

# **MISSOURI NOSOCOMIAL INFECTION REPORTING DATA**

**Report to the Governor and  
General Assembly  
December 2009**



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Report to the Governor and General Assembly - 2009**

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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 2008- March 2009 data on central line-associated bloodstream (CLAB) infections, surgical site infections (SSIs) and head of bed (HOB) elevation.

### **Data Collection**

The infections selected for reporting include ventilator-associated pneumonias (VAPs), CLAB infections and SSIs. CLAB infections are reported by hospitals for six ICUs--coronary, surgical, medical/surgical, medical, neonatal and pediatric. SSIs are reported by facility and not ICU. Hospitals report SSIs associated with procedures for 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. As each new quarter of data becomes available, the earliest quarter is deleted and the latest quarter is added to form the most current 12 months of data for viewing. At the time this report was prepared, SSI, CLAB infection and HOB elevation data for April 2008-March 2009 were on the website. Data for the next reporting period, July 2008-June 2009, will be published on the website during December 2009.

### **Data Summary**

Hospitals can report data for more than one ICU. In all, 104 ICUs from 70 hospitals reported CLAB infection data for April 2008-March 2009. Statewide infection rates were lowest in the medical/surgical ICUs (1.3/1000 central line-days) and highest in the pediatric ICUs (2.4/1000). Rates for medical/surgical, medical, and neonatal ICUs were significantly lower than U.S. rates published by the Centers for Disease Control and Prevention (CDC). Compared to Missouri’s April 2007-March 2008 rates published in the 2008 report, Missouri’s April 2008-March 2009 rates were higher in two ICUs and lower in four.

Sixty hospitals and 29 ASCs reported SSI data. The lowest SSI rates for hospitals were for hip repair and abdominal hysterectomy (1.1/100 and 1.2/100 surgeries, respectively), the highest rate was for coronary artery bypass surgery (1.9/100). All three rates were lower than those published for 2006-2007 by the CDC. The ASCs had infection rates lower than 1/100 surgeries.

Fifty hospitals reported HOB elevation for ICUs with ventilator patients. The ideal is for every ICU to have appropriate HOB elevation for 100 percent of their ventilator patients. None of the types of ICUs reporting reached 100 percent for every reporting facility, but all types of ICUs averaged over 90 percent. The lowest were the coronary ICUs, where the average for the six

reporting facilities was 93 percent. The remaining ICUs had averages of 95-96 percent. Percents for individual facility/ICU combinations ranged from 57-100 percent.

### **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.



## **Missouri Nosocomial Infection Reporting Data Report to the Governor and General Assembly - 2009**

### **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,<sup>1</sup> 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.

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 (CLAB) infections, 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 CLAB infections 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 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-April. Facilities report the number of central line-days per ICU, the number of reportable surgeries, and the number of ventilator patients during the previous calendar year. This information determines which facilities will be required to report the selected indicators to the DHSS.

Hospitals have been reporting CLAB infections 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 internal advisory control panel, with input from an expert panel convened to study the 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. CLAB, SSI and HOB elevation data for the March 2008-April 2009 reporting period were on the website during September-December 2009 and are the subject of this report.

### **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. If a user wants to view comparison data, they can choose to view data for CLAB infections, SSIs or HOB elevation. For CLAB infection rates and HOB elevation percents, they

choose a specific type of ICU and region of the state. For SSIs they choose a facility type (hospital or ASC), a surgery type and a region of the state. Passing the computer mouse over a 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.

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 comparison 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.<sup>2</sup> As shown in Table 1, Boone Hospital Center had lower coronary artery bypass-related infection rates than U.S. 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 300 coronary artery bypass procedures and four infections in risk group 1, and 33 procedures and 0 infections 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 numbers of infections represent rates of 1.3 and 0.0 infections per 100 procedures, respectively.

Users can also select a particular hospital to profile. Table 3 shows the profile for Boone Hospital Center. Boone Hospital reported CLAB infection data for three ICUs, SSI data for all three of the reportable surgeries and HOB elevation data for the medical and surgical ICUs. The pattern of circles indicates that relative to other hospitals in the U.S., Boone Hospital had lower CLAB infection rates for the surgical ICU and lower SSIs for coronary artery bypass surgery. HOB elevation percents for the medical and surgical ICUS were close to perfect at 98 and 100 percent, respectively.

