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 the data and describes the development of the infection data collection system and the public reporting site.

Data Collection

The infections selected for monitoring by hospitals include ventilator-associated pneumonias (VAPs), central line-associated bloodstream (CLAB) infections, and surgical site infections (SSIs) associated with procedures for abdominal hysterectomy, hip repair and bypass surgery. ASCs must report SSIs associated with procedures for hernia repair and breast surgery. Hospital intensive care units (ICUs) have been reporting CLAB infections to the department since July 2005. Collection of data on SSIs from hospitals and ASCs began in January 2006. Reporting of VAPs has yet to begin. The DHSS and its advisory panel are researching the kind of data that would be both reliable and useful to the public.

Reporting to the Public

The DHSS has developed an interactive public website. The website initially will report the CLAB infection rates for July 2005-March 2006. A full 12 months of data will be displayed in the spring of 2007. As each new quarter of SSI and CLAB data become available, the earliest quarter will be deleted and the latest quarter will be added to form the most current 12 months of data for viewing.

Data Summary

A total of 114 ICUs from 77 hospitals reported CLAB infection data during the initial reporting period. Seven hospital ICUs had rates that were significantly higher than the state or national rate. Seventeen ICUs had rates that were significantly lower than the state or national rate. The average *number* of infections for an ICU ranged from 1.9 to 8.7. The average infection *rate* ranged from 1.8 per 1000 central line days for coronary ICUs to 5.7 per 1000 central line days for pediatric ICUs.

Cautions

HAI rates for individual hospitals are affected by each hospital's level of resources and commitment to infection control, as well as the care with which they collect and report their data. Also, a facility that treats severely ill patients will naturally be at higher risk of HAIs. A consumer who is trying to select a facility for healthcare should consider the experience of the staff, the advice of their physician, and all other factors that are unique to his or her situation, in addition to the infection data reported on this website.

Next Steps

Once the appropriate VAP measures are selected and routinely reported, they will enhance the consumer's ability to make good choices about their healthcare.

Report to Governor Matt Blunt and the General Assembly
Implementation of the Missouri Nosocomial Infection Reporting Act of 2004
Revised RSMo 192.667 19 CSR 10-33.050

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 seriously aggravate a patient's illness, lengthen hospital stays, and, in some instances, 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, states that in hospitals alone, HAIs account 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 will lead to a decrease in HAIs in Missouri. Among other stipulations, 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 submit a report to the governor and members of the general assembly. According to section 14, "Reports published pursuant to subsection 12 of this section shall be published on the department's Internet website. The initial report shall be issued by the department not later than December 31, 2006. The reports shall be distributed at least annually to the governor and members of the general assembly." Rather than including copies of every table from the website (www.dhss.mo.gov/HAI), this report summarizes the data and presents and explains representative tables. This report also describes the development of the infection data collection system and the public reporting site.

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 (RSMo 192.667).

To develop the data collection system, the DHSS worked with the Centers for Disease Control and Prevention (CDC), the Missouri Hospital Association, the Missouri Ambulatory Surgery Center Association and an advisory panel. The advisory panel includes a statistician, a microbiologist and representatives of consumers, physicians, infection control professionals and regulators.

Since October 2004, four meetings have been held with the advisory panel to discuss which procedures and infections should be monitored. Because it was not feasible in the required time frame to collect and report data on all HAIs, a step-wise approach was taken. Infections related to a few serious procedures were chosen for reporting. The selected infections are monitored by

the CDC, they tend to be reported by all types of facilities, and they are good indicators of problems a facility may have with other types of infections. There is consensus on how these infections are identified and counted, and there are accepted methods that a hospital can use to reduce the frequency of these infections.

