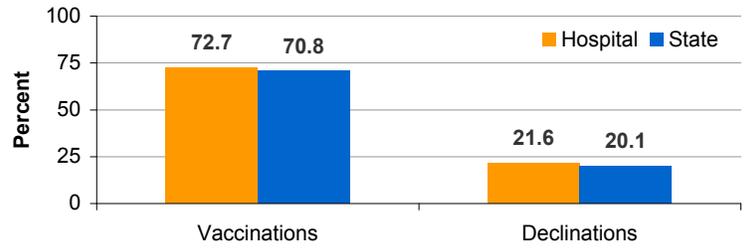
Report Release Date: February 2012

2010 Hospital Survey Statistics

Medical School Affiliation	No
Hospital Type	Nonteaching
Profit Status	Not-for-profit
Number of Beds	44
Number of ICU Beds	4
Number of Admissions	591
Number of Patient Days	6,898
Beds per Infection Preventionist	44.0

Influenza Vaccination

Influenza Vaccination Among Hospital Staff, 2010

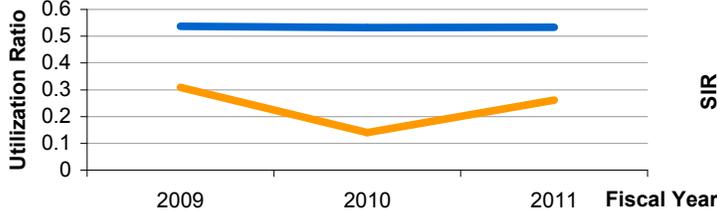


Central Line-Associated Blood Stream Infection

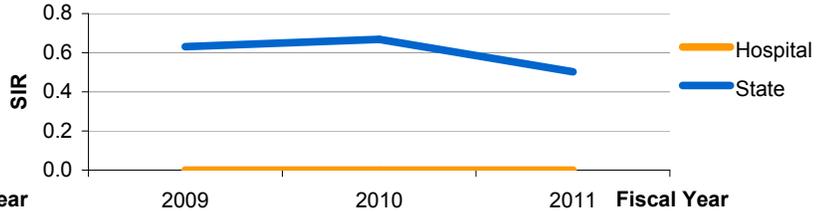
CLABSI Rates by ICU Type for Fiscal Year 2011, Compared to State Baseline Data from Fiscal Years 2009-2010

ICU Type	Infections	Line Days	Rate	Predicted Infections	SIR	Confidence Interval	Interpretation
Medical/surgical	0	205	0.00	0.23	0.00	(0.00 - 16.37)	Same

Hospital and State Central Line Utilization Ratios



Hospital and State CLABSI SIRs compared to National Average

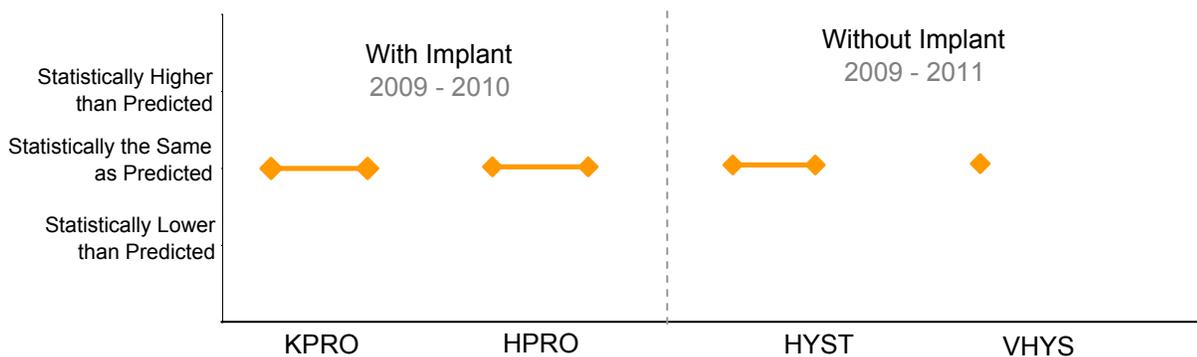


Surgical Site Infection

Hospital SSI SIRs by Procedure Type for All Fiscal Years Available

Procedure	Fiscal Year	Infections	Procedures	Predicted Infections	SIR	Confidence Interval	Interpretation
Knee Prosthesis (KPRO)	2009	0	11	0.06	0.00	(0.00 - 57.72)	Same
	2010	0	36	0.17	0.00	(0.00 - 21.16)	Same
Hip Prosthesis (HPRO)	2009	0	8	0.03	0.00	(0.00 - 125.9)	Same
	2010	0	10	0.04	0.00	(0.00 - 89.97)	Same
Abdominal Hysterectomy (HYST)	2009	0	3	0.02	0.00	(0.00 - 193.1)	Same
	2010	0	3	0.02	0.00	(0.00 - 152.4)	Same
Vaginal Hysterectomy (VHYS)	2009	0	1	0.00	0.00	(0.00 - 1475.)	Same

Statistically Significant Variation from Predicted Number of Surgical Site Infections Over Time





Massachusetts 2011 HAI Data Report

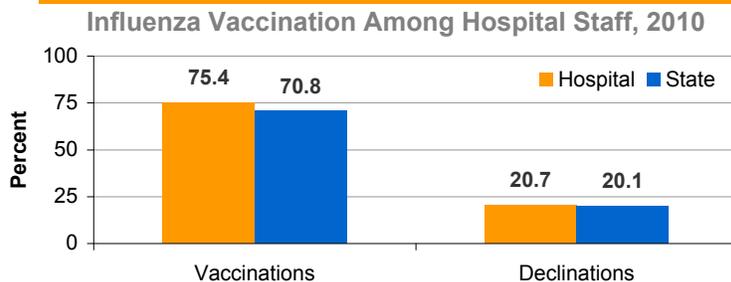
Northeast Hospital - Beverly Hospital - Beverly, MA

Report Release Date: February 2012

2010 Hospital Survey Statistics

Medical School Affiliation	No
Hospital Type	Nonteaching
Profit Status	Not-for-profit
Number of Beds	237
Number of ICU Beds	24
Number of Admissions	15,926
Number of Patient Days	56,758
Beds per Infection Preventionist	118.5

Influenza Vaccination

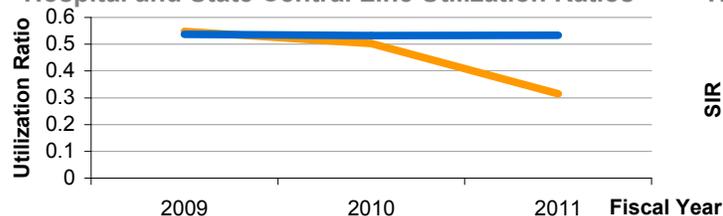


Central Line-Associated Blood Stream Infection

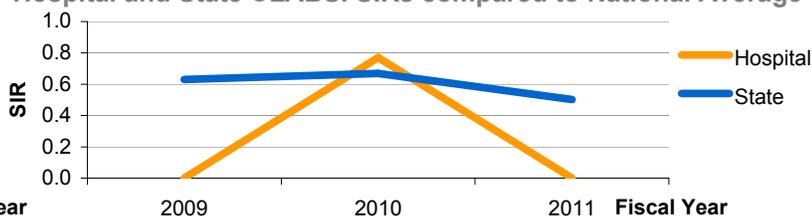
CLABSI Rates by ICU Type for Fiscal Year 2011, Compared to State Baseline Data from Fiscal Years 2009-2010

ICU Type	Infections	Line Days	Rate	Predicted Infections	SIR	Confidence Interval	Interpretation
Medical/surgical	0	1,010	0.00	1.11	0.00	(0.00 - 3.32)	Same

Hospital and State Central Line Utilization Ratios



Hospital and State CLABSI SIRs compared to National Average

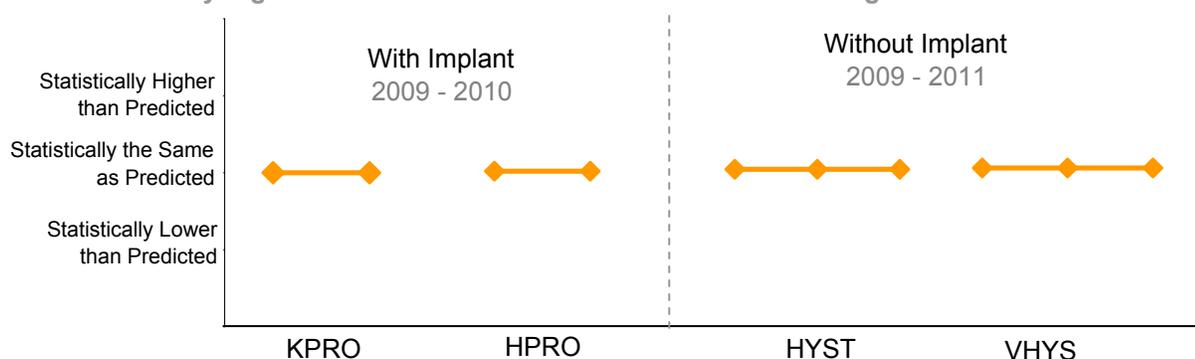


Surgical Site Infection

Hospital SSI SIRs by Procedure Type for All Fiscal Years Available

Procedure	Fiscal Year	Infections	Procedures	Predicted Infections	SIR	Confidence Interval	Interpretation
Knee Prosthesis (KPRO)	2009	0	302	1.64	0.00	(0.00 - 2.24)	Same
	2010	0	312	1.55	0.00	(0.00 - 2.37)	Same
Hip Prosthesis (HPRO)	2009	2	205	1.34	1.49	(0.18 - 5.38)	Same
	2010	1	278	1.83	0.55	(0.01 - 3.05)	Same
Abdominal Hysterectomy (HYST)	2009	2	103	0.73	2.75	(0.33 - 9.93)	Same
	2010	0	106	0.71	0.00	(0.00 - 5.17)	Same
	2011	0	103	0.71	0.00	(0.00 - 5.18)	Same
Vaginal Hysterectomy (VHYS)	2009	0	55	0.16	0.00	(0.00 - 23.02)	Same
	2010	0	51	0.16	0.00	(0.00 - 23.02)	Same
	2011	0	34	0.08	0.00	(0.00 - 44.55)	Same

Statistically Significant Variation from Predicted Number of Surgical Site Infections Over Time





Massachusetts 2011 HAI Data Report

Northern Berkshire Healthcare - North Adams Regional Hospital - North Adams, MA

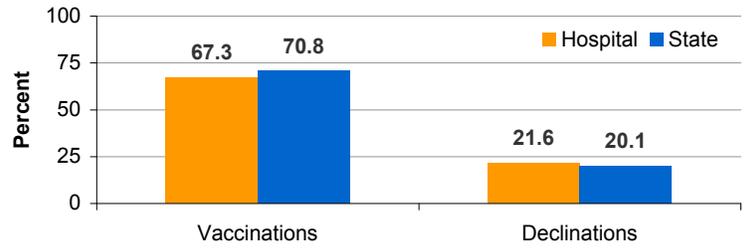
Report Release Date: February 2012

2010 Hospital Survey Statistics

Medical School Affiliation	No
Hospital Type	Nonteaching
Profit Status	Not-for-profit
Number of Beds	109
Number of ICU Beds	13
Number of Admissions	3,087
Number of Patient Days	10,645
Beds per Infection Preventionist	109.0

Influenza Vaccination

Influenza Vaccination Among Hospital Staff, 2010

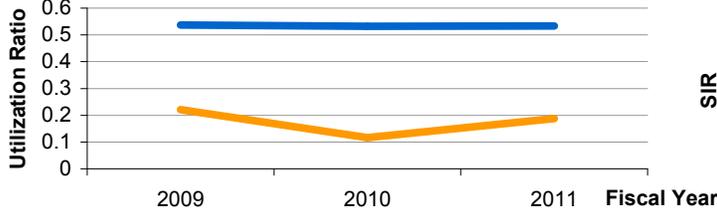


Central Line-Associated Blood Stream Infection

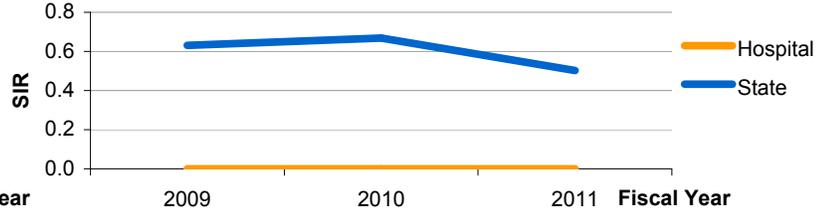
CLABSI Rates by ICU Type for Fiscal Year 2011, Compared to State Baseline Data from Fiscal Years 2009-2010

ICU Type	Infections	Line Days	Rate	Predicted Infections	SIR	Confidence Interval	Interpretation
Medical	0	323	0.00	0.00	***	***	***

Hospital and State Central Line Utilization Ratios



Hospital and State CLABSI SIRs compared to National Average

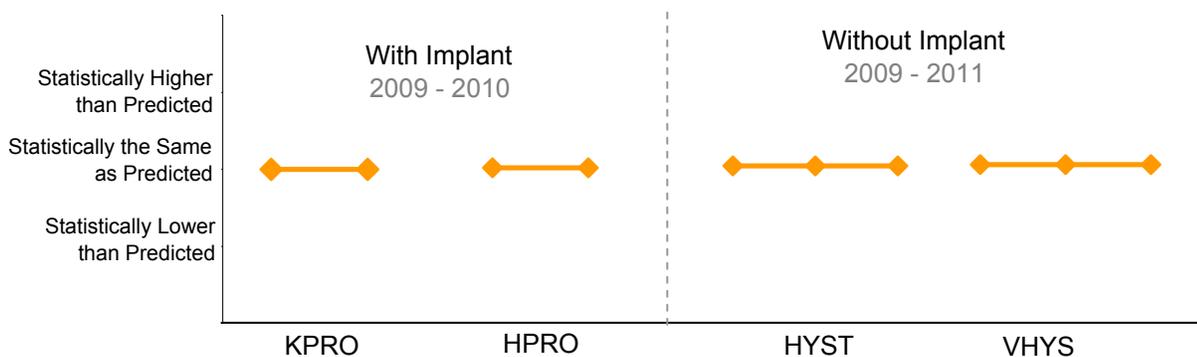


Surgical Site Infection

Hospital SSI SIRs by Procedure Type for All Fiscal Years Available

Procedure	Fiscal Year	Infections	Procedures	Predicted Infections	SIR	Confidence Interval	Interpretation
Knee Prosthesis (KPRO)	2009	0	57	0.19	0.00	(0.00 - 19.61)	Same
	2010	0	53	0.20	0.00	(0.00 - 18.1)	Same
Hip Prosthesis (HPRO)	2009	1	62	0.27	3.74	(0.09 - 20.81)	Same
	2010	1	47	0.20	5.12	(0.13 - 28.54)	Same
Abdominal Hysterectomy (HYST)	2009	0	14	0.09	0.00	(0.00 - 43.09)	Same
	2010	0	16	0.13	0.00	(0.00 - 27.77)	Same
	2011	0	12	0.08	0.00	(0.00 - 47.41)	Same
Vaginal Hysterectomy (VHYS)	2009	0	15	0.05	0.00	(0.00 - 81.25)	Same
	2010	0	20	0.08	0.00	(0.00 - 46.28)	Same
	2011	0	15	0.06	0.00	(0.00 - 58.36)	Same

Statistically Significant Variation from Predicted Number of Surgical Site Infections Over Time





Massachusetts 2011 HAI Data Report

North Shore Medical Center - Salem Hospital - Salem, MA

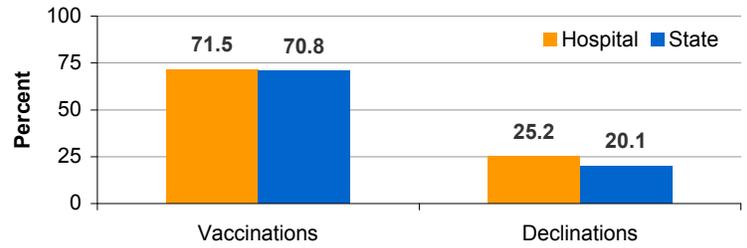
Report Release Date: February 2012

2010 Hospital Survey Statistics

Medical School Affiliation	Yes
Hospital Type	Graduate teaching
Profit Status	Not-for-profit
Number of Beds	271
Number of ICU Beds	23
Number of Admissions	21,600
Number of Patient Days	105,000
Beds per Infection Preventionist	67.8

Influenza Vaccination

Influenza Vaccination Among Hospital Staff, 2010

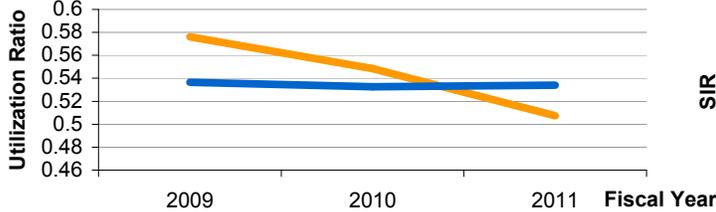


Central Line-Associated Blood Stream Infection

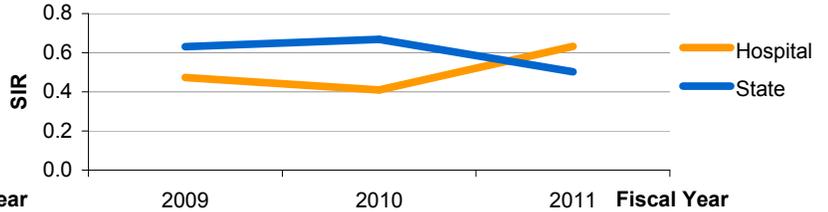
CLABSI Rates by ICU Type for Fiscal Year 2011, Compared to State Baseline Data from Fiscal Years 2009-2010

ICU Type	Infections	Line Days	Rate	Predicted Infections	SIR	Confidence Interval	Interpretation
Surgical cardiothoracic	0	864	0.00	0.77	0.00	(0.00 - 4.77)	Same
Medical/surgical	3	2,354	1.27	2.59	1.16	(0.23 - 3.38)	Same

Hospital and State Central Line Utilization Ratios



Hospital and State CLABSI SIRs compared to National Average

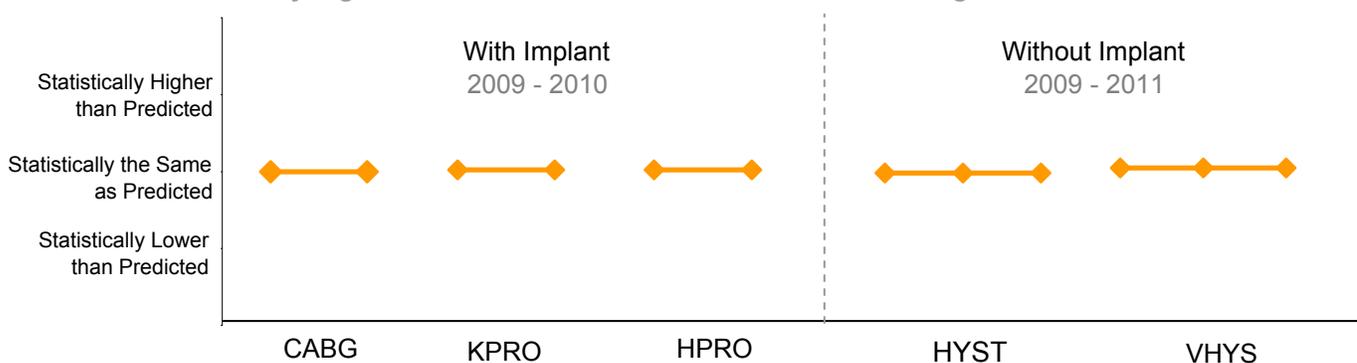


Surgical Site Infection

Hospital SSI SIRs by Procedure Type for All Fiscal Years Available

Procedure	Fiscal Year	Infections	Procedures	Predicted Infections	SIR	Confidence Interval	Interpretation
Coronary Artery Bypass (CABG)	2009	1	114	2.02	0.50	(0.01 - 2.76)	Same
	2010	2	123	1.92	1.04	(0.12 - 3.76)	Same
Knee Prosthesis (KPRO)	2009	2	245	1.47	1.36	(0.16 - 4.92)	Same
	2010	1	233	1.38	0.73	(0.01 - 4.04)	Same
Hip Prosthesis (HPRO)	2009	1	180	1.68	0.60	(0.01 - 3.31)	Same
	2010	3	202	2.04	1.47	(0.30 - 4.29)	Same
Abdominal Hysterectomy (HYST)	2009	2	96	0.64	3.15	(0.38 - 11.36)	Same
	2010	1	48	0.31	3.24	(0.08 - 18.04)	Same
	2011	1	41	0.28	3.57	(0.09 - 19.87)	Same
Vaginal Hysterectomy (VHYS)	2009	0	78	0.51	0.00	(0.00 - 7.19)	Same
	2010	0	83	0.58	0.00	(0.00 - 6.36)	Same
	2011	0	74	0.49	0.00	(0.00 - 7.48)	Same

