MISSOURI NOSOCOMIAL INFECTION REPORTING DATA

Report to the Governor and General Assembly
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Missouri Department of Health and Senior Services
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Executive Summary

Background

In 2004, the Missouri legislature passed Senate Bill 1279, establishing the "Missouri Nosocomial Infection Reporting Act of 2004." The law requires hospitals and ambulatory surgical centers (ASCs) to report specific categories of healthcare-associated infections (HAIs) to the Department of Health and Senior Services (DHSS). This report summarizes April 2009-March 2010 data on central line-associated bloodstream infections (CLABSIs), surgical site infections (SSIs) and head of bed (HOB) elevation.

Data Collection

The infections mandated for reporting include ventilator-associated pneumonias (VAPs), CLABSIs and SSIs. CLABSIs are reported by hospitals for six intensive care units (ICUs)--coronary, surgical, medical/surgical, medical, neonatal and pediatric. SSIs are reported by facility and not ICU. Hospitals report SSIs associated with abdominal hysterectomy, hip repair and coronary artery bypass surgery. ASCs report SSIs associated with hernia repair and breast surgery. In lieu of measuring the incidence of VAP, hospital ICUs report the percent of their ventilator patients with appropriate HOB elevation. HOB elevation of at least 30 degrees lowers the risk of developing VAP.

Public Reporting

The DHSS has developed a public website to report infection rates. The site provides the most currently available four quarters of data for viewing. At the time this report was prepared, SSI, CLABSI and HOB elevation data for April 2009-March 2010 were available on the website. Data for the next reporting period, July 2009-June 2010, will be published on the website during December 2010. In October 2010, a table of historical data was added to the website. Data on the number of infections and procedures and the percent HOB compliance for 2006-2009 are now available.

Data Summary

Hospitals submit data for each ICU that meets DHSS reporting requirements. In all, 103 ICUs from 69 hospitals reported CLABSI data for April 2009-March 2010. Statewide infection rates were lowest in the medical/surgical ICUs (1.7/1000 central line-days) and highest in the neonatal and pediatric ICUs (2.9/1000). Statewide rates for all ICUs except medical ICUs were significantly lower than U.S. rates published by the Centers for Disease Control and Prevention (CDC). Missouri's CLABSI rates for five of the six reporting ICUs have dropped 50-63 percent relative to the first reporting period (calendar year 2006).

Fifty-three hospitals and 26 ASCs reported SSI data. The lowest SSI rates for hospitals overall were for hip repair and abdominal hysterectomy (1.2/100 and 1.3/100 surgeries, respectively). The highest rate was for coronary artery bypass surgery (2.0/100). Only the rate for coronary artery bypass surgery was significantly lower than the rate published for 2006-2008 by the CDC. The ASCs reported infection rates for hernia repair and breast surgery. Infection rates for both of these surgery types were lower than 1.0/100 surgeries.

Forty-eight hospitals reported HOB elevation for ICUs with ventilator patients. The ideal is to have every hospital ICU comply with HOB standards (usually elevation of 30 degrees or more) for 100 percent of their ventilator patients. Generally, Missouri hospitals performed quite well in that regard. While none of the types of ICUs reached 100 percent compliance for every reporting hospital, the average compliance rate for each of the five types of reporting ICUs ranged from 96-98. All but five of the 72 hospital/ICU combinations had average compliance rates of 90 percent or better.

Cautions

Infection rates are affected by a facility's level of resources and commitment to infection control, the severity of the illnesses it treats, and the care with which it collects and reports data. A consumer who is choosing a facility for healthcare should consider the advice of their physician, the experience of facility staff, and all the other factors that are unique to his or her situation, in addition to the infection and HOB elevation data reported on the DHSS website.