Reporting differs for hospitals and ASCs. The infections selected for monitoring by hospitals include ventilator-associated pneumonias (VAPs), central line-associated bloodstream (CLAB) infections, and surgical site infections (SSIs) associated with procedures for abdominal hysterectomy, hip repair and bypass surgery. ASCs must report SSIs associated with procedures for hernia repair and breast surgery. To provide denominators for the infection rates, facilities must report each of the selected procedures regardless of whether an infection occurs in conjunction with a particular procedure. Because patients in intensive care units are particularly at risk of HAIs, hospital reporting of CLAB infections is done for one or more of six specific intensive care units (ICUs): medical, surgical, medical/surgical, coronary, neonatal and pediatric. The SSIs are reported by facility rather than ICU.

To ensure that the data being collected are reliable, the DHSS established reporting requirements for the facilities. In establishing the requirements for hospitals, Missouri has followed the lead of the CDC. For CLAB infections, only hospitals that had at least 50 central line-days in the prior year must report during the current year. For SSIs, hospitals and ASCs must report if they performed at least 20 of the specific surgeries in the prior year.

Because the reporting rule allows hospitals to report either to the CDC or to the DHSS, the DHSS worked with the Information Technology Services Division to develop an internal system for gathering facility data--the Missouri Healthcare-Associated Infection Reporting System (MHIRS). MHIRS is a web-based system that allows facilities to enter HAI data directly into a DHSS database each month (See Appendix 1 for a sample hospital reporting form).

Registration for MHIRS reporting by hospitals and ASCs occurs annually in March-April. Facilities report their primary and secondary contacts, the number of central line-days per ICU and the number of reportable surgeries during the preceding calendar year. After the registration period, the DHSS determines which facilities will be required to report on each of the specified ICUs and surgeries.

Hospitals have been reporting CLAB infections to the department since July 2005. Each month hospitals report the number of CLAB infections in each ICU, as well as the number of patients per day on a central line. Collection of data on SSIs from hospitals and ASCs began in January 2006. Reporting of VAPs has yet to begin. Because hospitals do not use a standard method of diagnosing VAPs, the DHSS and its advisory panel are researching the kind of data that would be both reliable and useful to the public.

Reporting to the Public

At the end of the 12-month reporting period, and before the data are made public, the DHSS arranges for each facility to review its data as it will be displayed to the public. The facilities check the data for accuracy and are also invited to submit comments for the viewing public. To report HAI data to the public, the DHSS has developed an interactive public website. The site

imports data directly from the MHIRS database and formats it for display based on the user's choice of region of the state, facility type and HAI category.

The website initially will report the CLAB infection rates for July 2005-March 2006. Due to the time and effort required for the many activities involved (determining which infections and procedures should be monitored, writing the rule, programming and testing both a data collection system and a web-based reporting system, and having the infection data reviewed by both the DHSS and the hospitals), only the first nine months of data could be readied by the December 31 deadline. A full 12 months of data will be displayed in the spring of 2007. SSI data that are currently being collected from the hospitals and ASCs will also be displayed at that time. As each new quarter of SSI and CLAB data become available, the earliest quarter will be deleted and the latest quarter will be added to form the most current 12 months of data for public viewing.

Page six of this report 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 RSMo 192.667 and related chapters and regulations, and allows the user to view the manuals and forms used by the facilities to report their data.

Page seven of this report is the main selection page. Users can choose to view results for all reporting ICUs for a hospital, or to view results for one of the six ICUs for all reporting hospitals in a region of the state. Passing the computer mouse over a region produces a list of the reporting hospitals. A link at the bottom of the page explains that hospitals do not appear on the list if they had too few central line-days to qualify for reporting.

Page eight of this report shows the 'Hospital Comparison' table. The table displayed is the result of selecting 'Neonatal' as the ICU and 'St Louis Metro-Southeast MO' as the region. Using small circular symbols, the CLAB infection rate for each hospital's ICU is compared to that of statewide and national reference groups. The symbols (◒,○,●) indicate whether the ICU reported an infection rate that was similar to, higher than, or lower than, either the national rate as reported by the CDC, or the statewide rate for all reporting neonatal ICUs. Users can select the '[+]' to the left of the hospital's name to display the hospital's address, telephone number and web address. Selecting 'Comments' in the last column of the table will display any comments the hospital has submitted regarding its data. As described below, the aggregate infection data are displayed if the user selects 'Data' in the last column of the table.