Statistically Significant Variation from Predicted Number of Surgical Site Infections Over Time





Massachusetts 2011 HAI Data Report

North Shore Medical Center - Union Hospital - Lynn, MA

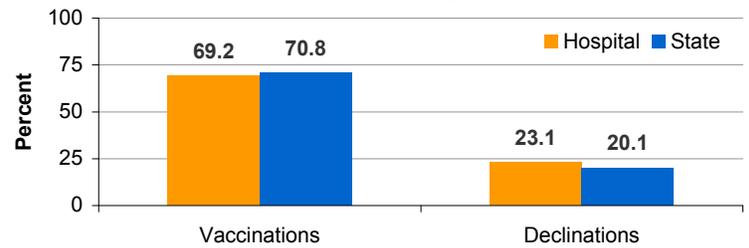
Report Release Date: February 2012

2010 Hospital Survey Statistics

Medical School Affiliation	Yes
Hospital Type	Limited teaching
Profit Status	Not-for-profit
Number of Beds	159
Number of ICU Beds	12
Number of Admissions	5,594
Number of Patient Days	33,200
Beds per Infection Preventionist	159.0

Influenza Vaccination

Influenza Vaccination Among Hospital Staff, 2010

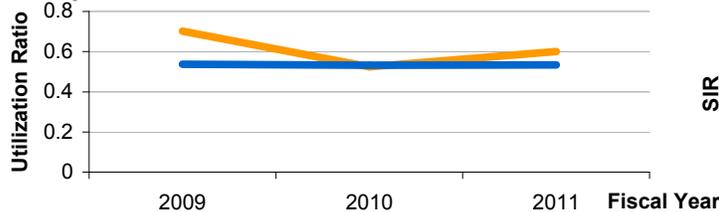


Central Line-Associated Blood Stream Infection

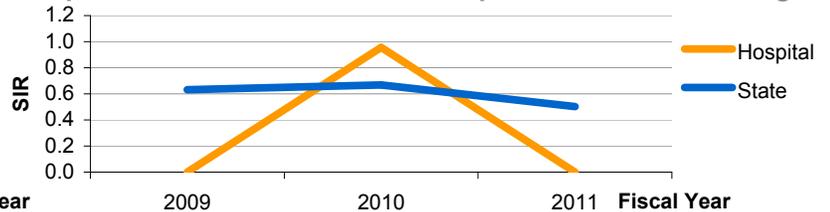
CLABSI Rates by ICU Type for Fiscal Year 2011, Compared to State Baseline Data from Fiscal Years 2009-2010

ICU Type	Infections	Line Days	Rate	Predicted Infections	SIR	Confidence Interval	Interpretation
Medical/surgical	0	1,572	0.00	1.73	0.00	(0.00 - 2.13)	Same

Hospital and State Central Line Utilization Ratios



Hospital and State CLABSI SIRs compared to National Average

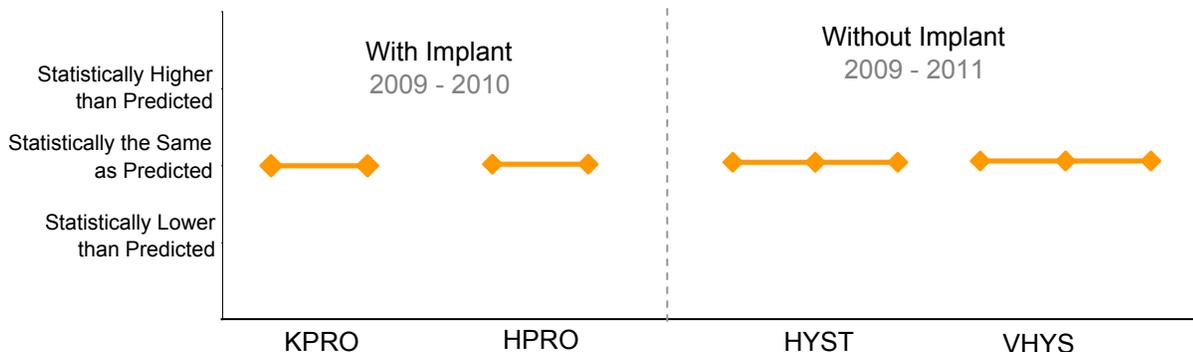


Surgical Site Infection

Hospital SSI SIRs by Procedure Type for All Fiscal Years Available

Procedure	Fiscal Year	Infections	Procedures	Predicted Infections	SIR	Confidence Interval	Interpretation
Knee Prosthesis (KPRO)	2009	0	147	0.77	0.00	(0.00 - 4.79)	Same
	2010	1	204	0.96	1.04	(0.02 - 5.78)	Same
Hip Prosthesis (HPRO)	2009	0	137	1.06	0.00	(0.00 - 3.48)	Same
	2010	0	111	0.67	0.00	(0.00 - 5.53)	Same
Abdominal Hysterectomy (HYST)	2009	0	22	0.13	0.00	(0.00 - 28.15)	Same
	2010	0	20	0.13	0.00	(0.00 - 27.92)	Same
	2011	0	11	0.06	0.00	(0.00 - 58.64)	Same
Vaginal Hysterectomy (VHYS)	2009	0	5	0.03	0.00	(0.00 - 141.3)	Same
	2010	0	13	0.06	0.00	(0.00 - 60.07)	Same
	2011	0	4	0.01	0.00	(0.00 - 290.4)	Same

Statistically Significant Variation from Predicted Number of Surgical Site Infections Over Time





Massachusetts 2011 HAI Data Report

Norwood Hospital - Norwood, MA

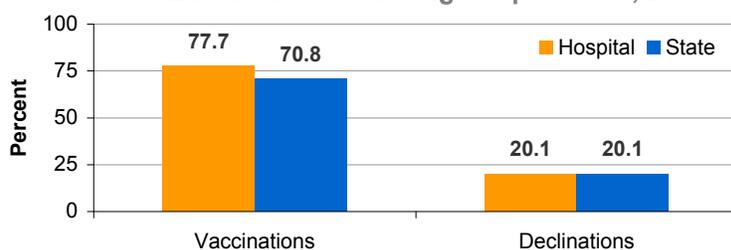
Report Release Date: February 2012

2010 Hospital Survey Statistics

Medical School Affiliation	No
Hospital Type	Nonteaching
Profit Status	For-profit
Number of Beds	279
Number of ICU Beds	11
Number of Admissions	18,428
Number of Patient Days	61,925
Beds per Infection Preventionist	279.0

Influenza Vaccination

Influenza Vaccination Among Hospital Staff, 2010

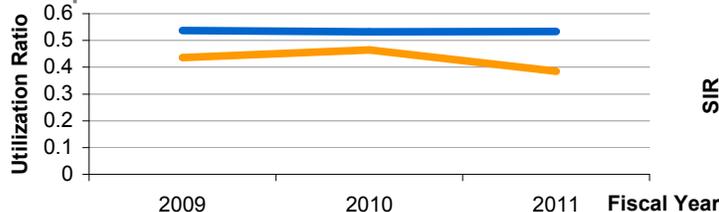


Central Line-Associated Blood Stream Infection

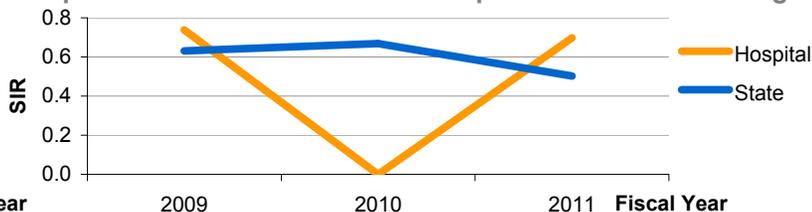
CLABSI Rates by ICU Type for Fiscal Year 2011, Compared to State Baseline Data from Fiscal Years 2009-2010

ICU Type	Infections	Line Days	Rate	Predicted Infections	SIR	Confidence Interval	Interpretation
Medical/surgical	1	957	1.04	1.05	0.95	(0.02 - 5.29)	Same

Hospital and State Central Line Utilization Ratios



Hospital and State CLABSI SIRs compared to National Average

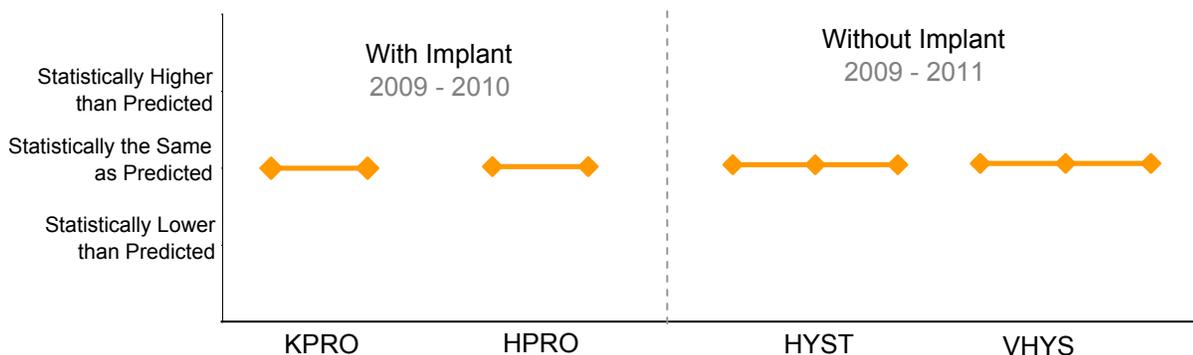


Surgical Site Infection

Hospital SSI SIRs by Procedure Type for All Fiscal Years Available

Procedure	Fiscal Year	Infections	Procedures	Predicted Infections	SIR	Confidence Interval	Interpretation
Knee Prosthesis (KPRO)	2009	1	90	0.66	1.52	(0.03 - 8.49)	Same
	2010	1	87	0.62	1.63	(0.04 - 9.05)	Same
Hip Prosthesis (HPRO)	2009	1	90	0.90	1.11	(0.02 - 6.20)	Same
	2010	0	98	1.10	0.00	(0.00 - 3.36)	Same
Abdominal Hysterectomy (HYST)	2009	0	43	0.38	0.00	(0.00 - 9.74)	Same
	2010	0	30	0.26	0.00	(0.00 - 14.05)	Same
	2011	0	34	0.30	0.00	(0.00 - 12.44)	Same
Vaginal Hysterectomy (VHYS)	2009	0	3	0.01	0.00	(0.00 - 315.2)	Same
	2010	0	14	0.03	0.00	(0.00 - 116.3)	Same
	2011	0	12	0.03	0.00	(0.00 - 140.7)	Same

Statistically Significant Variation from Predicted Number of Surgical Site Infections Over Time





Massachusetts 2011 HAI Data Report

Quincy Medical Center - Quincy, MA

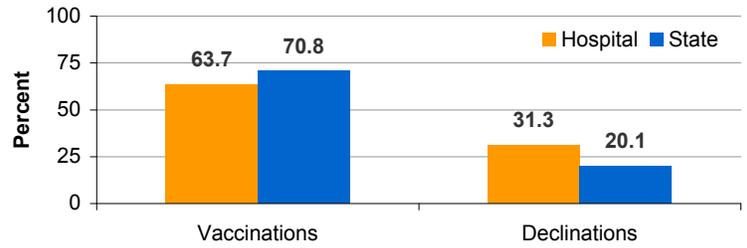
Report Release Date: February 2012

2010 Hospital Survey Statistics

Medical School Affiliation	Yes
Hospital Type	Limited teaching
Profit Status	Not-for-profit
Number of Beds	116
Number of ICU Beds	14
Number of Admissions	6,064
Number of Patient Days	31,537
Beds per Infection Preventionist	116.0

Influenza Vaccination

Influenza Vaccination Among Hospital Staff, 2010

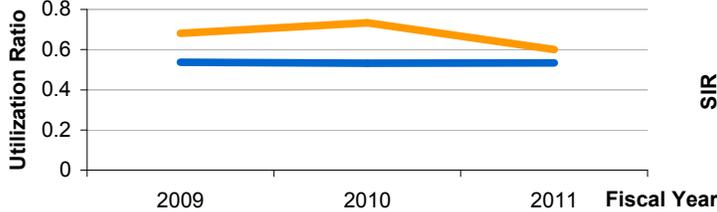


Central Line-Associated Blood Stream Infection

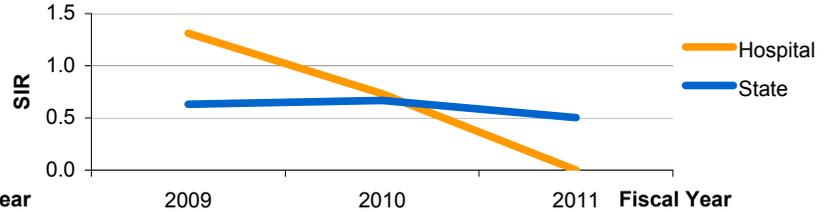
CLABSI Rates by ICU Type for Fiscal Year 2011, Compared to State Baseline Data from Fiscal Years 2009-2010

ICU Type	Infections	Line Days	Rate	Predicted Infections	SIR	Confidence Interval	Interpretation
Medical/surgical	0	713	0.00	0.78	0.00	(0.00 - 4.70)	Same

Hospital and State Central Line Utilization Ratios



Hospital and State CLABSI SIRs compared to National Average

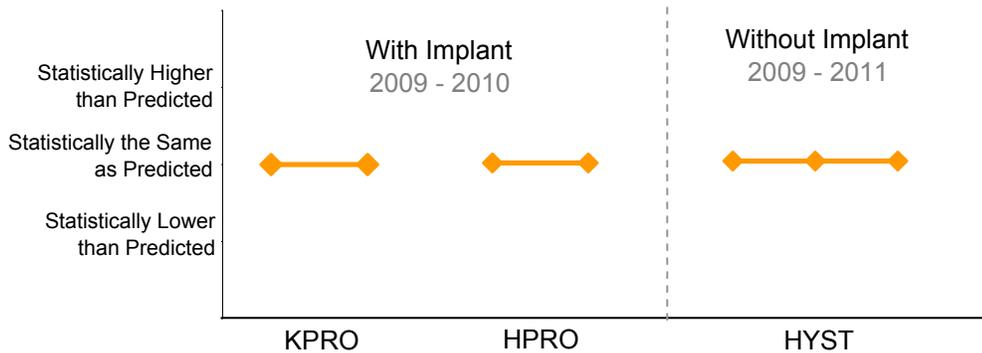


Surgical Site Infection

Hospital SSI SIRs by Procedure Type for All Fiscal Years Available

Procedure	Fiscal Year	Infections	Procedures	Predicted Infections	SIR	Confidence Interval	Interpretation
Knee Prosthesis (KPRO)	2009	1	84	0.53	1.88	(0.04 - 10.49)	Same
	2010	1	101	0.58	1.73	(0.04 - 9.66)	Same
Hip Prosthesis (HPRO)	2009	1	82	0.70	1.43	(0.03 - 7.96)	Same
	2010	1	77	0.68	1.46	(0.03 - 8.15)	Same
Abdominal Hysterectomy (HYST)	2009	0	39	0.31	0.00	(0.00 - 11.75)	Same
	2010	0	43	0.33	0.00	(0.00 - 11.22)	Same
	2011	0	28	0.20	0.00	(0.00 - 18.12)	Same

Statistically Significant Variation from Predicted Number of Surgical Site Infections Over Time





Massachusetts 2011 HAI Data Report

Saint Vincent Hospital - Worcester, MA

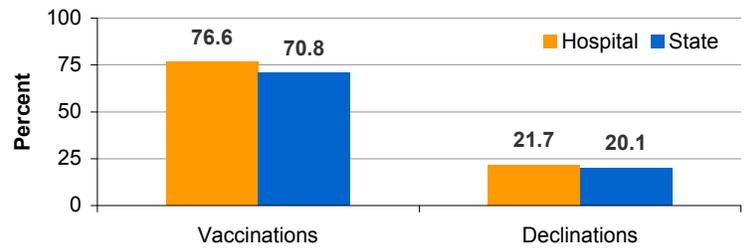
Report Release Date: February 2012

2010 Hospital Survey Statistics

Medical School Affiliation	Yes
Hospital Type	Major teaching
Profit Status	For-profit
Number of Beds	270
Number of ICU Beds	37
Number of Admissions	18,165
Number of Patient Days	72,993
Beds per Infection Preventionist	270.0

Influenza Vaccination

Influenza Vaccination Among Hospital Staff, 2010

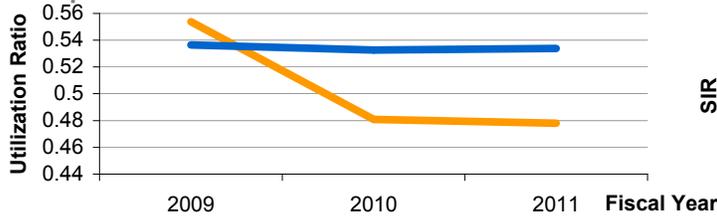


Central Line-Associated Blood Stream Infection

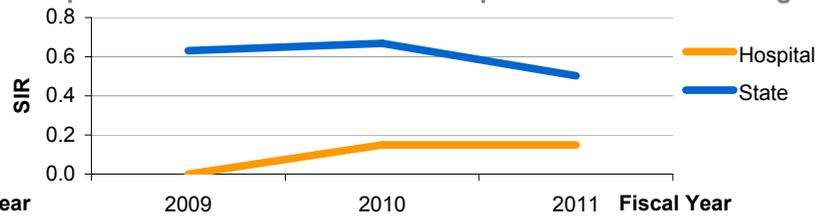
CLABSI Rates by ICU Type for Fiscal Year 2011, Compared to State Baseline Data from Fiscal Years 2009-2010

ICU Type	Infections	Line Days	Rate	Predicted Infections	SIR	Confidence Interval	Interpretation
Medical/surgical	1	3,165	0.32	3.56	0.28	(0.00 - 1.56)	Same