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Background

Healthcare-associated infections (HAIs), also known as nosocomial infections, are infections that occur while patients are in a healthcare setting. Because of the seriousness of their conditions, patients treated in intensive care units (ICUs) have an especially high risk of HAIs. HAIs can severely aggravate an illness, lengthen hospital stays and spread to other individuals. HAIs continue to be a major public health problem in the United States. "The Guidance on Public Reporting of Healthcare-Associated Infections…," published by the Healthcare Infection Control Practices Advisory Committee (HICPAC) in 2005[1], reported that in hospitals alone, HAIs accounted for an estimated 2 million infections, 90,000 deaths and $4.5 billion dollars in excess healthcare costs annually. A recent study reported that adverse events cost Medicare an estimated $324 million in October 2008.[2]

In 2004, the Missouri legislature passed Senate Bill 1279, establishing the "Missouri Nosocomial Infection Reporting Act of 2004." The intent of the law is to establish conditions that lead to a decrease in HAIs in Missouri. The law requires hospitals and ambulatory surgical centers (ASCs) to report specific categories of HAIs to the Department of Health and Senior Services (DHSS).

The law also requires the DHSS to publish reports on the department's internet website and to submit an annual report to the Governor and members of the General Assembly. Rather than including copies of every table from the website, this report summarizes the data and presents and explains representative tables.

Data Collection

Procedures and HAIs are reported to the DHSS according to 19 CSR 10-33.050, which became effective July 30, 2005. The reporting rule was promulgated under the authority of the revised statute that mandates data reporting by hospitals and ASCs (Section 192.667, RSMo). The data that are collected follow the recommendations of the infection control advisory panel established by the law. This panel includes a statistician, a microbiologist and representatives of consumers, physicians, infection control professionals and regulators.

Infections and procedures that are serious and that occur in a variety of hospitals and ASCs were considered for mandatory reporting. Hospitals and ASCs differ in what they report. Hospitals are required to report ventilator-associated pneumonia (VAP), central line-associated bloodstream infections (CLABSIs) and surgical site infections (SSIs). The SSIs reported are those associated with procedures for abdominal hysterectomy, hip repair and coronary artery bypass surgery. ASCs report only SSI data, and are limited to reporting infections associated with procedures for hernia repair and breast surgery. To provide denominators for the infection rates, hospitals and ASCs report every one of the selected procedures regardless of whether the procedure results in an infection. Because patients in intensive care units are particularly at risk for HAIs, hospital reporting of CLABSIs is done for six specific intensive care units (ICUs): medical, surgical, medical/surgical, coronary, neonatal and pediatric. SSIs are reported by facility rather than ICU. For reasons discussed below, hospitals report HOB[3] elevation but not VAP.

To ensure that the data being collected are reliable, the DHSS established reporting requirements for the facilities. Following the lead of the Centers for Disease Control and Prevention (CDC), DHSS required that only hospitals that had at least 50 central line-days in the prior year must report during the current year. Both hospitals and ASCs must report SSIs if they performed at least 20 of the specified surgeries in the prior year. Hospitals with at least 100 ventilator patients are asked to report the number of ventilator patients and the number who have HOB elevation of at least 30 degrees, a practice that reduces the risk of ventilator associated pneumonia (VAP). Reporting is done through the Missouri Healthcare-Associated Infection Reporting System (MHIRS), a web-based system developed by DHSS staff and the Information Technology Support Division of the Office of Administration. MHIRS allows facilities to enter HAI data directly into a DHSS database on a monthly basis.

Registration for reporting by hospitals and ASCs occurs annually in March and April. Facilities report the number of central line-days per ICU, the number of relevant surgeries, and the number of ventilator patients that they had during the previous year. This information determines which facilities will be required to report the selected indicators to the DHSS.

Hospitals have been reporting CLABSIs to the department since July 2005. Recording of SSI data by hospitals and ASCs began in January 2006. Reporting of VAPs has been postponed. Because hospitals do not use a standard method of diagnosing VAPs, the infection control panel, with input from an expert panel convened to study the infection control issue, recommended that a process measure, HOB elevation, be reported instead. The risk of contracting a VAP is substantially reduced for patients on ventilators if they have their heads elevated at least 30 degrees. This measure has been included in a group of VAP measures endorsed by the Joint Commission on Accreditation of Healthcare Organizations. At the request of DHSS, Missouri hospitals began voluntarily reporting HOB elevation in November 2007. Reporting is done for four ICUs--medical, surgical, medical/surgical and coronary--plus all other ICUs combined.