Page nine of this report shows the result of selecting 'Data' for SSM Cardinal Glennon Children's Hospital. Cardinal Glennon reported 5825 central line-days (CLDs) and seven CLAB infections for the nine-month reporting period. This represents a rate of 1.2 infections per 1000 CLDs ((7 X 1000)/5825). The CLAB rate for neonatal ICUs for all reporting hospitals was 2.9 per 1000 CLDs. The national rate for neonatal ICUs, as reported by the CDC in 2004,[1] was 6.4

per 1000 CLDs. The solid circles on page six indicate that Cardinal Glennon's rate was significantly lower than both the state rate and the national rate.

Users can also select a particular hospital to profile. Page ten of this report shows the profile for Lester E. Cox Medical Center South. Cox reported CLAB infection data for the four ICUs displayed. The solid circle indicates their surgical ICU had a CLAB infection rate that was lower than the national rate. When 'Data' for this ICU is selected, the statistics on page eleven are displayed. They show that Cox's CLAB infection rate was 1.2 per 1000 CLDs and the national rate was 4.6 per 1000 CLDs.

Data Summary

A total of 114 ICUs from 77 hospitals reported CLAB infection data during the initial reporting period. Seven hospital ICUs had rates that were significantly higher than the state or national rate. Sixteen ICUs had rates that were significantly lower than the state or national rate.

Data for all reporting hospital ICUs are summarized in Table 1 on page twelve of this report. Seven pediatric and eight surgical ICUs were required to report by virtue of having at least 50 CLDs in the prior year. In contrast, 62 hospitals with medical/surgical ICUs had to report. The average *number* of infections ranged from 1.9 to 8.7. The average infection *rate* ranged from 1.8 per 1000 CLDs for coronary ICUs to 5.7 per 1000 CLDs for pediatric ICUs. Compared to the national rates reported by the CDC for prior years, all but the pediatric ICU rates were significantly lower. (The CDC rates represent hospitals that voluntarily submitted data to the CDC's nosocomial infection surveillance system; current rates from a representative national sample might be quite different.)

Cautions

The results in Table 1 and the rates for individual hospitals on the public site are affected by each hospital's level of resources and commitment to infection control, as well as the care with which they collect and report their 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 the facility's advantage to accurately diagnose and monitor all health care-associated 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 naturally be at higher risk for HAIs. In order to mitigate this bias, the DHSS has reported hospital results separately for each type of ICU. Additionally, results are reported according to the size of the hospital for those hospitals with medical/surgical ICUs, the most prevalent type of ICU. While these adjustments help to make the data between hospitals more comparable, users of the data should understand that these adjustments are not completely successful. 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.

Next Steps

The DHSS has collected SSI data from hospitals and ASCs since January of 2006. These data will be added to the public reporting site in the spring of 2007. As noted earlier, the DHSS is working with its advisory panel and other experts to determine what data should be collected for ventilator-associated pneumonias (VAPs). Once the appropriate VAP measures are selected and routinely reported, they will enhance the consumer's ability to make good choices about their healthcare.

DHSS Home | State Home | Ask Us

Thursday, December 14, 2006

State of Missouri
DEPARTMENT OF HEALTH AND SENIOR SERVICES

Site Search Search

DHSS Home >> kstest >> noso_rel2 >> Healthcare-Associated Infection Reporting

- Home
- Healthcare-Associated Infections
- Instructions for Using this Site
- Infection Reporting Data
- Definition of Terms
- Frequently Asked Questions
- Laws, Regulations & Manuals
- Related Links
- Contact Us

Missouri Healthcare-Associated Infection Reporting

Healthcare-Associated Infections (HAIs), also known as nosocomial infections, continue to be a major health problem in the United States. HAIs can be very serious, increasing the cost and length of your hospital stay and even threatening your life.