Hospital and State Central Line Utilization Ratios



Hospital and State CLABSI SIRs compared to National Average

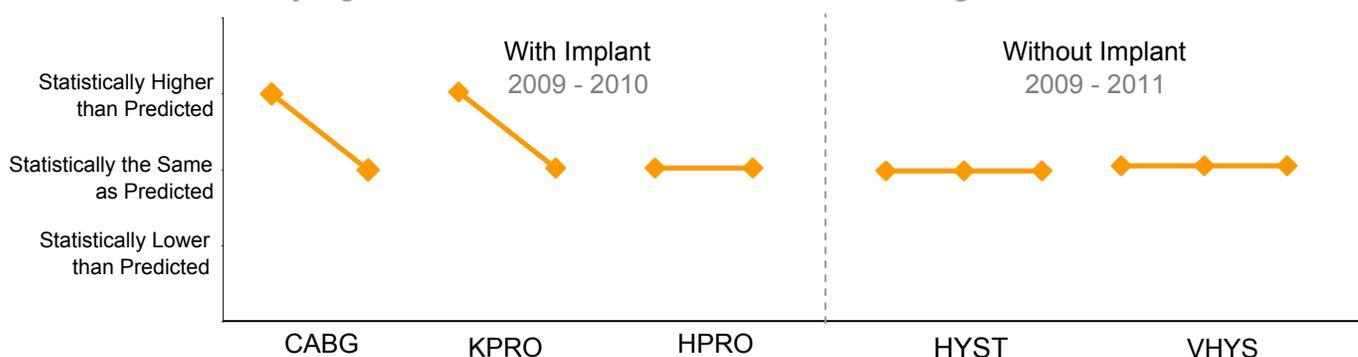


Surgical Site Infection

Hospital SSI SIRs by Procedure Type for All Fiscal Years Available

Procedure	Fiscal Year	Infections	Procedures	Predicted Infections	SIR	Confidence Interval	Interpretation
Coronary Artery Bypass (CABG)	2009	6	208	2.10	2.85	(1.04 - 6.20)	Higher
	2010	2	158	1.51	1.32	(0.16 - 4.77)	Same
Knee Prosthesis (KPRO)	2009	7	329	2.14	3.27	(1.31 - 6.73)	Higher
	2010	1	329	2.06	0.49	(0.01 - 2.71)	Same
Hip Prosthesis (HPRO)	2009	3	267	2.66	1.13	(0.23 - 3.3)	Same
	2010	1	249	2.44	0.41	(0.01 - 2.28)	Same
Abdominal Hysterectomy (HYST)	2009	0	77	0.54	0.00	(0.00 - 6.79)	Same
	2010	3	104	0.85	3.54	(0.72 - 10.33)	Same
	2011	0	98	0.96	0.00	(0.00 - 3.84)	Same
Vaginal Hysterectomy (VHYS)	2009	0	69	0.59	0.00	(0.00 - 6.28)	Same
	2010	0	57	0.41	0.00	(0.00 - 9.09)	Same
	2011	0	66	0.53	0.00	(0.00 - 6.93)	Same

Statistically Significant Variation from Predicted Number of Surgical Site Infections Over Time





Massachusetts 2011 HAI Data Report

Saints Memorial Medical Center - Lowell, MA

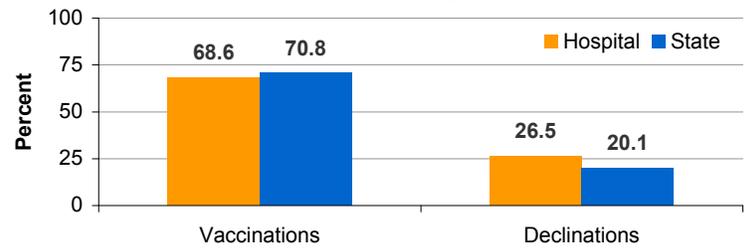
Report Release Date: February 2012

2010 Hospital Survey Statistics

Medical School Affiliation	No
Hospital Type	Nonteaching
Profit Status	Not-for-profit
Number of Beds	91
Number of ICU Beds	9
Number of Admissions	6,590
Number of Patient Days	24,707
Beds per Infection Preventionist	91.0

Influenza Vaccination

Influenza Vaccination Among Hospital Staff, 2010

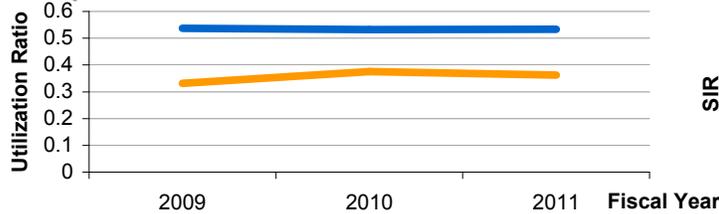


Central Line-Associated Blood Stream Infection

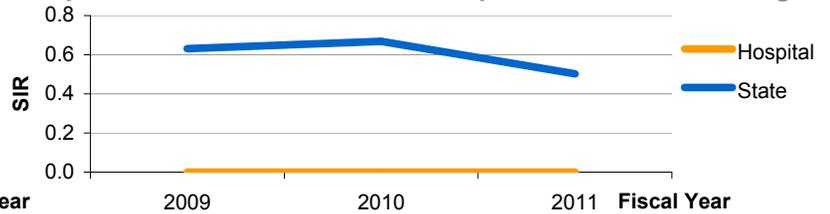
CLABSI Rates by ICU Type for Fiscal Year 2011, Compared to State Baseline Data from Fiscal Years 2009-2010

ICU Type	Infections	Line Days	Rate	Predicted Infections	SIR	Confidence Interval	Interpretation
Medical/surgical	0	724	0.00	0.80	0.00	(0.00 - 4.63)	Same

Hospital and State Central Line Utilization Ratios



Hospital and State CLABSI SIRs compared to National Average

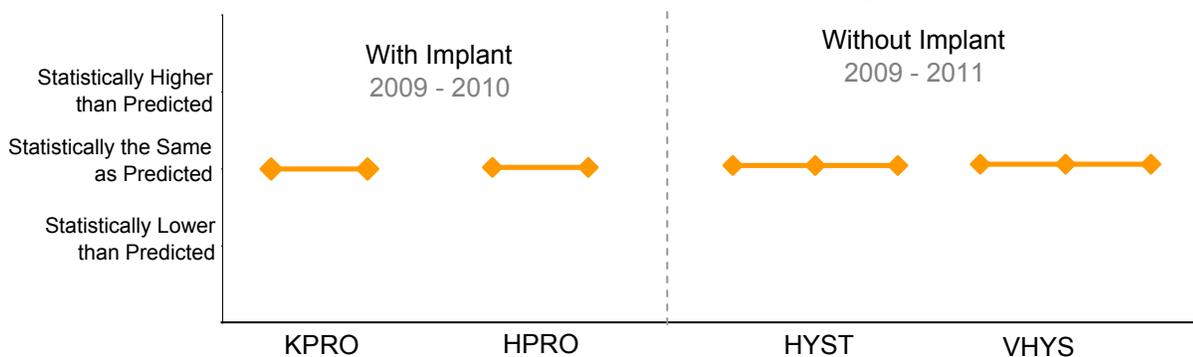


Surgical Site Infection

Hospital SSI SIRs by Procedure Type for All Fiscal Years Available

Procedure	Fiscal Year	Infections	Procedures	Predicted Infections	SIR	Confidence Interval	Interpretation
Knee Prosthesis (KPRO)	2009	0	111	0.51	0.00	(0.00 - 7.29)	Same
	2010	1	127	0.68	1.48	(0.03 - 8.21)	Same
Hip Prosthesis (HPRO)	2009	0	64	0.37	0.00	(0.00 - 10.00)	Same
	2010	0	90	0.57	0.00	(0.00 - 6.42)	Same
Abdominal Hysterectomy (HYST)	2009	0	21	0.15	0.00	(0.00 - 24.94)	Same
	2010	0	18	0.15	0.00	(0.00 - 24.25)	Same
	2011	0	15	0.12	0.00	(0.00 - 31.93)	Same
Vaginal Hysterectomy (VHYS)	2009	0	29	0.09	0.00	(0.00 - 39.62)	Same
	2010	0	15	0.06	0.00	(0.00 - 64.49)	Same
	2011	0	22	0.08	0.00	(0.00 - 45.99)	Same

Statistically Significant Variation from Predicted Number of Surgical Site Infections Over Time





Massachusetts 2011 HAI Data Report

Shriners Hospital for Children - Boston, MA

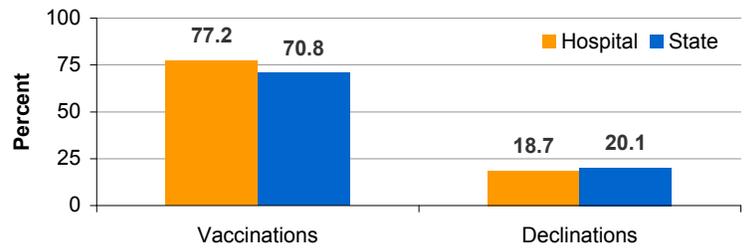
Report Release Date: February 2012

2010 Hospital Survey Statistics

Medical School Affiliation	Yes
Hospital Type	Limited teaching
Profit Status	Not-for-profit
Number of Beds	30
Number of ICU Beds	6
Number of Admissions	1,147
Number of Patient Days	5,508
Beds per Infection Preventionist	30.0

Influenza Vaccination

Influenza Vaccination Among Hospital Staff, 2010

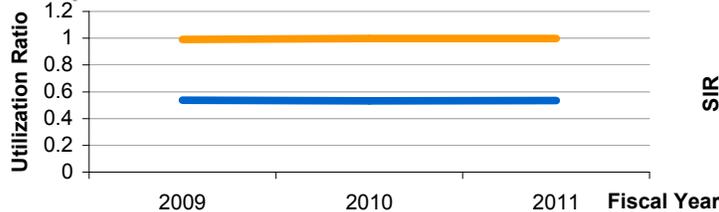


Central Line-Associated Blood Stream Infection

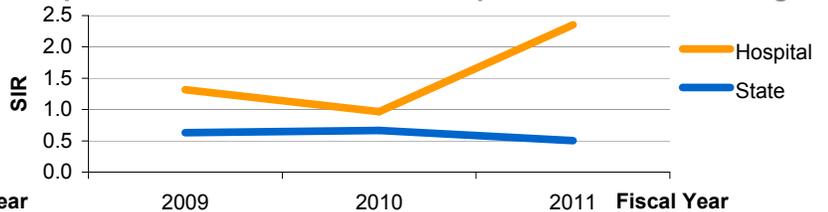
CLABSI Rates by ICU Type for Fiscal Year 2011, Compared to State Baseline Data from Fiscal Years 2009-2010

ICU Type	Infections	Line Days	Rate	Predicted Infections	SIR	Confidence Interval	Interpretation
Burn	10	773	12.94	3.98	2.52	(1.20 - 4.62)	Higher

Hospital and State Central Line Utilization Ratios



Hospital and State CLABSI SIRs compared to National Average*



***CAUTION:** As noted for all hospitals, care must be taken in interpreting the SIR and its statistical significance. A high SIR may actually represent very few infections. The value of the SIR as a measure of the surgical site infection rate is very much influenced by the number of predicted infections, which is related to the number of surgical procedures. For Shriners Hospital for Children, two additional factors should also be considered:

1) as a burn-specific hospital, Shriners is the only facility of its kind in Massachusetts and one of few nationwide – therefore, capacity for benchmarking is limited.

2) as a burn center, Shriners accepts and treats severely injured children. Nationally, burn patients are at high risk for infections given that skin is a primary defense mechanism protecting bodies from microorganisms. Accordingly, many other states exclude burn centers from public reporting of health care associated infections.



Massachusetts 2011 HAI Data Report

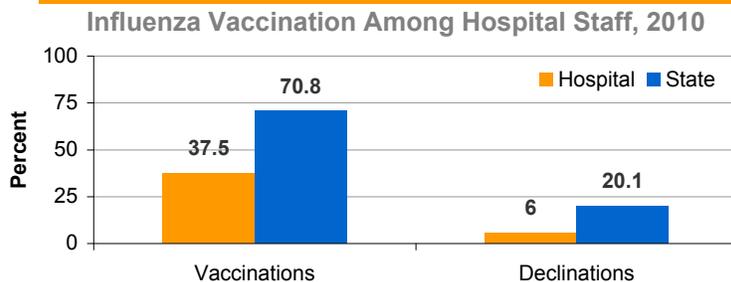
Signature Healthcare - Brockton Hospital - Brockton, MA

Report Release Date: February 2012

2010 Hospital Survey Statistics

Medical School Affiliation	Yes
Hospital Type	Graduate teaching
Profit Status	Not-for-profit
Number of Beds	253
Number of ICU Beds	16
Number of Admissions	14,998
Number of Patient Days	63,982
Beds per Infection Preventionist	126.5

Influenza Vaccination

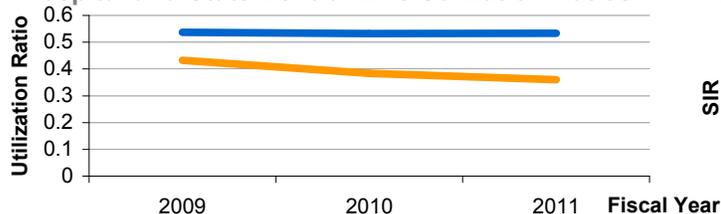


Central Line-Associated Blood Stream Infection

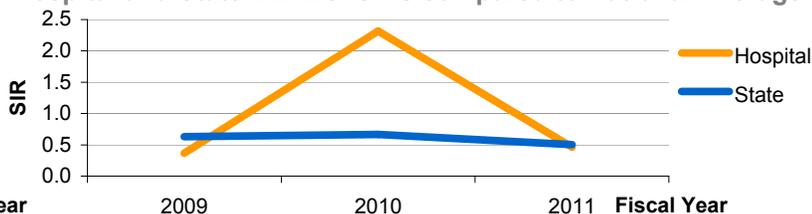
CLABSI Rates by ICU Type for Fiscal Year 2011, Compared to State Baseline Data from Fiscal Years 2009-2010

ICU Type	Infections	Line Days	Rate	Predicted Infections	SIR	Confidence Interval	Interpretation
Medical/surgical	1	1,450	0.69	1.59	0.63	(0.01 - 3.49)	Same

Hospital and State Central Line Utilization Ratios



Hospital and State CLABSI SIRs compared to National Average

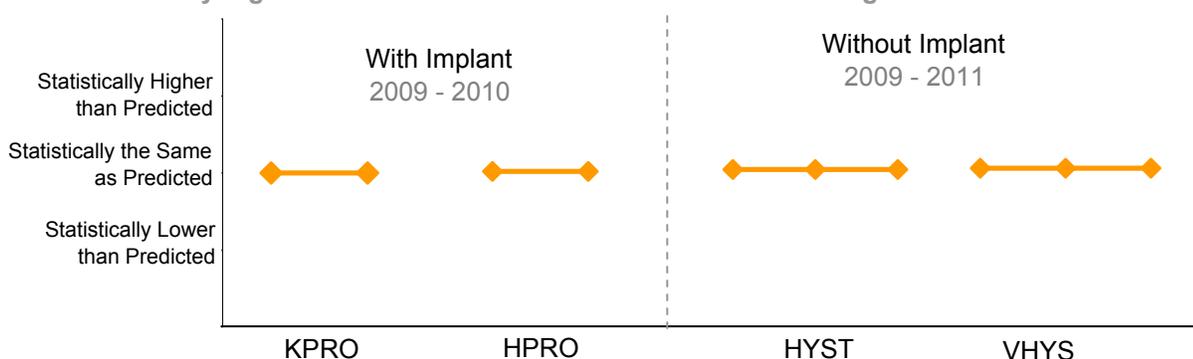


Surgical Site Infection

Hospital SSI SIRs by Procedure Type for All Fiscal Years Available

Procedure	Fiscal Year	Infections	Procedures	Predicted Infections	SIR	Confidence Interval	Interpretation
Knee Prosthesis (KPRO)	2009	1	90	0.67	1.50	(0.03 - 8.35)	Same
	2010	0	117	0.75	0.00	(0.00 - 4.89)	Same
Hip Prosthesis (HPRO)	2009	2	63	0.78	2.56	(0.31 - 9.25)	Same
	2010	1	70	0.82	1.22	(0.03 - 6.81)	Same
Abdominal Hysterectomy (HYST)	2009	0	52	0.34	0.00	(0.00 - 10.74)	Same
	2010	1	45	0.30	3.32	(0.08 - 18.50)	Same
	2011	0	37	0.28	0.00	(0.00 - 13.11)	Same
Vaginal Hysterectomy (VHYS)	2009	0	5	0.03	0.00	(0.00 - 110.1)	Same
	2010	0	9	0.07	0.00	(0.00 - 53.61)	Same
	2011	0	8	0.08	0.00	(0.00 - 44.98)	Same

Statistically Significant Variation from Predicted Number of Surgical Site Infections Over Time





Massachusetts 2011 HAI Data Report

South Shore Hospital - Weymouth, MA

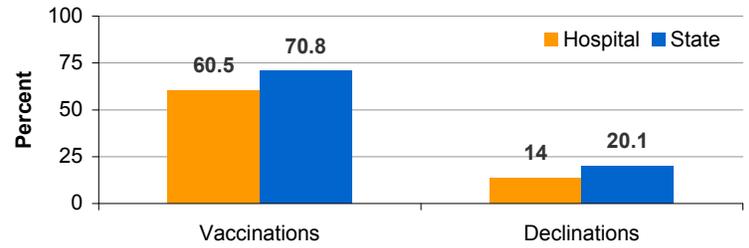
Report Release Date: February 2012

2010 Hospital Survey Statistics

Medical School Affiliation	No
Hospital Type	Nonteaching
Profit Status	Not-for-profit
Number of Beds	318
Number of ICU Beds	54
Number of Admissions	26,724
Number of Patient Days	104,245
Beds per Infection Preventionist	318.0

Influenza Vaccination

Influenza Vaccination Among Hospital Staff, 2010

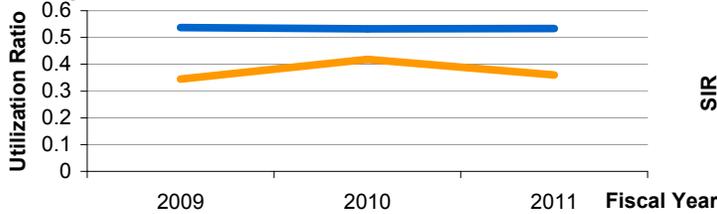


Central Line-Associated Blood Stream Infection

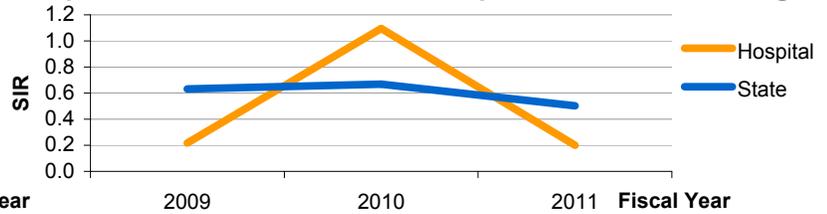
CLABSI Rates by ICU Type for Fiscal Year 2011, Compared to State Baseline Data from Fiscal Years 2009-2010

ICU Type	Infections	Line Days	Rate	Predicted Infections	SIR	Confidence Interval	Interpretation
Medical cardiac	0	804	0.00	1.32	0.00	(0.00 - 2.78)	Same
Medical/surgical	1	875	1.14	0.96	1.04	(0.02 - 5.79)	Same
Surgical	0	888	0.00	1.20	0.00	(0.00 - 3.08)	Same
Neonatal	2	858	2.33	2.08	0.96	(0.11 - 3.46)	Same