## **Data Summary**

### *Central Line-Associated Bloodstream (CLAB) Infections*

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 104 ICUs from 70 hospitals reported CLAB infection data for April 2008-March 2009. Eight hospital ICUs in six hospitals had rates that were significantly higher than the state or national rate. Five ICUs in four hospitals had rates that were significantly lower than the state or national rate.

CLAB infection data for all reporting hospital ICUs are summarized in Table 4. The statewide infection rates varied from 1.3/1000 central line-days for medical/surgical ICUs to 2.4/1000 for pediatric ICUs. Compared to the most recent national rates reported by the CDC (2006-2007

data), Missouri's rates were statistically significantly lower for the medical/surgical, medical and neonatal ICUs. Rates were lower, but not statistically significantly lower, in the remaining 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. Rates that are more current or that are from a representative national sample might well be different.

Table 5 compares the April 2008-March 2009 CLAB rates to rates published in the previous two annual reports. Rates for pediatric ICUs show substantial declines over the three reporting periods, dropping from 5.2/1000 to 4.2/1000 to 2.4/1000, an overall drop of 54 percent. Medical/surgical ICU rates have dropped 45 percent, from 2.4/1000 to 1.7/1000 to 1.3/1000. Rates for neonatal ICUs have dropped 40 percent, from 3.0/1000 to 2.6/1000 to 1.8/1000. Medical ICU rates have dropped 30 percent, though most of the decline was between the two earlier periods. Only rates for the coronary and surgical ICUs have not shown continuous declines over the three periods.

### *Surgical Site Infections (SSIs)*

#### Hospitals

A total of 60 hospitals out of the 132 acute care hospitals in Missouri reported SSI data. By virtue of having performed at least 20 of the specific surgeries, 53 hospitals qualified to report on hip repair surgeries, 47 reported on abdominal hysterectomy surgeries, and 31 reported on coronary artery bypass graft (CABG) surgeries. Ten hospitals had infection rates that were significantly lower than rates for the state overall, hospitals of the same size, or hospitals that report to CD, for at least one of the three procedures. Six hospitals had rates that were significantly higher than one of the three comparison groups.

Additional SSI data for the hospitals are shown in Table 6. The statewide infection rates were 1.1/100 surgeries for hip repair, 1.2/100 for abdominal hysterectomy and 1.9/100 for CABG surgery. These were just slightly lower than comparable rates for the prior reporting period (April 2007-March 2008), when the rates were 1.3/100, 1.3/100 and 2.0/100, respectively. When adjusted for severity of surgery, rates for all three surgery types were significantly lower than the U.S. infection rates reported by the CDC in 2008.<sup>2</sup>

#### Ambulatory Surgery Centers (ASCs)

Twenty-nine of the 93 Missouri ASCs that were open during the reporting period reported SSI data. Twenty ASCs were qualified to report on hernia repair surgeries and 19 reported on breast surgeries. Table 7 shows that the statewide rate per 100 surgeries was less than 1 for both types of surgeries. In addition, these rates are essentially the same as those reported in the 2008 annual report. For the two periods, SSI rates for hernia repair surgery were .10/100 and .14/100, while SSI rates for breast surgery were .23/100 and .26/100.

ASCs tend to perform less serious surgeries and have generally healthier patient populations than inpatient facilities. The relatively brief length of stay in the ambulatory setting reduces the patient 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 will not discover an infection until sometimes 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*

Fifty hospitals reported HOB elevation for one or more ICUs. As shown in Table 8, six reported on coronary ICUs, eight on surgical, 40 on medical/surgical, 11 on medical and 10 on a variety of other ICUs. The ideal is for every ICU to have appropriate HOB elevation for 100 percent of ventilator patients. None of the ICUs reached 100 percent for every reporting facility, but all averaged over 90 percent. The lowest were the coronary ICUs, where the average of the six reporting facilities was 93 percent. The remaining ICUs had averages of 95-96 percent. HOB elevation for individual facility/ICU combinations varied from 57 percent to 100 percent of ventilator patients. Twenty-three (46%) of the 50 hospitals reported 100 percent appropriate HOB elevation for at least one ICU.