In October 2010, the DHSS added historical data to the website. After reaching the main page for Missouri Healthcare Associated Infection Reporting, visitors can link to a table where they can select either hospitals or ASCs. For the selected facility, users can view numerators, denominators and rates for CLABSIs, SSIs and HOB elevation. Currently displayed are data for 2006-2009. As each calendar year of data becomes complete, it will be added to this table.

Public Reporting

Figure 1 depicts the main page of the public reporting site. This page introduces users to the site and presents a brief overview of HAIs. A number of useful links are displayed: “Related Links” connects the user to other sites that have information on HAIs; “Healthcare-Associated Infections” provides expanded information on HAIs; “Instructions for Using this Site” helps the user interpret the selection page and data tables; “Definition of Terms” is a list of technical terms and their definitions; “Frequently Asked Questions” presents background information in an easy-to-read format; “Laws, Regulations and Manuals” links the user to Section 192.667, RSMo and related chapters and regulations, and allows the user to view the manuals and forms used by the facilities to report their data; “MRSA” summarizes information on Methicillin-resistant Staphylococcus aureus (MRSA) infections; “Infection Reporting Data” brings up the main selection page for accessing HAI data.

In Figure 2, the main selection page is shown. Users can choose to compare hospitals (or ASCs) to selected comparison groups, or to view a facility profile that includes all data reported by the facility. To view comparison data, CLABSIs, SSIs or HOB can be selected. For CLABSi rates and HOB elevation percents, a specific type of ICU and a region of the state are selected. For SSIs, a facility type (hospital or ASC), a surgery type and a region are selected. Passing the computer mouse over a displayed map of Missouri produces a list of the reporting facilities by region. A link at the bottom of the page explains that facilities do not appear on the list if they had too few central line-days, surgeries or ventilator patients to meet the reporting requirements. (Figures 1-2 may have changed slightly by the time this report is published, due to scheduled enhancements to the DHSS website.)

Table 1 shows the web display version of a Hospital Comparison table for SSIs related to coronary artery bypass graft (CABG) procedures. The symbols (◒ ○ ●) indicate whether the SSI rate was similar to, higher than, or lower than that of a comparison group. Hospitals can be compared to three different groups: 1) hospitals of a similar size (under 100 staffed beds, 100-299 staffed beds, or 300+ staffed beds), 2) all reporting hospitals, and 3) hospitals in the U.S. that report to the CDC.[4] As shown in Table 1, Boone Hospital Center had lower coronary artery bypass-related infection rates than hospitals reporting to the CDC.

Facilities vary according to the seriousness of the procedures they undertake and the kinds of illnesses they treat. To make SSI comparisons among hospitals fairer, infection rates are adjusted for the level of procedure risk and the underlying condition of the patient. Factors that are taken into account in adjusting the rates are 1) the degree of contamination of the wound at the time of the operation, 2) the duration of the procedure and 3) the American Society of Anesthesiologists' physical status classification system. When 'Data' is selected from a Hospital Comparison table, infection rates are shown according to the risk factor group. This can be seen in Table 2 for Boone Hospital Center. It reported 305 coronary artery bypass procedures and three infections in risk group 1, and 34 procedures and 1 infection in combined risk groups 2 and 3. (Groups 2 and 3 were combined because according to CDC data, they represented the same risk of infection.) The number of infections represents rates of 1.0 and 2.9 infections per 100 procedures, respectively.

A small number of infections resulting from a small number of procedures can result in a relatively large infection rate. In the 2008-2009 reporting period, Boone Hospital Center had a rate of 0 infections per 100 procedures in risk group 2, 3. As seen in Table 2, with one infection and 34 procedures, the rate jumped to 2.9/100 procedures. This should caution the user of these data to focus on the results of the statistical tests (table of circles) rather than particular rates.