Hospital and State Central Line Utilization Ratios



Hospital and State CLABSI SIRs compared to National Average

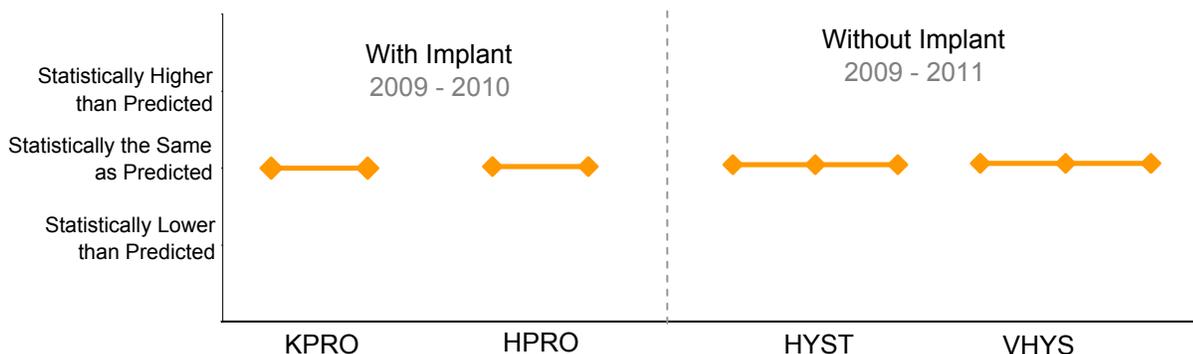


Surgical Site Infection

Hospital SSI SIRs by Procedure Type for All Fiscal Years Available

Procedure	Fiscal Year	Infections	Procedures	Predicted Infections	SIR	Confidence Interval	Interpretation
Knee Prosthesis (KPRO)	2009	1	259	1.33	0.75	(0.01 - 4.17)	Same
	2010	0	289	1.54	0.00	(0.00 - 2.39)	Same
Hip Prosthesis (HPRO)	2009	0	220	1.49	0.00	(0.00 - 2.48)	Same
	2010	1	173	1.22	0.82	(0.02 - 4.57)	Same
Abdominal Hysterectomy (HYST)	2009	0	156	0.99	0.00	(0.00 - 3.71)	Same
	2010	0	112	0.71	0.00	(0.00 - 5.18)	Same
	2011	0	140	1.03	0.00	(0.00 - 3.57)	Same
Vaginal Hysterectomy (VHYS)	2009	0	48	0.15	0.00	(0.00 - 24.06)	Same
	2010	0	13	0.03	0.00	(0.00 - 110.7)	Same
	2011	0	24	0.06	0.00	(0.00 - 59.59)	Same

Statistically Significant Variation from Predicted Number of Surgical Site Infections Over Time





Massachusetts 2011 HAI Data Report

Southcoast Health Systems - Charlton Hospital - Fall River, MA

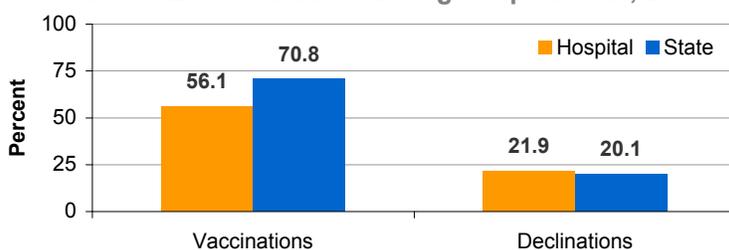
Report Release Date: February 2012

2010 Hospital Survey Statistics

Medical School Affiliation	No
Hospital Type	Nonteaching
Profit Status	Not-for-profit
Number of Beds	32
Number of ICU Beds	32
Number of Admissions	16,202
Number of Patient Days	86,821
Beds per Infection Preventionist	16.0

Influenza Vaccination

Influenza Vaccination Among Hospital Staff, 2010

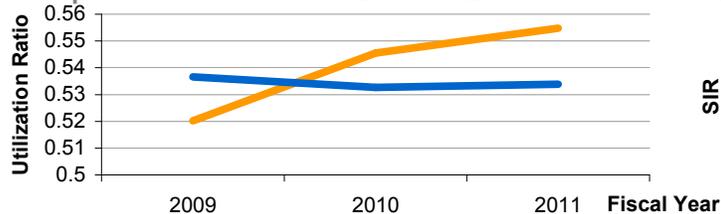


Central Line-Associated Blood Stream Infection

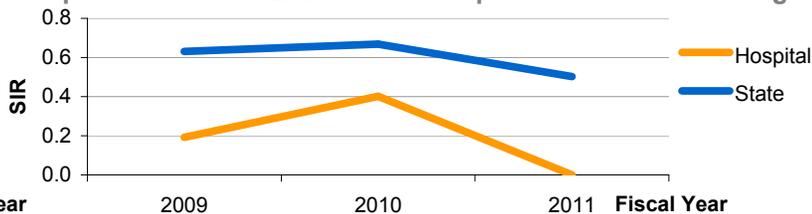
CLABSI Rates by ICU Type for Fiscal Year 2011, Compared to State Baseline Data from Fiscal Years 2009-2010

ICU Type	Infections	Line Days	Rate	Predicted Infections	SIR	Confidence Interval	Interpretation
Medical cardiac	0	923	0.00	1.52	0.00	(0.00 - 2.42)	Same
Surgical cardiothoracic	0	687	0.00	0.61	0.00	(0.00 - 6)	Same
Medical	0	1,456	0.00	0.00	***	***	***

Hospital and State Central Line Utilization Ratios



Hospital and State CLABSI SIRs compared to National Average

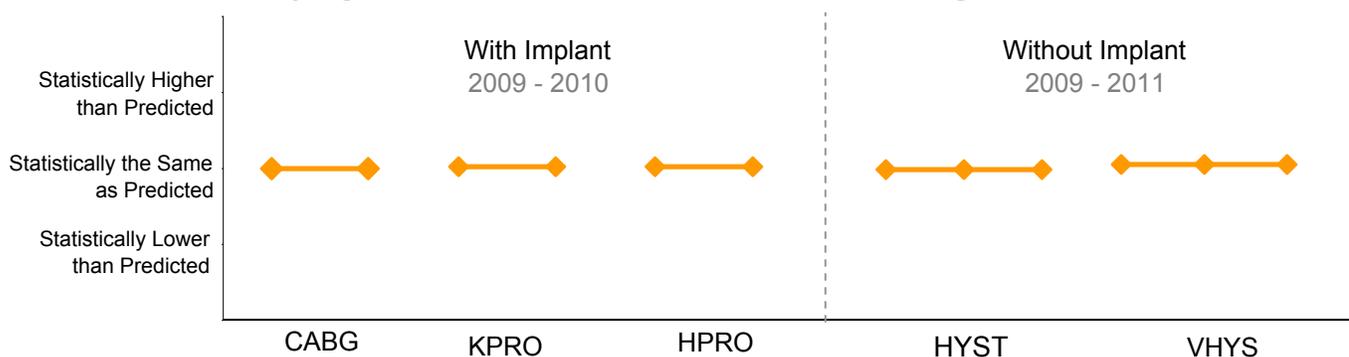


Surgical Site Infection

Hospital SSI SIRs by Procedure Type for All Fiscal Years Available

Procedure	Fiscal Year	Infections	Procedures	Predicted Infections	SIR	Confidence Interval	Interpretation
Coronary Artery Bypass (CABG)	2009	3	342	3.61	0.83	(0.17 - 2.42)	Same
	2010	1	272	2.80	0.36	(0.00 - 1.98)	Same
Knee Prosthesis (KPRO)	2009	1	268	0.96	1.05	(0.02 - 5.83)	Same
	2010	0	253	0.91	0.00	(0.00 - 4.07)	Same
Hip Prosthesis (HPRO)	2009	2	143	0.59	3.36	(0.40 - 12.14)	Same
	2010	0	124	0.66	0.00	(0.00 - 5.57)	Same
Abdominal Hysterectomy (HYST)	2009	1	77	0.48	2.10	(0.05 - 11.68)	Same
	2010	4	174	1.41	2.83	(0.77 - 7.24)	Same
	2011	0	159	1.20	0.00	(0.00 - 3.06)	Same
Vaginal Hysterectomy (VHYS)	2009	0	137	0.44	0.00	(0.00 - 8.32)	Same
	2010	0	56	0.16	0.00	(0.00 - 23.18)	Same
	2011	1	58	0.18	5.68	(0.14 - 31.65)	Same

Statistically Significant Variation from Predicted Number of Surgical Site Infections Over Time





Massachusetts 2011 HAI Data Report

Southcoast Health Systems - St. Luke's Hospital - New Bedford, MA

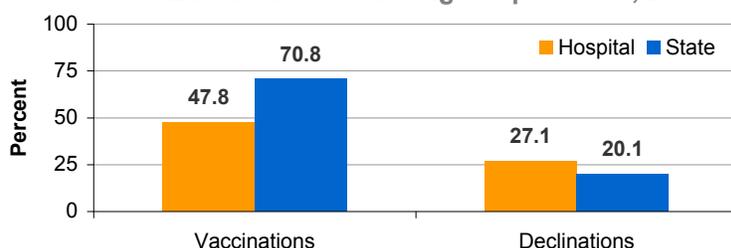
Report Release Date: February 2012

2010 Hospital Survey Statistics

Medical School Affiliation	No
Hospital Type	Nonteaching
Profit Status	Not-for-profit
Number of Beds	32
Number of ICU Beds	32
Number of Admissions	20,068
Number of Patient Days	101,637
Beds per Infection Preventionist	16.0

Influenza Vaccination

Influenza Vaccination Among Hospital Staff, 2010

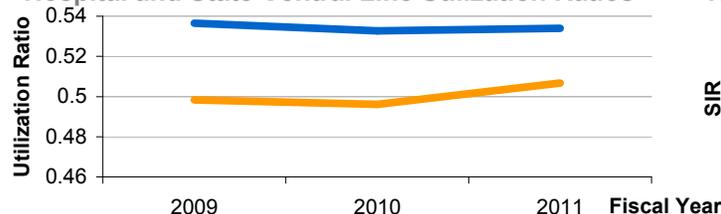


Central Line-Associated Blood Stream Infection

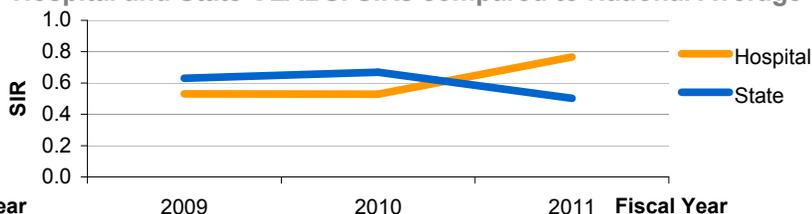
CLABSI Rates by ICU Type for Fiscal Year 2011, Compared to State Baseline Data from Fiscal Years 2009-2010

ICU Type	Infections	Line Days	Rate	Predicted Infections	SIR	Confidence Interval	Interpretation
Medical/surgical	4	2,582	1.55	2.84	1.41	(0.38 - 3.61)	Same
Surgical	1	1,154	0.87	1.56	0.64	(0.01 - 3.57)	Same

Hospital and State Central Line Utilization Ratios



Hospital and State CLABSI SIRs compared to National Average

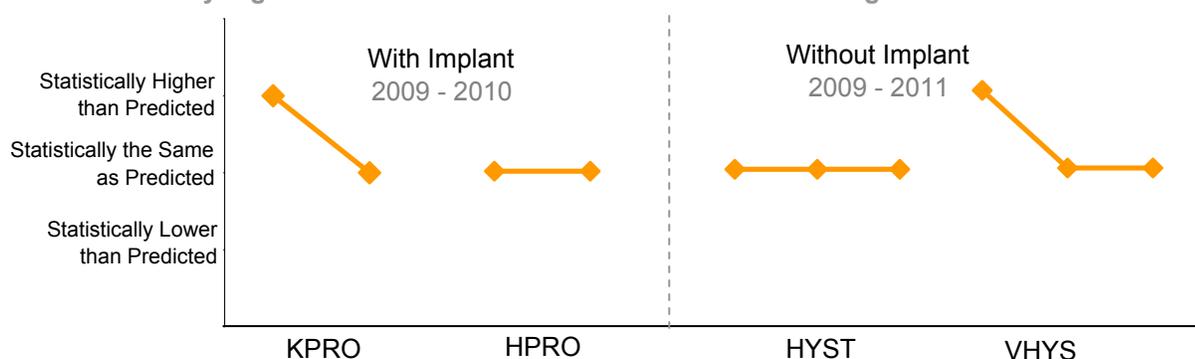


Surgical Site Infection

Hospital SSI SIRs by Procedure Type for All Fiscal Years Available

Procedure	Fiscal Year	Infections	Procedures	Predicted Infections	SIR	Confidence Interval	Interpretation
Knee Prosthesis (KPRO)	2009	4	230	0.93	4.28	(1.16 - 10.95)	Higher
	2010	1	235	0.98	1.02	(0.02 - 5.66)	Same
Hip Prosthesis (HPRO)	2009	0	158	1.00	0.00	(0.00 - 3.68)	Same
	2010	3	141	0.89	3.36	(0.69 - 9.83)	Same
Abdominal Hysterectomy (HYST)	2009	0	70	0.42	0.00	(0.00 - 8.73)	Same
	2010	1	91	0.58	1.71	(0.04 - 9.54)	Same
	2011	0	121	0.78	0.00	(0.00 - 4.70)	Same
Vaginal Hysterectomy (VHYS)	2009	2	53	0.16	12.61	(1.52 - 45.55)	Higher
	2010	1	66	0.20	5.02	(0.12 - 27.98)	Same
	2011	1	58	0.17	5.98	(0.15 - 33.30)	Same

Statistically Significant Variation from Predicted Number of Surgical Site Infections Over Time





Massachusetts 2011 HAI Data Report

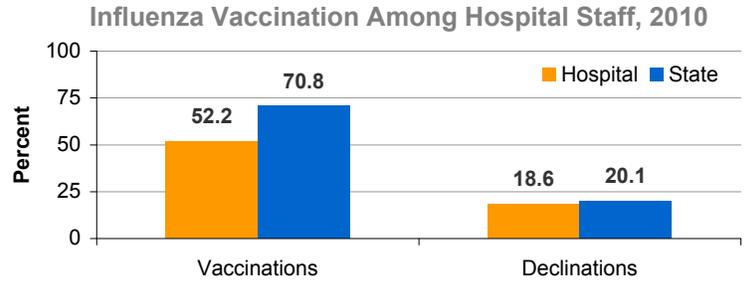
Southcoast Health Systems - Tobey Hospital - Wareham, MA

Report Release Date: February 2012

2010 Hospital Survey Statistics

Medical School Affiliation	No
Hospital Type	Nonteaching
Profit Status	Not-for-profit
Number of Beds	10
Number of ICU Beds	10
Number of Admissions	5,055
Number of Patient Days	18,437
Beds per Infection Preventionist	10.0

Influenza Vaccination

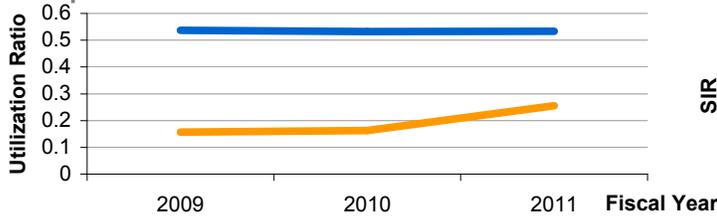


Central Line-Associated Blood Stream Infection

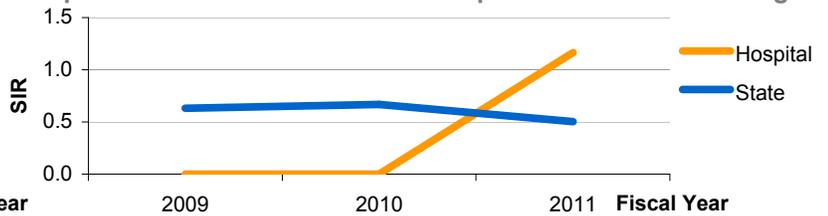
CLABSI Rates by ICU Type for Fiscal Year 2011, Compared to State Baseline Data from Fiscal Years 2009-2010

ICU Type	Infections	Line Days	Rate	Predicted Infections	SIR	Confidence Interval	Interpretation
Medical/surgical	1	572	1.75	0.63	1.59	(0.04 - 8.86)	Same

Hospital and State Central Line Utilization Ratios



Hospital and State CLABSI SIRs compared to National Average

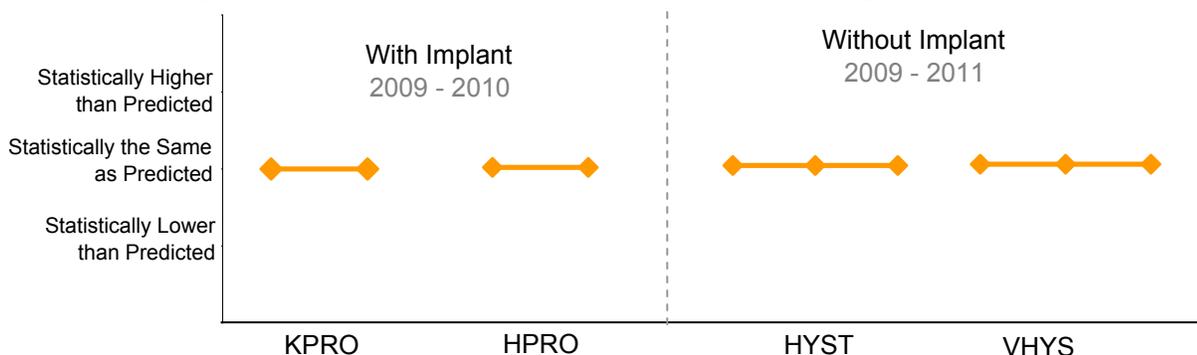


Surgical Site Infection

Hospital SSI SIRs by Procedure Type for All Fiscal Years Available

Procedure	Fiscal Year	Infections	Procedures	Predicted Infections	SIR	Confidence Interval	Interpretation
Knee Prosthesis (KPRO)	2009	0	44	0.18	0.00	(0.00 - 20.49)	Same
	2010	0	45	0.22	0.00	(0.00 - 16.50)	Same
Hip Prosthesis (HPRO)	2009	0	26	0.13	0.00	(0.00 - 29.34)	Same
	2010	1	32	0.17	5.75	(0.14 - 32.05)	Same
Abdominal Hysterectomy (HYST)	2009	0	22	0.14	0.00	(0.00 - 26.29)	Same
	2010	0	26	0.19	0.00	(0.00 - 19.88)	Same
	2011	0	26	0.24	0.00	(0.00 - 15.63)	Same
Vaginal Hysterectomy (VHYS)	2009	0	2	0.01	0.00	(0.00 - 304.8)	Same
	2010	0	5	0.02	0.00	(0.00 - 170.7)	Same
	2011	0	17	0.06	0.00	(0.00 - 62.52)	Same

Statistically Significant Variation from Predicted Number of Surgical Site Infections Over Time





Massachusetts 2011 HAI Data Report

Southcoast Health Systems - St. Luke's Hospital - New Bedford, MA

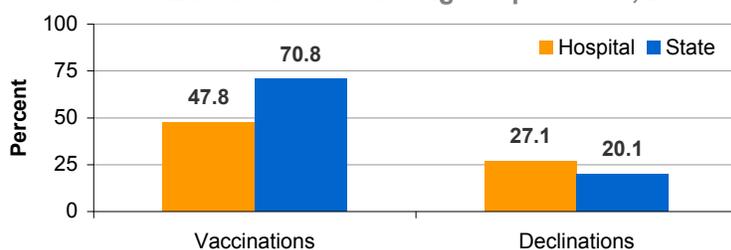
Report Release Date: February 2012

2010 Hospital Survey Statistics

Medical School Affiliation	No
Hospital Type	Nonteaching
Profit Status	Not-for-profit
Number of Beds	32
Number of ICU Beds	32
Number of Admissions	20,068
Number of Patient Days	101,637
Beds per Infection Preventionist	16.0