### **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, CLAB infection data 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 making a judgment or a choice regarding 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. National Healthcare Safety Network (NHSN) Report, data summary for 2006 through 2007, issued November 2008. *J Infect Control* 2008; 36(9):609-626.
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.

**Figure 1: Missouri Healthcare-Associated Infection Reporting**

State of Missouri  
**DEPARTMENT OF HEALTH AND SENIOR SERVICES**

[DHSS Home](#) >> [H A I](#) >> Healthcare-Associated Infection Reporting

### Missouri Healthcare-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 (CLAB) infections 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](#).

- [Home](#)
- [Healthcare-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](#)

## 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 (CLAB) Infection - Hospitals only
- Surgical Site Infection (SSI) - Hospitals or ASCs
- Head-of-Bed Elevation (HOB) - Hospitals only

### Step Three

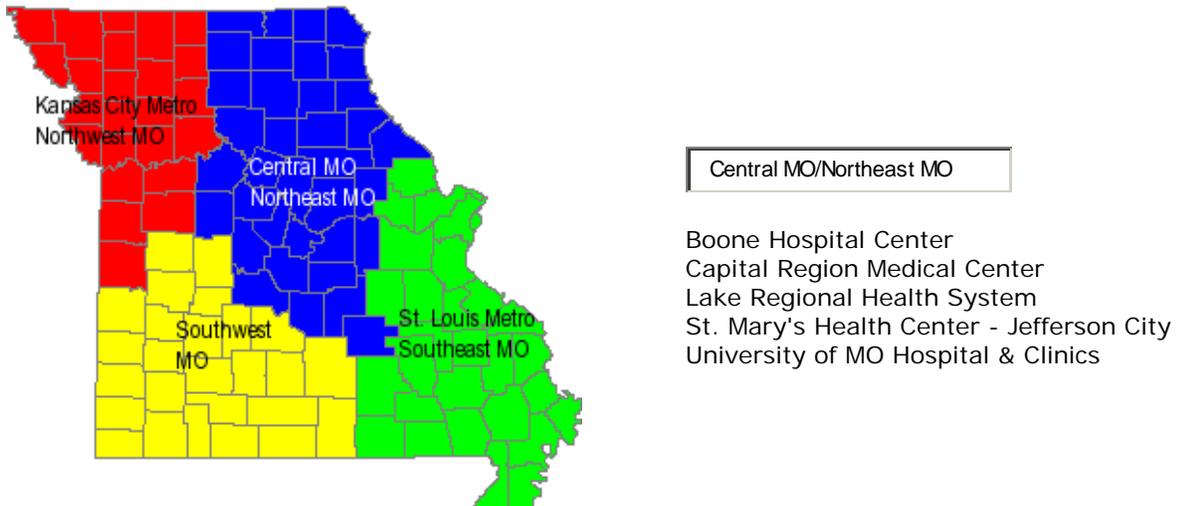
- Hospital
- ASC

### Step Four

Select Surgery Type:

### Step Five

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



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: 04/01/2008 - 03/31/2009

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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
<input type="checkbox"/> Boone Hospital Center	●	●	●	<a href="#">Data</a> <a href="#">Comments</a>
<input type="checkbox"/> Capital Region Medical Center	●	●	●	<a href="#">Data</a> <a href="#">Comments</a>
<input type="checkbox"/> Lake Regional Health System	●	●	●	<a href="#">Data</a> <a href="#">Comments</a>
<input type="checkbox"/> St. Mary's Health Center – Jefferson City	●	●	●	<a href="#">Data</a> <a href="#">Comments</a>
<input type="checkbox"/> University of MO Hospital & Clinics	●	●	●	<a href="#">Data</a> <a href="#">Comments</a>

● = 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: 04/01/2008 - 03/31/2009

[Previous Page](#), [Main Page](#)

<a href="#">Risk Group</a>	Number of Procedures	Number of Infections	Infection Rate (per 100 procedures)	Rate for Similar Size Hospital (per 100 procedures)	Statewide Infection Rate (per 100 procedures)	National Infection Rate (per 100 procedures)
1	300	4	1.3	1.9	1.8	3.0
2,3	33	0	0.0	2.8	2.5	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  
 Reporting Period: 04/01/2008 - 03/31/2009