Users can also select a particular facility to profile. As illustrated in table 3, facility specific profiles display all of the applicable CLABSI, SSI and HOB indicators for a facility in one location.

Data Summary

Central Line-Associated Bloodstream Infections (CLABSIs)

Some hospitals have only one or two ICUs, while some may have all six that are required to report to the DHSS. Thus the total number of ICUs reporting will exceed the number of hospitals reporting. A total of 103 ICUs from 68 hospitals reported CLABSI data for April 2009-March

2010. Four hospitals each had one ICU that had rates that were significantly higher than the state or national rate. Five hospitals had one or more ICUs whose rates were significantly lower than the state or national rate.

CLABSI data for all reporting hospital ICUs are summarized in Table 4. The statewide infection rates varied from 0.9/1000 central line-days for medical/surgical ICUs to 2.3/1000 for pediatric ICUs. Compared to the most recent national rates reported by the CDC (2006-2008 data),[4] Missouri's rates were statistically significantly lower for all ICUs except the medical ICU. Rates were lower, but not statistically significantly lower, in the medical ICUs. It should be noted that the CDC rates represent hospitals that voluntarily submitted data to the CDC's National Healthcare Safety Network infection surveillance system, and they are not for the same years displayed for Missouri. More current national rates or rates from a representative national sample might well be different.

Table 5 compares the April 2009-March 2010 CLABSI rates to rates published in the three previous annual reports. Rates for the medical/surgical, neonatal and pediatric ICUs show steady declines over the four reporting periods: from the first period to the last, rates have dropped 63 percent for both the medical/surgical and neonatal ICUs, and 56 percent for the pediatric ICU. Rates for the other three ICUs have not dropped every year, but are still lower in the current period compared to the first. The coronary and surgical ICUs show drops of 50 and 52 percent, while rates for the medical ICU have dropped 25 percent. These changes are in line with a national trend of declining CLABSIs that extends back to at least 1997, according to a report by CDC.[5] Possible causes for the decline are yet to be determined.

Surgical Site Infections (SSIs)

Hospitals

A total of 53 hospitals of the 136 acute care hospitals in Missouri reported SSI data. By virtue of having performed at least 20 of the specific surgeries, 47 hospitals qualified to report on hip repair surgeries, 39 reported on abdominal hysterectomy surgeries, and 32 reported on coronary artery bypass graft (CABG) surgeries. Five hospitals had infection rates that were significantly lower than either the rates for the state overall or the hospitals that report to CDC, for at least one of the three procedures. Four hospitals had rates that were significantly higher than one of these two comparison groups.

Additional SSI data for the hospitals are shown in Table 6. The statewide infection rates were 1.2/100 surgeries for hip repair, 1.3/100 for abdominal hysterectomy and 2.0/100 for CABG surgery. When adjusted for severity of surgery, only the rate for CABG was significantly lower than the U.S. infection rates reported by the CDC in their 2009 report.

In Table 7 the hospital SSI trends for the last four reporting periods are shown. Generally the rates are very low and do not demonstrate regular trends.

Ambulatory Surgery Centers (ASCs)

Twenty-six of the 102 Missouri ASCs that were open during the reporting period reported SSI data. Nineteen ASCs were qualified to report on hernia repair surgeries and 15 reported on breast

surgeries. Table 8 shows that the statewide rate per 100 surgeries was less than 1.0/100 surgeries for both types of surgeries.

Table 9 suggests that infection rates for ASCs may have increased from the first reporting period to the current period. Hernia repair infection rates went from .18/100 surgeries to .26/100, and breast surgery infection rates went from .22/100 to .4/100. However, the number of infections for both hip repair and breast surgery was 10 or less for both time periods, and the increases in the rates were not statistically significant.

ASCs tend to perform less serious surgeries and have generally healthier patient populations than inpatient facilities. The relatively brief lengths of stay in the ambulatory setting reduces a patient's risk for infection; it also lessens the possibility of detecting post-surgical infections. Typically a patient does not stay very long in an ASC and may not discover an infection until days after the surgery. In this situation, the patient is likely to seek care in an emergency room or a physician's office, and the ASC may never become aware of the infection.