Influenza Vaccination

Influenza Vaccination Among Hospital Staff, 2010

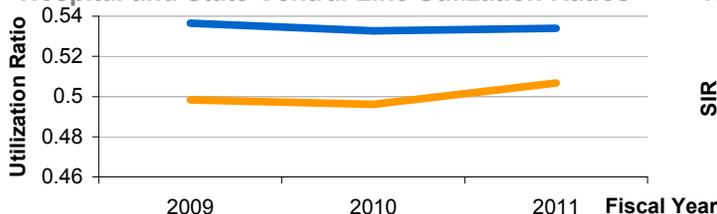


Central Line-Associated Blood Stream Infection

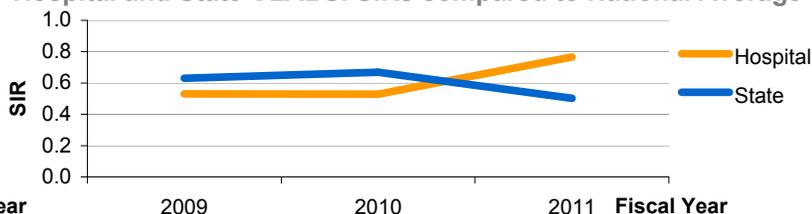
CLABSI Rates by ICU Type for Fiscal Year 2011, Compared to State Baseline Data from Fiscal Years 2009-2010

ICU Type	Infections	Line Days	Rate	Predicted Infections	SIR	Confidence Interval	Interpretation
Medical/surgical	4	2,582	1.55	2.84	1.41	(0.38 - 3.61)	Same
Surgical	1	1,154	0.87	1.56	0.64	(0.01 - 3.57)	Same

Hospital and State Central Line Utilization Ratios



Hospital and State CLABSI SIRs compared to National Average

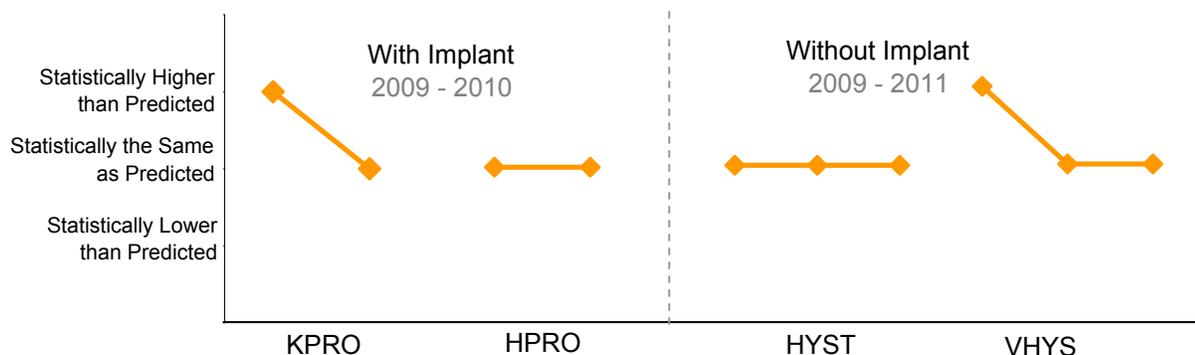


Surgical Site Infection

Hospital SSI SIRs by Procedure Type for All Fiscal Years Available

Procedure	Fiscal Year	Infections	Procedures	Predicted Infections	SIR	Confidence Interval	Interpretation
Knee Prosthesis (KPRO)	2009	4	230	0.93	4.28	(1.16 - 10.95)	Higher
	2010	1	235	0.98	1.02	(0.02 - 5.66)	Same
Hip Prosthesis (HPRO)	2009	0	158	1.00	0.00	(0.00 - 3.68)	Same
	2010	3	141	0.89	3.36	(0.69 - 9.83)	Same
Abdominal Hysterectomy (HYST)	2009	0	70	0.42	0.00	(0.00 - 8.73)	Same
	2010	1	91	0.58	1.71	(0.04 - 9.54)	Same
	2011	0	121	0.78	0.00	(0.00 - 4.70)	Same
Vaginal Hysterectomy (VHYS)	2009	2	53	0.16	12.61	(1.52 - 45.55)	Higher
	2010	1	66	0.20	5.02	(0.12 - 27.98)	Same
	2011	1	58	0.17	5.98	(0.15 - 33.30)	Same

Statistically Significant Variation from Predicted Number of Surgical Site Infections Over Time





Massachusetts 2011 HAI Data Report

Southcoast Health Systems - Tobey Hospital - Wareham, MA

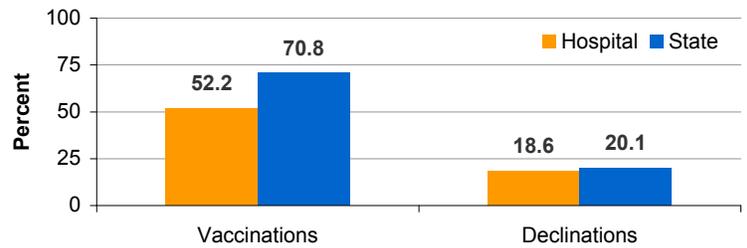
Report Release Date: February 2012

2010 Hospital Survey Statistics

Medical School Affiliation	No
Hospital Type	Nonteaching
Profit Status	Not-for-profit
Number of Beds	10
Number of ICU Beds	10
Number of Admissions	5,055
Number of Patient Days	18,437
Beds per Infection Preventionist	10.0

Influenza Vaccination

Influenza Vaccination Among Hospital Staff, 2010

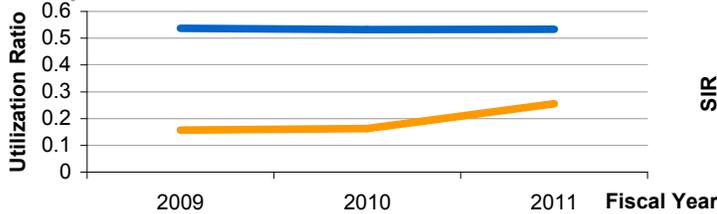


Central Line-Associated Blood Stream Infection

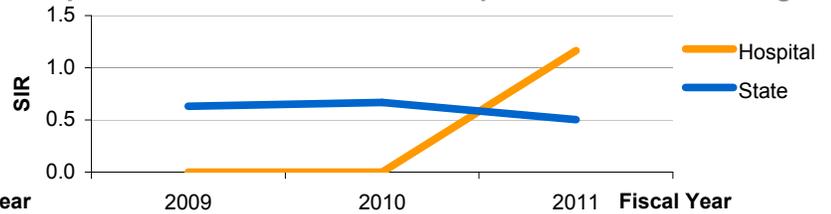
CLABSI Rates by ICU Type for Fiscal Year 2011, Compared to State Baseline Data from Fiscal Years 2009-2010

ICU Type	Infections	Line Days	Rate	Predicted Infections	SIR	Confidence Interval	Interpretation
Medical/surgical	1	572	1.75	0.63	1.59	(0.04 - 8.86)	Same

Hospital and State Central Line Utilization Ratios



Hospital and State CLABSI SIRs compared to National Average

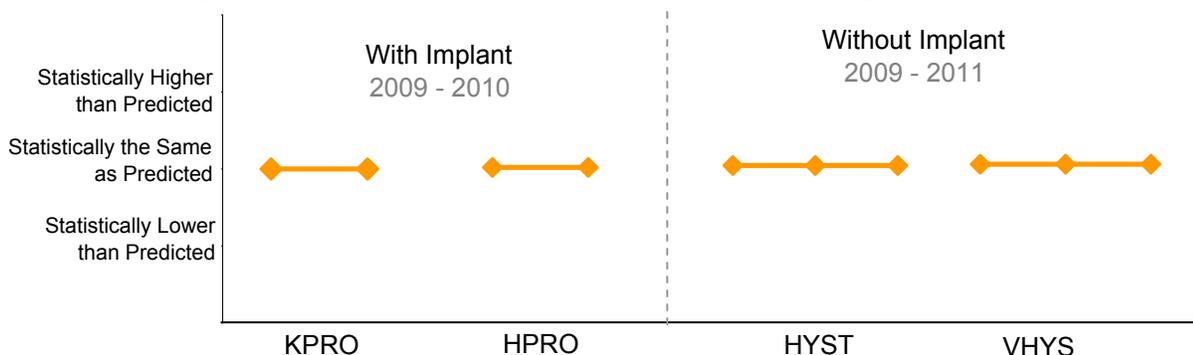


Surgical Site Infection

Hospital SSI SIRs by Procedure Type for All Fiscal Years Available

Procedure	Fiscal Year	Infections	Procedures	Predicted Infections	SIR	Confidence Interval	Interpretation
Knee Prosthesis (KPRO)	2009	0	44	0.18	0.00	(0.00 - 20.49)	Same
	2010	0	45	0.22	0.00	(0.00 - 16.50)	Same
Hip Prosthesis (HPRO)	2009	0	26	0.13	0.00	(0.00 - 29.34)	Same
	2010	1	32	0.17	5.75	(0.14 - 32.05)	Same
Abdominal Hysterectomy (HYST)	2009	0	22	0.14	0.00	(0.00 - 26.29)	Same
	2010	0	26	0.19	0.00	(0.00 - 19.88)	Same
	2011	0	26	0.24	0.00	(0.00 - 15.63)	Same
Vaginal Hysterectomy (VHYS)	2009	0	2	0.01	0.00	(0.00 - 304.8)	Same
	2010	0	5	0.02	0.00	(0.00 - 170.7)	Same
	2011	0	17	0.06	0.00	(0.00 - 62.52)	Same

Statistically Significant Variation from Predicted Number of Surgical Site Infections Over Time





Massachusetts 2011 HAI Data Report

St. Anne's Hospital - Fall River, MA

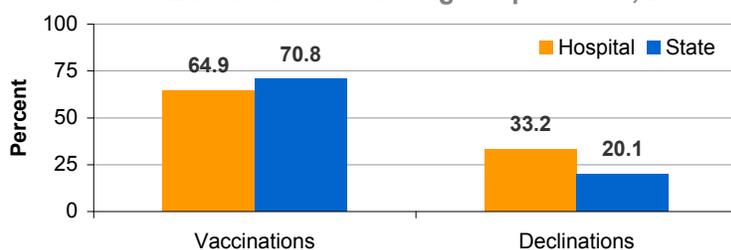
Report Release Date: February 2012

2010 Hospital Survey Statistics

Medical School Affiliation	No
Hospital Type	Nonteaching
Profit Status	For-profit
Number of Beds	160
Number of ICU Beds	12
Number of Admissions	6,645
Number of Patient Days	33,696
Beds per Infection Preventionist	160.0

Influenza Vaccination

Influenza Vaccination Among Hospital Staff, 2010

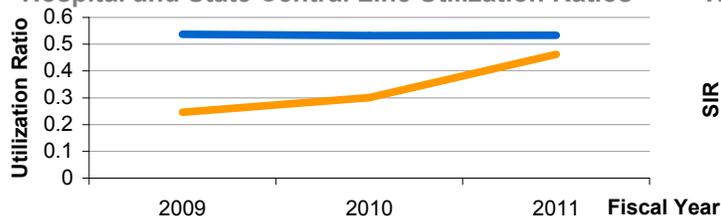


Central Line-Associated Blood Stream Infection

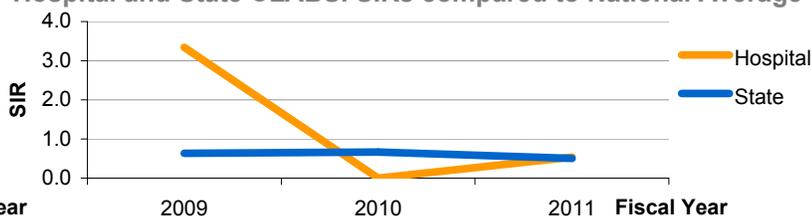
CLABSI Rates by ICU Type for Fiscal Year 2011, Compared to State Baseline Data from Fiscal Years 2009-2010

ICU Type	Infections	Line Days	Rate	Predicted Infections	SIR	Confidence Interval	Interpretation
Medical/surgical	1	1,240	0.81	1.36	0.73	(0.01 - 4.08)	Same

Hospital and State Central Line Utilization Ratios



Hospital and State CLABSI SIRs compared to National Average

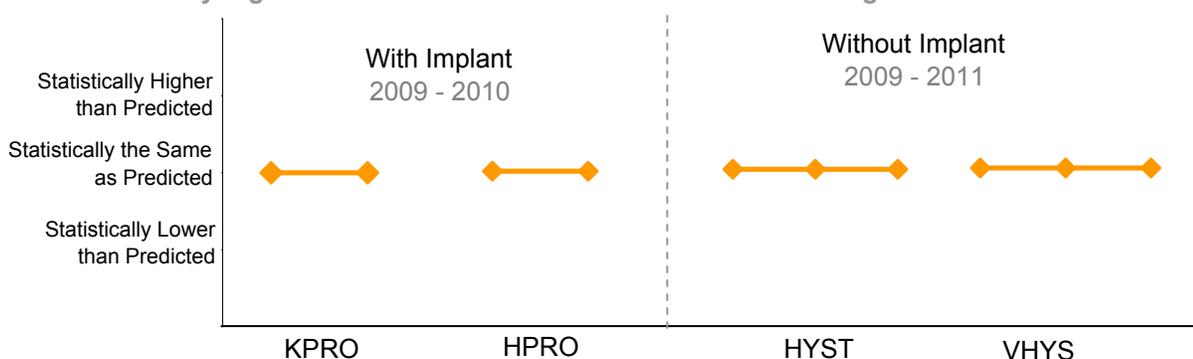


Surgical Site Infection

Hospital SSI SIRs by Procedure Type for All Fiscal Years Available

Procedure	Fiscal Year	Infections	Procedures	Predicted Infections	SIR	Confidence Interval	Interpretation
Knee Prosthesis (KPRO)	2009	0	35	0.18	0.00	(0.00 - 21.00)	Same
	2010	0	47	0.24	0.00	(0.00 - 15.35)	Same
Hip Prosthesis (HPRO)	2009	0	45	0.30	0.00	(0.00 - 12.16)	Same
	2010	2	49	0.28	7.16	(0.86 - 25.85)	Same
Abdominal Hysterectomy (HYST)	2009	0	2	0.01	0.00	(0.00 - 428.9)	Same
	2010	0	4	0.03	0.00	(0.00 - 106.3)	Same
	2011	0	11	0.07	0.00	(0.00 - 55.72)	Same
Vaginal Hysterectomy (VHYS)	2009	0	2	0.01	0.00	(0.00 - 534.6)	Same
	2010	0	9	0.03	0.00	(0.00 - 136.1)	Same
	2011	0	19	0.06	0.00	(0.00 - 59.69)	Same

Statistically Significant Variation from Predicted Number of Surgical Site Infections Over Time





Massachusetts 2011 HAI Data Report

St. Elizabeth's Medical Center - Boston, MA

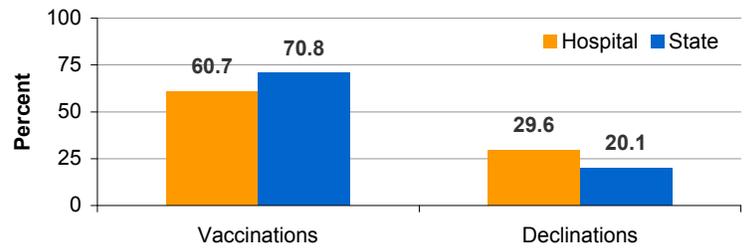
Report Release Date: February 2012

2010 Hospital Survey Statistics

Medical School Affiliation	Yes
Hospital Type	Major teaching
Profit Status	For-profit
Number of Beds	289
Number of ICU Beds	41
Number of Admissions	14,435
Number of Patient Days	64,858
Beds per Infection Preventionist	144.5

Influenza Vaccination

Influenza Vaccination Among Hospital Staff, 2010

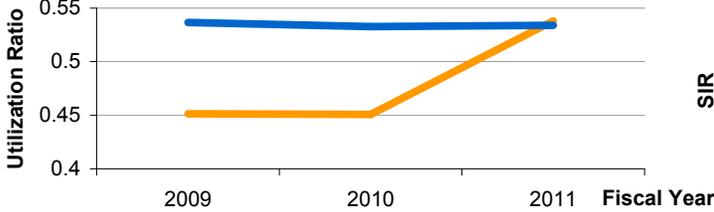


Central Line-Associated Blood Stream Infection

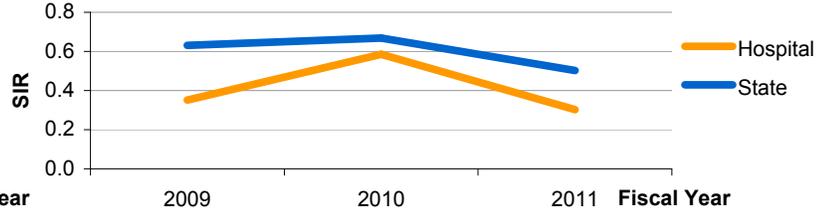
CLABSI Rates by ICU Type for Fiscal Year 2011, Compared to State Baseline Data from Fiscal Years 2009-2010

ICU Type	Infections	Line Days	Rate	Predicted Infections	SIR	Confidence Interval	Interpretation
Medical cardiac	0	784	0.00	1.29	0.00	(0.00 - 2.85)	Same
Medical	1	995	1.01	1.66	0.60	(0.01 - 3.35)	Same
Surgical	1	1,063	0.94	1.43	0.70	(0.01 - 3.88)	Same
Neonatal	1	277	3.61	0.83	1.21	(0.03 - 6.74)	Same

Hospital and State Central Line Utilization Ratios



Hospital and State CLABSI SIRs compared to National Average

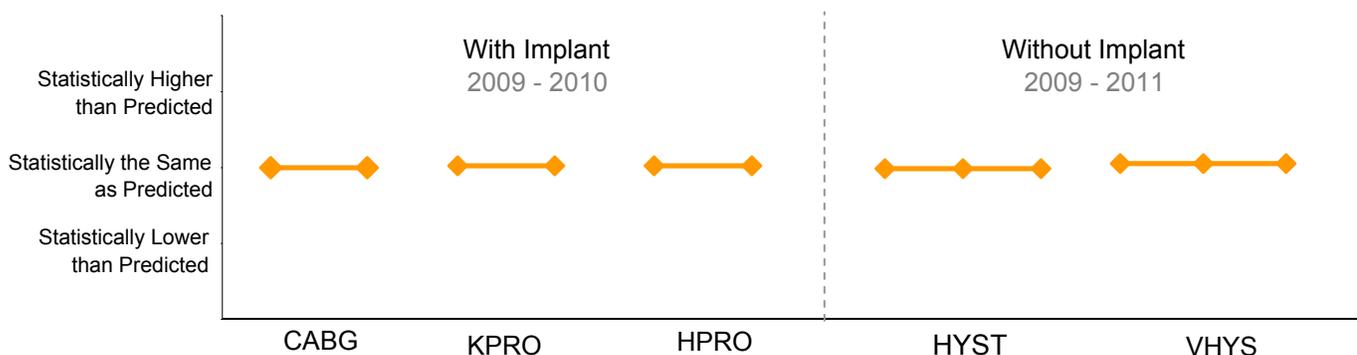


Surgical Site Infection

Hospital SSI SIRs by Procedure Type for All Fiscal Years Available

Procedure	Fiscal Year	Infections	Procedures	Predicted Infections	SIR	Confidence Interval	Interpretation
Coronary Artery Bypass (CABG)	2009	1	156	2.45	0.41	(0.01 - 2.27)	Same
	2010	0	153	2.24	0.00	(0.00 - 1.64)	Same
Knee Prosthesis (KPRO)	2009	0	93	0.80	0.00	(0.00 - 4.63)	Same
	2010	0	116	0.92	0.00	(0.00 - 4.01)	Same
Hip Prosthesis (HPRO)	2009	1	73	0.94	1.07	(0.02 - 5.95)	Same
	2010	0	78	1.11	0.00	(0.00 - 3.33)	Same
Abdominal Hysterectomy (HYST)	2009	1	107	1.16	0.86	(0.02 - 4.79)	Same
	2010	0	134	1.25	0.00	(0.00 - 2.94)	Same
	2011	1	101	0.96	1.04	(0.02 - 5.81)	Same
Vaginal Hysterectomy (VHYS)	2009	1	47	0.38	2.63	(0.06 - 14.67)	Same
	2010	0	31	0.23	0.00	(0.00 - 16.39)	Same
	2011	0	45	0.41	0.00	(0.00 - 9.09)	Same