In Missouri, hospitals and ambulatory surgery centers (ASCs) are required by **state law and regulation** to report selected HAI data. The reported infection data are available, by facility, on this web site. Currently, data are reported for one category of HAIs, referred to as central line-associated bloodstream (CLAB) infections. In the near future, information on surgical site infections (SSI) will be added.

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 a HAI.

It should be emphasized that a facility's experience with HAIs is only one piece of information that you should consider in choosing a facility. The advice of your physician, the experience of the hospitals and surgeons, and other factors unique to your situation need to be considered as well.

Please review the **Instructions for Using this Site**, **Definition of Terms**, and other information listed on the left bar of this page to help you understand the data tables displayed on this site. If you have been to this site previously, you may want to go directly to the **Infection Reporting Data**.

DHSS Home | State Home | Ask Us

Thursday, December 14, 2006

State of Missouri
DEPARTMENT OF HEALTH AND SENIOR SERVICES

Site Search Search

DHSS Home >> kstest >> noso_rel2 >> Healthcare-Associated Infection Reporting

- Home
- Healthcare-Associated Infections
- Instructions for Using this Site
- Infection Reporting Data
- Definition of Terms
- Frequently Asked Questions
- Laws, Regulations & Manuals
- Related Links
- Contact Us

Missouri Healthcare-Associated Infection Reporting

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

Note: ASC data are not yet available.

Step One: Select information type.

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

Step Two: Select a reporting category.

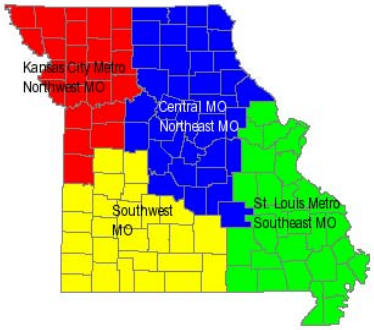
- (•) Central Line-Associated Bloodstream (CLAB) Infection - Hospitals only
- ( ) Surgical Site Infection (SSI) - Hospitals or ASCs **Note: Data not yet available**
- ( ) Ventilator-Associated Pneumonia (VAP) - Hospitals only **Note: Data not yet available**

Step Three: Select type of intensive care unit (ICU).

Medical/Surgical

Step Four

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



Southwest MO

Citizens Memorial Hospital
Cox Medical Center North
Freeman Health System - West
Freeman Neosho Hospital
Golden Valley Memorial Hospital
McCune - Brooks Hospital
Nevada Regional Medical Center
Ozarks Medical Center
Skaggs Community Health Center
St. John's Regional Medical Center - Joplin
Texas County Memorial Hospital

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

Central Line-Associated Bloodstream (CLAB) Infection Hospital Comparison

Location: Hospital Neonatal ICUs
Region: St. Louis Metro - Southeast MO
Reporting Period: 07/01/2005 - 03/31/2006
Main Page

Hospital Name	Hospital Infection Rate Compared with Similar Size Hospitals in Missouri	Hospital Infection Rate Compared with All Missouri Hospitals	Hospital Infection Rate Compared with Hospitals in U.S.	Hospital-Specific Information
⊞ Missouri Baptist Medical Center	N/A	◒	◒	Data Comments
⊞ Saint Francis Medical Center	N/A	○	○	Data Comments
⊞ Southeast Missouri Hospital	N/A	◒	◒	Data Comments
⊞ SSM Cardinal Glennon Children's Hospital	N/A	●	●	Data Comments
⊞ SSM St. Mary's Health Center	N/A	◒	●	Data Comments
⊞ St. John's Mercy Medical Center	N/A	●	●	Data Comments
⊞ St. Louis Children's Hospital	N/A	○	◒	Data Comments

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

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

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

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

Note: The above comparisions are based on significance tests.