Head- of- Bed (HOB) Elevation

Forty-eight hospitals reported HOB elevation for one or more ICUs. As shown in Table 10, the medical/surgical ICU was reported by the most number of hospitals, 36, while only seven hospitals reported on coronary ICU patients. The ideal is for every ICU to have appropriate HOB elevation for 100 percent of ventilator patients. Though a number of facilities reported 100 percent compliance, none of the ICU types reached 100 percent for every facility that reported for it. On the other hand, each category of ICU averaged 96 percent compliance or better. HOB elevation for individual facility/ICU combinations varied from 83 percent to 100 percent of ventilator patients. Nineteen (40%) of the 48 hospitals reported 100 percent appropriate HOB elevation for at least one ICU. This is slightly lower than the 48 percent reported in the 2008-2009 time period.

Cautions

The infection rates reported by the DHSS are affected by a facility's level of resources and commitment to infection control, the severity of the illnesses it treats, and the care with which it collects and reports its data. Beyond checking for obvious errors, the DHSS is not able to verify the numbers that the facilities submit each month, and it is likely that some facilities do a better job of reporting than others. On the other hand, it is to each facility's advantage to accurately diagnose and monitor all infections. We believe most, if not all facilities, are guided by this philosophy.

A further consideration is that hospitals and ASCs vary in the types of patients they treat. A facility that treats severely ill patients will be at higher risk for HAIs. In order to mitigate this effect, CLABSIs are reported separately for each type of ICU and as a rate per 1000 central-line days. SSI comparisons are adjusted for the severity level of the surgery and the condition of the patient and reported as a rate per 100 surgeries. While these adjustments help to make the data between facilities more comparable, users of the data should understand that these adjustments are imperfect, and the rates on Missouri's website should not be the sole basis for choosing a healthcare facility. A consumer who is trying to select a facility for healthcare should also consider the experience of the staff, the advice of their physician, and all other factors that are unique to his or her situation.

Endnotes**:**

1. Guidance on public reporting of healthcare-associated infections: recommendations of the Healthcare Infection Control Practices Advisory Committee. McKibben L, Horan T, Tokars JI, Fowler G, Cardo DM, Pearson ML, Brennan PJ and the Healthcare Infection Control Practices Advisory Committee. Am J Infect Control 2005; 3(4):217-226.

2. Office of Inspector General, Adverse events in hospitals: national incidence among Medicare beneficiaries, OEI-06—09-00090, November 2010. Reported by Maggie Fox, Health and Science Editor, http://blogs.reuters.com/maggie-fox/?st=article

3. Hospitals currently are not required by statute or regulation to submit data related to head-of-bed (HOB) elevation. It is anticipated that the next legislative session will address an amendment to the statute to allow for mandatory reporting of process measures such as HOB elevation.

4**.** National Healthcare Safety Network (NHSN) Report, data summary for 2006 through 2008, issued December, 2009. J Infect Control 2009; 37:783-805.

5. Burton DC, Edwards JR, Horan TC, Fridkin SK. Trends in Central Line-associated Bloodstream Infections in Intensive Care Units-United States, 1997-2007. Abstract for SHEA 18th Annual Scientific Meeting, http://www.cdc.gov/ncidod/dhqp/SHEA_Abstract2.html.

Figure 1: Missouri Healthcare-Associated Infection Reporting

- Home
- Health Care-Associated Infections
- Instructions for Using this Site
- Infection Reporting Data
- Definition of Terms
- Frequently Asked Questions
- Laws, Regulations & Manuals
- Publications & Reports
- Information for Providers
- MRSA
- Related Links
- Contact Us

Missouri Health Care-Associated Infection Reporting

This site displays data on **Healthcare-Associated Infections (HAIs)** as reported to the Department of Health and Senior Services (DHSS) by hospitals and ambulatory surgery centers. These facilities are required by **state law and regulation** to report data on selected HAIs, also known as Nosocomial infections. Currently, data are reported for central line-associated bloodstream infections (CLABSIs) and surgical site infections (SSIs). Data on head-of-bed elevation (HOB) is also displayed. HOB is a process measure related to preventing ventilator-associated pneumonia.