Statistically Significant Variation from Predicted Number of Surgical Site Infections Over Time





Massachusetts 2011 HAI Data Report

Sturdy Memorial Hospital - Attleboro, MA

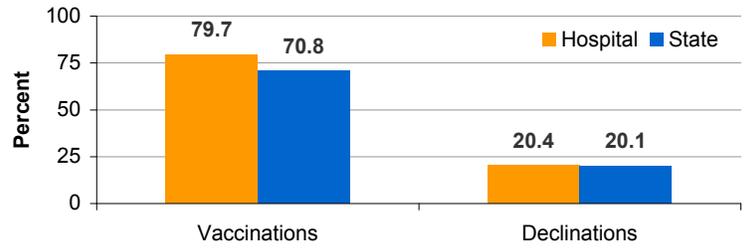
Report Release Date: February 2012

2010 Hospital Survey Statistics

Medical School Affiliation	No
Hospital Type	Nonteaching
Profit Status	Not-for-profit
Number of Beds	128
Number of ICU Beds	14
Number of Admissions	7,245
Number of Patient Days	31,133
Beds per Infection Preventionist	128.0

Influenza Vaccination

Influenza Vaccination Among Hospital Staff, 2010

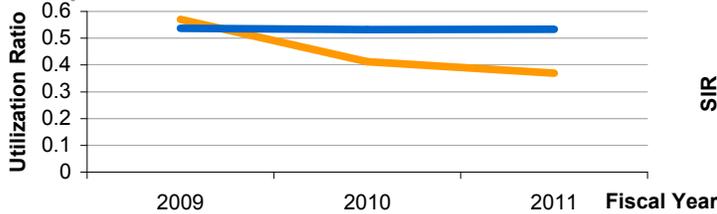


Central Line-Associated Blood Stream Infection

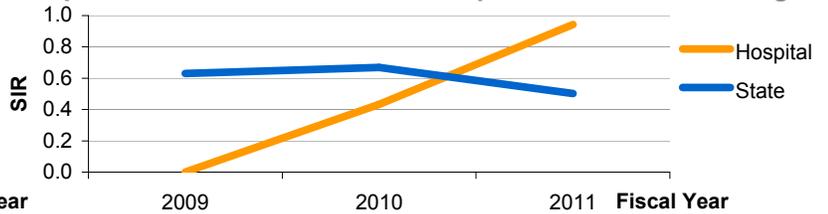
CLABSI Rates by ICU Type for Fiscal Year 2011, Compared to State Baseline Data from Fiscal Years 2009-2010

ICU Type	Infections	Line Days	Rate	Predicted Infections	SIR	Confidence Interval	Interpretation
Medical/surgical	2	1,414	1.41	1.55	1.29	(0.15 - 4.65)	Same

Hospital and State Central Line Utilization Ratios



Hospital and State CLABSI SIRs compared to National Average

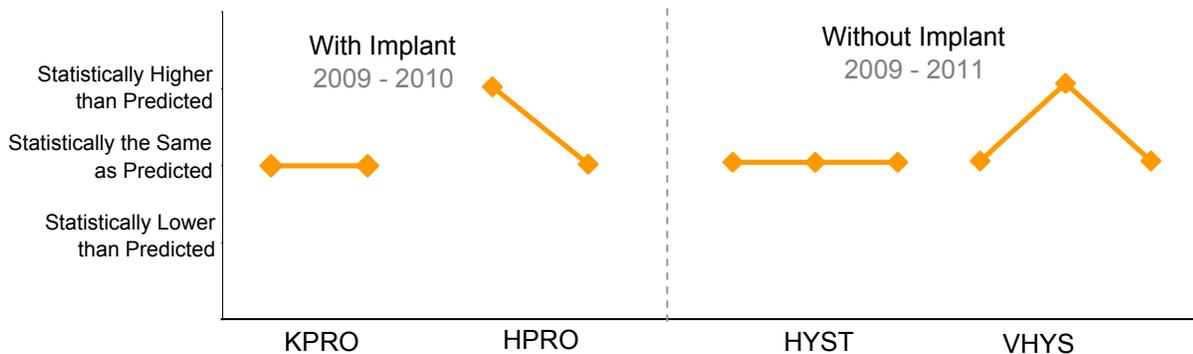


Surgical Site Infection

Hospital SSI SIRs by Procedure Type for All Fiscal Years Available

Procedure	Fiscal Year	Infections	Procedures	Predicted Infections	SIR	Confidence Interval	Interpretation
Knee Prosthesis (KPRO)	2009	0	105	0.53	0.00	(0.00 - 6.94)	Same
	2010	2	171	0.78	2.57	(0.31 - 9.28)	Same
Hip Prosthesis (HPRO)	2009	3	88	0.59	5.05	(1.04 - 14.74)	Higher
	2010	0	80	0.47	0.00	(0.00 - 7.80)	Same
Abdominal Hysterectomy (HYST)	2009	0	127	0.75	0.00	(0.00 - 4.92)	Same
	2010	0	98	0.67	0.00	(0.00 - 5.48)	Same
	2011	1	128	0.80	1.26	(0.03 - 7.00)	Same
Vaginal Hysterectomy (VHYS)	2009	1	30	0.09	11.04	(0.27 - 61.49)	Same
	2010	2	52	0.19	10.68	(1.29 - 38.59)	Higher
	2011	0	31	0.11	0.00	(0.00 - 34.99)	Same

Statistically Significant Variation from Predicted Number of Surgical Site Infections Over Time





Massachusetts 2011 HAI Data Report

Tufts Medical Center - Boston, MA

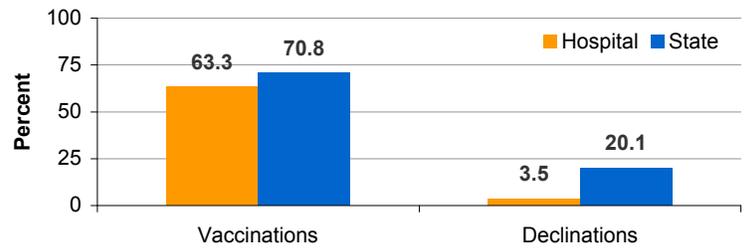
Report Release Date: February 2012

2010 Hospital Survey Statistics

Medical School Affiliation	Yes
Hospital Type	Major teaching
Profit Status	Not-for-profit
Number of Beds	374
Number of ICU Beds	91
Number of Admissions	21,142
Number of Patient Days	102,519
Beds per Infection Preventionist	124.7

Influenza Vaccination

Influenza Vaccination Among Hospital Staff, 2010

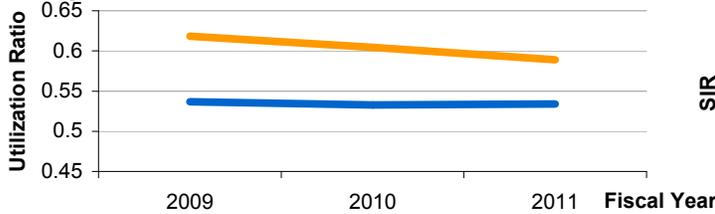


Central Line-Associated Blood Stream Infection

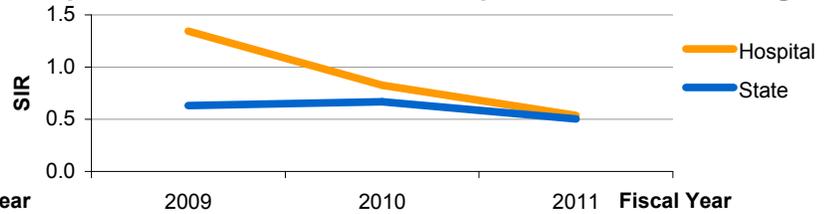
CLABSI Rates by ICU Type for Fiscal Year 2011, Compared to State Baseline Data from Fiscal Years 2009-2010

ICU Type	Infections	Line Days	Rate	Predicted Infections	SIR	Confidence Interval	Interpretation
Medical cardiac	1	2,037	0.49	3.36	0.30	(0.00 - 1.66)	Same
Surgical cardiothoracic	1	2,547	0.39	2.28	0.44	(0.01 - 2.44)	Same
Medical	5	2,332	2.14	3.89	1.29	(0.41 - 3.00)	Same
Pediatric medical/surgical	1	784	1.28	1.69	0.59	(0.01 - 3.29)	Same
Surgical	3	1,932	1.55	2.61	1.15	(0.23 - 3.36)	Same
Neonatal	7	2,903	2.41	7.24	0.97	(0.38 - 1.99)	Same

Hospital and State Central Line Utilization Ratios



Hospital and State CLABSI SIRs compared to National Average

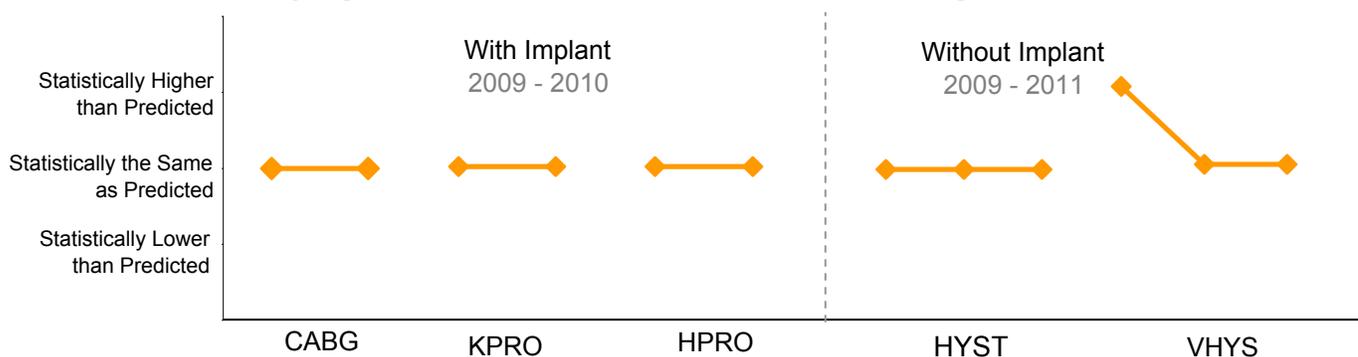


Surgical Site Infection

Hospital SSI SIRs by Procedure Type for All Fiscal Years Available

Procedure	Fiscal Year	Infections	Procedures	Predicted Infections	SIR	Confidence Interval	Interpretation
Coronary Artery Bypass (CABG)	2009	4	274	3.74	1.07	(0.29 - 2.73)	Same
	2010	5	255	3.96	1.26	(0.41 - 2.94)	Same
Knee Prosthesis (KPRO)	2009	0	85	0.63	0.00	(0.00 - 5.83)	Same
	2010	1	127	0.95	1.05	(0.02 - 5.87)	Same
Hip Prosthesis (HPRO)	2009	1	90	1.13	0.88	(0.02 - 4.92)	Same
	2010	0	110	1.44	0.00	(0.00 - 2.55)	Same
Abdominal Hysterectomy (HYST)	2009	1	106	1.15	0.87	(0.02 - 4.82)	Same
	2010	0	101	1.37	0.00	(0.00 - 2.68)	Same
	2011	1	96	1.20	0.84	(0.02 - 4.66)	Same
Vaginal Hysterectomy (VHYS)	2009	2	13	0.10	20.90	(2.53 - 75.49)	Higher
	2010	0	23	0.20	0.00	(0.00 - 18.34)	Same
	2011	0	8	0.07	0.00	(0.00 - 49.64)	Same

Statistically Significant Variation from Predicted Number of Surgical Site Infections Over Time





Massachusetts 2011 HAI Data Report

UMass Memorial Medical Center - Worcester, MA

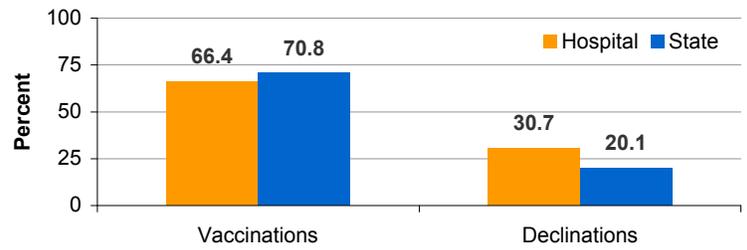
Report Release Date: February 2012

2010 Hospital Survey Statistics

Medical School Affiliation	Yes
Hospital Type	Major teaching
Profit Status	Not-for-profit
Number of Beds	781
Number of ICU Beds	158
Number of Admissions	46,738
Number of Patient Days	214,560
Beds per Infection Preventionist	130.2

Influenza Vaccination

Influenza Vaccination Among Hospital Staff, 2010

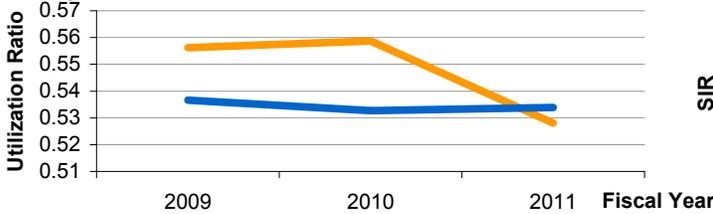


Central Line-Associated Blood Stream Infection

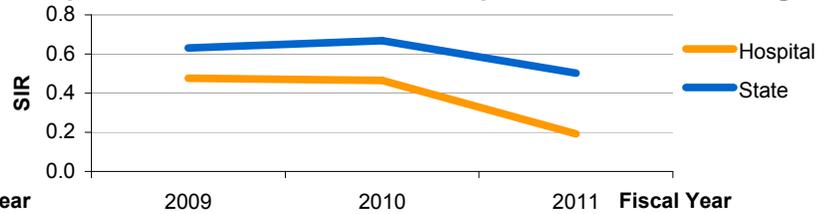
CLABSI Rates by ICU Type for Fiscal Year 2011, Compared to State Baseline Data from Fiscal Years 2009-2010

ICU Type	Infections	Line Days	Rate	Predicted Infections	SIR	Confidence Interval	Interpretation
Surgical cardiothoracic	1	2,245	0.45	2.01	0.50	(0.01 - 2.77)	Same
Medical	5	8,624	0.58	14.38	0.35	(0.11 - 0.81)	Lower
Pediatric medical/surgical	0	358	0.00	0.77	0.00	(0.00 - 4.77)	Same
Surgical	1	3,727	0.27	5.03	0.20	(0.00 - 1.10)	Same
Trauma	1	1,804	0.55	1.96	0.51	(0.01 - 2.84)	Same
Neonatal	2	1,863	1.07	4.20	0.48	(0.05 - 1.71)	Same

Hospital and State Central Line Utilization Ratios



Hospital and State CLABSI SIRs compared to National Average

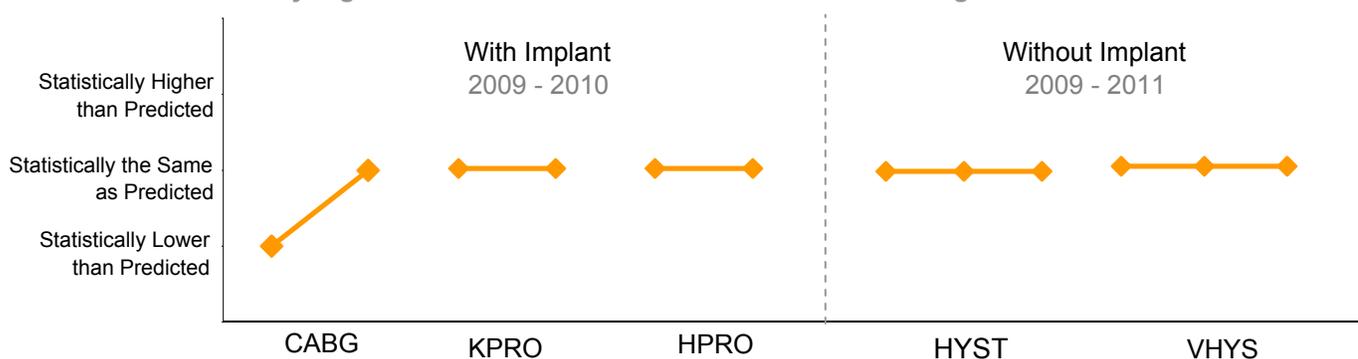


Surgical Site Infection

Hospital SSI SIRs by Procedure Type for All Fiscal Years Available

Procedure	Fiscal Year	Infections	Procedures	Predicted Infections	SIR	Confidence Interval	Interpretation
Coronary Artery Bypass (CABG)	2009	0	311	4.44	0.00	(0.00 - 0.83)	Lower
	2010	1	282	3.30	0.30	(0.00 - 1.68)	Same
Knee Prosthesis (KPRO)	2009	2	439	2.56	0.78	(0.09 - 2.81)	Same
	2010	2	462	2.62	0.77	(0.09 - 2.76)	Same
Hip Prosthesis (HPRO)	2009	3	428	3.83	0.78	(0.16 - 2.29)	Same
	2010	1	351	3.26	0.31	(0.00 - 1.71)	Same
Abdominal Hysterectomy (HYST)	2009	6	489	2.49	2.41	(0.88 - 5.24)	Same
	2010	3	431	2.29	1.31	(0.27 - 3.83)	Same
	2011	1	445	2.56	0.39	(0.01 - 2.17)	Same
Vaginal Hysterectomy (VHYS)	2009	2	156	1.45	1.38	(0.16 - 4.99)	Same
	2010	1	134	1.12	0.89	(0.02 - 4.97)	Same
	2011	0	45	0.43	0.00	(0.00 - 8.57)	Same

Statistically Significant Variation from Predicted Number of Surgical Site Infections Over Time





Massachusetts 2011 HAI Data Report

Winchester Hospital - Winchester, MA

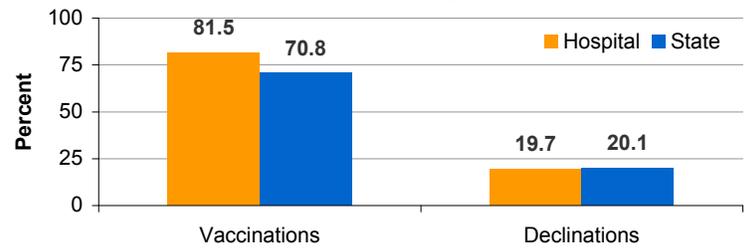
Report Release Date: February 2012

2010 Hospital Survey Statistics

Medical School Affiliation	Yes
Hospital Type	Limited teaching
Profit Status	Not-for-profit
Number of Beds	189
Number of ICU Beds	10
Number of Admissions	15,277
Number of Patient Days	56,051
Beds per Infection Preventionist	63.0

Influenza Vaccination

Influenza Vaccination Among Hospital Staff, 2010

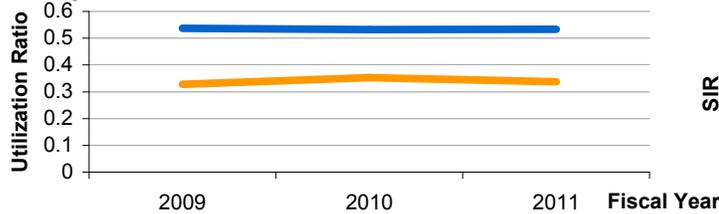


Central Line-Associated Blood Stream Infection

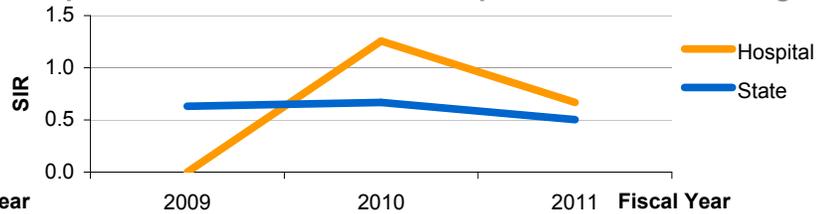
CLABSI Rates by ICU Type for Fiscal Year 2011, Compared to State Baseline Data from Fiscal Years 2009-2010