[Main Page](#)

#### Central Line-Associated Bloodstream (CLAB) Infections

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			<a href="#">Data</a> <a href="#">Comments</a>
SURGICAL	NA/			<a href="#">Data</a> <a href="#">Comments</a>
NEONATAL	N/A			<a href="#">Data</a> <a href="#">Comments</a>

#### Surgical Site Infections (SSI)

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				<a href="#">Data</a> <a href="#">Comments</a>
CORONARY ARTERY BYPASS SURGERY				<a href="#">Data</a> <a href="#">Comments</a>
HIP PROSTHESIS				<a href="#">Data</a> <a href="#">Comments</a>

Continued on next page

## Table 3 Continued: Healthcare-Associated Infection Reporting

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### Head of Bed (HOB) Elevation Process Measure\*

Intensive Care Unit	Number of Patients on Ventilator	Number of Patients on Ventilator with Elevated <a href="#">HOB</a>	Percent of Patients with Elevated HOB	Hospital-Specific Information
MEDICAL	88	87	98%	<a href="#">Comments</a>
SURGICAL	108	108	100%	<a href="#">Comments</a>
<p>*Elevating the head of bed of patients who are on a ventilator helps to prevent ventilator-associated pneumonia.</p> <p>**The <a href="#">goal is 100 percent</a>. (The head of bed should be elevated 30 degrees for all qualifying patients who are on a ventilator.)</p>				

● = 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 2008-March 2009 Reporting Period**

Intensive Care Unit (ICU)	Number of ICUs	Statewide Infection Rate	U.S. Infection Rate <sup>1</sup>
MEDICAL/SURGICAL	56	1.3*	1.7
CORONARY	6	1.6	2.1
MEDICAL	12	1.7*	2.4
NEONATAL	15	1.8*	2.5
SURGICAL	8	2.1	2.3
PEDIATRIC (U.S. rate is for pediatric/medical/surgical)	7	2.4	2.8

<sup>1</sup>National Healthcare Safety Network (NHSN) Report, data summary for 2006-2007, issued November 2008.

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

Note: The state and national infection rates are the number of infections per 1000 central line-days. Intensive care units are in order by the statewide infection rate.

**Table 5: Comparison of Statewide Central Line-Associated Bloodstream (CLAB) Infection Rates by ICU and Reporting Period**

**Rates for Three Reporting Periods**

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

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

**April 2008-March 2009 Reporting Period**

Procedure	Number of Facilities	Adjusted* Statewide Infection Rate (per 100 Surgeries)	U.S. Infection Rate (per 100 Surgeries) <sup>1</sup>
HIP REPAIR	53	1.1**	1.5
ABDOMINAL HYSTERECTOMY	47	1.2**	1.7
CORONARY ARTERY BYPASS SURGERY	31	1.9**	3.4

<sup>1</sup>National Healthcare Safety Network (NHSN) Report, data summary for 2006-2007, issued November 2008.

\*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: Ambulatory Surgery Centers: Surgical Site Infection Summary Data by Surgery Type**

**April 2007-March 2008 and  
April 2008--March 2009  
Reporting Periods**

Procedure	Number of Facilities		Statewide Infection Rates (per 100 Surgeries)	
	2007-2008	2008-2009	2007-2008	2008-2009
HERNIA REPAIR	19	20	0.10	0.14
BREAST SURGERY	17	19	0.23	0.26

Note: National data for ASCs are not available.

**Table 8: Head of Bed Elevation Percentages  
by Intensive Care Unit**

**April 2008- March 2009 Reporting Period**

ICU	Number of Facilities	Number of Ventilator Patients*	Average** Percent of Ventilated Patients with HOB Elevation
CORONARY	6	820	93
SURGICAL	8	1904	95
MEDICAL/SURGICAL	40	7651	96
MEDICAL	11	2223	96
OTHER	10	3109	96

\* 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 six facilities reporting on coronary ICUs had HOB elevation percents of 88, 88, 93, 94, 96 and 97; the average of these six percents was 93, as reported in the table.

Note: No national percentages are available for comparison.