Such infections as Methicillin-resistant *Staphylococcus aureus* (MRSA), *Clostridium difficile*, vancomycin-resistant enterococcus (VRE), ventilator-associated pneumonia and others, are **not** included on this site. **Click here** for further information on these infections.

HAIs continue to be a major health problem in the United States. HAIs can be very serious, increasing the cost and length of hospital stays and even threatening lives. As a consumer, you should be proactive in your healthcare. The information on this site can help you to:

- Understand more about HAIs - what they are and why they occur.
- Be informed about hospital and ASC infection rates in Missouri.
- Learn what you, as a patient, can do to lower your risk of an HAI.

Keep in mind that a facility's experience with HAIs is only one thing to consider when choosing a facility. The advice of your physician, the experience of facility staff, and other factors unique to your situation should be considered as well. (Note: some facilities may not appear on this site because they did not perform enough procedures to make their infection rates meaningful.)

Please review the Instructions for Using this Site, Definition of Terms, Frequently Asked Questions, and other information listed on the left bar of this page for help in understanding the tables displayed on this site.

If you have been to this site previously, you may want to go directly to the Infection Reporting Data.

Figure 2: Main Selection Page

For information on hospitals or ambulatory surgery centers (ASCs), follow the instructions below:

Step One: Select information type.

- (•) Comparison data for multiple hospitals or ASCs
- ( ) Profile for individual hospital or ASC

Step Two: Select a reporting category.

- ( ) Central Line-Associated Bloodstream Infection (CLABSI) - Hospitals only
- (•) Surgical Site Infection (SSI) - Hospitals or ASCs
- ( ) Head-of-Bed Elevation (HOB) - Hospitals only

Step Three

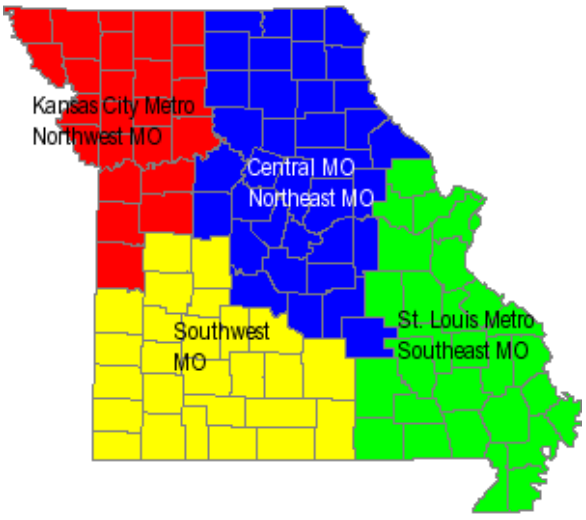
- (•) Hospital
- ( ) ASC

Step Four

Select Surgery Type: Coronary artery bypass surgery

Step Five

To view a list of reporting facilities, place mouse over a region below.
To view performance of hospitals, click on a region.



Central MO/Northeast MO

Boone Hospital Center
Capital Region Medical Center
Lake Regional Health System
St. Mary's Health Center - Jefferson City
University of MO Hospital & Clinics

Note: If your Hospital/ASC does not appear in any region, Click here.

Table 1. Healthcare-Associated Infection Reporting

Surgical Site Infection (SSI)
Hospital Comparison

Procedure: Coronary Artery Bypass Graft
Region: Central MO - Northeast MO
Reporting Period: April 1, 2009 - March 31, 2010

Main Page

Facility Name	Hospital Performance Compared with Similar Size Facilities in Missouri	Hospital Performance Compared with All Missouri Facilities	Hospital Performance Compared with Facilities in U.S.	Hospital Specific Information
⊞ Boone Hospital Center	◒	◒	●	Data Comments
⊞ Capital Region Medical Center	◒	◒	◒	Data Comments
⊞ Lake Regional Health System	○	○	◒	Data Comments
⊞ St. Mary's Health Center - Jefferson City	◒	◒	◒	Data Comments
⊞ University of Missouri HealthCare	◒	◒	◒	Data Comments

● = Infection rate lower than other hospitals in the comparison group

◒ = Infection rate similar to other hospitals in the comparison group

○ = Infection rate higher than other hospitals in the comparison group

N/A = Too few hospitals in the comparison group for reliable rate calculation

Note: The above comparisons are based on significance tests.

⊞ = Click on this symbol to expand or close information on the facility.

Table 2. Healthcare-Associated Infection Reporting

Surgical Site Infection (SSI)
Hospital Infection Rates

Facility Name: Boone Hospital Center
Procedure: Coronary Artery Bypass Graft
Region: Central MO - Northeast MO
Reporting Period: April 1, 2009 - March 31, 2010

Previous Page, Main Page

Risk Group	Number of Procedures	Number of Infections	Infection Rate (per 100 procedures)	Rate for Similar Size Hospitals (per 100 procedures)	Statewide Infection Rate (per 100 procedures)	National Infection Rate (per 100 procedures)
1	305	3	1.0	1.8	1.8	3.0
2,3	34	1	2.9	3.2	2.6	4.9

N/A => Too few hospitals for rate calculations.

Note: When the infection rate for a hospital is higher/lower than a comparison group rate, the difference may not be statistically significant. Return to previous page to view performance of the hospital

Table 3. Healthcare-Associated Infection Reporting

Boone Hospital Center
Profile

Facility Name: Boone Hospital Center
Region: Central MO - Northeast MO

Main Page

Central Line-Associated Bloodstream Infections (CLABSIs)
Reporting Period: April 1, 2009 to March 31, 2010

Intensive Care Unit (ICU)	Hospital Performance Compared with Similar Size Hospitals in Missouri	Hospital Performance Compared with All Missouri Hospitals	Hospital Performance Compared with Hospitals in U.S.	Hospital-Specific Information
MEDICAL	N/A	◒	◒	Data Comments
SURGICAL	N/A	◒	●	Data Comments
NEONATAL	N/A	◒	◒	Data Comments

Surgical Site Infections (SSIs)
Reporting Period: April 1, 2009 to March 31, 2010

Surgery Type	Hospital Performance Compared with Similar Size Hospitals in Missouri	Hospital Performance Compared with All Missouri Hospitals	Hospital Performance Compared with Hospitals in U.S.	Hospital-Specific Information
ABDOMINAL HYSTERECTOMY	○	◒	◒	Data Comments
CORONARY ARTERY BYPASS SURGERY	◒	◒	●	Data Comments
HIP PROSTHESIS	◒	◒	◒	Data Comments

Continued on next page

Table 3 Continued: Healthcare-Associated Infection Reporting

Main Page

Head-of-Bed (HOB) Elevation Process Measure*
Reporting Period: April 1, 2009 to March 31, 2010

Intensive Care Unit	Number of Patients on Ventilator	Number of Patients on Ventilator with Elevated HOB	Percent of ** Patients with Elevated HOB	Hospital-Specific Information
MEDICAL	87	87	100%	Comments
SURGICAL	89	89	100%	Comments

* Elevating the head of bed of patients who are on a ventilator helps to prevent ventilator-associated pneumonia.
** The goal is 100 percent. (The head of bed should be elevated 30 degrees for all qualifying patients who are on a ventilator).

● = Infection rate lower than other hospitals in the comparison group

◒ = Infection rate similar to other hospitals in the comparison group

○ = Infection rate higher than other hospitals in the comparison group

N/A = Too few hospitals in the comparison group for reliable rate calculation

Table 4. Central Line-Associated Bloodstream Infection Summary Data by Intensive Care Unit

April 2009-March 2010 Reporting Period

Intensive Care Unit (ICU)	Number of ICUs	Statewide Infection Rate	U.S. Infection Rate[1]
MEDICAL/SURGICAL	54	0.9*	1.7
CORONARY	7	1.0*	2.0
MEDICAL	13	1.8	2.2
NEONATAL	15	1.1*	2.8
SURGICAL	8	1.0*	1.9
PEDIATRIC (U.S. rate is for pediatric/medical/surgical)	6	2.3*	2.9

[1]National Healthcare Safety Network (NHSN) Report, data summary for 2006 through 2008, issued December 2009.

* Significantly lower than the U.S. rate.

Note: The state and national infection rates are the number of infections per 1000 central line-days.

Table 5. Comparison of Statewide Central Line-Associated Bloodstream Infection Rates by ICU and Reporting Period

Rates for Four Reporting Periods

Intensive Care Unit	January 2006-December 2006	April 2007-March 2008	April 2008-March 2009	April 2009-March 2010
CORONARY	2.0	1.2	1.6	1.0
SURGICAL	2.1	1.3	2.1	1.0
MEDICAL/SURGICAL	2.4	1.7	1.3	0.9
MEDICAL	2.4	1.8	1.7	1.8
NEONATAL	3.0	2.6	1.8	1.1
PEDIATRIC	5.2	4.2	2.4	2.3

Table 6. Hospitals: Surgical Site Infection Summary Data by Surgery Type

April 2009-March 2010 Reporting Period

Procedure	Number of Facilities	Adjusted* Statewide Infection Rate (per 100 Surgeries)	U.S. Infection Rate (per 100 Surgeries)[1]
HIP REPAIR	47	1.2	1.3
ABDOMINAL HYSTERECTOMY	39	1.3	1.6
CORONARY ARTERY BYPASS SURGERY	32	2.0**	2.9

[1]National Healthcare Safety Network (NHSN) Report, data summary for 2006-2008, issued December 2009.

*Adjusted for surgery severity level using the U.S. rate as a standard.

**Significantly lower than the U.S. rate.

Note: Surgeries are in order by the adjusted statewide infection rate.

Table 7. Hospitals: Trends for Statewide Surgical Site Infections by Surgery Type and Reporting Period

Rates for Four Reporting Periods

Intensive Care Unit	January-December 2006	April 2007-March 2008	April 2008-March 2009	April 2009-March 2010
HIP REPAIR	1.3	1.3	1.0	1.3
ABDOMINAL HYSTERECTOMY	1.5	1.3	1.2	1.6
CORONARY ARTERY BYPASS SURGERY	3.1	2.0	1.9	2.4

Table 8. Ambulatory Surgery Centers: Surgical Site Infection Data by Surgery Type

Procedure	Number of Facilities Reporting 2009-2010	Statewide Infection Rates (per 100 Surgeries) 2009-2010
HERNIA REPAIR	19	0.26
BREAST SURGERY	15	0.40

Note: National data for ASCs are not available.

Table 9. Ambulatory Surgical Centers: Trends for Statewide Surgical Site Infections by Surgery Type and Reporting Period

Procedure	January-December 2006	April 2007-March 2008	April 2008-March 2009	April 2009-March 2010
HERNIA REPAIR	0.18	0.10	0.14	0.26
BREAST SURGERY	0.22	0.23	0.26	0.40

Table 10: Head of Bed Elevation Percentages by Intensive Care Unit

April 2009-March 2010 Reporting Period

ICU	Number of Facilities	Number of Ventilator Patients*	Average** Percent of Ventilated Patients with HOB Elevation
CORONARY	7	825	96
SURGICAL	8	1707	95
MEDICAL/SURGICAL	36	6987	96
MEDICAL	12	2383	98
OTHER	9	2864	98

* One ventilator patient is defined as a patient on a ventilator for one day. If a patient is on a ventilator two days, that would be two ventilator patients; two patients on ventilators for two days would be four ventilator patients, etc.

** The average was calculated as the average of the percents for the facility/ICU combinations. For example, the seven facilities reporting on coronary ICUs had HOB elevation percents of 97, 98, 97, 88, 100, 93 and 100; the average of these seven percents was 96, as reported above in the table.

Note: No national percentages are available for comparison.