ICU Type	Infections	Line Days	Rate	Predicted Infections	SIR	Confidence Interval	Interpretation
Medical/surgical	1	996	1.00	1.09	0.91	(0.02 - 5.09)	Same

Hospital and State Central Line Utilization Ratios



Hospital and State CLABSI SIRs compared to National Average

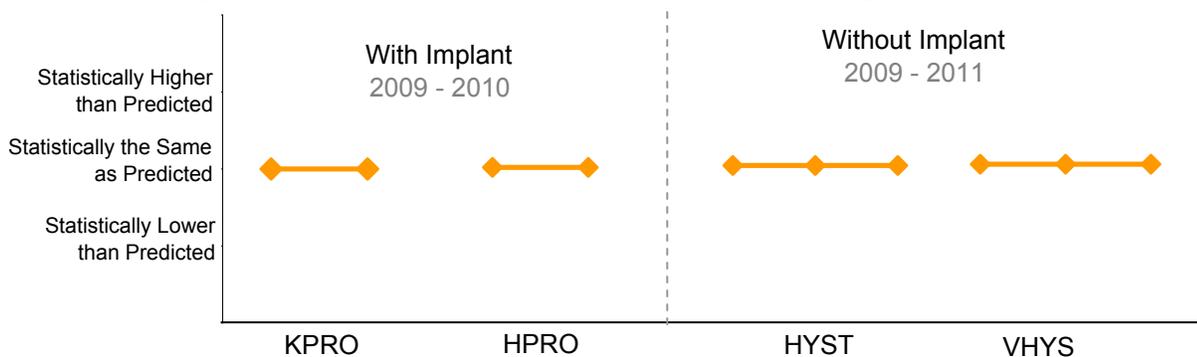


Surgical Site Infection

Hospital SSI SIRs by Procedure Type for All Fiscal Years Available

Procedure	Fiscal Year	Infections	Procedures	Predicted Infections	SIR	Confidence Interval	Interpretation
Knee Prosthesis (KPRO)	2009	2	208	1.00	2.01	(0.24 - 7.25)	Same
	2010	2	248	1.29	1.55	(0.18 - 5.61)	Same
Hip Prosthesis (HPRO)	2009	0	108	0.67	0.00	(0.00 - 5.51)	Same
	2010	1	161	1.03	0.97	(0.02 - 5.41)	Same
Abdominal Hysterectomy (HYST)	2009	0	133	0.84	0.00	(0.00 - 4.40)	Same
	2010	1	132	0.90	1.11	(0.02 - 6.20)	Same
	2011	2	147	0.91	2.21	(0.26 - 7.98)	Same
Vaginal Hysterectomy (VHYS)	2009	1	101	0.65	1.53	(0.03 - 8.53)	Same
	2010	0	92	0.61	0.00	(0.00 - 6.05)	Same
	2011	1	105	0.69	1.45	(0.03 - 8.05)	Same

Statistically Significant Variation from Predicted Number of Surgical Site Infections Over Time





Massachusetts 2011 HAI Data Report

Wing Memorial Hospital - Palmer, MA

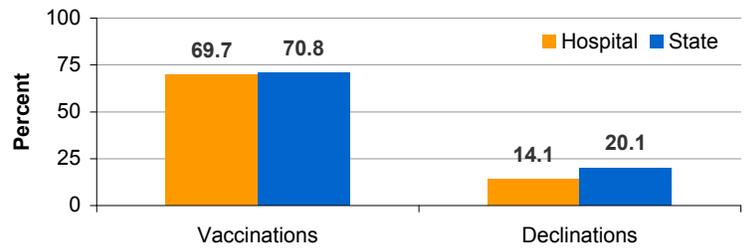
Report Release Date: February 2012

2010 Hospital Survey Statistics

Medical School Affiliation	Yes
Hospital Type	Limited teaching
Profit Status	Not-for-profit
Number of Beds	74
Number of ICU Beds	6
Number of Admissions	3,845
Number of Patient Days	18,996
Beds per Infection Preventionist	74.0

Influenza Vaccination

Influenza Vaccination Among Hospital Staff, 2010

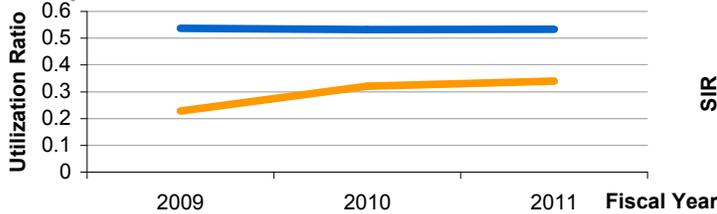


Central Line-Associated Blood Stream Infection

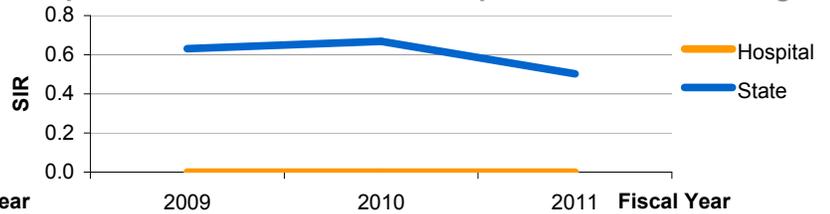
CLABSI Rates by ICU Type for Fiscal Year 2011, Compared to State Baseline Data from Fiscal Years 2009-2010

ICU Type	Infections	Line Days	Rate	Predicted Infections	SIR	Confidence Interval	Interpretation
Medical/surgical	0	393	0.00	0.43	0.00	(0.00 - 8.54)	Same

Hospital and State Central Line Utilization Ratios



Hospital and State CLABSI SIRs compared to National Average

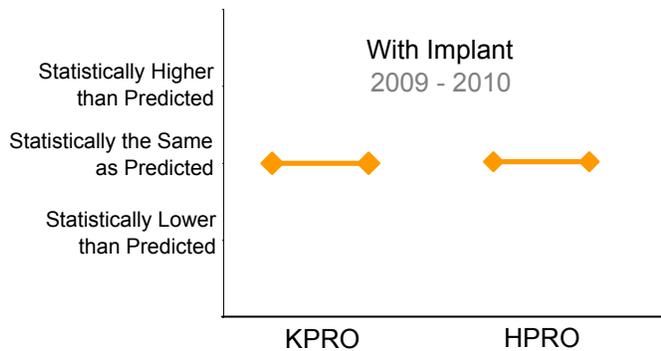


Surgical Site Infection

Hospital SSI SIRs by Procedure Type for All Fiscal Years Available

Procedure	Fiscal Year	Infections	Procedures	Predicted Infections	SIR	Confidence Interval	Interpretation
Knee Prosthesis (KPRO)	2009	0	14	0.07	0.00	(0.00 - 51.81)	Same
	2010	0	11	0.06	0.00	(0.00 - 58.74)	Same
Hip Prosthesis (HPRO)	2009	0	9	0.06	0.00	(0.00 - 62.41)	Same
	2010	0	8	0.04	0.00	(0.00 - 83.08)	Same

Statistically Significant Variation from Predicted Number of Surgical Site Infections Over Time



HEALTH CARE ASSOCIATED INFECTIONS IN MASSACHUSETTS ACUTE CARE HOSPITALS

SECOND PUBLIC REPORT
JULY 1, 2009 – JUNE 30, 2011

APPENDIX 3: TECHNICAL METHODS

JANUARY 2012 MA HAI REPORT – TECHNICAL METHODS

Analytical Methods

The process of data analysis begins with extracting data files from the NHSN server for the entire reporting period (July 1, 2008 through June 30, 2011). These files are imported into SAS 9.2 (Cary, NC) where they are cleaned, manipulated, and analyzed. Final data sets for this report were extracted on **November 22, 2011**, meaning that any changes made to the data after that date are not reflected here.

Throughout the report, data are either presented as “cumulative/aggregate” or “most recent fiscal year.” Cumulative or aggregate data consists of all the complete CLABSI or SSI data over the entire reporting period. The most recent fiscal year (FY2011) spans from July 1, 2010 through June 30, 2011. This is the timeframe used for CLABSI data and SSI procedures *without* implants (HYST and VHYS). SSI procedures *with* implants (CABG, HPRO, KPRO) require a full year of post-surgical follow-up for infection, so procedures done during the most recent fiscal year do not have complete follow-up. Therefore, the most recent fiscal year with complete data is FY2010, July 1, 2009 through June 30, 2010.

Data Cleaning and Validation

As data collection through NHSN was initiated statewide in July 2008, the process of data cleaning and validation has been ongoing. Ensuring that the HAI data used for public reporting and policy-making is as complete and accurate as possible has been paramount to those working at both state and hospital-levels. There are a number of junctures at which these data are checked for validity. This begins with the hospitals themselves; namely the infection preventionists, data managers, and others responsible for collecting, synthesizing, and entering HAI data. The NHSN system, where the data are entered and stored, has a series of internal logic checks which prevent users from entering inaccurate data, such as accidentally recording a vaginal hysterectomy procedure for a male, or entering a procedure date before the patient’s date of birth. Further data checks, both scheduled and random, are conducted by the state epidemiology HAI team. Bi-monthly data cleaning reports are prepared by state epidemiologists and sent to each hospital’s data manager to notify them of any flagged data that may be missing or erroneously entered. Other data checks are done at random intervals at the state level, which have identified a variety of hospital-specific as well as statewide data issues. Finally, since August 2010, a team from John Snow, Inc has visited every hospital in the state to validate a sample of patient records. These chart reviews are intended to identify patient outcomes that have been misclassified according to the NHSN definitions. Any inconsistencies are discussed with the hospital IP and changed accordingly to ensure adherence to the reporting guidelines. In total, these tiers of data cleaning and validation act as a broad safety net, catching any missing or invalid data that may otherwise be publicly reported.

Calculating Predicted Values

The SIR is calculated by dividing the number of observed infections by the number of predicted infections. Predicted values are derived as follows.

Central Line-Associated Blood Stream Infection (CLABSI):

From 2006-2008, NHSN compiled all CLABSI data submitted nationally to produce baseline infection rates by location-type. The predicted number of infections is calculated by multiplying the location's number of central-line-days by the NHSN rate and dividing by 1,000. This allows for SIRs to be calculated at the location, hospital (see figure 3.1), and state levels.

FIGURE 3.1: CLABSI SIR PREDICTIONS¹

Type of ICU Location	# CLABSI	# Central line-days	CLABSI Rate	NHSN Rate	p-value	Expected # of CLABSI
Medical cardiac	2	380	5.26	2.0	0.09	0.76
Medical	1	257	3.89	2.6	0.15	0.67
Med/Surgical	3	627	4.78	1.5	0.11	0.94
Neurosurgical	2	712	2.81	2.5	0.32	1.78
Total	8	1976	4.05	—	—	4.15

Overall CLABSI SIR = Observed/Expected = 8/4.15 = 1.93

Surgical Site Infection (SSI):

For each surgical procedure, the number of predicted infections is derived from a logistic regression model using the baseline time period from 2006-2008. The logistic regression model allows for many risk factors to be considered for each procedure. Another virtue of the model is that it is flexible, allowing the risk factors included to be procedure-specific, yielding a more precise risk-adjustment among the patient population for each procedure, and consequently, more accurate SIRs.

Using the logistic regression model, each patient's risk attributes are entered into the model to produce an individual probability of infection (see Figure 3.2). To calculate the predicted number of SSIs in the population of interest, the individual probabilities for each person are summed. The resulting "predicted" value is then compared to the actual number of infections to determine the SIR for that population.

¹ CDC. *NHSN e-News: SIRs Special Edition*. 12/10/2010. http://www.cdc.gov/nhsn/PDFs/Newsletters/NHSN_NL_OCT_2010SE_final.pdf

For more specific information on how the NHSN SSI logistic regression model was developed, please refer to the seminal paper by Mu et al, which details the construction and utilization of the model.²

FIGURE 3.2: SSI LOGISTIC REGRESSION MODEL PREDICTIONS³

Patient	Age	Duration	ASA	Medical School Att.	SSI	Probability of SSI
1	40	117	4	Y	0	0.050
2	53	95	2	N	0	0.004
3	30	107	2	Y	1	0.033
.
.
.
100	37	128	4	Y	1	0.050
TOTAL					Observed (O)	Expected (E)
					3	2.91
SIR= O/E = 3/2.91 = 1.03						

Exclusion Criteria

While it is a requirement that all surgical procedures of interest and all ensuing infections be entered into the NHSN system by hospitals, not every one of these procedures or infections are included in the final analysis. Some of these exclusions are employed by NHSN, while others have been put in place at the state level.

NHSN Exclusions:

NHSN created two logistic regression models to calculate predicted values that, while using the same principles, employ different inclusion criteria. The *All SSI model* calculates the predicted values for the SIRs by including all infections regardless of type or process of identification. The second model, *Complex A/R*, differs from the *All SSI* in that it excludes outpatient procedures as well as infections that are identified as superficial (primary or secondary) or deep incisional-secondary. Procedures can also be excluded for the following reasons:

- Missing one or more of the risk factors required for the logistic regression model.
- Procedure duration is <5 minutes or >IQR5.⁴ The IQR5 values for procedures completed in Massachusetts are found in Figure 3.3.
- Patient’s age at procedure is <1 day old or ≥ 109 years old.
- Wound Class is listed as undefined (‘U’).

² Yi Mu, Jonathan R. Edwards, Teresa C. Horan, Sandra I. Berrios-Torres and Scott K. Fridkin *Infection Control and Hospital Epidemiology*, Vol. 32, No. 10 (October 2011), pp. 970-986

³ CDC. *NHSN e-News: SIRs Special Edition*. 12/10/2010.

http://www.cdc.gov/nhsn/PDFs/Newsletters/NHSN_NL_OCT_2010SE_final.pdf

⁴ defined as five times the interquartile range above the 75th percentile.

FIGURE 3.3. IRQ5 VALUES FOR PROCEDURES OF INTEREST

IRQ5 Values for Procedures of Interest	
Procedure	Duration (minutes)
CBGB	846
CBGC	895
HPRO	380
HYST	479
KPRO	354
VHYS	449

The *Complex A/R* model is used by MDPH to calculate predicted values, but with slightly modified exclusion criteria in reporting observed infections.

Massachusetts Department of Public Health Modifications to the Complex A/R Model:

MDPH modifies the *Complex A/R* model in two ways:

- KPRO and HPRO procedures identified as revisions are excluded from the analysis. For KPRO, only primary (total) procedures are included, and for HPROs only total primary and partial primary procedures are included as recommended by the Expert Panel on Health Care Associated Infections. The predicted number of KPRO and HPRO calculated by the model is therefore somewhat higher than when employing the unmodified *Complex A/R* model.
- MDPH *includes* infections identified through post-discharge surveillance (PDS), while NHSN does not include those infections in its *Complex A/R* model. NHSN excludes infections identified via PDS from their analyses due to the wide disparity among hospitals in their ability to identify these infections. However, MDPH asserts that if an infection is identified, no matter the route, it should be counted as such.
- MDPH also *includes* deep and organ space infections.

Limitations

MDPH can only analyze the data that are reported. Data are collected from various systems within a given hospital, and across many hospital systems. Not all data may be easily accessible, and both completeness and timeliness of reporting varies between hospitals. Moreover, some hospitals have more capacity to identify post-discharge infections than others.

HAIs are complex and often involve many facets of patient care. The statistics presented here provide a limited measure of this problem. They do not include all infections that occur within a healthcare setting, nor do they show all of the progress hospitals are making to prevent HAIs. Statistical methods, such as excluding certain infections and comparing to a predicted value, are employed to allow for comparisons and clear measures. MDPH recognizes that each of the infections reported happened to a person; to that individual and their loved ones, the impact is often extremely significant.

HEALTH CARE ASSOCIATED INFECTIONS IN MASSACHUSETTS ACUTE CARE HOSPITALS

SECOND PUBLIC REPORT
JULY 1, 2009 – JUNE 30, 2011

APPENDIX 4: DEVELOPMENT OF THE MASSACHUSETTS INFECTION PREVENTION AND CONTROL PROGRAM - TIMELINE

DEVELOPMENT OF THE MASSACHUSETTS INFECTION PREVENTION & CONTROL PROGRAM

Date	Description
2006	Healthcare reform legislation enacted with HAI prevention provisions
November 30, 2006	MDPH convenes multidisciplinary Expert Panel
January - December 2007	Monthly Expert Panel meetings
January 2008	Expert Panel presents recommendations to MDPH and the Betsy Lehman Center.
February 13, 2008	Public Health Council approves regulations requiring acute care hospitals report specific HAI data to MDPH and the Betsy Lehman Center.
February 22, 2008	Acute care hospitals receive notice on mandatory HAI reporting requirements.
March 25, 2008	Statewide hospital training on NHSN
April 1, 2008	Acute care hospitals required to complete training and enroll in NHSN.
April 3, 2008	First meeting of the HAI Technical Advisory Group (TAG)
June 25, 2008	Massachusetts Coalition for the Prevention of Medical Errors Program: <i>Preventing Hospital Acquired Infections in Critical Care Settings</i>
July 1, 2008	Mandatory reporting of HAI begins
August 2008	Publication of HAI consumer focused fact sheet
August 2008	Hospital training on MRSA point prevalence survey
September 2008	Massachusetts MRSA point prevalence survey conducted in all acute care hospital ICUs.
November 2008	HAI Expert Panel recommendations published by the Agency for Health Research and Quality's National Guideline Clearinghouse™.
November 2008	Infection Preventionists initiate assessments in all acute care hospitals.
November 21, 2008	Massachusetts Coalition for the Prevention of Medical Errors Program: HAI Action Workgroup: <i>Using Quality Improvement Approaches to Prevent Infection.</i>
December 2008	Statewide hospital HAI training. Topics included collecting requirements for collecting race and ethnicity data and reporting of influenza vaccination rates for health care workers
January 2009	Findings of MRSA Point Prevalence Survey presented to the TAG.
February 2009	American Recovery and Reinvestment Act (ARRA) signed into law.
February 4, 2009	MA Coalition for the Prevention of Medical Errors Program: HAI Action Workgroup Meeting.
April 8, 2009	MDPH releases preliminary HAI Report.