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

Healthcare-Associated Infection Reporting

DHSS Home | State Home | Ask Us

2006-12-15

Central Line-Associated Bloodstream (CLAB) Infection Infection Rates

Location: SSM Cardinal Glennon Children's Hospital ICU
Region: St. Louis Metro - Southeast MO
Reporting Period: 07/01/2005 - 03/31/2006

Previous Page, Main Page

Intensive Care Unit (ICU)	Central Line-Days (CLDs)	Number of Hospital Infections	Hospital Infection Rate (per 1000 CLDs)	Rate for Similar Size Hospitals (per 1000 CLDs)	Statewide Rate (per 1000 CLDs)	National Rate (per 1000 CLDs)
NEONATAL	5825	7	1.2	N/A	2.9	6.4

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

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.

Healthcare-Associated Infections Reporting

Lester E Cox Medical Center South
Profile

Facility Name: Lester E Cox Medical Center South
Region: Southwest MO
Reporting Period: 07/01/2005 - 03/31/2006
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	◒	◒	Data Comments
PEDIATRIC	N/A	◒	◒	Data Comments
SURGICAL	N/A	◒	●	Data Comments
NEONATAL	N/A	◒	◒	Data Comments

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

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

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

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

Healthcare-Associated Infection Reporting

DHSS Home | State Home | Ask Us

2006-12-15

Central Line-Associated Bloodstream (CLAB) Infection Infection Rates

Location: Lester E Cox Medical Center South ICU
Region: Southwest MO
Reporting Period: 07/01/2005 - 03/31/2006

Previous Page, Main Page

Intensive Care Unit (ICU)	Central Line-Days (CLDs)	Number of Hospital Infections	Hospital Infection Rate (per 1000 CLDs)	Rate for Similar Size Hospitals (per 1000 CLDs)	Statewide Rate (per 1000 CLDs)	National Rate (per 1000 CLDs)
SURGICAL	1695	2	1.2	N/A	2.7	4.6

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

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 1

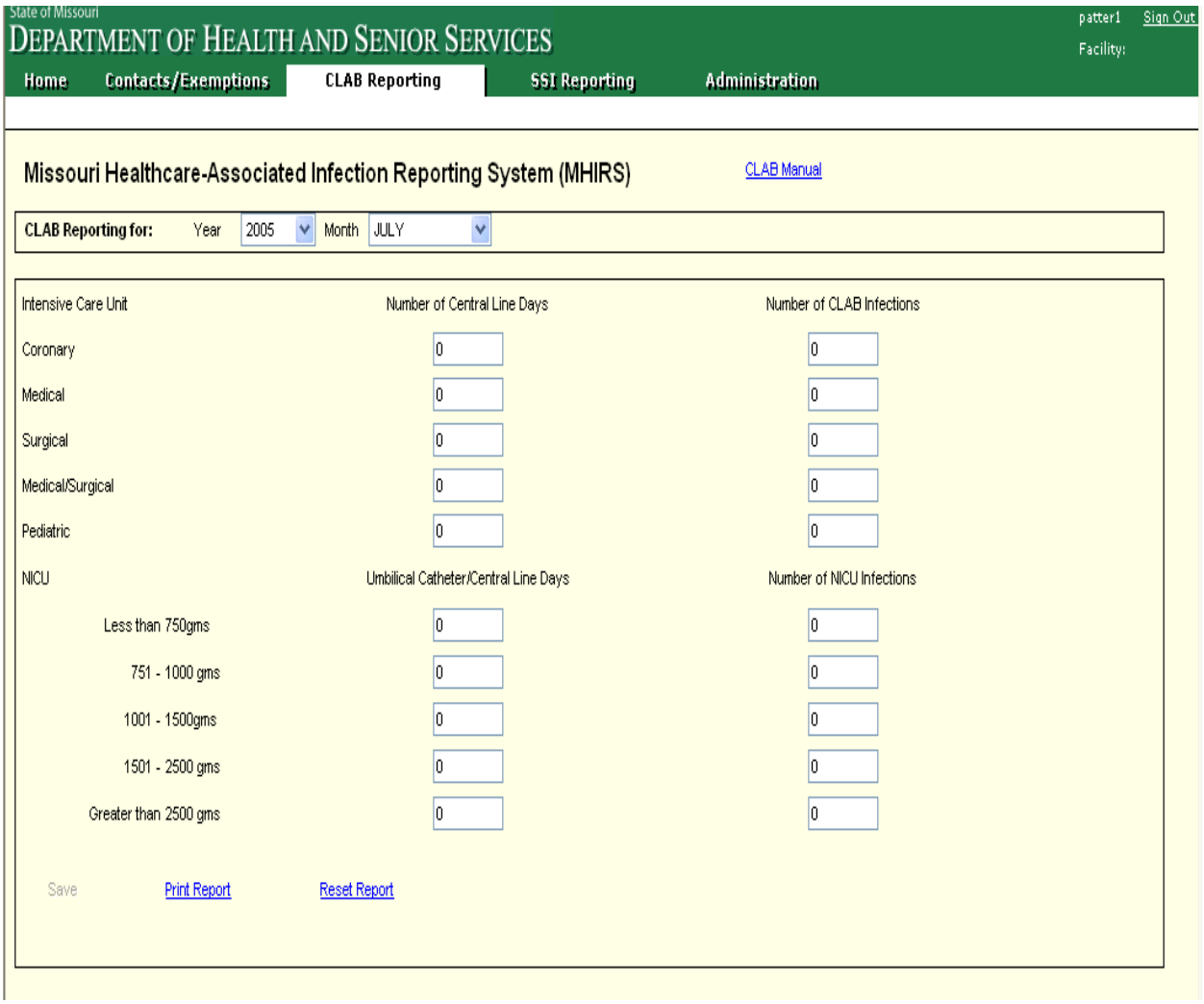
Central Line-Associated Bloodstream Infection Summary by Intensive Care Unit
July 2005- March 2006 Reporting Period

Intensive Care Unit	# of Hospitals	Mean # of Infections	Mean # of Central Line Days	State Infection Rate	U.S. Rate [1]
Coronary	11	1.9	1030	1.8*	3.5
Medical/Surgical	62	2.8	1020	2.7*	3.6
a. under 100 beds	11	7.2	2270	2.6	
b. 100-299 beds	33	2.5	880	2.9	
c. 300+ beds	18	0.6	211	2.9	
Medical	11	3.5	1358	2.5*	5.0
Surgery	8	5.6	2113	2.7*	4.6
Neonatal	15	6.8	2324	2.9*	6.4
Pediatric	7	8.7	1536	5.7	6.6

1. National Nosocomial Infections Surveillance (NNIS) System Report, data summary from January 1992 through June 2004, issued October 2004. Am J Infect Control 2004; 32:470-485.

* Significantly different from the U.S. rate.

Note: The infection rate is the number of infections per 1000 central line days.
Intensive care units are in order by infection rate.


State of Missouri
DEPARTMENT OF HEALTH AND SENIOR SERVICES
patter1 Sign Out
Facility:
Home
Contacts/Exemptions
CLAB Reporting
SSI Reporting
Administration
Missouri Healthcare-Associated Infection Reporting System (MHIRS)
CLAB Manual
CLAB Reporting for: Year 2005 Month JULY
Intensive Care Unit
Number of Central Line Days
Number of CLAB Infections
Coronary 0 0
Medical 0 0
Surgical 0 0
Medical/Surgical 0 0
Pediatric 0 0
NICU
Umbilical Catheter/Central Line Days
Number of NICU Infections
Less than 750gms 0 0
751 - 1000 gms 0 0
1001 - 1500gms 0 0
1501 - 2500 gms 0 0
Greater than 2500 gms 0 0
Save
Print Report
Reset Report