May 2009	Findings on collection of influenza data for healthcare workers presented to the TAG.
June 26, 2009	MDPH submits grant proposal for American Recovery and Reinvestment Act funding to assist state efforts to prevent HAI.
June 2009	MDPH implements formal quality assurance protocol for NHSN data.
June 23, 2009	Massachusetts Coalition for the Prevention of Medical Errors Program: <i>Success Stories in Preventing HAI: An Opportunity to Share and Learn.</i>
July 1, 2009	Change in reporting requirements: HAI measures initially reported to the Betsy Lehman Center are now required to be reported to MDPH.
August 2009	Hospital training on MRSA point prevalence survey #2 and updates to reporting requirements.
August 31, 2009	Massachusetts selected to receive ARRA funding to assist in efforts to prevent HAI.
December 2009	MDPH submits Massachusetts State HAI Prevention Plan to the Department of Health and Human Services.
January 2010	Data cleaning protocol developed to assess the completeness and accuracy of the data reported in NHSN
April 2010	MDPH initiates infection prevention and control focused hospital surveys.
April 14, 2010	MDPH issues first report of hospital specific HAI data.
June 1, 2010	Free standing Ambulatory Surgical Centers required to begin reporting HAI resulting from hernia surgery.
July 2010	NHSN Data validation protocol developed and pilot tested
September 22, 2010	Statewide hospital leadership summit focusing on state goals in preventing CLABSIs.
October 2010	MDPH presents HAI prevention efforts to reduce CLABSI at CDC national conference
November, 2010	MDPH releases healthcare personnel hospital specific influenza vaccination data
December 13, 2010	MDPH disseminates electronic survey to assess acute care hospital's capability for uploading NHSN data electronically
December 14, 2010	MDPH collaborates with Masspro, the state Quality Improvement Organization on a training webinar entitled: <i>Acute Care Hospital Personnel Flu Vaccination: Successful Practices</i>
February 24-26, 2011	MDPH participates in a CDC sponsored regional training

March 23, 2011	Statewide Training Webinar – “Update on NHSN Reporting and Data Validation” for all acute care hospitals
March 29, 2011	Statewide <i>Clostridium difficile</i> infection learning session
April 15, 2011	All licensed healthcare facilities required to submit influenza vaccination coverage of employees to MDPH.
April 2011	Massachusetts selected to participate in an Association of State and Territorial Health Officials (ASTHO) project to examine how different states are tracking and evaluating the impact of HAI policies
August, 2011	MA is one of 12 states to receive CDC funding to advance HAI prevention activities. Will allow expansion of <i>Clostridium difficile</i> collaborative work to the area of long term care
September 14, 2011	Statewide antibiotic stewardship training program
September 14, 2011	MDPH released healthcare worker influenza data for all licensed healthcare facilities.
October 20-21, 2011	MDPH presents approach for validating HAI data at the third annual Recovery Act HAI Grantee meeting in Atlanta, GA.
November 15, 2011	Kickoff for acute care hospital/long term care collaborative focusing on <i>Clostridium difficile</i> .

**HEALTH CARE ASSOCIATED
INFECTIONS IN MASSACHUSETTS
ACUTE CARE HOSPITALS**

SECOND PUBLIC REPORT
JULY 1, 2009 – JUNE 30, 2011

**APPENDIX 5: HOSPITALS
PROVIDING DATA FOR THIS
REPORT**

HOSPITALS PROVIDING DATA FOR THE REPORT

Name	City
Anna Jaques Hospital	Newburyport
Athol Memorial Hospital	Athol
Baystate Franklin Medical Center	Greenfield
Baystate Mary Lane Hospital	Ware
Baystate Medical Center	Springfield
Berkshire Health Systems	Pittsfield
Beth Israel Deaconess Medical Center	Boston
Beth Israel Deaconess Medical Center Needham	Needham
Boston Medical Center	Boston
Brigham and Women's Hospital	Boston
Cambridge Health Alliance – Cambridge Hospital	Cambridge
Cambridge Health Alliance – Whidden Memorial Hospital	Everett
Cape Cod Hospital	Hyannis
Carney Hospital	Boston
Children's Hospital Boston	Boston
Clinton Hospital	Clinton
Cooley Dickinson Hospital	Northampton
Emerson Hospital	Concord
Fairview Hospital	Great Barrington
Falmouth Hospital	Falmouth
Faulkner Hospital	Boston
Good Samaritan Medical Center	Brockton
Harrington Memorial Hospital	Southbridge
Health Alliance Hospital	Leominster
Heywood Hospital	Gardner
Holy Family Hospital	Methuen
Holyoke Medical Center	Holyoke
Jordan Hospital	Plymouth
Lahey Clinic	Burlington
Lawrence General Hospital	Lawrence
Lawrence Memorial Hospital	Medford
Lowell General Hospital	Lowell
Marlborough Hospital	Marlborough
Martha's Vineyard Hospital	Oak Bluffs
Massachusetts General Hospital	Boston
Melrose-Wakefield Hospital	Melrose
Mercy Medical Center	Springfield

Name	City
Merrimack Valley Hospital	Haverhill
Metro West Medical Center – Framingham Union Hospital	Framingham
Metro West Medical Center – Leonard Morse Hospital	Natick
Milford Regional Medical Center	Milford
Milton Hospital	Milton
Morton Hospital and Medical Center	Taunton
Mount Auburn Hospital	Cambridge
Nantucket Cottage Hospital	Nantucket
Nashoba Valley Medical Center	Ayer
New England Baptist Hospital	Boston
Newton-Wellesley Hospital	Newton
Noble Hospital	Westfield
North Adams Regional Hospital	North Adams
North Shore Medical Center – Salem Hospital	Salem
North Shore Medical Center – Union Hospital	Lynn
Northeast Hospital – Addison Gilbert Hospital	Gloucester
Northeast Hospital – Beverly Hospital	Beverly
Norwood Hospital	Norwood
Quincy Medical Center	Quincy
Saint Vincent Hospital	Worcester
Saints Medical Center	Lowell
Shriners Hospital	Boston
Signature Healthcare – Brockton Hospital	Brockton
South Shore Hospital	South Weymouth
Southcoast Health Systems – Charlton Hospital	Fall River
Southcoast Health Systems – St. Luke’s Hospital	New Bedford
Southcoast Health Systems – Tobey Hospital	Wareham
St. Anne’s Hospital	Fall River
St. Elizabeth’s Medical Center	Brighton
Sturdy Memorial Hospital	Attleboro
Tufts Medical Center	Boston
UMass Memorial Medical Center	Worcester
Winchester Hospital	Winchester
Wing Memorial Hospital and Medical Centers	Palmer

HEALTH CARE ASSOCIATED INFECTIONS IN MASSACHUSETTS ACUTE CARE HOSPITALS

SECOND PUBLIC REPORT
JULY 1, 2009 – JUNE 30, 2011

APPENDIX 6: GLOSSARY AND ACRONYMS

GLOSSARY AND ACRONYMS

Term	Meaning
Antimicrobial stewardship	Efforts by healthcare facilities to optimize the use of antimicrobials in order to improve patient outcomes, ensure cost effectiveness and reduce antimicrobial resistance.
Arthroplasty	Surgery to reshape, reconstruct or replace a diseased or damaged joint. ¹
Blood stream infection (BSI)	Bloodstream infections may be either primary or secondary. Primary BSIs are associated with central venous catheters. Secondary infections are related to infections at other sites, such as the urinary tract, lung, postoperative wounds, and skin.
Central line associated blood stream infection (CLABSI)	Central line-associated bloodstream infection (CLABSI) is a primary bloodstream infection (BSI) in a patient that had a central line within the 48-hour period before the development of the BSI. The infection must be confirmed by the laboratory and is not secondary to an infection at another body site.
Central line	A central line, also known as a central venous catheter (CVC), is a special type of flexible tube that is placed into a large vein in the chest, arm, neck or groin and ends at or close to the heart or one of the great vessels. In newborns, the umbilical artery or vein is considered a great vessel.
Central line days	The total number of days a central line is in place for each patient in the intensive care unit (ICU). The count is performed each day, and each patient with a central line is counted as a central line-day.
Central line utilization ratio	The central line utilization ratio is the ratio of the number of central line-days divided by the number of days that patients are in the location during the selected time period.
Central venous catheter (CVC)	An intravascular catheter that terminates at or close to the heart or in one of the great vessels which is used for infusion, withdrawal of blood, or hemodynamic monitoring. The following are considered great vessels for the purpose of reporting central-line BSI and counting central-line days in the NHSN system: aorta, pulmonary artery, superior vena cava, inferior vena cava, brachiocephalic veins, internal jugular veins, subclavian vein external iliac veins, common femoral veins, and in neonates, the umbilical artery or vein.

¹ *Taber's Cyclopedic Medical Dictionary* (20th ed.). Philadelphia: F.A. Davis Company.

Term	Meaning
<i>Clostridium difficile</i> infection	<i>Clostridium difficile</i> is an anaerobic, spore forming toxigenic bacteria and an important cause of HAI. <i>Clostridium difficile</i> is responsible for a spectrum of <i>C. difficile</i> infections including uncomplicated diarrhea, pseudomembranous colitis, and toxic megacolon which can, in some instances, lead to sepsis and even death.
Coronary artery bypass graft (CABG)	Commonly called “bypass surgery”, improves blood flow to the heart. During CABG surgery, a healthy vein or artery usually taken from the patient’s own blood vessels in the leg, arm or chest is connected or grafted to the blocked coronary artery. The graft allows blood to go around or “bypass” the blocked section of the coronary artery creating a new route to deliver oxygen and nutrients to the heart muscle.
Healthcare associated infection	A localized or systemic condition resulting from an adverse reaction to the presence of an infectious agent(s) or its toxin(s) that 1) occurs in a patient in a health care setting (eg, a hospital or outpatient clinic), 2) was not found to be present or incubating at the time of admission unless the infection was related to a previous admission to the same setting, and 3) if the setting is a hospital, meets the criteria for a specific infection site as defined by CDC.
Implant	A nonhuman-derived object, material, or tissue that is permanently placed in a patient during an operative procedure and is not routinely manipulated for diagnostic or therapeutic purposes. Examples include: porcine or synthetic heart valves, mechanical heart, metal rods, mesh, sternal wires, screws, cements, internal staples, hemoclips, and other devices.
Infection Preventionist	Professionals trained in nursing, microbiology, epidemiology or medical technology who have obtained additional education in infection prevention and control.
Intensive care unit	Intensive-care unit (ICU). A hospital unit that provides intensive observation, diagnostic, and therapeutic procedures for adults and/or children who are critically ill.

Term	Meaning
Laboratory-confirmed bloodstream infection (LCBI)	<p>Primary bloodstream infection not related to infection at another body site and the patient has a central line or umbilical catheter in place at the time of or within 48 hours before onset of the event.</p> <p>The LCBI must meet one of the following criteria:</p> <p><u>Criterion 1:</u> Patient has a recognized pathogen cultured from one or more blood cultures and organism cultured from blood is not related to an infection at another site.</p> <p><u>Criterion 2:</u> Patient has at least one of the following signs or symptoms: fever > 100.4° F, chills, or hypotension and signs and symptoms and positive laboratory results are not related to an infection at another site and common skin contaminant is cultured from two or more blood cultures drawn on separate occasions.</p> <p><u>Criterion 3:</u> Patient is less than 1 year of age has at least one of the following signs or symptoms: fever (>100.4°F) hypothermia (temperature < 96.8° F) apnea, or bradycardia and signs and symptoms and positive laboratory results are not related to an infection at another site and common skin contaminant is cultured from two or more blood cultures drawn on separate occasions.</p>
Major Teaching Hospital	As defined by NHSN, a facility that is an important part of the teaching program of a medical school and where the majority of medical students rotate through multiple clinical services.
Median	To find the median, numbers are placed in order from lowest to highest. The median is the number found exactly in the middle of the group of numbers.
Mean	The mean is the average of a group of numbers.
Neonatal ICU Level II (Step-Down)	Special care nursery for care of preterm infants with birth weight >1500 grams. Includes resuscitation and stabilization of preterm and/or ill infants before transfer to a facility at which newborn intensive care is provided.
Neonatal Critical Care Level II/III	Combined nursery housing both Level II and III newborns and infants.
Neonatal Critical Care Level III	A hospital neonatal intensive care unit (NICU) organized with personnel and equipment to provide continuous life support and comprehensive care for extremely high-risk newborn infants and those with complex and critical illness.
National Healthcare Safety Network (NHSN)	NHSN is a secure, integrated, web-based, voluntary monitoring system established by the Centers for Disease Control and Prevention (CDC) for health care facilities to report HAI information confidentially.

Term	Meaning
Primary bloodstream infections (BSI)	Laboratory-confirmed bloodstream infections (LCBI) that are not secondary to an infection at another body site.
Standardized infection ratio (SIR)	<p>SIR is an indirect standardization method for summarizing HAI experience across any number of stratified groups of data. The SIR adjusts for the fact that each healthcare facility treats different types of patients</p> <p>A SIR is the number of observed infections divided by the number of expected infections. The expected number is based on the national average, the number of procedures performed by a hospital, and historical data for those procedures.</p> <p>Values that exceed 1.0 indicate that more infections occurred than were expected whereas values that are less than 1.0 indicate the opposite.</p>
Surgical site infection (SSI)	Surgical site infections (SSIs) are infections that are directly related to an operative procedure. SSIs develop within thirty days after an operation or within one year if an implant was placed and the infection appears to be related to the surgery.
Surveillance	The ongoing, systematic collection, analysis, interpretation, and dissemination of data regarding a health-related event for use in public health action to reduce morbidity and mortality and to improve health.
Umbilical catheter	A central vascular device inserted through the umbilical artery or vein in a neonate.

ACRONYMS

Acronym	Meaning
ARRA	American Recovery and Reinvestment Act of 2009
ASA	American Society of Anesthesiologists
BSI	Blood stream infection
BW	Birth weight
CABG	Coronary artery bypass graft
CBGB	Coronary artery bypass graft and separate donor site
CBGC	Coronary artery bypass graft with chest incision
CDC	Centers for Disease Control and Prevention
CI	Confidence interval
CLABSI	Central line associated blood stream infection
CoNS	Coagulase-negative <i>Staphylococcus</i>
CVC	Central venous catheter
HAI	Healthcare associated infection
HYST	Abdominal hysterectomy
ICU	Intensive care unit
IP	Infection preventionist
LCBI	Laboratory-confirmed bloodstream infection
MDPH	Massachusetts Department of Public Health
MDRO	Multi drug resistant organisms
MRSA	Methicillin-resistant <i>Staphylococcus aureus</i>
NHSN	National Healthcare Safety Network
NICU	Neonatal intensive care unit
SIR	Standardized infection ratio

Acronym	Meaning
SSI	Surgical site infection
TAG	Technical Advisory Group
VHYS	Vaginal hysterectomy

HEALTH CARE ASSOCIATED INFECTIONS IN MASSACHUSETTS ACUTE CARE HOSPITALS

SECOND PUBLIC REPORT
JULY 1, 2009 – JUNE 30, 2011

APPENDIX 7: SSI AND CLABSI HANDOUTS



FAQs

(frequently asked questions)

about “Surgical Site Infections”

What is a Surgical Site Infection (SSI)?

A surgical site infection is an infection that occurs after surgery in the part of the body where the surgery took place. Most patients who have surgery do not develop an infection. However, infections develop in about 1 to 3 out of every 100 patients who have surgery.

Some of the common symptoms of a surgical site infection are:

- Redness and pain around the area where you had surgery
- Drainage of cloudy fluid from your surgical wound
- Fever

Can SSIs be treated?

Yes. Most surgical site infections can be treated with antibiotics. The antibiotic given to you depends on the bacteria (germs) causing the infection. Sometimes patients with SSIs also need another surgery to treat the infection.

What are some of the things that hospitals are doing to prevent SSIs?

To prevent SSIs, doctors, nurses, and other healthcare providers:

- Clean their hands and arms up to their elbows with an antiseptic agent just before the surgery.
- Clean their hands with soap and water or an alcohol-based hand rub before and after caring for each patient.
- May remove some of your hair immediately before your surgery using electric clippers if the hair is in the same area where the procedure will occur. They should not shave you with a razor.
- Wear special hair covers, masks, gowns, and gloves during surgery to keep the surgery area clean.
- Give you antibiotics before your surgery starts. In most cases, you should get antibiotics within 60 minutes before the surgery starts and the antibiotics should be stopped within 24 hours after surgery.
- Clean the skin at the site of your surgery with a special soap that kills germs.

What can I do to help prevent SSIs?

Before your surgery:

- Tell your doctor about other medical problems you may have. Health problems such as allergies, diabetes, and obesity could affect your surgery and your treatment.

- Quit smoking. Patients who smoke get more infections. Talk to your doctor about how you can quit before your surgery.
- Do not shave near where you will have surgery. Shaving with a razor can irritate your skin and make it easier to develop an infection.

At the time of your surgery:

- Speak up if someone tries to shave you with a razor before surgery. Ask why you need to be shaved and talk with your surgeon if you have any concerns.
- Ask if you will get antibiotics before surgery.

After your surgery:

- Make sure that your healthcare providers clean their hands before examining you, either with soap and water or an alcohol-based hand rub.

If you do not see your providers clean their hands, please ask them to do so.

- Family and friends who visit you should not touch the surgical wound or dressings.
- Family and friends should clean their hands with soap and water or an alcohol-based hand rub before and after visiting you. If you do not see them clean their hands, ask them to clean their hands.

What do I need to do when I go home from the hospital?

- Before you go home, your doctor or nurse should explain everything you need to know about taking care of your wound. Make sure you understand how to care for your wound before you leave the hospital.
- Always clean your hands before and after caring for your wound.
- Before you go home, make sure you know who to contact if you have questions or problems after you get home.
- If you have any symptoms of an infection, such as redness and pain at the surgery site, drainage, or fever, call your doctor immediately.

If you have additional questions, please ask your doctor or nurse.

Co-sponsored by:





FAQs

(frequently asked questions)

about

“Catheter-Associated Bloodstream Infections”

(also known as “Central Line-Associated Bloodstream Infections”)

What is a catheter-associated bloodstream infection?

A “central line” or “central catheter” is a tube that is placed into a patient’s large vein, usually in the neck, chest, arm, or groin. The catheter is often used to draw blood, or give fluids or medications. It may be left in place for several weeks. A bloodstream infection can occur when bacteria or other germs travel down a “central line” and enter the blood. If you develop a catheter-associated bloodstream infection you may become ill with fevers and chills or the skin around the catheter may become sore and red.

Can a catheter-related bloodstream infection be treated?

A catheter-associated bloodstream infection is serious, but often can be successfully treated with antibiotics. The catheter might need to be removed if you develop an infection.

What are some of the things that hospitals are doing to prevent catheter-associated bloodstream infections?

To prevent catheter-associated bloodstream infections doctors and nurses will:

- Choose a vein where the catheter can be safely inserted and where the risk for infection is small.
- Clean their hands with soap and water or an alcohol-based hand rub before putting in the catheter.
- Wear a mask, cap, sterile gown, and sterile gloves when putting in the catheter to keep it sterile. The patient will be covered with a sterile sheet.
- Clean the patient’s skin with an antiseptic cleanser before putting in the catheter.
- Clean their hands, wear gloves, and clean the catheter opening with an antiseptic solution before using the catheter to draw blood or give medications. Healthcare providers also clean their hands and wear gloves when changing the bandage that covers the area where the catheter enters the skin.
- Decide every day if the patient still needs to have the catheter. The catheter will be removed as soon as it is no longer needed.
- Carefully handle medications and fluids that are given through the catheter.

What can I do to help prevent a catheter-associated bloodstream infection?

- Ask your doctors and nurses to explain why you need the catheter and how long you will have it.

- Ask your doctors and nurses if they will be using all of the prevention methods discussed above.
- Make sure that all doctors and nurses caring for you clean their hands with soap and water or an alcohol-based hand rub before and after caring for you.

If you do not see your providers clean their hands, please ask them to do so.

- If the bandage comes off or becomes wet or dirty, tell your nurse or doctor immediately.
- Inform your nurse or doctor if the area around your catheter is sore or red.
- Do not let family and friends who visit touch the catheter or the tubing.
- Make sure family and friends clean their hands with soap and water or an alcohol-based hand rub before and after visiting you.

What do I need to do when I go home from the hospital?

Some patients are sent home from the hospital with a catheter in order to continue their treatment. If you go home with a catheter, your doctors and nurses will explain everything you need to know about taking care of your catheter.

- Make sure you understand how to care for the catheter before leaving the hospital. For example, ask for instructions on showering or bathing with the catheter and how to change the catheter dressing.
- Make sure you know who to contact if you have questions or problems after you get home.
- Make sure you wash your hands with soap and water or an alcohol-based hand rub before handling your catheter.
- Watch for the signs and symptoms of catheter-associated bloodstream infection, such as soreness or redness at the catheter site or fever, and call your healthcare provider immediately if any occur.

If you have additional questions, please ask your doctor or nurse.

Co-sponsored by:

