State of Colorado
Status Report on the Health Facility-Acquired Infections Disclosure Initiative

January 14, 2011

Submitted to the Colorado General Assembly
By the Health Facilities and Emergency Medical Services Division of the Colorado Department of Public Health and Environment

Colorado Department of Public Health and Environment

Title:	Report to the Legislature Concerning the Status of the Health Facility-Acquired Infections Disclosure Initiative.
Principal Author:	Sara Reese, Patient Safety Program Coordinator, Health Facilities and Emergency Medical Services Division
Contributing Authors:	Tamara Hoxworth, Quality Improvement Specialist, Patient Safety Program, Health Facilities and Emergency Medical Services Division
	Kirk Bol, Statistician in the Health Statistics Section, Center for Health and Environmental Information and Statistics Division
	Karen Rich, Public Health Nurse Consultant, Patient Safety Program, Health Facilities and Emergency Medical Services Division
	Juan Suazo, CDC Public Health Prevention Specialist Fellow, Health Facilities and Emergency Medical Services Division
	Colorado Health Facility-Acquired Infections Advisory Committee
Subject:	Report on Colorado's health facility-acquired infections disclosure initiative
Statute:	25-3-601, C.R.S (HB 06 1045)
Date:	January 14, 2011
Number of pages:	127
For additional information or copies	Patient Safety Program, Health Facilities and Emergency Medical Services Division Colorado Department of Public Health and Environment 4300 Cherry Creek Drive South Denver, CO 80246-1530 303-692-2800 cdphe.hfpatientsafety@state.co.us http://www.cdphe.state.co.us/hf/PatientSafety/index.html

Executive Summary

This report presents data from hospitals, long-term acute care hospitals, ambulatory surgery centers and dialysis treatment centers concerning health facility-acquired infections. Health facility-acquired infections are infections acquired in healthcare facilities by patients receiving care for separate conditions and include surgical site infections, central line-associated bloodstream infections, and dialysis-associated infections.

Health facilities report infection data through the National Healthcare Safety Network (NHSN[1]), a national web-based surveillance and reporting system, managed by the Centers for Disease Control and Prevention (CDC). Each facility's infection rates are compared to national rates for specific surgical procedures or devices (i.e., central lines or dialysis access types) and through statistical analysis, are determined to be better, worse, or the same as the national rate.

This is the third year of data reporting for hospitals, the second year for long-term acute care hospitals and ambulatory surgery centers, and the first year for dialysis treatment centers. It takes time for facilities to learn the National Healthcare Safety Network reporting system and there is potential for inconsistencies in how facilities report their data. Therefore, it is recommended that conclusions regarding healthcare quality not be based on these data alone, but instead, in conjunction with other quality indicators. Consumers should always consult with doctors, healthcare facilities, health insurance carriers, other reports (such as the Hospital Report Card), healthcare websites from reputable sources, and with their families and friends before deciding where to receive care. In doing so, multiple quality indicators should be considered including a facility's history, reputation, staff experience, and published healthcare indicators. In 2010, the Patient Safety Program began data validation efforts and additional outreach activities to facilities with the intent to improve the consistency and accuracy of reported infection data. It is hoped that facilities use the resulting data to target and improve health facility-acquired infection prevention efforts and that consumers apply the data to their healthcare-related decisions.

Table of Contents

Introduction

This report was written to fulfill the reporting requirements set forth in Colorado Revised Statute title 25, article 3, Part 6, the Hospital-Acquired Infections Disclosure Act. The Colorado General Assembly passed the Hospital-Acquired Infections Disclosure Act (House Bill 06-1045), in May 2006. Representative Bob McClusky and Senator Maryanne Keller sponsored this bill. This bill requires hospitals, including long-term acute care hospitals, hospital units, ambulatory surgery centers, and dialysis treatment centers to report health facility-acquired infections (HAI) data as a condition of their state licensure.

The Colorado Department of Public Health and Environment (the Department) is the lead state agency administering the Disclosure Act and is responsible for program implementation, oversight and reporting. The legislation required the Department's executive director to appoint an eleven–member, volunteer, HAI advisory committee to assist with these responsibilities.

The Disclosure Act also requires the Department to produce an annual report disclosing HAI data submitted by Colorado health facilities. This report is the fourth annual report published by the Department and is due to the Health and Human Services Committees of the Colorado Senate and House of Representatives by January 14, 2011.

This report presents information about Colorado's Disclosure Act, including details regarding reporting requirements, processes and limitations; information about the Patient Safety Program; and infection data on surgical site infections, central line-associated bloodstream infections, and dialysis-related infections. Surgical site infection data are reported by hospitals and ambulatory surgery centers for the following surgeries: coronary artery bypass grafts with both chest and donor site incisions, coronary artery bypass grafts with chest incisions only, hip prostheses (total and partial), knee prostheses (total and partial), hernia repairs (herniorrhaphies), and abdominal and vaginal hysterectomies.

Central line-associated bloodstream infections (CLABSI) are reported by Adult Critical Care Units, Neonatal Critical Care Units, and Long-Term Acute Care Hospitals. Adult units include adult medical/surgical critical care, medical cardiac critical care, surgical cardiothoracic critical care, medical critical care, and surgical critical care. Neonatal critical care units report central line and umbilical catheter infections for level II/III and level III hospital care settings.

Dialysis treatment centers report dialysis-related infections including local access infections and vascular bloodstream infections from the following access types: fistulas, grafts, temporary and permanent central lines.

Health Facility-Acquired Infections Disclosure Law Overview

Health facility-acquired infections (HAI) are infections that occur during or after treatment for a separate medical condition in a health facility. The occurrence of HAIs is a growing concern among healthcare consumers, purchasers and providers. As consumer demand for public reporting of healthcare quality information has increased, policymakers nationwide have acknowledged the need for publishing HAI data in consumer focused healthcare quality reports. This acknowledgement has led 29 states to pass laws requiring mandatory public reporting of HAIs since 2004.[2] Colorado's Hospital-Acquired Infections Disclosure Act (House Bill 06-1045) was passed in May 2006.

This law requires hospitals, including long-term acute care hospitals (LTACH), hospital units, ambulatory surgery centers (ASC), and dialysis treatment centers (DTC) to report HAI data as a condition of their state licensure. The law also calls for physicians to ensure that infections diagnosed during follow-up visits are reported back to the facilities where procedures were performed.

Experts in the field of infection control, including the Centers for Disease Control and Prevention (CDC), have found that many procedures are performed in facility locations that have low infection rates. These experts recommend that health facilities not collect overall facility infection rates as this could divert resources from infection prevention in higher risk locations.[3,4,5,6]

Thus, the Colorado law does not ask health facilities to report infections based on specific types of organisms (e.g., Methicillin-Resistant *Staphylococcus aureus* or MRSA) or to report overall facility infection rates. Instead, the Law requires facilities to report infections acquired in specific facility locations, during specific surgical procedures, or from the use of specific devices (such as central lines and dialysis catheters). This report presents infection information grouped by procedure and/or device rather than organism type. It is hoped that information presented in this way can be utilized more readily by health facilities to target infection prevention and healthcare process improvements.

Another requirement of Colorado's Disclosure Law is for targeted health facilities to enter their HAI data into the National Healthcare Safety Network (NHSN[1]). NHSN is a national, electronic, web-based reporting system, managed by the CDC. Its use can improve reporting consistency by ensuring that reporting facilities use standard definitions and reporting rules, allowing facilities' reported HAI data to be compared to national rates and be more easily understood by the public and other healthcare facilities.

Although many health facilities collected and tracked HAI data for decades, the information had not been released to the public until the implementation of state disclosure laws. In light of the recent passage of the Centers for Medicare and Medicaid Services (CMS) Rule for public disclosure of HAI, it is expected that HAI reporting will increase dramatically over the next several years.

Health Facility-Acquired Infections Disclosure Law Implementation

Implementing Colorado's HAI disclosure law involves five main functions, as described below:

1. Appointing and coordinating an HAI advisory committee
2. Selecting clinical metrics
3. Providing technical assistance
4. Evaluating the initiative
5. Reporting results

1: Appointing and Coordinating an HAI Advisory Committee

Colorado's Disclosure Law required the Department's executive director to appoint an eleven-member HAI advisory committee, the Colorado Health Facility-Acquired Infection Advisory Committee (COHFAIAC; see committee composition in Appendix A). Many of the Disclosure Law's elements were determined by the committee, and the Law mandated that the committee assist the Department with its implementation and oversight, the selection of clinical metrics, assurance of data quality, and development and distribution of reports.

The initial committee members were selected and notified of their appointments in March 2007 and the first meeting was held in April 2007. While the Law requires the committee to meet at least four times per year, members have opted to meet monthly since 2007. The committee has provided the Department with invaluable expertise, and it will continue to play a pivotal role in evaluating the quality and accuracy of reported data, and in determining and evaluating future projects of the Patient Safety Program.

2: Selecting Clinical Metrics

The second function in implementing Colorado's Disclosure Law is the selection of metrics that health facilities report. The Department and the advisory committee were limited in their selection of metrics by the following factors:

- The legislation required health facilities to collect HAI data for specific clinical procedures, including a cardiac (heart) surgery, an orthopedic (skeletal) surgery, an abdominal surgery and infections related to central line (tube in vein) devices, and;
- The metrics had to be supported by the NHSN reporting system.

In implementing the selected metrics, the Department applied a recommendation by the federal Healthcare Infection Control Practices Advisory Committee (HICPAC) to gradually implement any new public reporting system by incrementally introducing new reporting requirements. Healthcare Infection Control Practices Advisory Committee, which is considered to be the nation's expert in infection control, serves as the advisory committee to the CDC and the Secretary of the Department of Health and Human Services (HHS). Their recommendation was based on experiences showing that implementing reporting systems too quickly often contribute to data misinterpretation and overall poor data quality.

Table 1 below depicts the yearly implementation of Colorado's selected reporting metrics.

Table 1: Implementation of Reporting Requirements

2007	2008	2009	2010
Central lines in select CCUs (August 2007)	All 2007 metrics	All 2007 and 2008 metrics	All 2007, 2008 and 2009 metrics
Hip prosthesis (partial and total) (August 2007)	Central lines in Long-Term Acute Care hospitals (August 2008)	Abdominal Hysterectomies (August 2009)	
Knee prosthesis (partial and total) (August 2007)	Hernia repair (October 2008)	Vaginal Hysterectomies (August 2009)	
Coronary artery bypass grafts with chest and donor site incisions (August 2007)	Ambulatory Surgery Centers (October 2008)		Dialysis Treatment Centers (March 2010)
Coronary artery bypass grafts with chest incisions only (August 2007)			

Surgical Site Infection Reporting Metrics

Surgical site infections (SSI) are infections directly related to surgeries. The surgeries monitored for SSIs in Colorado include cardiac, orthopedic, and abdominal surgeries. These surgeries were selected to monitor because they are high volume procedures associated with SSIs that can have devastating health-related and financial impacts on patients' lives. They are also costly for consumers and healthcare payers. It is noteworthy that most SSIs from these types of surgeries can be prevented by following established prevention techniques, and can be easily detected and reported accurately. Moreover, since these types of surgeries are performed at numerous and varied health facilities in Colorado, consumers have an increased opportunity to choose where they receive treatment.

The SSI data presented in this report include SSI rates. These rates, which allow comparisons to other facilities and to national rates, account for differences in patients' HAI risk factors based on physical condition, length of the surgery, and type of surgical wound.

Central Line-Associated Bloodstream Infection Reporting Metrics

Central line-associated bloodstream infections (CLABSI) are primary bloodstream infections associated with the presence of a central line in adults, or with a central line or umbilical catheter (tube in umbilical cord) in neonates (infants in the first 28 days of life), at the time of or before the onset of the infection. A central line is an intravascular catheter (tube in a vein) that terminates at or close to the heart or in one of the great vessels. An example of a great vessel is the aorta or superior vena cava. A central line can be used to infuse fluids, withdraw blood, or monitor fluid volume in a patient. Central lines can be either temporary or permanent.

Like SSIs, CLABSIs have devastating impacts on patients' lives and are costly for patients, healthcare payers, health facilities and consumers. Also like SSIs, they can be prevented by following established prevention techniques and can be easily detected and reported accurately.[5,7] In Colorado, CLABSIs are monitored in the following healthcare facility locations: 1. Adult critical care units; 2. Neonatal critical care units, and; 3. Long-term acute care hospitals (LTACH). When reported, CLABSIs are reported out separately by unit type, which enables fairer comparisons between health facilities. Reporting by unit takes into account the differences in patients treated in units offering various levels of care. Specifically, reporting this way accounts for differences in patients' HAI risk factors based on their physical conditions and treatment regimens.

In August 2010, the Patient Safety Program initiated a validation study of CLABSI data entered into NHSN. See Appendix B for the validation study methods and preliminary results.

Dialysis-Related Infection Reporting Metrics

Colorado's Disclosure Law requires the reporting of infections in patients receiving hemodialysis. Hemodialysis is a method for removing waste products and fluid from a patient's blood when the kidneys are in failure. Because of frequent hospitalizations and receipt of antimicrobial drugs, hemodialysis patients are at high risk for infection with drug-resistant bacteria.

In 2007, over 340,000 patients in the United States were treated with chronic hemodialysis. Hemodialysis patients require a vascular access, which can either be a large blood vessel or catheter that can be punctured to remove and replace blood. Bloodstream infections (bacteremias) and localized infections of the vascular access site are common in hemodialysis patients. The vascular access types, ordered according to increasing risk of infection, include arteriovenous fistulas (an abnormal connection or passageway between two vessels that normally do not connect) created from the patient's own blood vessels, arteriovenous grafts, often constructed from synthetic materials, tunneled (permanent) central lines, and non-tunneled (temporary) central lines. Port access devices for hemodialysis have been removed from the market, but some existing ports are still in use. The risk of infection is relatively high in these devices. See Appendix C for detailed descriptions of the dialysis access types.

Colorado is the first state in the nation to implement mandatory reporting of dialysis-related infections (DRI), and the first state to use NHSN to formally report DRIs.

Surveillance for DRIs in Colorado occurs within outpatient hemodialysis centers only and excludes peritoneal and home dialysis. The outpatient facilities monitored may be dedicated, stand-alone facilities, hospital-based or affiliated units that primarily serve this patient population. The reporting of DRI began in March 2010, and currently, there are 60 dialysis centers reporting to NHSN.

3: Providing Technical Assistance

The Department and the advisory committee members continue to work with Colorado health facilities to educate them about the Disclosure Law's legislative requirements, and on the NHSN reporting system, including their own reporting roles and responsibilities. The education provided includes an explanation of the Disclosure Act, training and one-on-one technical assistance on the NHSN system, and specific training related to CLABSIs, SSIs, and DRIs, reinforcing criteria, definitions, and compliance monitoring details.

The Department has partnered with several professional organizations to help implement the disclosure initiative. The Colorado Hospital Association, the Colorado Mile High Chapter of the Association for Professionals in Infection Control and Epidemiology (APIC[2]), the

Colorado Ambulatory Surgery Center Association and the End Stage Renal Disease Network 15 have helped the Department recruit committee members, train health facilities, and disseminate important information to their membership base.

The Department also has developed a Patient Safety Program webpage[8] on the Department website. The website is used to disseminate information to health facilities and the public regarding the initiative, the advisory committee and general health facility-acquired infections educational resources.

Participating Facilities

This bill requires hospitals, including long-term acute care hospitals (LTACH), hospital units, ambulatory surgical centers (ASC) and dialysis treatment centers (DTC) to report HAI data to the NHSN as a condition of their state licensure. As of December 2010, Colorado holds licenses for 88 hospitals, 3 hospital units, 108 ASCs and 60 DTCs, totaling 259 facilities targeted for reporting. Of the 91 hospitals and hospital units, 79 have indicated they perform procedures selected for reporting. Of the 108 ASCs, only 44 have indicated they perform any of the procedures selected for reporting. All 60 DTCs are reporting into the NHSN. Although not all facilities are currently reporting, the Department must still monitor and educate all 259 facilities regarding the initiative.

Long-term acute care hospitals began reporting in August of 2008. Long-term acute care hospitals are facilities that provide acute care services to patients suffering medically complex conditions, or patients who have suffered recent catastrophic illness or injury and require an extended stay in an acute care environment.

Ambulatory Surgery Centers began to report through the NHSN in October 2008. Ambulatory surgical centers are healthcare facilities that specialize in providing surgery in an outpatient setting. Usually procedures performed in ASCs are procedures that are more extensive than those done in a doctor's office but do not require a hospital stay.

Dialysis Treatment Centers began reporting through the NHSN in March 2010. Dialysis Treatment Centers provide hemodialysis services to patients with chronic kidney failure due to diabetes, high blood pressure, genetic and autoimmune diseases, birth defects and other conditions.

See Appendix D for a list of all participating facilities.

Reporting System: The National Healthcare Safety Network

The National Healthcare Safety Network (NHSN) is a secure, web-based surveillance system developed, administered and maintained by the CDC. Colorado's HAI Disclosure Law requires participating facilities use the NHSN system for reporting.

The CDC initially opened the NHSN enrollment to a limited number of facilities in 2005, followed by a national open enrollment for hospitals and outpatient hemodialysis centers in 2007. Beginning in August 2008, LTACHs began reporting to the NHSN and in October of 2008 ASCs began submitting data to the NHSN.

In Colorado, health facilities must enroll with and submit data to the NHSN for public disclosure. Health facilities must grant the Department access to their data so the Department can monitor, analyze and produce public reports. According to the legislation, individuals who collect the surveillance data must have a Certification in Infection Control and Epidemiology[9] or become certified within six months of becoming eligible to take the certification test. Certification requirements do not apply to individuals collecting the data in hospitals with 50 beds or less, dialysis centers or ambulatory surgery centers. However, these facilities are required to complete pre-requisite NHSN educational programs prior to joining the NHSN, complete 10 hours of infection prevention education annually that is specific to the facility specialty, and keep a log of the education completed.

The NHSN is used nationally by many healthcare facilities to manage their infection data. The system integrates patient and healthcare personnel safety surveillance information from facilities across the nation. One of the enhanced features of this surveillance system is that while maintaining data security, integrity, and confidentiality, the NHSN has the capacity for healthcare facilities to share data in a timely manner

- Between a facility and public health agencies; and
- Between facilities (e.g., multi-hospital system).

While there is no charge for participation in the NHSN, participation requires a significant commitment by each health facility. There is a lengthy, time-sensitive, five-step process to gain access to the NHSN and each month participating health facilities must complete an NHSN reporting plan. To obtain infection rate information, facilities must gather data on all the currently targeted procedures whether or not a procedure led to an infection.

4: Evaluating the Initiative

The evaluation process helped the Department identify the following four challenges:

1. Committee participation
    - The Department has aggressively sought committee membership. Currently all positions are filled.
    - The Department has recognized the need to develop processes to ensure committee involvement and satisfaction to maintain the level of dedication the inaugural committee has shown.
2. Reporting system
    - Colorado's mandatory reporting law requires health facilities report infections to the NHSN web-based database. The network's training and enrollment process can take up to two months.
    - The NHSN is a federally managed and funded reporting system. The addition of any reporting element in its system is determined by the availability of federal funds.
    - The Department offers bi-monthly trainings on the use of the NHSN focusing on different topics, such as central line-associated bloodstream infections, surgical site infections and dialysis-related infections. This provides a small group environment to discuss problems with the reporting system, difficult case studies, and address any individual problems or questions.
3. Limited resources
    - Many of the difficulties health facilities have experienced with the NHSN reporting system were due to limited time and resources. The Department and the advisory committee have attempted to assist the facilities, but struggle with the same time and resource constraints.
    - Another difficulty health facilities have faced with the NHSN is facility staff turnover. Since digital certificates (used to gain access to the database) are specific to the individual reporting and not the facility, this has caused delays in reporting when a staff member has left the facility without assigning another person to fill the reporting role.
4. Data validation
    - The issue of data validation has been a concern for the Department and many stakeholder groups throughout Colorado. For this reason, funding was sought to provide personnel resources to carry out a data validation project in 2010. With the addition of three staff members and American Recovery and Reinvestment Act (ARRA) funding, the Department began validation audits of central line-associated bloodstream infections in specific hospital critical care units, Level II/III and III neonatal critical care units, and long-term acute care hospitals in August 2010. Preliminary findings by the auditors thus far have

included variance with collection of data and observation of best bundle practices for insertion of central lines. More information regarding the current validation study can be found in Appendix B.

Other states with mandatory health facility-acquired infections reporting laws have designated money and resources for validation and oversight of facility data collection processes.

For example, New York has a program director, program manager, data manager, data analyst, program operations director, administrative assistant and five regionally based infection control professionals. New York also receives additional support from its Department of Health division directors and the CDC staff responsible for the NHSN reporting database (C. Van Antwerpen, personal communication, Nov. 4, 2010).

- The total number of reporting facilities in New York's 2008 report is 186, which is similar to the 183 targeted for reporting in Colorado (including outpatient dialysis centers).

The Department and the advisory committee will continue to evaluate the health facility-acquired infections disclosure initiative to identify areas for process and data quality improvements and to increase public awareness. It is anticipated that additional validation studies for SSIs and dialysis events, for example, will be completed in the future depending on funding and resources.

5: Reporting Results

The final function of implementation is the development of annual public reports and semi-annual bulletins. The current report is the fourth annual report published by the Department and includes three years of data from hospitals, two years of data from LTACHs, one and a half years of data for ASCs, and five months of data for DTCs. This is the first report that compares HAI data from the current year to data from prior years. This comparison indicates if each facility's HAI rates have improved, worsened or stayed the same from previous years. It is noted that the HAI data presented in this report have not been subjected to formal data quality checks or data validation studies. Without systematic data quality monitoring, the extent of incomplete and incorrectly entered data cannot be ascertained. The Department initiated a formal validation study of CLABSI data in August 2010.

Changes in the Patient Safety Program in 2010

In November 2009, the Patient Safety Program at the Colorado Department of Public Health and Environment was awarded an American Recovery and Reinvestment Act (ARRA) grant. This is a two year grant that allowed the program to add more full time staff, provide more support to Colorado infection preventionists, implement two prevention collaboratives, and initiate data validation efforts. The program has grown to four full time employees: program coordinator, public health nurse consultant, epidemiologist, and quality improvement specialist as well as a part time statistician. The ARRA funds have been used to implement a data validation project that allows program staff to visit facilities to assess surveillance and collection techniques in Colorado hospitals. See Appendix B for the full description of the Validation Study and preliminary results. The HAI prevention collaboratives include one targeting Surgical Site Infections (SSI) and the other targeting *Clostridium difficile* infections. See Appendix E for a full description of the prevention collaboratives.

Infection data

Disclosure

All data published in this report was submitted to the NHSN by Colorado healthcare facilities (See Appendix D for a list of facilities). The Department depends on accurate information from reporting facilities and the NHSN to produce these reports. The Department began auditing facilities to ensure the data are complete (validation) in August 2010.

The national rate is the combined rate for all hospitals reporting to NHSN from 2006-2008. The comparison of facilities' rates to the national rate is based on testing for statistically significant differences. The result of this test is the probability that a difference in rates was due to a reason other than by random chance alone. In these data, a statistically significant result suggests that the difference between the facility-specific infection rate and the national infection rate was due to a real reason, and not simply random chance. For example, a facility that is significantly better than the national average may be applying certain protocols that are preventing infections. Additionally, if a facility is worse than the national average, it suggests a facility should further investigate the contributions to its higher infection rate, and could be in need of improved protocols and procedures to prevent infections or their patient population is at a higher risk for infection.

Experts in the field of infection control have determined that some procedures performed in certain facility locations have low infection rates. These experts recommend that health facilities refrain from collecting overall facility infection rates, as this would divert resources from preventing infections in higher risk locations.[3,4,5,6] Many types of infections often lead to additional days in the hospital, which can be expensive for healthcare agencies and payers. Evidence suggests that tracking infections may lead to better adherence to preventive practices and decrease medical complications or death.

This report is based on the national average received from the *National Healthcare Safety Network (NHSN) Report, data summary for 2006 through 2008, issued December 2009.*

Please note that infection data are not published in this report for any facility that performed less than 20 surgical procedures, had less than 50 central line days, or served less than 20 dialysis patients during the reporting period. The suppression of this data serves to protect confidential health information.

Surgical Site Infection Overview

Surgical site infections (SSI) are infections directly related to an operative procedure. Surgical procedures selected for SSI reporting are performed in a variety of facilities and tend to be associated with health facility-acquired infections. Many of the SSIs that occur in these procedures can:

- Be prevented by following established prevention techniques;
- Easily be detected and reported accurately; and
- Have a devastating impact on the patient's quality of life.

Evidence suggests that reporting of infections may lead to better adherence to preventive practices and decreased medical complications.

Surgical site infection rates are adjusted to take into account differences in patient risk factors for infection: length of the surgery, type of surgical wound and the patient's physical condition. The adjusted SSI rates (not displayed in the tables) are used to compute the Standardized Infection Ratio. The Standardized Infection Ratio (SIR) is a risk adjusted summary measure that accounts for the type of procedure and risk category. The SIR provides an overall score for a procedure at each health facility based on the expected number of infections after adjusting for the risk category. It is the ratio of the observed to expected number of SSIs. The SIR can be used as a comparison measure between facilities. However, overall crude rates for SSIs (not risk adjusted) should never be compared between facilities due to inherent differences in the patient risk distribution in each facility.

Interpretation of the SIR is straightforward: A hospital's SIR value is compared to 1.0 (observed and expected number of SSIs are the same). If the SIR value is greater than 1.0, there are more infections than expected. If the SIR value is less than 1.0, then fewer infections occurred than expected. A statistical test (Poisson test) is used to determine if the difference is statistically significant. It is important to note that it is possible for a facility's SIR to be higher or lower than 1.0, but due to statistical comparison and the total number of procedures and infections, not be significantly better or worse than the national rate. Also, it is possible for an SIR to be statistically high or low, even when a different facility has an even higher or lower (respectively) SIR that is not statistically significant. Again, this is due to the numbers of procedures, infections, and the statistical testing process. For an example of how this calculation works please refer to Appendix F.

A new analysis in this year's report is the comparison to the "historical data". For most of the data collected (excluding hysterectomy infection data), there are two to three years of data. The historical comparison calculates a Standardized Infection Ratio (or SIR) based on a

facility specific infection rate from the previous year(s). An expected number of infections can be calculated based on previous infection rates and compared to the current year's number of infections. This allows for the comparison of the current data to previous years to ascertain if a facility is doing better, worse or the same. (See Appendix F for more information concerning the calculation and interpretation of an SIR.)

Cardiac Surgeries

Background

This section focuses on SSIs in cardiac operative procedures. Heart Bypass or Coronary Artery Bypass Graft is a surgery used to bypass blocked heart arteries by creating new passages for blood to flow to the heart muscle. Arteries or veins from other parts of the body are used as grafts to create alternative blood-flow pathways. The two types are coronary artery bypass graft with **both** chest and donor site incisions (CBGB) and coronary artery bypass graft with a chest incision only (CBGC). Both types of surgery involve replacing damaged sections of one or more of the coronary arteries with undamaged arteries or veins such as the internal mammary artery (thoracic) and saphenous vein (leg) to increase cardiac blood flow. The majority of cardiac operative procedures performed in Colorado hospitals are CBGBs. Based on the small number of CBGC surgeries performed, most of the HAI data available had to be suppressed to protect confidential health information and therefore, CBGC data are not presented in this report.

Results

Table 2 below shows facility specific data for SSIs attributed to CBGB surgeries performed in hospitals from August 1, 2009 through July 31, 2010.

Each table lists all the hospitals in Colorado that performed the procedure, the city where the hospital is located, the number of procedures performed, the number of infections, the standardized infection ratio (SIR) based on the national infection rates, the comparison to the national infection rate, the SIR based on a facility specific historical infection rate, and the comparison with the historical rate. For the definition of SIR please refer back to page 14 or see Appendix F. The three categories summarizing how a Colorado hospital compares to the national infection rate for procedure performed are:

1. Facilities can have a statistically lower (**better**) infection rate than the national rate;
2. Facilities can have an infection rate that is statistically the **same** as the national rate; or
3. Facilities can have a statistically higher (**worse**) rate than the national rate.

Table 2: Coronary Artery Bypass Grafts with Chest and Donor Site Infections (CBGB), Inpatient Procedures for Hospitals, 2009-2010

Surgical Site Infections (SSI) in
Coronary Artery Bypass Grafts with Chest and Donor Site Infections (CBGB) in Hospitals, Inpatient
Reporting Period: August 1, 2009-July 31, 2010.

Health Facility and Region		Procedure Count	Infection Count	Standardized Infection Ratio (SIR)-National	National Comparison	Standardized Infection Ratio (SIR)-Historic	Historical Comparison
Boulder Community Hospital	**Boulder**	74	3	1.1	Same	1.6	Same
Centura Penrose St. Francis Health	**Colorado Springs**	110	2	0.7	Same	0.8	Same
Centura Porter Adventist Hospital	**Denver**	84	3	1.4	Same	1.2	Same
Centura St. Anthony Central Hospital	**Denver**	104	1	0.3	Same	0.7	Same
Exempla Lutheran Medical Center	**Wheat Ridge**	87	0	0.0	Same	0.0	Same
Exempla St. Joseph Hospital	**Denver**	159	1	0.2	Same	1.2	Same
Longmont United Hospital	**Longmont**	33	0	0.0	Same	0.0	Same
Medical Center of Aurora	**Aurora**	80	2	0.7	Same	0.7	Same
Medical Center of the Rockies	**Loveland**	159	1	0.2	Better	0.5	Same
Memorial Hospital Central	**Colorado Springs**	247	4	0.6	Same	1.0	Same
North Colorado Medical Center	**Greeley**	73	0	0.0	Same	0.0	Same
Parkview Medical Center	**Pueblo**	105	3	1.0	Same	0.9	Same
Presbyterian St. Luke's Medical Center	**Denver**	24	3	4.5	Same	9.9	Worse
Rose Medical Center	**Denver**	14	***	***	***	***	***
Sky Ridge Medical Center	**Lone Tree**	31	1	1.0	Same	2.3	Same
St. Mary's Hospital	**Grand Junction**	122	0	0.0	Same	0.0	Same
Swedish Medical Center	**Englewood**	73	4	2.0	Same	8.4	Worse
University of Colorado Hospital	**Aurora**	59	5	2.4	Same	2.6	Same

The standardized infection ration (SIR) is the ratio of observed to expected infections, and is adjusted for procedure risk.
National comparison based on data collected and reported by NHSN-participating hospitals from 2006-2008.
See "National Healthcare Safety Network (NHSN) Report, Data Summary for 2006-2008, Issued December 2009" (Am J Infect Control 2009; 37: 783-805).
Historical comparison based on data collected and reported for a given facility from August 1, 2007-July 31, 2009.
*** Indicates value not shown due to suppression of infections data, or no National or historical rate, or an expected count of zero, to which to compare facility rate.
Infections data for hospitals with fewer than 20 procedures performed in a 12-month period are suppressed to protect confidential health information. These hospitals have met the reporting requirements.
Source: National Healthcare Safety Network (NHSN) Database.
Prepared By: Colorado Patient Safety Program, Colorado Department of Public Health and Environment.

Orthopedic Surgeries

Background

This section focuses on surgical site infections in orthopedic operative procedures. The orthopedic procedures monitored are hip replacements (total or partial) and knee replacements (total or partial).

A total or partial hip replacement is a surgery for people with severe hip damage or pain related to chronic osteoarthritis, rheumatoid arthritis or other degenerative processes involving the hip joint. The surgical procedure for a hip replacement involves removing the damaged cartilage and bone from the hip joint and replacing them with an artificial device. The procedure consists of a cup, which is typically plastic, ceramic or metal that will replace the hip socket, a metal or ceramic ball that replaces the head of the thighbone and finally a metal stem that attaches to the bone.

A total or partial knee replacement is a surgery (arthroplasty) that is considered an elective procedure for people with severe knee damage and pain related to osteoarthritis, rheumatoid arthritis, or traumatic arthritis. A total knee replacement involves removing the damaged cartilage and bone from the surface of the knee joint and replacing them with an artificial device. In this procedure, the patella (kneecap) is removed, the femur (thigh bone) and tibia (shin bone) are cut down, and a metal, ceramic or plastic prosthesis is put in place.

Results

Tables 3 through 6 below show facility specific data for SSIs attributed to the two different procedures performed in hospitals and ambulatory surgical centers, as described above. The tables present data from surgeries performed from August 1, 2009 through July 31, 2010.

Each table lists all the healthcare facilities in Colorado that performed the procedure, the city where the facility is located, the number of procedures performed, the number of infections, the standardized infection ratio (SIR) based on the national infection rates, the comparison to the national infection rate, the SIR based on a facility specific historical infection rate, and the comparison with the historical rate. For the definition of SIR please refer back to page 14 or see Appendix F. The three categories summarizing how a Colorado hospital compares to the national infection rate for procedure performed are:

1. Facilities can have a statistically lower (**better**) infection rate than the national rate;
2. Facilities can have an infection rate that is statistically the **same** as the national rate; or
3. Facilities can have a statistically higher (**worse**) rate than the national rate.

Table 3: Hip Replacement (total or partial) (HPRO), Inpatient Procedures for Hospitals, 2009-2010

Surgical Site Infections (SSI) in Hip Replacement Procedures (total or partial) in Hospitals, Inpatient
Reporting Period: August 1, 2009-July 31, 2010.

Health Facility and Region		Procedure Count	Infection Count	Standardized Infection Ratio (SIR)-National	National Comparison	Standardized Infection Ratio (SIR)-Historic	Historical Comparison
Animas Surgical Hospital	Durango	18	***	***	***	***	***
Aspen Valley Hospital	Aspen	4	***	***	***	***	***
Boulder Community Hospital	Boulder	317	4	1.3	Same	2.7	Same
Centura Avista Adventist Hospital	Louisville	100	0	0.0	Same	0.0	Same
Centura Littleton Adventist Hospital	Littleton	75	0	0.0	Same	0.0	Same
Centura Penrose St Francis Health	Colorado Springs	420	8	1.7	Same	2.1	Same
Centura Porter Adventist Hospital	Denver	533	7	1.3	Same	0.9	Same
Centura St. Anthony Central Hospital	Denver	296	0	0.0	Same	0.0	Same
Centura St. Anthony North Hospital	Westminster	69	0	0.0	Same	0.0	Same
Centura St. Francis Medical Center	Colorado Springs	174	1	0.5	Same	0.2	Same
Centura St. Mary Corwin Medical Center	Pueblo	128	7	4.3	Worse	3.3	Worse
Centura St. Thomas More Hospital	Canon City	39	0	0.0	Same	***	***
Colorado Plains Medical Center	Fort Morgan	29	0	0.0	Same	0.0	Same
Community Hospital	Grand Junction	67	0	0.0	Same	0.0	Same
Delta County Memorial Hospital	Delta	50	0	0.0	Same	0.0	Same
Denver Health Medical Center	Denver	84	2	1.9	Same	0.7	Same
East Morgan County Hospital	Brush	7	***	***	***	***	***
Exempla Good Samaritan Medical Center	Lafayette	301	1	0.3	Same	0.5	Same
Exempla Lutheran Medical Center	Wheat Ridge	334	2	0.6	Same	2.3	Same
Exempla St. Joseph Hospital	Denver	460	1	0.2	Same	0.3	Same
Grand River Medical Center	Rifle	9	***	***	***	***	***
Gunnison Valley Hospital	Gunnison	9	***	***	***	***	***
Heart of the Rockies Regional Medical Center	Salida	13	***	***	***	***	***
Longmont United Hospital	Longmont	107	1	0.6	Same	0.7	Same
Loveland Surgery Center	Loveland	1	***	***	***	***	***
McKee Medical Center	Loveland	109	0	0.0	Same	***	***
Medical Center of Aurora	Aurora	181	6	2.9	Worse	1.9	Same

Health Facility and Region		Procedure Count	Infection Count	Standardized Infection Ratio (SIR)-National	National Comparison	Standardized Infection Ratio (SIR)-Historic	Historical Comparison
Medical Center of the Rockies	**Loveland**	72	4	3.9	Worse	2.3	Same
Memorial Hospital Central	**Colorado Springs**	383	3	0.5	Same	0.6	Same
Memorial Hospital North	**Colorado Springs**	90	3	2.4	Same	1.3	Same
Mercy Regional Medical Center	**Durango**	88	0	0.0	Same	***	***
Montrose Memorial Hospital	**Montrose**	55	0	0.0	Same	0.0	Same
North Colorado Medical Center	**Greeley**	140	1	0.5	Same	0.4	Same
North Suburban Medical Center	**Thornton**	49	0	0.0	Same	0.0	Same
Parker Adventist Hospital	**Parker**	46	1	1.6	Same	***	***
Parkview Medical Center	**Pueblo**	162	2	0.9	Same	0.8	Same
Pikes Peak Regional Hospital	**Woodland Park**	9	***	***	***	***	***
Platte Valley Medical Center	**Brighton**	11	***	***	***	***	***
Poudre Valley Hospital	**Fort Collins**	496	5	0.8	Same	1.0	Same
Presbyterian St. Luke's Medical Center	**Denver**	250	5	1.7	Same	2.9	Same
Rose Medical Center	**Denver**	406	0	0.0	Better	0.0	Same
San Luis Valley Regional Medical Center	**Alamosa**	28	0	0.0	Same	***	***
Sky Ridge Medical Center	**Lone Tree**	433	11	2.4	Worse	1.2	Same
Southwest Memorial Hospital	**Cortez**	31	0	0.0	Same	0.0	Same
St. Anthony Summit Medical Center	**Frisco**	13	***	***	***	***	***
St. Mary's Hospital	**Grand Junction**	223	0	0.0	Same	0.0	Same
Sterling Regional Medical Center	**Sterling**	27	2	5.3	Same	1.0	Same
Swedish Medical Center	**Englewood**	212	3	1.2	Same	0.9	Same
The Children's Hospital	**Aurora**	13	***	***	***	***	***
The Memorial Hospital	**Craig**	4	***	***	***	***	***
University of Colorado Hospital	**Aurora**	226	7	2.5	Worse	2.1	Same
Vail Valley Medical Center	**Vail**	42	0	0.0	Same	0.0	Same
Valley View Hospital	**Glenwood Springs**	75	1	1.4	Same	7.5	Same
Wray Community Hospital	**Wray**	4	***	***	***	***	***
Yampa Valley Medical Center	**Steamboat Springs**	39	1	2.3	Same	1.9	Same

The standardized infection ration (SIR) is the ratio of observed to expected infections, and is adjusted for procedure risk.
National comparison based on data collected and reported by NHSN-participating hospitals from 2006-2008.
See "National Healthcare Safety Network (NHSN) Report, Data Summary for 2006-2008, Issued December 2009" (Am J Infect Control 2009; 37:783-805).
Historical comparison based on data collected and reported for a given facility from August 1, 2007-July 31, 2009.
*** Indicates value not shown due to suppression of infections data, or no National or historical rate, or an expected count of zero, to which to compare facility rate.
Infections data for hospitals with fewer than 20 procedures performed in a 12-month period are suppressed to protect confidential health information. These hospitals have met the reporting requirements.
Source: National Healthcare Safety Network (NHSN) Database.
Prepared By: Colorado Patient Safety Program, Colorado Department of Public Health and Environment.

Table 4: Hip Replacement (total or partial) (HPRO) for Ambulatory Surgical Centers, 2009-2010

Surgical Site Infections (SSI) in
Hip Replacement Procedures (total or partial) in Ambulatory Surgical Centers
Reporting Period: August 1, 2009-July 31, 2010.

Health Facility and Region		Procedure Count	Infection Count	Standardized Infection Ratio (SIR)-National	National Comparison	Standardized Infection Ratio (SIR)-Historic	Historical Comparison
Orthopaedic Center of the Rockies	**Fort Collins**	128	0	0.0	Same	***	***

The standardized infection ration (SIR) is the ratio of observed to expected infections, and is adjusted for procedure risk.
National comparison based on data collected and reported by NHSN-participating hospitals from 2006-2008.
See "National Healthcare Safety Network (NHSN) Report, Data Summary for 2006-2008, Issued December 2009" (Am J Infect Control 2009; 37:783-805).
Historical comparison based on data collected and reported for a given facility from August 1, 2007-July 31, 2009.
*** Indicates value not shown due to suppression of infections data, or no National or historical rate, or an expected count of zero, to which to compare facility rate.
Infections data for ASCs with fewer than 20 procedures performed in a 12-month period are suppressed to protect confidential health information. These ASCs have met the reporting requirements.
Source: National Healthcare Safety Network (NHSN) Database.
Prepared By: Colorado Patient Safety Program, Colorado Department of Public Health and Environment.

Table 5: Knee Replacement (total or partial) (KPRO), Inpatient Procedures for Hospitals, 2009-2010

Surgical Site Infections (SSI) in
Knee Replacement Procedures (total or partial) in Hospitals, Inpatient
Reporting Period: August 1, 2009-July 31, 2010.

Health Facility and Region		Procedure Count	Infection Count	Standardized Infection Ratio (SIR)-National	National Comparison	Standardized Infection Ratio (SIR)-Historic	Historical Comparison
Animas Surgical Hospital	**Durango**	75	0	0.0	Same	***	***
Aspen Valley Hospital	**Aspen**	22	1	6.4	Same	***	***
Boulder Community Hospital	**Boulder**	239	1	0.5	Same	0.6	Same
Centura Avista Adventist Hospital	**Louisville**	180	2	1.3	Same	0.5	Same
Centura Littleton Adventist Hospital	**Littleton**	129	0	0.0	Same	0.0	Same
Centura Penrose St. Francis Health	**Colorado Springs**	442	7	1.8	Same	2.1	Same
Centura Porter Adventist Hospital	**Denver**	1,009	11	1.4	Same	1.1	Same
Centura St. Anthony Central Hospital	**Denver**	515	1	0.2	Same	0.1	Better

Health Facility and Region		Procedure Count	Infection Count	Standardized Infection Ratio (SIR)-National	National Comparison	Standardized Infection Ratio (SIR)-Historic	Historical Comparison
Centura St. Anthony North Hospital	**Westminster**	73	3	4.1	Same	***	***
Centura St. Francis Medical Center	**Colorado Springs**	311	5	1.8	Same	2.4	Same
Centura St. Mary Corwin Medical Center	**Pueblo**	214	2	0.9	Same	0.3	Same
Centura St. Thomas More Hospital	**Canon City**	93	0	0.0	Same	***	***
Colorado Plains Medical Center	**Fort Morgan**	38	1	2.6	Same	1.5	Same
Community Hospital	**Grand Junction**	124	1	0.8	Same	1.2	Same
Delta County Memorial Hospital	**Delta**	129	0	0.0	Same	0.0	Same
Denver Health Medical Center	**Denver**	99	3	3.1	Same	1.4	Same
East Morgan County Hospital	**Brush**	16	***	***	***	***	***
Exempla Good Samaritan Medical Center	**Lafayette**	512	1	0.2	Same	0.8	Same
Exempla Lutheran Medical Center	**Wheat Ridge**	547	5	1.3	Same	1.0	Same
Exempla St. Joseph Hospital	**Denver**	651	2	0.4	Same	1.2	Same
Grand River Medical Center	**Rifle**	7	***	***	***	***	***
Gunnison Valley Hospital	**Gunnison**	8	***	***	***	***	***
Heart of the Rockies Regional Medical Center	**Salida**	15	***	***	***	***	***
Kremmling Memorial Hospital	**Kremmling**	1	***	***	***	***	***
Longmont United Hospital	**Longmont**	207	0	0.0	Same	0.0	Same
Loveland Surgery Center	**Loveland**	3	***	***	***	***	***
McKee Medical Center	**Loveland**	230	0	0.0	Same	0.0	Same
Medical Center of Aurora	**Aurora**	374	6	2.0	Same	0.9	Same
Medical Center of the Rockies	**Loveland**	63	2	2.8	Same	6.3	Same
Memorial Hospital Central	**Colorado Springs**	539	3	0.6	Same	0.5	Same
Memorial Hospital North	**Colorado Springs**	244	0	0.0	Same	0.0	Same
Mercy Regional Medical Center	**Durango**	128	1	0.9	Same	***	***
Montrose Memorial Hospital	**Montrose**	168	1	0.6	Same	0.3	Same
North Colorado Medical Center	**Greeley**	223	2	1.0	Same	0.8	Same
North Suburban Medical Center	**Thornton**	108	1	1.1	Same	0.9	Same
Parker Adventist Hospital	**Parker**	75	0	0.0	Same	***	***
Parkview Medical Center	**Pueblo**	325	9	3.2	Worse	2.4	Worse
Pikes Peak Regional Hospital	**Woodland Park**	12	***	***	***	***	***
Platte Valley Medical Center	**Brighton**	97	2	2.6	Same	0.3	Same

Health Facility and Region		Procedure Count	Infection Count	Standardized Infection Ratio (SIR)-National	National Comparison	Standardized Infection Ratio (SIR)-Historic	Historical Comparison
Poudre Valley Hospital	**Fort Collins**	1,014	5	0.6	Same	0.8	Same
Presbyterian St. Luke's Medical Center	**Denver**	360	3	1.0	Same	2.3	Same
Rose Medical Center	**Denver**	587	0	0.0	Better	0.0	Same
San Luis Valley Regional Medical Center	**Alamosa**	49	0	0.0	Same	0.0	Same
Sky Ridge Medical Center	**Lone Tree**	603	9	1.8	Same	1.3	Same
Skyline Surgery Center	**Loveland**	5	***	***	***	***	***
Southwest Memorial Hospital	**Cortez**	44	1	2.1	Same	1.6	Same
St. Anthony Summit Medical Center	**Frisco**	25	0	0.0	Same	***	***
St Mary's Hospital	**Grand Junction**	332	1	0.4	Same	0.4	Same
Sterling Regional Medical Center	**Sterling**	34	0	0.0	Same	0.0	Same
Surgical Center At Premier	**Colorado Springs**	9	***	***	***	***	***
Swedish Medical Center	**Englewood**	272	1	0.5	Same	0.2	Better
The Children's Hospital	**Aurora**	2	***	***	***	***	***
The Memorial Hospital	**Craig**	6	***	***	***	***	***
University of Colorado Hospital	**Aurora**	316	4	1.4	Same	1.0	Same
Vail Valley Medical Center	**Vail**	199	2	1.3	Same	***	***
Valley View Hospital	**Glenwood Springs**	131	0	0.0	Same	***	***
Wray Community Hospital	**Wray**	12	***	***	***	***	***
Yampa Valley Medical Center	**Steamboat Springs**	79	0	0.0	Same	0.0	Same

The standardized infection ration (SIR) is the ratio of observed to expected infections, and is adjusted for procedure risk.
National comparison based on data collected and reported by NHSN-participating hospitals from 2006-2008.
See "National Healthcare Safety Network (NHSN) Report, Data Summary for 2006-2008, Issued December 2009" (Am J Infect Control 2009; 37:783-805).
Historical comparison based on data collected and reported for a given facility from August 1, 2007-July 31, 2009.
*** Indicates value not shown due to suppression of infections data, or no National or historical rate, or an expected count of zero, to which to compare facility rate.
Infections data for hospitals with fewer than 20 procedures performed in a 12-month period are suppressed to protect confidential health information. These hospitals have met the reporting requirements.
Source: National Healthcare Safety Network (NHSN) Database.
Prepared By: Colorado Patient Safety Program, Colorado Department of Public Health and Environment.

Table 6: Knee Replacement (total or partial) (KPRO), Outpatient Procedures for Ambulatory Surgical Centers, 2009-2010

Surgical Site Infections (SSI) in
Knee Replacement Procedures (total or partial) in Ambulatory Surgical Centers
Reporting Period: August 1, 2009-July 31, 2010.

Health Facility and Region		Procedure Count	Infection Count	Standardized Infection Ratio (SIR)-National	National Comparison	Standardized Infection Ratio (SIR) -Historic	Historical Comparison
Orthopaedic Center of the Rockies	**Fort Collins**	280	0	0.0	Same	***	***
Rocky Mountain Surgery Center	**Englewood**	3	***	***	***	***	***

The standardized infection ration (SIR) is the ratio of observed to expected infections, and is adjusted for procedure risk.
National comparison based on data collected and reported by NHSN-participating hospitals from 2006-2008.
See "National Healthcare Safety Network (NHSN) Report, Data Summary for 2006-2008, Issued December 2009" (Am J Infect Control 2009; 37:783-805).
Historical comparison based on data collected and reported for a given facility from August 1, 2007-July 31, 2009.
*** Indicates value not shown due to suppression of infections data, or no National or historical rate, or an expected count of zero, to which to compare facility rate.
Infections data for ASCs with fewer than 20 procedures performed in a 12-month period are suppressed to protect confidential health information. These ASCs have met the reporting requirements.
Source: National Healthcare Safety Network (NHSN) Database.
Prepared By: Colorado Patient Safety Program, Colorado Department of Public Health and Environment.

Abdominal Surgeries

Background

This section focuses on surgical site infections in abdominal surgeries. The surgeries included in this section are hernia repairs (herniorraphies) and hysterectomies. These surgeries can be performed as in- or outpatient procedures. Inpatient as defined by NHSN is a patient whose date of admission to the healthcare facility and the date of discharge are different calendar days. Outpatient is defined as a patient whose date of admission to the healthcare facility and the date of discharge are the same calendar day.

A herniorrhaphy is the repair of a hernia or bulging of internal organs or tissues which protrude through an abnormal opening in the muscle wall. Typical hernias occur in the inguinal, femoral, umbilical, or anterior abdominal wall. These are reportable procedures. Other types of hernias, however, such as repair of a diaphragmatic or hiatal hernia or hernias at other body sites do not meet NHSN operative procedure definition and are not reported.

A hysterectomy is the surgical removal of the uterus usually performed by a gynecologist. Hysterectomy may be total (removing the body, fundus, and cervix of the uterus; often called "complete") or partial (removal of the uterine body while leaving the cervix intact; also called "supracervical"). It is the most commonly performed gynecological surgical procedure. The two types of hysterectomies are abdominal and vaginal.

The oldest known technique is abdominal incision. Subsequently the vaginal (performing the hysterectomy through the vaginal canal) and later laparoscopic vaginal (with additional instruments inserted through a small hole, frequently close to the navel) techniques were developed. Most hysterectomies in the United States are done via laparotomy (abdominal incision, not to be confused with laparoscopy). Vaginal hysterectomy is performed entirely through the vaginal canal and has clear advantages over abdominal surgery such as less complications, shorter hospital stays and shorter healing time.

Results

Tables 7 through 11 below show facility specific data for SSIs attributed to herniorrhaphies and hysterectomies as described above. The tables contain HAI data for inpatient and outpatient surgeries performed in hospitals and ASCs from August 1, 2009 through July 31, 2010.

Each table lists all the healthcare facilities in Colorado that performed the procedure, the city where the facility is located, the number of procedures performed, the number of infections, the standardized infection ratio (SIR) based on the national infection rates, the comparison to the national infection rate, the SIR based on a facility specific historical infection rate, and the comparison with the historical rate. For the definition of SIR please refer back to page 14 or see Appendix F. The three categories summarizing how a Colorado healthcare facility compares to the national infection rate for procedure performed are

1. Facilities can have a statistically lower (**better**) infection rate than the national rate:
2. Facilities can have an infection rate that is statistically the **same** as the national rate; or
3. Facilities can have a statistically higher (**worse**) rate than the national rate.

Table 7: Herniorrhaphy, Inpatient Procedures for Hospitals, 2009-2010

Surgical Site Infections (SSI) in Hernia Procedures (total or partial) in Hospitals, Inpatient Reporting Period: August 1, 2009-July 31, 2010.							
Health Facility and Region		**Procedure Count**	**Infection Count**	**Standardized Infection Ratio (SIR)-National**	**National Comparison**	**Standardized Infection Ratio (SIR)-Historic**	**Historical Comparison**
Animas Surgical Hospital	**Durango**	1	***	***	***	***	***
Arkansas Valley Regional Medical Center	**La Junta**	5	***	***	***	***	***
Aspen Valley Hospital	**Aspen**	13	***	***	***	***	***
Boulder Community Hospital	**Boulder**	50	2	2.1	Same	***	***
Boulder Community Hospital-Foothills	**Boulder**	24	0	0.0	Same	***	***
Centura Avista Adventist Hospital	**Louisville**	21	0	0.0	Same	0.0	Same
Centura Littleton Adventist Hospital	**Littleton**	37	2	3.3	Same	2.1	Same
Centura Penrose St. Francis Health	**Colorado Springs**	92	6	3.1	Worse	0.6	Same
Centura Porter Adventist Hospital	**Denver**	59	4	3.2	Same	5.3	Worse
Centura St. Anthony Central Hospital	**Denver**	69	3	2.1	Same	***	***

Health Facility and Region		Procedure Count	Infection Count	Standardized Infection Ratio (SIR)-National	National Comparison	Standardized Infection Ratio (SIR)-Historic	Historical Comparison
Centura St. Anthony North Hospital	**Westminster**	32	2	3.1	Same	***	***
Centura St. Francis Medical Center	**Colorado Springs**	22	0	0.0	Same	0.0	Same
Centura St. Mary Corwin Medical Center	**Pueblo**	48	5	4.7	Worse	***	***
Centura St. Thomas More Hospital	**Canon City**	36	0	0.0	Same	***	***
Colorado Plains Medical Center	**Fort Morgan**	13	***	***	***	***	***
Community Hospital	**Grand Junction**	49	3	2.8	Same	0.7	Same
Delta County Memorial Hospital	**Delta**	28	0	0.0	Same	0.0	Same
Denver Health Medical Center	**Denver**	98	3	1.6	Same	3.3	Same
East Morgan County Hospital	**Brush**	1	***	***	***	***	***
Exempla Good Samaritan Medical Center	**Lafayette**	31	1	1.7	Same	***	***
Exempla Lutheran Medical Center	**Wheat Ridge**	174	10	3.0	Worse	3.5	Worse
Exempla St. Joseph Hospital	**Denver**	70	3	1.6	Same	36.2	Worse
Grand River Medical Center	**Rifle**	2	***	***	***	***	***
Gunnison Valley Hospital	**Gunnison**	4	***	***	***	***	***
Heart of the Rockies Regional Medical Center	**Salida**	20	1	1.9	Same	***	***
Kit Carson Memorial Hospital	**Burlington**	12	***	***	***	***	***
Kremmling Memorial Hospital	**Kremmling**	1	***	***	***	***	***
Longmont United Hospital	**Longmont**	56	0	0.0	Same	0.0	Same
McKee Medical Center	**Loveland**	73	0	0.0	Same	0.0	Same
Medical Center of Aurora	**Aurora**	70	3	2.2	Same	1.7	Same
Medical Center of the Rockies	**Loveland**	110	2	0.7	Same	***	***
Memorial Hospital Central	**Colorado Springs**	143	1	0.3	Same	0.3	Same
Memorial Hospital North	**Colorado Springs**	22	1	1.8	Same	1.8	Same
Mercy Regional Medical Center	**Durango**	13	***	***	***	***	***
Montrose Memorial Hospital	**Montrose**	37	3	3.7	Same	1.3	Same
North Colorado Medical Center	**Greeley**	86	3	1.9	Same	***	***
North Suburban Medical Center	**Thornton**	28	1	1.6	Same	***	***
Parker Adventist Hospital	**Parker**	84	0	0.0	Same	***	***
Parkview Medical Center	**Pueblo**	87	1	0.6	Same	0.4	Same
Pikes Peak Regional Hospital	**Woodland Park**	7	***	***	***	***	***
Platte Valley Medical Center	**Brighton**	19	***	***	***	***	***

Health Facility and Region		Procedure Count	Infection Count	Standardized Infection Ratio (SIR)-National	National Comparison	Standardized Infection Ratio (SIR)-Historic	Historical Comparison
Poudre Valley Hospital	**Fort Collins**	99	1	0.4	Same	0.4	Same
Presbyterian St. Luke's Medical Center	**Denver**	78	1	0.5	Same	0.3	Same
Prowers Medical Center	**Lamar**	0	***	***	***	***	***
Rose Medical Center	**Denver**	95	0	0.0	Same	***	***
San Luis Valley Regional Medical Center	**Alamosa**	29	0	0.0	Same	***	***
Sky Ridge Medical Center	**Lone Tree**	57	0	0.0	Same	***	***
Southeast Colorado Hospital	**Springfield**	1	***	***	***	***	***
Southwest Memorial Hospital	**Cortez**	12	***	***	***	***	***
St. Anthony Summit Medical Center	**Frisco**	1	***	***	***	***	***
St. Mary's Hospital	**Grand Junction**	88	4	2.4	Same	3.1	Same
Sterling Regional Medical Center	**Sterling**	40	1	1.0	Same	0.7	Same
Swedish Medical Center	**Englewood**	142	4	1.2	Same	2.4	Same
The Children's Hospital	**Aurora**	113	0	0.0	Same	0.0	Better
The Memorial Hospital	**Craig**	1	***	***	***	***	***
University of Colorado Hospital	**Aurora**	72	6	2.7	Same	0.9	Same
Vail Valley Medical Center	**Vail**	9	***	***	***	***	***
Valley View Hospital	**Glenwood Springs**	23	1	2.7	Same	0.6	Same
Yampa Valley Medical Center	**Steamboat Springs**	5	***	***	***	***	***
Yuma District Hospital	**Yuma**	1	***	***	***	***	***

The standardized infection ration (SIR) is the ratio of observed to expected infections, and is adjusted for procedure risk.
National comparison based on data collected and reported by NHSN-participating hospitals from 2006-2008.
See "National Healthcare Safety Network (NHSN) Report, Data Summary for 2006-2008, Issued December 2009" (Am J Infect Control 2009; 37:783-805).
Historical comparison based on data collected and reported for a given facility from August 1, 2007-July 31, 2009.
*** Indicates value not shown due to suppression of infections data, or no National or historical rate, or an expected count of zero, to which to compare facility rate.
Infections data for hospitals with fewer than 20 procedures performed in a 12-month period are suppressed to protect confidential health information. These hospitals have met the reporting requirements.
Source: National Healthcare Safety Network (NHSN) Database.
Prepared By: Colorado Patient Safety Program, Colorado Department of Public Health and Environment.

Table 8: Herniorrhaphy, Outpatient Procedures for Hospitals, 2009-2010

Surgical Site Infections (SSI) in
Hernia Procedures (total or partial) in Hospitals, Outpatient
Reporting Period: August 1, 2009-July 31, 2010.

Health Facility and Region		Procedure Count	Infection Count	Standardized Infection Ratio (SIR)-National	National Comparison	Standardized Infection Ratio (SIR) -Historic	Historical Comparison
Animas Surgical Hospital	Durango	7	***	***	***	***	***
Arkansas Valley Regional Medical Center	La Junta	50	0	0.0	Same	***	***
Aspen Valley Hospital	Aspen	67	0	0.0	Same	***	***
Boulder Community Hospital	Boulder	284	0	0.0	Same	***	***
Boulder Community Hospital-Foothills	Boulder	102	0	0.0	Same	***	***
Boulder Medical Center	Boulder	57	0	0.0	Same	***	***
Centura Avista Adventist Hospital	Louisville	153	0	0.0	Same	***	***
Centura Littleton Adventist Hospital	Littleton	133	1	1.5	Same	***	***
Centura Penrose St. Francis Health	Colorado Springs	207	0	0.0	Same	***	***
Centura Porter Adventist Hospital	Denver	176	0	0.0	Same	***	***
Centura St. Anthony Central Hospital	Denver	195	0	0.0	Same	0.0	Same
Centura St. Anthony North Hospital	Westminster	132	0	0.0	Same	0.0	Same
Centura St. Francis Medical Center	Colorado Springs	62	1	3.2	Same	***	***
Centura St. Mary Corwin Medical Center	Pueblo	167	0	0.0	Same	***	***
Centura St. Thomas More Hospital	Canon City	66	0	0.0	Same	***	***
Colorado Plains Medical Center	Fort Morgan	24	0	0.0	Same	***	***
Community Hospital	Grand Junction	240	2	1.6	Same	0.6	Same
Delta County Memorial Hospital	Delta	67	0	0.0	Same	***	***
Denver Health Medical Center	Denver	201	1	1.0	Same	0.7	Same
East Morgan County Hospital	Brush	39	0	0.0	Same	***	***
Estes Park Medical Center	Estes Park	37	0	0.0	Same	***	***
Exempla Good Samaritan Medical Center	Lafayette	566	1	0.4	Same	0.8	Same
Exempla Lutheran Medical Center	Wheat Ridge	259	0	0.0	Same	***	***
Exempla St. Joseph Hospital	Denver	324	4	2.0	Same	***	***
Grand River Medical Center	Rifle	33	0	0.0	Same	***	***

Health Facility and Region		Procedure Count	Infection Count	Standardized Infection Ratio (SIR)-National	National Comparison	Standardized Infection Ratio (SIR)-Historic	Historical Comparison
Grand Valley Surgical Center	**Grand Junction**	199	0	0.0	Same	0.0	Same
Gunnison Valley Hospital	**Gunnison**	40	0	0.0	Same	***	***
Heart of the Rockies Regional Medical Center	**Salida**	60	0	0.0	Same	0.0	Same
Kit Carson Memorial Hospital	**Burlington**	25	0	0.0	Same	***	***
Kremmling Memorial Hospital	**Kremmling**	11	***	***	***	***	***
Lincoln Community Hospital	**Hugo**	8	***	***	***	***	***
Longmont United Hospital	**Longmont**	116	0	0.0	Same	***	***
McKee Medical Center	**Loveland**	51	0	0.0	Same	***	***
Medical Center of Aurora	**Aurora**	407	2	1.0	Same	1.3	Same
Medical Center of the Rockies	**Loveland**	269	0	0.0	Same	***	***
Melissa Memorial	**Holyoke**	4	***	***	***	***	***
Memorial Hospital Central	**Colorado Springs**	589	5	1.5	Same	0.4	Better
Memorial Hospital North	**Colorado Springs**	229	0	0.0	Same	***	***
Mercy Regional Medical Center	**Durango**	57	1	2.8	Same	***	***
Montrose Memorial Hospital	**Montrose**	133	1	1.5	Same	***	***
Mt San Rafael Hospital	**Trinidad**	20	0	0.0	Same	***	***
North Colorado Medical Center	**Greeley**	222	0	0.0	Same	0.0	Same
North Suburban Medical Center	**Thornton**	111	1	1.9	Same	***	***
Parker Adventist Hospital	**Parker**	250	0	0.0	Same	***	***
Parkview Medical Center	**Pueblo**	297	0	0.0	Same	***	***
Pikes Peak Regional Hospital	**Woodland Park**	30	0	0.0	Same	***	***
Platte Valley Medical Center	**Brighton**	141	1	1.5	Same	***	***
Poudre Valley Hospital	**Fort Collins**	181	0	0.0	Same	***	***
Presbyterian St. Luke's Medical Center	**Denver**	479	1	0.4	Same	0.7	Same
Prowers Medical Center	**Lamar**	20	0	0.0	Same	***	***
Rose Medical Center	**Denver**	204	0	0.0	Same	***	***
San Luis Valley Regional Medical Center	**Alamosa**	96	0	0.0	Same	0.0	Same
Sky Ridge Medical Center	**Lone Tree**	290	0	0.0	Same	0.0	Same
Southeast Colorado Hospital	**Springfield**	8	***	***	***	***	***
Southwest Memorial Hospital	**Cortez**	68	0	0.0	Same	***	***

Health Facility and Region		Procedure Count	Infection Count	Standardized Infection Ratio (SIR)-National	National Comparison	Standardized Infection Ratio (SIR)-Historic	Historical Comparison
Spanish Peaks Regional Health Center	**Walsenburg**	11	***	***	***	***	***
St. Anthony Summit Medical Center	**Frisco**	9	***	***	***	***	***
St. Mary's Hospital	**Grand Junction**	105	1	1.7	Same	***	***
St. Vincent General Hospital District	**Leadville**	29	0	0.0	Same	***	***
Sterling Regional Medical Center	**Sterling**	57	0	0.0	Same	***	***
Swedish Medical Center	**Englewood**	112	1	1.7	Same	***	***
The Children's Hospital	**Aurora**	513	2	0.8	Same	***	***
The Memorial Hospital	**Craig**	22	0	0.0	Same	***	***
University of Colorado Hospital	**Aurora**	242	2	1.5	Same	0.4	Same
Vail Valley Medical Center	**Vail**	103	1	2.0	Same	***	***
Valley View Hospital	**Glenwood Springs**	213	1	1.0	Same	***	***
Wray Community Hospital	**Wray**	27	0	0.0	Same	***	***
Yampa Valley Medical Center	**Steamboat Springs**	78	0	0.0	Same	***	***
Yuma District Hospital	**Yuma**	13	***	***	***	***	***

The standardized infection ration (SIR) is the ratio of observed to expected infections, and is adjusted for procedure risk.
National comparison based on data collected and reported by NHSN-participating hospitals from 2006-2008.
See "National Healthcare Safety Network (NHSN) Report, Data Summary for 2006-2008, Issued December 2009" (Am J Infect Control 2009; 37:783-805).
Historical comparison based on data collected and reported for a given facility from August 1, 2007-July 31, 2009.
*** Indicates value not shown due to suppression of infections data, or no National or historical rate, or an expected count of zero, to which to compare facility rate.
Infections data for hospitals with fewer than 20 procedures performed in a 12-month period are suppressed to protect confidential health information. These hospitals have met the reporting requirements.
Source: National Healthcare Safety Network (NHSN) Database.
Prepared By: Colorado Patient Safety Program, Colorado Department of Public Health and Environment.

Table 9: Herniorrhaphy Procedures in Ambulatory Surgical Centers, 2009-2010

Surgical Site Infections (SSI) in
Hernia Procedures (total or partial) in Ambulatory Surgical Centers
Reporting Period: August 1, 2009-July 31, 2010.

Health Facility and Region		Procedure Count	Infection Count	Standardized Infection Ratio (SIR)-National	National Comparison	Standardized Infection Ratio (SIR)-Historic	Historical Comparison
ASC Durango at Mercy Medical Center	Durango	106	0	0.0	Same	***	***
Aberdeen Ambulatory Surgical Center	Pueblo	2	***	***	***	***	***
Arkansas Valley Surgery Center	Canon City	86	0	0.0	Same	***	***
Audubon Ambulatory Surgery Center	Colorado Springs	28	0	0.0	Same	***	***
Audubon Ambulatory Surgery Center at St. Francis	Colorado Springs	440	0	0.0	Same	0.0	Same
Aurora Surgery Center	Aurora	53	0	0.0	Same	***	***
Black Canyon Surgical Center	Montrose	33	1	6.6	Same	***	***
Centrum Surgical Center	Greenwood Village	7	***	***	***	***	***
Children's North Surgery Center	Broomfield	13	***	***	***	***	***
Clear Creek Surgery Center	Wheat Ridge	387	2	1.1	Same	***	***
Colorado Springs Surgery Center	Colorado Springs	20	0	0.0	Same	***	***
Crown Point Surgery Center	Parker	263	0	0.0	Same	***	***
Denver Midtown Surgery Center	Denver	235	0	0.0	Same	***	***
First Choice Outpatient Surgery Center at Community Hospital	Grand Junction	116	0	0.0	Same	***	***
Harmony Ambulatory Surgery Center	Fort Collins	476	1	0.4	Same	0.8	Same
Kaiser Permanente Ambulatory Surgery Center	Denver	879	6	1.3	Same	1.8	Same
Lakewood Surgical Center	Lakewood	24	0	0.0	Same	***	***
Lincoln Surgery Center	Parker	21	0	0.0	Same	***	***
Longmont Surgery Center	Longmont	143	0	0.0	Same	***	***
MCR Surgery Center	Loveland	7	***	***	***	***	***
Minimally Invasive Spinal Institute	Lafayette	6	***	***	***	***	***
North Suburban Surgery Center	Thornton	123	0	0.0	Same	***	***
Parkwest Surgery Center	Pueblo	22	0	0.0	Same	***	***

Health Facility and Region		Procedure Count	Infection Count	Standardized Infection Ratio (SIR)-National	National Comparison	Standardized Infection Ratio (SIR)-Historic	Historical Comparison
Pueblo Surgery Center	**Pueblo**	15	***	***	***	***	***
Rocky Mountain Surgery Center	**Englewood**	428	0	0.0	Same	***	***
Rose Surgical Center	**Denver**	479	1	0.4	Same	***	***
Sky Ridge Surgical Center	**Lone Tree**	188	0	0.0	Same	***	***
Skyline Surgery Center	**Loveland**	160	0	0.0	Same	***	***
Summit View Surgery Center	**Littleton**	293	1	0.7	Same	0.5	Same
Surgery Center At Lutheran	**Wheat Ridge**	129	0	0.0	Same	***	***
Surgery Center At Printers Park	**Colorado Springs**	37	0	0.0	Same	***	***
Surgery Center Of Fort Collins	**Fort Collins**	7	***	***	***	***	***
Surgical Center At Premier	**Colorado Springs**	75	0	0.0	Same	***	***

The standardized infection ration (SIR) is the ratio of observed to expected infections, and is adjusted for procedure risk.
National comparison based on data collected and reported by NHSN-participating hospitals from 2006-2008.
See "National Healthcare Safety Network (NHSN) Report, Data Summary for 2006-2008, Issued December 2009" (Am J Infect Control 2009; 37:783-805).
Historical comparison based on data collected and reported for a given facility from August 1, 2007-July 31, 2009.
*** Indicates value not shown due to suppression of infections data, or no National or historical rate, or an expected count of zero, to which to compare facility rate.
Infections data for ASCs with fewer than 20 procedures performed in a 12-month period are suppressed to protect confidential health information. These ASCs have met the reporting requirements.
Source: National Healthcare Safety Network (NHSN) Database.
Prepared By: Colorado Patient Safety Program, Colorado Department of Public Health and Environment.

Table 10: Abdominal Hysterectomy Procedures for Hospitals, 2009-2010

Surgical Site Infections (SSI) in
Abdominal hysterectomies (total or partial), Hospital, Inpatient
Reporting Period: August 1, 2009-July 31, 2010.

Health Facility and Region		Procedure Count	Infection Count	Standardized Infection Ratio (SIR)-National	National Comparison
Animas Surgical Hospital	**Durango**	25	0	0.0	Same
Arkansas Valley Regional Medical Center	**La Junta**	5	***	***	***

Health Facility and Region		Procedure Count	Infection Count	Standardized Infection Ratio (SIR)-National	National Comparison
Aspen Valley Hospital	**Aspen**	4	***	***	***
Boulder Community Hospital	**Boulder**	20	0	0.0	Same
Boulder Community Hospital-Foothills	**Boulder**	45	0	0.0	Same
Centura Avista Adventist Hospital	**Louisville**	56	0	0.0	Same
Centura Littleton Adventist Hospital	**Littleton**	83	2	1.7	Same
Centura Penrose St. Francis Health	**Colorado Springs**	193	10	2.5	Worse
Centura Porter Adventist Hospital	**Denver**	25	1	2.1	Same
Centura St. Anthony Central Hospital	**Denver**	106	1	0.6	Same
Centura St. Anthony North Hospital	**Westminster**	31	0	0.0	Same
Centura St. Francis Medical Center	**Colorado Springs**	178	2	0.8	Same
Centura St. Mary Corwin Medical Center	**Pueblo**	60	2	2.3	Same
Centura St. Thomas More Hospital	**Canon City**	35	0	0.0	Same
Colorado Plains Medical Center	**Fort Morgan**	30	0	0.0	Same
Community Hospital	**Grand Junction**	5	***	***	***
Delta County Memorial Hospital	**Delta**	35	0	0.0	Same
Denver Health Medical Center	**Denver**	53	3	2.8	Same
Exempla Good Samaritan Medical Center	**Lafayette**	171	1	0.3	Same
Exempla Lutheran Medical Center	**Wheat Ridge**	248	2	0.6	Same
Exempla St. Joseph Hospital	**Denver**	380	7	1.0	Same
Grand River Medical Center	**Rifle**	7	***	***	***
Gunnison Valley Hospital	**Gunnison**	18	***	***	***
Heart of the Rockies Regional Medical Center	**Salida**	12	***	***	***
Longmont United Hospital	**Longmont**	93	0	0.0	Same
McKee Medical Center	**Loveland**	77	1	0.9	Same
Medical Center of Aurora	**Aurora**	145	6	2.4	Same
Medical Center of the Rockies	**Loveland**	44	0	0.0	Same
Melissa Memorial	**Holyoke**	2	***	***	***
Memorial Hospital Central	**Colorado Springs**	114	3	1.7	Same
Memorial Hospital North	**Colorado Springs**	61	2	2.2	Same
Mercy Regional Medical Center	**Durango**	107	1	0.8	Same
Montrose Memorial Hospital	**Montrose**	50	1	1.4	Same

Health Facility and Region		Procedure Count	Infection Count	Standardized Infection Ratio (SIR)-National	National Comparison
Mt San Rafael Hospital	**Trinidad**	7	***	***	***
North Colorado Medical Center	**Greeley**	92	0	0.0	Same
North Suburban Medical Center	**Thornton**	92	3	2.6	Same
Parker Adventist Hospital	**Parker**	114	1	0.6	Same
Parkview Medical Center	**Pueblo**	116	1	0.6	Same
Platte Valley Medical Center	**Brighton**	36	1	2.3	Same
Poudre Valley Hospital	**Ft Collins**	238	3	0.8	Same
Presbyterian St. Luke's Medical Center	**Denver**	39	0	0.0	Same
Prowers Medical Center	**Lamar**	25	0	0.0	Same
Rose Medical Center	**Denver**	286	0	0.0	Better
San Luis Valley Regional Medical Center	**Alamosa**	24	0	0.0	Same
Sky Ridge Medical Center	**Lone Tree**	149	1	0.4	Same
Southwest Memorial Hospital	**Cortez**	1	***	***	***
St. Anthony Summit Medical Center	**Frisco**	29	0	0.0	Same
St. Mary's Hospital	**Grand Junction**	176	1	0.4	Same
Sterling Regional Medical Center	**Sterling**	5	***	***	***
Swedish Medical Center	**Englewood**	389	3	0.5	Same
The Memorial Hospital	**Craig**	5	***	***	***
University of Colorado Hospital	**Aurora**	178	7	1.5	Same
Vail Valley Medical Center	**Vail**	17	***	***	***
Valley View Hospital	**Glenwood Springs**	11	***	***	***
Yampa Valley Medical Center	**Steamboat Springs**	11	***	***	***
Yuma District Hospital	**Yuma**	3	***	***	***

The standardized infection ration (SIR) is the ratio of observed to expected infections, and is adjusted for procedure risk.
National comparison based on data collected and reported by NHSN-participating hospitals from 2006-2008.
See "National Healthcare Safety Network (NHSN) Report, Data Summary for 2006-2008, Issued December 2009" (Am J Infect Control 2009; 37:783-805).
Historical comparison based on data collected and reported for a given facility from August 1, 2007-July 31, 2009.
*** Indicates value not shown due to suppression of infections data, or no National or historical rate, or an expected count of zero, to which to compare facility rate.
Infections data for hospitals with fewer than 20 procedures performed in a 12-month period are suppressed to protect confidential health information. These hospitals have met the reporting requirements.
Source: National Healthcare Safety Network (NHSN) Database.
Prepared By: Colorado Patient Safety Program, Colorado Department of Public Health and Environment.

Table 11: Vaginal Hysterectomy Procedures for Hospitals, 2009-2010

Surgical Site Infections (SSI) in Vaginal hysterectomies (total or partial) in Hospitals, Inpatient Reporting Period: August 1, 2009-July 31, 2010.					
Health Facility and Region		**Procedure Count**	**Infection Count**	**Standardized Infection Ratio (SIR)-National**	**National Comparison**
Animas Surgical Hospital	**Durango**	42	0	0.0	Same
Aspen Valley Hospital	**Aspen**	26	0	0.0	Same
Boulder Community Hospital	**Boulder**	7	***	***	***
Boulder Community Hospital-Foothills	**Boulder**	11	***	***	***
Centura Avista Adventist Hospital	**Louisville**	33	1	3.3	Same
Centura Littleton Adventist Hospital	**Littleton**	215	1	0.6	Same
Centura Penrose St. Francis Health	**Colorado Springs**	30	1	3.4	Same
Centura Porter Adventist Hospital	**Denver**	118	0	0.0	Same
Centura St. Anthony Central Hospital	**Denver**	62	1	1.9	Same
Centura St. Anthony North Hospital	**Westminster**	84	1	1.4	Same
Centura St. Francis Medical Center	**Colorado Springs**	139	1	0.9	Same
Centura St. Mary Corwin Medical Center	**Pueblo**	37	0	0.0	Same
Centura St. Thomas More Hospital	**Canon City**	21	0	0.0	Same
Colorado Plains Medical Center	**Fort Morgan**	13	***	***	***
Community Hospital	**Grand Junction**	16	***	***	***
Delta County Memorial Hospital	**Delta**	11	***	***	***
Denver Health Medical Center	**Denver**	51	1	2.2	Same
Exempla Good Samaritan Medical Center	**Lafayette**	113	3	3.3	Same
Exempla Lutheran Medical Center	**Wheat Ridge**	140	1	0.9	Same
Exempla St. Joseph Hospital	**Denver**	239	0	0.0	Same
Grand River Medical Center	**Rifle**	21	0	0.0	Same
Longmont United Hospital	**Longmont**	95	0	0.0	Same
McKee Medical Center	**Loveland**	154	3	2.1	Same
Medical Center of Aurora	**Aurora**	107	0	0.0	Same
Medical Center of the Rockies	**Loveland**	20	0	0.0	Same
Memorial Hospital Central	**Colorado Springs**	79	2	3.1	Same

Health Facility and Region		Procedure Count	Infection Count	Standardized Infection Ratio (SIR)-National	National Comparison
Memorial Hospital North	**Colorado Springs**	21	1	5.2	Same
Mercy Regional Medical Center	**Durango**	40	1	3.2	Same
Montrose Memorial Hospital	**Montrose**	36	0	0.0	Same
North Colorado Medical Center	**Greeley**	150	0	0.0	Same
North Suburban Medical Center	**Thornton**	22	1	5.8	Same
Parker Adventist Hospital	**Parker**	55	0	0.0	Same
Parkview Medical Center	**Pueblo**	172	1	0.7	Same
Platte Valley Medical Center	**Brighton**	17	***	***	***
Poudre Valley Hospital	**Fort Collins**	130	0	0.0	Same
Presbyterian St. Luke's Medical Center	**Denver**	6	***	***	***
Prowers Medical Center	**Lamar**	5	***	***	***
Rose Medical Center	**Denver**	115	0	0.0	Same
San Luis Valley Regional Medical Center	**Alamosa**	40	0	0.0	Same
Sky Ridge Medical Center	**Lone Tree**	107	2	2.2	Same
St. Anthony Summit Medical Center	**Frisco**	6	***	***	***
St. Mary's Hospital	**Grand Junction**	180	1	0.7	Same
Sterling Regional Medical Center	**Sterling**	9	***	***	***
Swedish Medical Center	**Englewood**	110	2	2.1	Same
University of Colorado Hospital	**Aurora**	85	0	0.0	Same
Vail Valley Medical Center	**Vail**	28	1	3.6	Same
Valley View Hospital	**Glenwood Springs**	25	3	13.3	Worse
Yampa Valley Medical Center	**Steamboat Springs**	34	0	0.0	Same

The standardized infection ration (SIR) is the ratio of observed to expected infections, and is adjusted for procedure risk.
National comparison based on data collected and reported by NHSN-participating hospitals from 2006-2008.
See "National Healthcare Safety Network (NHSN) Report, Data Summary for 2006-2008, Issued December 2009" (Am J Infect Control 2009; 37:783-805).
Historical comparison based on data collected and reported for a given facility from August 1, 2007-July 31, 2009.
*** Indicates value not shown due to suppression of infections data, or no National or historical rate, or an expected count of zero, to which to compare facility rate.
Infections data for hospitals with fewer than 20 procedures performed in a 12-month period are suppressed to protect confidential health information. These hospitals have met the reporting requirements.
Source: National Healthcare Safety Network (NHSN) Database.
Prepared By: Colorado Patient Safety Program, Colorado Department of Public Health and Environment.

Catheter-Associated Bloodstream Infection Rates

Background

Catheter-associated bloodstream infections are primary bloodstream infections (BSI) that are associated with the presence of a central line within the 48-hour period before a BSI develops. A central line is an intravascular catheter (tube in a vein) that terminates at or close to the heart or in one of the great vessels. An example of a great vessel is the aorta or superior vena cava. A central line can be used to infuse fluids, withdraw blood or monitor fluid volume in patients. An umbilical catheter is a central vascular catheter inserted through the umbilical artery or vein in a neonate (i.e., a tube placed in the umbilical cord).

Central lines can be either permanent or temporary. Permanent lines are those that are tunneled and cuffed (a line that is tunneled under the skin to a separate exit site, where it emerges from underneath the skin and held in place by a cuff). Temporary lines are those that are not tunneled and not cuffed. Permanent lines are commonly used in LTACH patients and may have lower rates of infection than central lines inserted for temporary use. In Colorado, the data show that a majority of LTACHs are using temporary lines. Both types of lines are used to infuse fluids, administer medications and/or blood, or withdraw blood in patients.

Reporting central line data by facility type, central line type, and critical care unit allows for fairer comparisons between health facilities as it takes into account how differences in care and patients' risk for infection lead to differences in infection rates. Many of the central line-associated bloodstream infections that occur in these facility locations can:

- Be prevented by following established prevention techniques;
- Easily be detected and reported accurately; and
- Have a devastating impact on the patient's quality of life.

Central line-associated bloodstream infections (CLABSI) often lead to additional days in the hospital, which can be expensive for healthcare payers, healthcare organizations and patients. Evidence suggests that reporting of infections may lead to better adherence to preventive practices and decrease medical complications or death.

A new analysis in this year's report is the comparison to the "historical data". For the central line- and umbilical catheter-associated bloodstream infection data collected, there are two to three years of data. The historical comparison calculates a Standardized Infection Ratio (or SIR) based on a facility specific infection rate from the previous year(s). An expected number of infections can be calculated based on

previous infection rates and compared to the current year's number of infections. This allows for the comparison of the current data to previous years to ascertain if a facility is doing better, worse or the same. (See Appendices F and G for more information concerning the calculation and interpretation of an SIR.)

Adult Critical Care Units

This section of the report focuses on central line-associated bloodstream infections (CLABSI) acquired in five adult critical care units (CCU). The Department requested facilities report CLABSI by NHSN defined critical care units. The data will cover central lines in the following units:

- Adult Medical/Surgical Critical Care
- Adult Medical Cardiac Critical Care
- Adult Surgical Cardiothoracic Critical Care
- Adult Medical Critical Care
- Adult Surgical Critical Care

Not every hospital will have all five critical care units. Hospitals decide which type of CCU they have by measuring the type of patients that are cared for in that area and applying what is called the 80/20 rule. For instance, the medical CCU serves non-surgical patients, so if a facility finds that 80 percent of their critical care patients are non-surgical that facility would have a medical CCU, according to the NHSN definitions. Facilities that handle 80 percent or more trauma patients in a particular CCU are not required to report for that CCU. The Department is not reporting trauma information as patients in these areas have unique risk factors and complications are often less preventable.

Results

Tables 12 through 16 below show facility specific data for CLABSIs attributed to the five CCU types discussed above. Results are presented separately for each type of CCU. The tables contain data from August 1, 2009 through July 31, 2010.

Each table lists all the hospitals in Colorado with that type of critical care unit, the city where the hospital is located, the number of central line days in the unit, the number of infections in the unit, the infection rate for the unit, comparison to the national infection rate, historical infection rate, and the comparison to the historical infection rate for that unit. The number of central line days is the total number of days a

central line was used in the CCU during the reporting period. The CLABSI rate is the number of infections per 1,000 central line days. The three categories summarizing how a Colorado hospital compares to the national infection rate for that CCU are:

1. Hospitals can have a statistically lower (**better**) infection rate than the national unit rate;
2. Hospitals can have an infection rate that is statistically the **same** as the national unit rate; or
3. Hospitals can have a statistically higher (**worse**) infection rate than the national unit rate.

Table 12: Adult Medical Cardiac Critical Care Unit CLABSI Rates, 2009-2010

The adult medical cardiac critical care location is a critical care unit that specializes in care of patients with serious heart problems that do not require heart surgery.

Central Line Associated Bloodstream Infections (CLABSI) in Adult Medical Cardiac Critical Care Units Reporting Period: August 1, 2009-July 31, 2010.

Health Facility and Region		Central Line Days	CLABSI	CLABSI Rate	National Comparison (National Rate = 2.0)	Historical Rate	Historical Comparison
Exempla Lutheran Medical Center	**Wheat Ridge**	2,127	3	1.4	Same	0.5	Same
Memorial Hospital Central	**Colorado Springs**	1,094	0	0.0	Same	0.6	Same
North Colorado Medical Center	**Greeley**	1,884	1	0.5	Same	0.2	Same
University of Colorado Hospital	**Aurora**	1,052	2	1.9	Same	4.1	Same

Facility CLABSI rates are per 1,000 central line-days.

National comparison based on data collected and reported by NHSN-participating hospitals from 2006-2008.

See "National Healthcare Safety Network (NHSN) Report, Data Summary for 2006-2008, Issued December 2009" (Am J Infect Control 2009; 37:783-805).

Historical comparison based on data collected and reported for a given facility from August 1, 2007-July 31, 2009.

*** Indicates value not shown due to suppression of infections data, or no National or historical rate, or an expected count of zero, to which to compare facility rate.

Infections data for hospitals with fewer than 50 central line-days in a twelve-month period are suppressed to protect confidential health information.

These hospitals have met the reporting requirements.

Source: National Healthcare Safety Network (NHSN) Database.

Prepared By: Colorado Patient Safety Initiatives Program, Colorado Department of Public Health and Environment.

Table 13: Adult Surgical Cardiothoracic Critical Care Unit CLABSI Rates, 2009-2010

The adult medical cardiothoracic critical care location is a critical care unit that specializes in care of patients following cardiac and thoracic surgery (i.e., surgeries on the organs within the chest-like the heart or lungs).

Central Line Associated Bloodstream Infections (CLABSI) in Adult Surgical Cardiothoracic Critical Care Units Reporting Period: August 1, 2009-July 31, 2010.

Health Facility and Region		Central Line Days	CLABSI	CLABSI Rate	National Comparison (National Rate = 1.4)	Historical Rate	Historical Comparison
Centura St. Anthony Central Hospital	**Denver**	2,434	1	0.4	Same	0.3	Same
St. Mary's Hospital	**Grand Junction**	3,014	1	0.3	Same	0.7	Same

Facility CLABSI rates are per 1,000 central line-days.
National comparison based on data collected and reported by NHSN-participating hospitals from 2006-2008.
See "National Healthcare Safety Network (NHSN) Report, Data Summary for 2006-2008, Issued December 2009" (Am J Infect Control 2009; 37:783-805).
Historical comparison based on data collected and reported for a given facility from August 1, 2007-July 31, 2009.
*** Indicates value not shown due to suppression of infections data, or no National or historical rate, or an expected count of zero, to which to compare facility rate.
Infections data for hospitals with fewer than 50 central line-days in a twelve-month period are suppressed to protect confidential health information. These hospitals have met the reporting requirements.
Source: National Healthcare Safety Network (NHSN) Database.
Prepared By: Colorado Patient Safety Initiatives Program, Colorado Department of Public Health and Environment.

Table 14: Adult Medical/Surgical Critical Care Unit CLABSI Rates, 2009-2010

The adult medical/surgical critical care location is a critical care unit for critically ill patients who are being treated for medical conditions, surgical conditions or both.

Central Line Associated Bloodstream Infections (CLABSI) in Adult Medical/Surgical Critical Care Units Reporting Period: August 1, 2009-July 31, 2010.

Health Facility and Region		Central Line Days	CLABSI	CLABSI Rate	National Comparison (National Rate = 1.5)	Historical Rate	Historical Comparison
Arkansas Valley Regional Medical Center	**La Junta**	167	0	0.0	Same	0.0	***
Aspen Valley Hospital	**Aspen**	55	0	0.0	Same	0.0	***
Boulder Community Hospital	**Boulder**	1,711	1	0.6	Same	1.5	Same
Centura Avista Adventist Hospital	**Louisville**	484	0	0.0	Same	1.6	Same

Health Facility and Region		Central Line Days	CLABSI	CLABSI Rate	National Comparison (National Rate = 1.5)	Historical Rate	Historical Comparison
Centura Littleton Adventist Hospital	**Littleton**	2,962	3	1.0	Same	0.0	***
Centura Penrose St. Francis Health	**Colorado Springs**	3,391	11	3.2	Worse	1.3	Worse
Centura Porter Adventist Hospital	**Denver**	3,813	4	1.0	Same	1.7	Same
Centura St. Anthony Central Hospital	**Denver**	339	0	0.0	Same	***	***
Centura St. Francis Medical Center	**Colorado Springs**	769	1	1.3	Same	2.9	Same
Centura St. Mary Corwin Medical Center	**Pueblo**	2,584	0	0.0	Better	1.0	Same
Centura St. Thomas More Hospital	**Canon City**	15	***	***	***	0.0	***
Colorado Plains Medical Center	**Fort Morgan**	55	0	0.0	Same	0.0	***
Community Hospital	**Grand Junction**	344	0	0.0	Same	1.1	Same
Delta County Memorial Hospital	**Delta**	419	0	0.0	Same	0.0	***
Exempla Good Samaritan Medical Center	**Lafayette**	2,622	2	0.8	Same	1.1	Same
Exempla Lutheran Medical Center	**Wheat Ridge**	4,038	2	0.5	Same	0.6	Same
Exempla St. Joseph Hospital	**Denver**	4,330	1	0.2	Better	0.3	Same
Heart of the Rockies Regional Medical Center	**Salida**	22	***	***	***	0.0	***
Longmont United Hospital	**Longmont**	2,778	0	0.0	Better	0.6	Same
McKee Medical Center	**Loveland**	782	0	0.0	Same	2.4	Same
Medical Center of Aurora	**Aurora**	4,850	12	2.5	Same	1.7	Same
Medical Center of the Rockies-North Wing	**Loveland**	1,752	0	0.0	Same	0.0	***
Medical Center of the Rockies-South Wing	**Loveland**	1,903	1	0.5	Same	0.6	Same
Memorial Hospital Central	**Colorado Springs**	4,237	10	2.4	Same	0.9	Worse
Memorial Hospital North	**Colorado Springs**	365	0	0.0	Same	3.2	Same
Mercy Regional Medical Center	**Durango**	1,117	1	0.9	Same	0.5	Same
Montrose Memorial Hospital	**Montrose**	462	0	0.0	Same	0.0	***
North Colorado Medical Center	**Greeley**	2,368	1	0.4	Same	0.9	Same
North Suburban Medical Center	**Thornton**	1,833	3	1.6	Same	0.6	Same
Parker Adventist Hospital	**Parker**	1,292	1	0.8	Same	4.2	Same
Parkview Medical Center	**Pueblo**	1,759	2	1.1	Same	0.6	Same
Poudre Valley Hospital	**Fort Collins**	1,736	2	1.2	Same	0.9	Same
Presbyterian St. Luke's Medical Center	**Denver**	2,555	2	0.8	Same	1.9	Same
Rose Medical Center	**Denver**	2,370	8	3.4	Same	1.9	Same
San Luis Valley Regional Medical Center	**Alamosa**	327	0	0.0	Same	0.0	***
Sky Ridge Medical Center	**Lone Tree**	2,377	1	0.4	Same	1.6	Same

Health Facility and Region		Central Line Days	CLABSI	CLABSI Rate	National Comparison (National Rate = 1.5)	Historical Rate	Historical Comparison
Southwest Memorial Hospital	**Cortez**	160	0	0.0	Same	0.0	***
St. Anthony Summit Medical Center	**Frisco**	68	0	0.0	Same	3.8	Same
St. Mary's Hospital	**Grand Junction**	602	0	0.0	Same	1.7	Same
Sterling Regional Medical Center	**Sterling**	217	0	0.0	Same	0.0	***
Swedish Medical Center	**Englewood**	8,261	15	1.8	Same	2.5	Same
Vail Valley Medical Center	**Vail**	166	0	0.0	Same	0.0	***
Valley View Hospital	**Glenwood Springs**	407	0	0.0	Same	0.0	***
Yampa Valley Medical Center	**Steamboat Springs**	58	0	0.0	Same	0.0	***

Facility CLABSI rates are per 1,000 central line-days.
National comparison based on data collected and reported by NHSN-participating hospitals from 2006-2008.
See "National Healthcare Safety Network (NHSN) Report, Data Summary for 2006-2008, Issued December 2009" (Am J Infect Control 2009; 37:783-805).
Historical comparison based on data collected and reported for a given facility from August 1, 2007-July 31, 2009.
*** Indicates value not shown due to suppression of infections data, or no National or historical rate, or an expected count of zero, to which to compare facility rate.
Infections data for hospitals with fewer than 50 central line-days in a twelve-month period are suppressed to protect confidential health information. These hospitals have met the reporting requirements.
Source: National Healthcare Safety Network (NHSN) Database.
Prepared By: Colorado Patient Safety Initiatives Program, Colorado Department of Public Health and Environment.

Table 15: Adult Medical Critical Care Unit CLABSI Rates, 2009-2010

The adult medical critical care location is a critical care unit for patients who are being treated for non-surgical conditions.

Central Line Associated Bloodstream Infections (CLABSI) in Adult Medical Critical Care Units Reporting Period: August 1, 2009-July 31, 2010.

Health Facility and Region		Central Line Days	CLABSI	CLABSI Rate	National Comparison (National Rate = 2.6)	Historical Rate	Historical Comparison
Boulder Community Hospital-Foothills	**Boulder**	109	0	0.0	Same	0.0	***
Centura St. Anthony Central Hospital	**Denver**	2,916	0	0.0	Better	0.7	Same
Centura St. Anthony North Hospital	**Westminster**	3,503	5	1.4	Same	1.1	Same
Denver Health Medical Center	**Denver**	3,324	6	1.8	Same	0.9	Same
Platte Valley Medical Center	**Brighton**	398	1	2.5	Same	2.7	Same
University of Colorado Hospital	**Aurora**	3,394	9	2.7	Same	3.3	Same

Facility CLABSI rates are per 1,000 central line-days.
National comparison based on data collected and reported by NHSN-participating hospitals from 2006-2008.
See "National Healthcare Safety Network (NHSN) Report, Data Summary for 2006-2008, Issued December 2009" (Am J Infect Control 2009; 37:783-805).
Historical comparison based on data collected and reported for a given facility from August 1, 2007-July 31, 2009.
*** Indicates value not shown due to suppression of infections data, or no National or historical rate, or an expected count of zero, to which to compare facility rate.
Infections data for hospitals with fewer than 50 central line-days in a twelve-month period are suppressed to protect confidential health information. These hospitals have met the reporting requirements.
Source: National Healthcare Safety Network (NHSN) Database.
Prepared By: Colorado Patient Safety Initiatives Program, Colorado Department of Public Health and Environment.

Table 16: Adult Surgical Critical Care Unit CLABSI Rates, 2009-2010

The adult surgical critical care location is a critical care unit for the evaluation and management of patients with serious illness before and/or after surgery.

Central Line Associated Bloodstream Infections (CLABSI) in Adult Surgical Critical Care Units Reporting Period: August 1, 2009-July 31, 2010.

Health Facility and Region		Central Line Days	CLABSI	CLABSI Rate	National Comparison (National Rate = 2.3)	Historical Rate	Historical Comparison
Centura St Anthony Central Hospital	**Denver**	817	3	3.7	Same	***	***
University of Colorado Hospital	**Aurora**	3,701	13	3.5	Same	3.8	Same

Facility CLABSI rates are per 1,000 central line-days.
National comparison based on data collected and reported by NHSN-participating hospitals from 2006-2008.
See "National Healthcare Safety Network (NHSN) Report, Data Summary for 2006-2008, Issued December 2009" (Am J Infect Control 2009; 37:783-805).
Historical comparison based on data collected and reported for a given facility from August 1, 2007-July 31, 2009.
*** Indicates value not shown due to suppression of infections data, or no National or historical rate, or an expected count of zero, to which to compare facility rate.
Infections data for hospitals with fewer than 50 central line-days in a twelve-month period are suppressed to protect confidential health information. These hospitals have met the reporting requirements.
Source: National Healthcare Safety Network (NHSN) Database.
Prepared By: Colorado Patient Safety Initiatives Program, Colorado Department of Public Health and Environment.

Long-Term Acute Care Hospitals

This section of the report focuses on central line-associated bloodstream infections (CLABSI) acquired in long-term acute care hospitals (LTACH). An LTACH is a specialty care hospital that cares for patients with complex medical conditions requiring intense, specialized treatment for a long period of time (an average length of stay is 25 days). These patients often transfer from critical care units in traditional hospitals. Patients in these facilities have a higher severity of illness often with multi-system complications posing a challenge for infection control. Long-term acute care hospitals began reporting data in August, 2008.

Results

Tables 17 and 18 below show facility specific data for CLABSI in long-term acute care hospitals for both temporary central lines and permanent central lines. The tables contain data from August 1, 2009 through July 31, 2010.

Each table lists all the LTACHs in Colorado, the city where the hospital is located, the number of central line days in the unit, the number of infections in the unit, the infection rate for the unit, comparison to the national infection rate, historical infection rate, and the comparison to the historical infection rate for that unit. The number of central line days is the total number of days a central line was used in the LTACH during the reporting period. The central line-associated bloodstream infection rate is the number of infections per 1,000 central line days. The three categories summarizing how a Colorado hospital compares to the national infection rate for that CCU are:

1. Hospitals can have a statistically lower (**better**) infection rate than the national unit rate;
2. Hospitals can have an infection rate that is statistically the **same** as the national unit rate; or
3. Hospitals can have a statistically higher (**worse**) infection rate than the national unit rate.

Table 17: Long-Term Acute Care Hospital CLABSI Rates for Permanent Lines, 2009-2010

Central Line Associated Bloodstream Infections (CLABSI) in Long-Term Acute Care Hospitals (LTACH), Permanent (Tunneled) Lines Reporting Period: August 1, 2009-July 31, 2010.

Health Facility and Region		Permanent Central Line Days	CLABSI	CLABSI Rate	National Comparison (National Rate = 1.6)	Historical Rate	Historical Comparison
Colorado Acute Long Term Hospital	**Denver**	430	0	0.0	Same	0.0	***
Craig Hospital	**Englewood**	231	0	0.0	Same	0.0	***
Kindred Hospital	**Denver**	991	2	2.0	Same	1.0	Same
Northern Colorado Long Term Acute Hospital	**Johnstown**	127	0	0.0	Same	***	***
Select Long Term Care Hospital	**Colorado Springs**	3,748	3	0.8	Same	1.0	Same
Select Specialty Hospital South Campus	**Denver**	105	0	0.0	Same	***	***
Select Specialty Hospital	**Denver**	70	0	0.0	Same	***	***
Triumph Acute Long Term Care Hospital of Aurora	**Aurora**	708	0	0.0	Same	***	***
Vibra Long Term Acute Care Hospital	**Thornton**	777	0	0.0	Better	0.0	***

Facility permanent (tunneled) central line infection rates are per 1,000 permanent central line-days.
National comparison based on data collected and reported by NHSN-participating hospitals from 2006-2008.
See "National Healthcare Safety Network (NHSN) Report, Data Summary for 2006-2008, Issued December 2009" (Am J Infect Control 2009; 37:783-805).
Historical comparison based on data collected and reported for a given facility from August 1, 2008-July 31, 2009.
*** Indicates value not shown due to suppression of infections data, or no National or historical rate, or an expected count of zero, to which to compare facility rate.
Infections data for hospitals with fewer than 50 central line-days in a twelve-month period are suppressed to protect confidential health information. These hospitals have met the reporting requirements.
Source: National Healthcare Safety Network (NHSN) Database.
Prepared By: Colorado Patient Safety Initiatives Program, Colorado Department of Public Health and Environment.

Table 18: Long-Term Acute Care Hospital CLABSI Rates for Temporary Lines, 2009-2010

Central Line Associated Bloodstream Infections (CLABSI) in Long-Term Acute Care Hospital (LTACH), Temporary (Non-Tunneled) Lines Reporting Period: August 1, 2009-July 31, 2010.

Health Facility and Region		Temporary Central Line Days	CLABSI	CLABSI Rate	National Comparison (National Rate = 1.7)	Historical Rate	Historical Comparison
Colorado Acute Long Term Hospital	**Denver**	5,545	7	1.3	Same	3.0	Better
Craig Hospital	**Englewood**	5,442	1	0.2	Better	0.0	***
Kindred Hospital	**Denver**	5,122	12	2.3	Same	2.8	Same
Northern Colorado Long Term Acute Hospital	**Johnstown**	4,559	12	2.6	Same	2.3	Same
Select Long Term Care Hospital	**Colorado Springs**	139	0	0.0	Same	4.1	Same
Select Specialty Hospital South Campus	**Denver**	3,991	4	1.0	Same	1.6	Same
Select Specialty Hospital	**Denver**	4,370	3	0.7	Same	1.0	Same
Triumph Acute Long Term Care Hospital of Aurora	**Aurora**	3,733	8	2.1	Same	1.7	Same
Vibra Long Term Acute Care Hospital	**Thornton**	4,649	1	0.2	Better	1.0	Same

Facility temporary (non-tunneled) central line infection rates are per 1,000 temporary central line-days.
National comparison based on data collected and reported by NHSN-participating hospitals from 2006-2008.
See "National Healthcare Safety Network (NHSN) Report, Data Summary for 2006-2008, Issued December 2009" (Am J Infect Control 2009; 37:783-805).
Historical comparison based on data collected and reported for a given facility from August 1, 2008-July 31, 2009.
*** Indicates value not shown due to suppression of infections data, or no National or historical rate, or an expected count of zero, to which to compare facility rate.
Infections data for hospitals with fewer than 50 central line-days in a twelve-month period are suppressed to protect confidential health information. These hospitals have met the reporting requirements.
Source: National Healthcare Safety Network (NHSN) Database.
Prepared By: Colorado Patient Safety Initiatives Program, Colorado Department of Public Health and Environment.

Neonatal Critical Care Units

This section of the report focuses on central line-associated bloodstream infections (CLABSI) and umbilical catheter-associated bloodstream infections (UCABI) for Neonatal Level II/III Combined Critical Care Units and for Neonatal Level III Critical Care Units.

Level III NCCUs provide care to the sickest newborn infants while level I units would care for healthy newborn infants. Level III NCCUs are organized with personnel and equipment to provide continuous life support and comprehensive care for extremely high-risk newborn infants and those with complex critical illness. Level III NCCUs have a neonatologist on duty at all times. Neonatologists are pediatricians who have special training to deal with diseases and care of newborn infants. The designation between level III and level II/III is defined by the NHSN reporting guidelines. If a hospital is not able to separate infants in the unit that are receiving level II care and those receiving level III care, that hospital is required to report data as a level II/III combined NCCU.

Results

Tables 19 through 22 show the results of data collected in each NCCU level. The reporting period is from August 1, 2009 through July 31, 2010. The first and second tables show information on CLABSI in level II/III and level III, respectively. The third and fourth tables show data on umbilical catheter-associated bloodstream infections (UCABI) in level II/III and level III, respectively. The comparison data to the national rates is risk stratified by the following birth weight categories:

1. Less than or equal to 1.65 pounds (≤750 grams)
2. 1.66 to 2.2 pounds (751-1,000 grams)
3. 2.3 to 3.3 pounds (1,001-1,500 grams)
4. 3.4 to 5.5 pounds (1,501-2,500 grams)
5. Greater than 5.5 pounds (>2,500 grams)

The weight is that of the infant at the time of birth and does not reflect changes during the hospital stay. For example, if a newborn infant weighs 1.66 pounds at birth but remains in the NCCU for two months and has a body weight of 3.3 pounds when it develops an infection, the recorded birth weight would still be 1.66 pounds. See Appendix G for the calculation description for the NCCU infection data.

Each table lists the hospital name, the city where the hospital is located, the number of central line catheter days in the unit, the number of infections in the unit, the infection rate for the unit, the national infection rate, comparison to the national infection rate, historical infection rate, and the comparison to the historical infection rate for that unit. The number of catheter days is the total number of days a catheter was

used in the NCCU during the reporting period. The infection rate is the number of infections per 1,000 catheter days. The three categories summarizing how a Colorado hospital compares to the national infection rate for that NCCU are:

1. Hospitals can have a statistically lower (**better**) infection rate than the national unit rate;
2. Hospitals can have an infection rate that is statistically the **same** as the national unit rate; or
3. Hospitals can have a statistically higher (**worse**) infection rate than the national unit rate.

A new analysis in this year's report is the comparison to the "historical data". For most of the data collected, there are three years of data. The historical comparison calculates a Standardized Infection Ratio (or SIR) based on a facility specific infection rate from the previous year(s). An expected number of infections can be calculated based on previous infection rates and compared to the current year's number of infections. This allows for the comparison of the current data to previous years' to ascertain if a facility is doing better, worse or the same as previous years. (See Appendices F and G for more information concerning the calculation and interpretation of an SIR.)

Cautions

There are some cautions consumers should be aware of when interpreting the data in this report. Some medical conditions in newborn infants predispose them to bloodstream infections whether they have a catheter in place or not. This means that the catheter may not be the reason the blood became infected. For example, bloodstream infections in infants with major intestinal problems are common because bacteria in the intestine can access the bloodstream very easily. The clinical picture must be looked at in its entirety to determine whether the bloodstream infection was primary or secondary to another source site.

Another limitation of the definition used to report bloodstream infections in newborn infants is that it includes a category called clinical sepsis. This requires that a patient's medical chart be checked each day for key signs and symptoms of infection. Hospitals with electronic record systems can scan their records by generating automated reports, but some facilities must complete the process manually. The results could provide more accurate data collection and higher reported infection rates.

However, as of January 1, 2010, the NHSN deleted clinical sepsis as a reporting category. There were multiple challenges identified through feedback by clinical professionals with this event type, including the arguments that the definition was too subjective and non-specific and data collection was too labor-intensive. Therefore, only five months of the data includes the clinical sepsis cases (August 2009 – December 2009).

Table 19: Neonatal Critical Care Unit Level II/III CLABSI Rates, 2009-2010

Central Line Associated Bloodstream Infections (CLABSI) in Neonatal Critical Care Level II/III Combined Units Reporting Period: August 1, 2009-July 31, 2010.

Health Facility and Region		Central Line Days	CLABSI	CLABSI Rate	National Comparison	Historical Rate	Historical Comparison
Centura Avista Adventist Hospital	Louisville	9	***	***	***	0.0	***
Centura St. Francis Medical Center	Colorado Springs	347	0	0.0	Same	0.0	***
Denver Health Medical Center	Denver	631	0	0.0	Same	1.7	Same
Exempla Lutheran Medical Center	Wheat Ridge	54	2	37.0	Worse	5.2	Same
Exempla St. Joseph Hospital	Denver	860	0	0.0	Same	2.7	Same
Medical Center of Aurora	Aurora	4	***	***	***	0.0	***
Parker Adventist Hospital	Parker	87	0	0.0	Same	0.0	***
Poudre Valley Hospital	Fort Collins	359	1	2.8	Same	0.0	***
Rose Medical Center	Denver	172	0	0.0	Same	0.0	***
Sky Ridge Medical Center	Lone Tree	75	1	13.3	Same	0.0	***
Swedish Medical Center	Englewood	215	0	0.0	Same	0.0	***
University of Colorado Hospital	Aurora	2,016	2	1.0	Same	2.6	Same

Facility CLABSI rates are per 1,000 central line-days.
National comparison based on birth weight-adjusted data collected and reported by NHSN-participating hospitals from 2006-2008.
See "National Healthcare Safety Network (NHSN) Report, Data Summary for 2006-2008, Issued December 2009" (Am J Infect Control 2009; 37:783-805).
Historical comparison based on birth weight-adjusted data collected and reported for a given facility from August 1, 2008-July 31, 2009.
*** Indicates value not shown due to suppression of infections data, or no National or historical rate, or an expected count of zero, to which to compare facility rate.
Infections data for hospitals with fewer than 50 central line-days in a twelve-month period are suppressed to protect confidential health information. These hospitals have met the reporting requirements.
Source: National Healthcare Safety Network (NHSN) Database.
Prepared By: Colorado Patient Safety Initiatives Program, Colorado Department of Public Health and Environment.

Table 20: Neonatal Critical Care Unit Level III CLABSI Rates, 2009-2010

Central Line Associated Bloodstream Infections (CLABSI) in Neonatal Critical Care Level III Units Reporting Period: August 1, 2009-July 31, 2010.

Health Facility and Region		Central Line Days	CLABSI	CLABSI Rate	National Comparison	Historical Rate	Historical Comparison
Centura Littleton Adventist Hospital	Littleton	213	0	0.0	Same	0.0	***
Memorial Hospital Central	Colorado Springs	1,777	5	2.8	Same	4.5	Same
Presbyterian St Luke's Medical Center	Denver	2,726	2	0.7	Better	2.7	Better
St. Mary's Hospital	Grand Junction	516	0	0.0	Same	0.0	***
The Children's Hospital	Aurora	3,976	17	4.3	Same	5.0	Same

Facility CLABSI rates are per 1,000 central line-days.
National comparison based on birth weight-adjusted data collected and reported by NHSN-participating hospitals from 2006-2008.
See "National Healthcare Safety Network (NHSN) Report, Data Summary for 2006-2008, Issued December 2009" (Am J Infect Control 2009; 37:783-805).
Historical comparison based on birth weight-adjusted data collected and reported for a given facility from August 1, 2008-July 31, 2009.
*** Indicates value not shown due to suppression of infections data, or no National or historical rate, or an expected count of zero, to which to compare facility rate.
Infections data for hospitals with fewer than 50 central line-days in a twelve-month period are suppressed to protect confidential health information. These hospitals have met the reporting requirements.
Source: National Healthcare Safety Network (NHSN) Database.
Prepared By: Colorado Patient Safety Initiatives Program, Colorado Department of Public Health and Environment.

Table 21: Neonatal Critical Care Unit Level II/III UCABI Rates, 2009-2010

Umbilical Catheter-Associated Bloodstream Infections (UCABI) in Neonatal Critical Care Level II/III Combined Units Reporting Period: August 1, 2009-July 31, 2010.

Health Facility and Region		Umbilical Line Days	UCABI	UCABI Rate	National Comparison	Historical Rate	Historical Comparison
Centura Avista Adventist Hospital	Louisville	81	0	0.0	Same	6.9	Same
Centura St Francis Medical Center	Colorado Springs	421	0	0.0	Same	0.0	***
Denver Health Medical Center	Denver	348	0	0.0	Same	1.8	Same
Exempla Lutheran Medical Center	Wheat Ridge	364	0	0.0	Same	1.7	Same
Exempla St Joseph Hospital	Denver	478	2	4.2	Same	2.5	Same

Health Facility and Region		Umbilical Line Days	UCABI	UCABI Rate	National Comparison	Historical Rate	Historical Comparison
Medical Center of Aurora	**Aurora**	82	0	0.0	Same	0.0	***
Parker Adventist Hospital	**Parker**	193	0	0.0	Same	0.0	***
Poudre Valley Hospital	**Fort Collins**	1,104	3	2.7	Same	2.5	Same
Rose Medical Center	**Denver**	348	0	0.0	Same	0.0	***
Sky Ridge Medical Center	**Lone Tree**	95	1	10.5	Same	0.0	***
Swedish Medical Center	**Englewood**	165	0	0.0	Same	3.4	Same
University of Colorado Hospital	**Aurora**	1,201	2	1.7	Same	2.3	Same

Facility UCABI rates are per 1,000 umbilical catheter-days.
National comparison based on birth weight-adjusted data collected and reported by NHSN-participating hospitals from 2006-2008.
See "National Healthcare Safety Network (NHSN) Report, Data Summary for 2006-2008, Issued December 2009" (Am J Infect Control 2009; 37:783-805).
Historical comparison based on birth weight-adjusted data collected and reported for a given facility from August 1, 2008-July 31, 2009.
*** Indicates value not shown due to suppression of infections data, or no National or historical rate, or an expected count of zero, to which to compare facility rate.
Infections data for hospitals with fewer than 50 umbilical catheter-days in a twelve-month period are suppressed
to protect confidential health information. These hospitals have met the reporting requirements.
Source: National Healthcare Safety Network (NHSN) Database.
Prepared By: Colorado Patient Safety Initiatives Program, Colorado Department of Public Health and Environment.

Table 22: Neonatal Critical Care Unit Level III UCABI Rates, 2009-2010

Umbilical Catheter-Associated Bloodstream Infections (UCABI) in Neonatal Critical Care Level III Units Reporting Period: August 1, 2009-July 31, 2010.

Health Facility and Region		Umbilical Line Days	UCABI	UCABI Rate	National Comparison	Historical Rate	Historical Comparison
Centura Littleton Adventist Hospital	**Littleton**	123	0	0.0	Same	0.0	***
Memorial Hospital Central	**Colorado Springs**	1,036	5	4.8	Same	1.7	Same
Presbyterian St. Luke's Medical Center	**Denver**	1,410	0	0.0	Same	0.7	Same
St. Mary's Hospital	**Grand Junction**	369	0	0.0	Same	0.0	***
The Children's Hospital	**Aurora**	1,068	2	1.9	Same	1.4	Same

Facility UCABI rates are per 1,000 umbilical catheter-days.
National comparison based on birth weight-adjusted data collected and reported by NHSN-participating hospitals from 2006-2008.
See "National Healthcare Safety Network (NHSN) Report, Data Summary for 2006-2008, Issued December 2009" (Am J Infect Control 2009; 37:783-805).
Historical comparison based on birth weight-adjusted data collected and reported for a given facility from August 1, 2007-July 31, 2009.
*** Indicates value not shown due to suppression of infections data, or no National or historical rate, or an expected count of zero, to which to compare facility rate.
Infections data for hospitals with fewer than 50 umbilical catheter-days in a twelve-month period are suppressed to protect confidential health information. These hospitals have met the reporting requirements.
Source: National Healthcare Safety Network (NHSN) Database.
Prepared By: Colorado Patient Safety Initiatives Program, Colorado Department of Public Health and Environment.

Dialysis-Related Infection Rates

Background

This section focuses on dialysis-related infections acquired in dialysis treatment centers (DTC). Reporting dialysis centers in Colorado monitor patients for any of three specific events that trigger a report: 1) an overnight hospital stay, 2) an outpatient start of an intravenous antimicrobial, or 3) a positive blood culture. More than one type of event may be recorded on a single patient's report. This report depicts counts and rates of vascular access infections, which include two different types of dialysis-related infections: local access infections (LAI) and access-associated bacteremia (AAB). An LAI infection is defined as the presence of pus, redness, or swelling of the vascular access site without the presence of an AAB. An AAB infection, which has a much more serious impact on a patient's health and requires a higher level of care, is defined as the presence of a microorganism identified in a blood culture where the source of infection was reported as the vascular access site. Although an LAI is not as severe as an AAB infection, antibiotics will usually be administered in either case.

Results

Tables 23 through 26 below show the number and rates of LAI and AAB infections broken down by vascular access type: fistulas, grafts, temporary central lines and permanent central lines (See Appendix C for more information about dialysis access types). Not all facilities serve patient populations with all four types of vascular access. Therefore, some facilities report data for fewer than four access types. Dialysis facilities began reporting data in March of this year and the reporting period is from March 1, 2010 through July 31, 2010.

Each table lists the facility name, city of location, number of hemodialysis patients with the specified access type, number of AAB infections, AAB infection rate, comparison to the national AAB rate, number of LAIs, LAI rate, and comparison to the national LAI rate. The number of patients equals the number of patients with a particular access type that visited the dialysis center during the first two days of the month. The infection rate is per 100 patients. The three categories summarizing how a Colorado dialysis treatment center compares to the national infection rate for that DTC are:

1. Hospitals can have a statistically lower (**better**) infection rate than the national rate;
2. Hospitals can have an infection rate that is statistically the **same** as the national rate; or
3. Hospitals can have a statistically higher (**worse**) infection rate than the national rate.

Table 23: Dialysis-related infections, Access type: fistula, March 1, 2010-July 31, 2010 data

Dialysis Related infections (Access Associated Bactermia: AAB and Local Access Infection: LAI) by Access Types Access type: Fistula Reporting period: March 1, 2010 - July 31, 2010								
Dialysis Centers	**Region**	**Number of patients**	**AAB count**	**AAB rate**	**National Comparison (National rate = 0.2)**	**LAI count**	**LAI Rate**	**National Comparison (National rate = 0.2)**
Alamosa Dialysis	**Alamosa**	171	0	0.0	Same	0	0.0	Same
Arvada Dialysis Center	**Arvada**	224	0	0.0	Same	1	0.4	Same
Aurora Dialysis Center	**Aurora**	513	0	0.0	Same	1	0.2	Same
Belcaro Dialysis Center	**Denver**	247	2	0.8	Same	0	0.0	Same
Boulder Dialysis Center	**Boulder**	123	0	0.0	Same	1	0.8	Same
Brighton Dialysis	**Brighton**	193	1	0.5	Same	1	0.5	Same
Commerce City Dialysis	**Commerce City**	235	0	0.0	Same	0	0.0	Same
Cortez Dialysis Center	**Cortez**	197	0	0.0	Same	0	0.0	Same
Denver Dialysis Center	**Denver**	283	0	0.0	Same	3	1.1	Worse
Denver Women's Correctional Facility Dialysis Center	**Denver**	74	0	0.0	Same	0	0.0	Same
Dialysis Clinic Inc Grand Junction	**Grand Junction**	37	0	0.0	Same	0	0.0	Same
Dialysis Clinic Inc Montrose	**Montrose**	106	1	0.9	Same	0	0.0	Same
Durango Dialysis Center	**Durango**	117	1	0.9	Same	0	0.0	Same
East Aurora Dialysis	**Aurora**	441	3	0.7	Same	1	0.2	Same
Englewood Dialysis Center	**Englewood**	164	0	0.0	Same	0	0.0	Same
FMC Dialysis Services of Denver Central	**Denver**	443	1	0.2	Same	4	0.9	Worse
FMC Dialysis Services of East Denver	**Aurora**	348	1	0.3	Same	0	0.0	Same
FMC Dialysis Services of Lamar	**Lamar**	52	0	0.0	Same	0	0.0	Same
FMC Dialysis Services of Park Hill	**Denver**	106	0	0.0	Same	2	1.9	Worse
FMC Dialysis Services of Rocky Mountain	**Denver**	299	0	0.0	Same	3	1.0	Worse
FMC Dialysis Services of Pueblo South	**Pueblo**	227	0	0.0	Same	0	0.0	Same
Fountain Dialysis	**Fountain**	153	0	0.0	Same	0	0.0	Same
Grand Junction Dialysis Center	**Grand Junction**	370	5	1.4	Worse	3	0.8	Same
Kidney Center of Arvada LLC	**Arvada**	299	2	0.7	Same	1	0.3	Same
Kidney Center of Lafayette	**Lafayette**	132	0	0.0	Same	1	0.8	Same
Kidney Center of Lakewood	**Lakewood**	205	0	0.0	Same	1	0.5	Same

Dialysis Centers	Region	Number of patients	AAB count	AAB rate	National Comparison (National rate = 0.2)	LAI count	LAI Rate	National Comparison (National rate = 0.2)
Kidney Center of Longmont	**Longmont**	201	2	1.0	Same	7	3.5	Worse
Kidney Center of Westminster	**Westminster**	315	1	0.3	Same	1	0.3	Same
Lakewood Crossing Dialysis Center	**Lakewood**	372	0	0.0	Same	10	2.7	Worse
Lakewood Dialysis Center	**Lakewood**	371	1	0.3	Same	2	0.5	Same
Liberty Dialysis Castle Rock LLC	**Castle Rock**	18	***	***	***	***	***	***
Liberty Dialysis Colorado Springs Central	**Colorado Springs**	72	0	0.0	Same	0	0.0	Same
Liberty Dialysis Colorado Springs North	**Colorado Springs**	98	0	0.0	Same	0	0.0	Same
Liberty Dialysis Colorado Springs South	**Colorado Springs**	163	1	0.6	Same	0	0.0	Same
Liberty Dialysis Pueblo LLC	**Pueblo**	108	0	0.0	Same	1	0.9	Same
Littleton Dialysis Center	**Littleton**	269	1	0.4	Same	1	0.4	Same
Lonetree Dialysis Center	**Lonetree**	174	2	1.1	Same	0	0.0	Same
Longmont Dialysis Center	**Longmont**	166	0	0.0	Same	1	0.6	Same
Loveland Dialysis	**Loveland**	227	1	0.4	Same	0	0.0	Same
Lowry Dialysis Center	**Denver**	356	0	0.0	Same	2	0.6	Same
Mesa County Dialysis	**Grand Junction**	8	***	***	***	***	***	***
North Colorado Springs Dialysis	**Colorado Springs**	45	0	0.0	Same	0	0.0	Same
North Metro Dialysis Center	**Westminster**	121	0	0.0	Same	3	2.5	Worse
Northern Colorado Kidney Center	**Fort Collins**	256	0	0.0	Same	0	0.0	Same
Parker Dialysis Center	**Parker**	63	0	0.0	Same	1	1.6	Same
Pikes Peak Dialysis Center	**Colorado Springs**	289	1	0.3	Same	4	1.4	Worse
Printers Place Dialysis Center	**Colorado Springs**	84	0	0.0	Same	1	1.2	Same
Qualicenters Canon City	**Canon City**	88	0	0.0	Same	0	0.0	Same
Qualicenters La Junta	**La Junta**	81	0	0.0	Same	1	1.2	Same
Qualicenters Pueblo	**Pueblo**	245	0	0.0	Same	2	0.8	Same
Qualicenters Walsenburg	**Walsenburg**	36	0	0.0	Same	0	0.0	Same
Reliant Renal Care RRC Colorado Springs	**Colorado Springs**	65	1	1.5	Same	0	0.0	Same
Reliant Renal Care RRC Trinidad	**Trinidad**	50	0	0.0	Same	0	0.0	Same
South Denver Dialysis Center	**Denver**	224	1	0.4	Same	0	0.0	Same
Sterling Regional Medcenter-ESRD	**Sterling**	98	0	0.0	Same	0	0.0	Same
Thornton Dialysis Center	**Thornton**	293	0	0.0	Same	0	0.0	Same
University of Colorado Hospital	**Aurora**	128	0	0.0	Same	0	0.0	Same
Westminster Dialysis Center	**Westminster**	203	0	0.0	Same	1	0.5	Same

Dialysis Centers	Region	Number of patients	AAB count	AAB rate	National Comparison (National rate = 0.2)	LAI count	LAI Rate	National Comparison (National rate = 0.2)
Willow Station Dialysis	**Greeley**	296	0	0.0	Same	0	0.0	Same

National comparison based on data collected and reported by NHSN-participating hospitals from 2006-2008.
See "National Healthcare Safety Network (NHSN) Report, Data Summary for 2006-2008, Issued December 2009" (Am J Infect Control 2009; 37:783-805).
*** Indicates value not shown due to suppression of infections data, or no National or historical rate, or an expected count of zero,
to which to compare facility rate.
Infections data for hospitals with fewer than 20 patients performed in the 5-month period are suppressed to protect confidential health information.
These hospitals have met the reporting requirements.
Source: National Healthcare Safety Network (NHSN) Database.
Prepared By: Colorado Patient Safety Program, Colorado Department of Public Health and Environment.

Table 24: Dialysis-associated infections, Access type: graft, March 1, 2010-July 31, 2010 data

Dialysis Related infections (Access Associated Bactermia: AAB and Local Access Infection: LAI) by Access Types
Access type: Graft
Reporting period: March 1, 2010 - July 31, 2010

Dialysis Centers	Region	Number of patients	AAB count	AAB rate	National Comparison (National rate = 0.4)	LAI count	LAI rate	National comparison (National rate = 0.4)
Alamosa Dialysis	**Alamosa**	40	0	0.0	Same	0	0.0	Same
Arvada Dialysis Center	**Arvada**	16	0	0.0	Same	0	0.0	Same
Aurora Dialysis Center	**Aurora**	125	0	0.0	Same	1	0.8	Same
Belcaro Dialysis Center	**Denver**	34	0	0.0	Same	0	0.0	Same
Boulder Dialysis Center	**Boulder**	15	0	0.0	Same	0	0.0	Same
Brighton Dialysis	**Brighton**	24	0	0.0	Same	0	0.0	Same
Commerce City Dialysis	**Commerce City**	22	0	0.0	Same	0	0.0	Same
Cortez Dialysis Center	**Cortez**	56	0	0.0	Same	0	0.0	Same
Denver Dialysis Center	**Denver**	61	0	0.0	Same	1	1.6	Same
Denver Women's Correctional Facility Dialysis Center	**Denver**	13	0	0.0	Same	0	0.0	Same
Dialysis Clinic Inc Grand Junction	**Grand Junction**	25	0	0.0	Same	0	0.0	Same
Dialysis Clinic Inc Montrose	**Montrose**	54	0	0.0	Same	0	0.0	Same
Durango Dialysis Center	**Durango**	26	0	0.0	Same	0	0.0	Same
East Aurora Dialysis	**Aurora**	57	0	0.0	Same	2	3.5	Worse

Dialysis Centers	Region	Number of patients	AAB count	AAB rate	National Comparison (National rate = 0.4)	LAI count	LAI rate	National comparison (National rate = 0.4)
Englewood Dialysis Center	**Englewood**	18	0	0.0	Same	0	0.0	Same
FMC Dialysis Services of Denver Central	**Denver**	61	0	0.0	Same	0	0.0	Same
FMC Dialysis Services of East Denver	**Aurora**	50	1	2.0	Same	0	0.0	Same
FMC Dialysis Services of Lamar	**Lamar**	25	1	4.0	Same	1	4.0	Same
FMC Dialysis Services of Park Hill	**Denver**	19	0	0.0	Same	0	0.0	Same
FMC Dialysis Services of Pueblo South	**Pueblo**	46	0	0.0	Same	0	0.0	Same
FMC Dialysis Services of Rocky Mountain	**Denver**	65	1	1.5	Same	2	3.1	Same
Fountain Dialysis	**Fountain**	43	0	0.0	Same	0	0.0	Same
Grand Junction Dialysis Center	**Grand Junction**	30	2	6.7	Worse	1	3.3	Same
Kidney Center of Arvada LLC	**Arvada**	28	0	0.0	Same	0	0.0	Same
Kidney Center of Lafayette	**Lafayette**	5	0	0.0	Same	0	0.0	Same
Kidney Center of Lakewood	**Lakewood**	22	0	0.0	Same	1	4.5	Same
Kidney Center of Longmont	**Longmont**	22	0	0.0	Same	0	0.0	Same
Kidney Center of Westminster	**Westminster**	4	0	0.0	Same	0	0.0	Same
Lakewood Crossing Dialysis Center	**Lakewood**	26	1	3.8	Same	0	0.0	Same
Lakewood Dialysis Center	**Lakewood**	27	0	0.0	Same	0	0.0	Same
Liberty Dialysis Castle Rock LLC	**Castle Rock**	4	0	0.0	Same	0	0.0	Same
Liberty Dialysis Colorado Springs Central	**Colorado Springs**	47	0	0.0	Same	0	0.0	Same
Liberty Dialysis Colorado Springs North	**Colorado Springs**	56	3	5.4	Worse	0	0.0	Same
Liberty Dialysis Colorado Springs South	**Colorado Springs**	46	0	0.0	Same	0	0.0	Same
Liberty Dialysis Pueblo LLC	**Pueblo**	41	0	0.0	Same	1	2.4	Same
Littleton Dialysis Center	**Littleton**	31	0	0.0	Same	0	0.0	Same
Lonetree Dialysis Center	**Lonetree**	27	0	0.0	Same	0	0.0	Same
Longmont Dialysis Center	**Longmont**	15	0	0.0	Same	0	0.0	Same
Loveland Dialysis	**Loveland**	32	0	0.0	Same	2	6.3	Worse
Lowry Dialysis Center	**Denver**	48	0	0.0	Same	2	4.2	Worse
Mesa County Dialysis	**Grand Junction**	1	0	0.0	Same	0	0.0	Same
North Colorado Springs Dialysis	**Colorado Springs**	23	0	0.0	Same	1	4.3	Same
North Metro Dialysis Center	**Westminster**	17	0	0.0	Same	2	11.8	Worse
Northern Colorado Kidney Center	**Fort Collins**	79	0	0.0	Same	0	0.0	Same
Parker Dialysis Center	**Parker**	15	0	0.0	Same	0	0.0	Same

Dialysis Centers	Region	Number of patients	AAB count	AAB rate	National Comparison (National rate = 0.4)	LAI count	LAI rate	National comparison (National rate = 0.4)
Pikes Peak Dialysis Center	**Colorado Springs**	84	1	1.2	Same	0	0.0	Same
Printers Place Dialysis Center	**Colorado Springs**	37	0	0.0	Same	2	5.4	Worse
Qualicenters Canon City	**Canon City**	19	1	5.3	Same	0	0.0	Same
Qualicenters La Junta	**La Junta**	25	0	0.0	Same	1	4.0	Same
Qualicenters Pueblo	**Pueblo**	30	0	0.0	Same	2	6.7	Worse
Qualicenters Walsenburg	**Walsenburg**	10	0	0.0	Same	0	0.0	Same
Reliant Renal Care RRC Colorado Springs	**Colorado Springs**	22	0	0.0	Same	0	0.0	Same
Reliant Renal Care RRC Trinidad	**Trinidad**	20	0	0.0	Same	0	0.0	Same
South Denver Dialysis Center	**Denver**	37	0	0.0	Same	0	0.0	Same
Sterling Regional Medcenter-ESRD	**Sterling**	42	0	0.0	Same	0	0.0	Same
Thornton Dialysis Center	**Thornton**	13	0	0.0	Same	0	0.0	Same
University of Colorado Hospital	**Aurora**	28	0	0.0	Same	0	0.0	Same
Westminster Dialysis Center	**Westminster**	88	0	0.0	Same	1	1.1	Same
Willow Station Dialysis	**Greeley**	81	0	0.0	Same	0	0.0	Same

National comparison based on data collected and reported by NHSN-participating hospitals from 2006-2008.
See "National Healthcare Safety Network (NHSN) Report, Data Summary for 2006-2008, Issued December 2009" (Am J Infect Control 2009; 37:783-805).
*** Indicates value not shown due to suppression of infections data, or no National or historical rate, or an expected count of zero, to which to compare facility rate.
Infections data for hospitals with fewer than 20 patients performed in the 5-month period are suppressed to protect confidential health information. These hospitals have met the reporting requirements.
Source: National Healthcare Safety Network (NHSN) Database.
Prepared By: Colorado Patient Safety Program, Colorado Department of Public Health and Environment.

Table 25: Dialysis-associated infections, Access type: Temporary Dialysis Central Line, March 1, 2010-July 31, 2010 data

Dialysis Related infections (Access Associated Bactermia: AAB and Local Access Infection: LAI) by Access Types
Access type: Temporary Dialysis Central Line
Reporting period: March 1, 2010 - July 31, 2010

Dialysis Centers	Region	Number of patients	AAB count	AAB rate	National Comparison (National rate = 17.8)	LAI Count	LAI Rate	National Comparison (National rate = 5.1)
Arvada Dialysis Center	**Arvada**	4	***	***	***	***	***	***
Aurora Dialysis Center	**Aurora**	1	***	***	***	***	***	***

Dialysis Centers	Region	Number of patients	AAB count	AAB rate	National Comparison (National rate = 17.8)	LAI Count	LAI Rate	National Comparison (National rate = 5.1)
Brighton Dialysis	**Brighton**	3	***	***	***	***	***	***
Cortez Dialysis Center	**Cortez**	27	0	0.0	Better	0	0.0	Same
Denver Dialysis Center	**Denver**	24	1	4.2	Same	0	0.0	Same
Durango Dialysis Center	**Durango**	4	***	***	***	***	***	***
Englewood Dialysis Center	**Englewood**	63	3	4.8	Better	1	1.6	Same
FMC Dialysis Services of Lamar	**Lamar**	8	***	***	***	***	***	***
FMC Dialysis Services of Park Hill	**Denver**	37	1	2.7	Better	1	2.7	Same
FMC Dialysis Services of Pueblo South	**Pueblo**	1	***	***	***	***	***	***
Grand Junction Dialysis Center	**Grand Junction**	1	***	***	***	***	***	***
Kidney Center of Lakewood	**Lakewood**	15	***	***	***	***	***	***
Kidney Center of Longmont	**Longmont**	19	***	***	***	***	***	***
Kidney Center of Westminster	**Westminster**	127	2	1.6	Better	2	1.6	Same
Lakewood Crossing Dialysis Center	**Lakewood**	12	***	***	***	***	***	***
Liberty Dialysis Castle Rock LLC	**Castle Rock**	1	***	***	***	***	***	***
Liberty Dialysis Colorado Springs North	**Colorado Springs**	10	***	***	***	***	***	***
Liberty Dialysis Colorado Springs South	**Colorado Springs**	23	2	8.7	Same	1	4.3	Same
Liberty Dialysis Pueblo LLC	**Pueblo**	22	0	0.0	Better	0	0.0	Same
Littleton Dialysis Center	**Littleton**	17	***	***	***	***	***	***
Loveland Dialysis	**Loveland**	9	***	***	***	***	***	***
North Colorado Springs Dialysis	**Colorado Springs**	12	***	***	***	***	***	***
Northern Colorado Kidney Center	**Fort Collins**	42	0	0.0	Better	1	2.4	Same
Parker Dialysis Center	**Parker**	1	***	***	***	***	***	***
Pikes Peak Dialysis Center	**Colorado Springs**	2	***	***	***	***	***	***
Printers Place Dialysis Center	**Colorado Springs**	13	***	***	***	***	***	***
Qualicenters Pueblo	**Pueblo**	7	***	***	***	***	***	***
Reliant Renal Care RRC Colorado Springs	**Colorado Springs**	10	***	***	***	***	***	***
Reliant Renal Care RRC Trinidad	**Trinidad**	4	***	***	***	***	***	***
Sterling Regional Medcenter-ESRD	**Sterling**	28	1	3.6	Same	1	3.6	Same
Willow Station Dialysis	**Greeley**	129	0	0.0	Better	0	0.0	Better

National comparison based on data collected and reported by NHSN-participating hospitals from 2006-2008.
See "National Healthcare Safety Network (NHSN) Report, Data Summary for 2006-2008, Issued December 2009" (Am J Infect Control 2009; 37:783-805).
*** Indicates value not shown due to suppression of infections data, or no National or historical rate, or an expected count of zero, to which to compare facility rate.
Infections data for hospitals with fewer than 20 patients performed in the 5-month period are suppressed to protect confidential health information. These hospitals have met the reporting requirements.
Source: National Healthcare Safety Network (NHSN) Database.
Prepared By: Colorado Patient Safety Program, Colorado Department of Public Health and Environment.

Table 26: Dialysis-associated infections, Access type: Permanent dialysis central line, March 1, 2010-July 31, 2010 data

Dialysis Related infections (Access Associated Bactermia: AAB and Local Access Infection: LAI) by Access Types
Access type: Permanent Dialysis Central Line
Reporting period: March 1, 2010 - July 31, 2010

Dialysis Centers	Region	Number of patients	AAB count	AAB rate	National Comparison (National rate = 3.1)	LAI Count	LAI Rate	National Comparison (National rate = 1.7)
Alamosa Dialysis	**Alamosa**	35	1	2.9	Same	0	0.0	Same
Arvada Dialysis Center	**Arvada**	19	0	0.0	Same	0	0.0	Same
Aurora Dialysis Center	**Aurora**	83	2	2.4	Same	2	2.4	Same
Belcaro Dialysis Center	**Denver**	35	2	5.7	Same	0	0.0	Same
Boulder Dialysis Center	**Boulder**	12	2	16.7	Same	1	8.3	Same
Brighton Dialysis	**Brighton**	39	4	10.3	Same	1	2.6	Same
Commerce City Dialysis	**Commerce City**	8	0	0.0	Same	3	37.5	Worse
Denver Dialysis Center	**Denver**	7	0	0.0	Same	0	0.0	Same
Denver Women's Correctional Facility Dialysis Center	**Denver**	12	0	0.0	Same	0	0.0	Same
Dialysis Clinic Inc Grand Junction	**Grand Junction**	10	0	0.0	Same	1	10.0	Same
Dialysis Clinic Inc Montrose	**Montrose**	41	1	2.4	Same	4	9.8	Worse
Durango Dialysis Center	**Durango**	8	0	0.0	Same	0	0.0	Same
East Aurora Dialysis	**Aurora**	113	2	1.8	Same	4	3.5	Same
Englewood Dialysis Center	**Englewood**	5	0	0.0	Same	0	0.0	Same
FMC Dialysis Services Denver Central	**Denver**	64	2	3.1	Same	11	17.2	Worse
FMC Dialysis Services East Denver	**Aurora**	116	2	1.7	Same	2	1.7	Same
FMC Dialysis Services of Lamar	**Lamar**	23	0	0.0	Same	0	0.0	Same
FMC Dialysis Services of Park Hill	**Denver**	10	0	0.0	Same	0	0.0	Same
FMC Dialysis Services of Pueblo South	**Pueblo**	117	5	4.3	Same	2	1.7	Same

Dialysis Centers	Region	Number of patients	AAB count	AAB rate	National Comparison (National rate = 3.1)	LAI Count	LAI Rate	National Comparison (National rate = 1.7)
FMC Dialysis Services Rocky Mountain	**Denver**	107	3	2.8	Same	3	2.8	Same
Fountain Dialysis	**Fountain**	21	3	14.3	Same	2	9.5	Same
Grand Junction Dialysis Center	**Grand Junction**	82	4	4.9	Same	2	2.4	Same
Kidney Center of Arvada LLC	**Arvada**	55	1	1.8	Same	3	5.5	Same
Kidney Center of Lafayette	**Lafayette**	42	1	2.4	Same	0	0.0	Same
Kidney Center of Lakewood	**Lakewood**	59	2	3.4	Same	3	5.1	Same
Kidney Center of Longmont	**Longmont**	94	0	0.0	Same	1	1.1	Same
Kidney Center of Westminster	**Westminster**	53	2	3.8	Same	0	0.0	Same
Lakewood Crossing Dialysis Center	**Lakewood**	51	1	2.0	Same	2	3.9	Same
Lakewood Dialysis Center	**Lakewood**	50	2	4.0	Same	3	6.0	Same
Liberty Dialysis Castle Rock LLC	**Castle Rock**	11	0	0.0	Same	0	0.0	Same
Liberty Dialysis Colorado Springs Central	**Colorado Springs**	44	2	4.5	Same	0	0.0	Same
Liberty Dialysis Colorado Springs North	**Colorado Springs**	27	4	14.8	Worse	2	7.4	Same
Liberty Dialysis Colorado Springs South	**Colorado Springs**	22	2	9.1	Same	0	0.0	Same
Liberty Dialysis Pueblo LLC	**Pueblo**	23	0	0.0	Same	0	0.0	Same
Littleton Dialysis Center	**Littleton**	63	0	0.0	Same	3	4.8	Same
Lonetree Dialysis Center	**Lonetree**	46	3	6.5	Same	1	2.2	Same
Longmont Dialysis Center	**Longmont**	20	1	5.0	Same	0	0.0	Same
Loveland Dialysis	**Loveland**	37	1	2.7	Same	0	0.0	Same
Lowry Dialysis Center	**Denver**	66	0	0.0	Same	6	9.1	Worse
Mesa County Dialysis	**Grand Junction**	4	0	0.0	Same	1	25.0	Same
North Colorado Springs Dialysis	**Colorado Springs**	13	1	7.7	Same	1	7.7	Same
North Metro Dialysis Center	**Westminster**	22	1	4.5	Same	1	4.5	Same
Parker Dialysis Center	**Parker**	17	0	0.0	Same	1	5.9	Same
Pikes Peak Dialysis Center	**Colorado Springs**	88	1	1.1	Same	4	4.5	Same
Qualicenters Canon City	**Canon City**	50	1	2.0	Same	2	4.0	Same
Qualicenters La Junta	**La Junta**	69	4	5.8	Same	6	8.7	Worse
Qualicenters Pueblo	**Pueblo**	126	1	0.8	Same	7	5.6	Worse
Qualicenters Walsenburg	**Walsenburg**	29	1	3.4	Same	1	3.4	Same
Reliant Renal Care RRC Colorado Springs	**Colorado Springs**	7	1	14.3	Same	0	0.0	Same
Reliant Renal Care RRC Trinidad	**Trinidad**	7	1	14.3	Same	0	0.0	Same

Dialysis Centers	Region	Number of patients	AAB count	AAB rate	National Comparison (National rate = 3.1)	LAI Count	LAI Rate	National Comparison (National rate = 1.7)
South Denver Dialysis Center	**Denver**	45	0	0.0	Same	1	2.2	Same
Sterling Regional Medcenter-ESRD	**Sterling**	8	0	0.0	Same	0	0.0	Same
Thornton Dialysis Center	**Thornton**	110	0	0.0	Same	0	0.0	Same
University of Colorado Hospital	**Aurora**	29	0	0.0	Same	0	0.0	Same
Westminster Dialysis Center	**Westminster**	40	2	5.0	Same	1	2.5	Same

National comparison based on data collected and reported by NHSN-participating hospitals from 2006-2008.
See "National Healthcare Safety Network (NHSN) Report, Data Summary for 2006-2008, Issued December 2009" (Am J Infect Control 2009; 37:783-805).
*** Indicates value not shown due to suppression of infections data, or no National or historical rate, or an expected count of zero, to which to compare facility rate.
Infections data for hospitals with fewer than 20 patients performed in the 5-month period are suppressed to protect confidential health information. These hospitals have met the reporting requirements.
Source: National Healthcare Safety Network (NHSN) Database.
Prepared By: Colorado Patient Safety Program, Colorado Department of Public Health and Environment.

Conclusions and Future Plans

This report shows the results from a recently initiated state mandating reporting system. The Department and the Colorado Health Facility-Acquired Infection Advisory Committee recommends that users of these data not draw definitive conclusions from the limited information that is currently available. Other questions to consider asking before receiving healthcare at a specific facility can be found in Appendix H. Facilities vary in the types of patients they treat, and a facility that treats a high volume of severely ill patients may have higher infection rates. Tests of statistical significance are used to determine if the number of infections in a facility is unusually high or low in comparison to the national average. A statistically significant test indicates that results do not happen by chance alone. It is possible for two hospitals to have zero infections yet Hospital A is statistically the same as the national rate and Hospital B is statistically better than the national rate. This can occur because Hospital B, for example, has more central line days so its rate would be compared to a higher expected number of CLABSIs.

It is important to note that initiatives involving new reporting systems require time to allow facilities to become familiar with the requirements and ensure the system is used correctly. The Department believes that the disclosure initiative will ultimately help Colorado health facilities identify areas for improvement and result in fewer infections in the coming years. Because only three years of data are available for hospitals, two years of data are available for LTACHs and ASCs, and only a few months of data for the dialysis treatment centers, the Department is not able to provide trending information. Trend reports will gauge the progress healthcare facilities are making in preventing infections over time. Trend reports will be developed once enough data is collected.

The Patient Safety Program will continue to augment its capabilities and service to facilities and consumers in multiple ways. First, a program staff person will be added to assist in data quality assurance activities, education efforts, technical support, and report generation. That person is expected to start in January 2011.

Second, the Patient Safety Program will continue to revise the division website to improve its usefulness to consumers and prevention partners. Plans include providing information consumers may use in choosing healthcare facilities at which to receive care, including facility type, location, staff experience, infection counts and rates, and other performance measures.

Third, training will continue to be developed and delivered to infection prevention staff in NHSN reporting of SSI, CLABSI, dialysis-related infections, and other areas determined to fit the needs of the infection preventionists. Recent trainings have been held at the Department and there are plans to conduct off-site trainings statewide to cater to those beyond a convenient travel distance to the Denver metro area.

Fourth, the Patient Safety Program will continue to collaborate with staff from the Colorado Hospital Association and Denver Health and Hospitals to implement the SSI and *Clostridium difficile* collaboratives and explore ways to continue the collaboratives' work after funding ends in December, 2011.

Fifth, the CLABSI validation study will continue through Spring 2011 and findings will be documented in a published report. The program plans to conduct other validation studies in 2011 focusing on SSIs in hospitals and ASCs, and on dialysis-related infections. Study protocols and analytic plans will be modeled after Colorado's CLABSI validation study and lessons learned, and will utilize expertise from Patient Safety staff and the Colorado HAI advisory committee.

References

1. National Healthcare Safety Network (NHSN). http://www.cdc.gov/nhsn

2. Association for Professionals in Infection Control and Epidemiology, Inc. (APIC). http://www.apic.org

3. Centers for Disease Control and Prevention. (April, 2006). *Outline for Healthcare-Associated Infections Surveillance.* Retrieved from http://www.cdc.gov/nhsn/PDFS/OutlineForHAISurveillance.pdf

4. Horan, T., Andrus, M., & Dudeck, M. (2008). CDC/NHSN surveillance definition of health care-associated infection and criteria for specific types of infections in the acute care setting. *AJIC, 36,* 309-332. doi:10.1016/j.ajic.2008.03.002

5. McKibben, L., Horan, T., Tokars, J., Fowler, G., Cardo, D., Pearson, M., Brennan, P. (2005). Guidance on Public Reporting of Healthcare-Associated Infections: Recommendations of the Healthcare Infection Control Practices Advisory Committee. *AJIC, 33*, 217-226. doi:10.1016/j.ajic.2005.04.001

6. Surveillance. (2009). In R. Carico, et al (Eds.), *APIC Text of Infection Control and Epidemiology* (3rd ed., pp. 3-1-3-17). Washington, DC: the Association for Professionals in Infection Control and Epidemiology, Inc. (APIC).

7. Marschall, J., Mermel, L.A., Classen, D., Arias, K.M., Podgorny, K., Anderson, D.J., Burstin, H., et al. (2008). Strategies to Prevent Central Line-Associated Bloodstream Infections in Acute Care Hospitals. *Infection Control Hospital Epidemiology,29*, S22-30. doi:10.1086/591059

8. Colorado Department of Public Health and Environment. Patient Safety Program. http://www.cdphe.state.co.us/hf/PatientSafety/HFAI/index.html

9. Certification Board of Infection Control and Epidemiology, Inc. (CBIC). http://www.cbic.org

10. U.S. Department of Health and Human Services, National Institutes of Health, National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK). (2008). *Vascular Access for Hemodialysis* (NIH Publication No. 08-4554). Retrieved from http://kidney.niddk.nih.gov/kudiseases/pubs/vascularaccess/

Health Facility-Acquired Infections Report

Appendices

Appendix A: Colorado Health Facility-Acquired Infection Advisory Committee

A representative from a public hospital

Committee Chair - Linda J. "B" Burton, R.N., B.S.N., C.I.C., Infection Preventionist, University of Colorado Hospital – Aurora

A representative from a private hospital

Paul J. Poduska B.S., M (ASCP), C.I.C., Infection Control Coordinator, Poudre Valley Health System – Fort Collins

A Board Certified or Board Eligible physician licensed in the State of Colorado, who is affiliated with a Colorado hospital or medical school, who is an active member of a national organization specializing in health care epidemiology or infection control, and who has demonstrated an interest and expertise in health facility infection control

Connie S. Price, M.D., Denver Health Medical Center, Chief, Division of Infectious Diseases and Medical Director of Infection Control and Prevention, Department of Medicine, Board Certified in Medical Microbiology, Infectious Diseases, and Internal Medicine - Denver

Four infection control practitioners, one from a standalone ambulatory surgical center and three Registered Nurses who are certified by the Certification Board of Infection Control and Epidemiology

Susan K. Mazula, R.N., B.S.N., C.I.C., C.O.H.N., Infection Prevention Coordinator, North Suburban Medical Center - Thornton

Amber Miller, R.N., M.S.N., C.I.C., Manager Infection Prevention and Control, Lutheran Medical Center – Arvada

Deborah Teetzel, R.N., M.S.N., Administrator, Rocky Mountain Surgery Center – Englewood

Heather M. Gilmartin, R.N., M.S.N., N.P., C.I.C., Nurse Epidemiologist, Vail Valley Medical Center - Vail

A medical statistician with an advanced degree in such specialty or one clinical microbiologist with an advanced degree in such specialty

Allison Lee Sabel-Soteres, M.D., Ph.D., Denver Health Medical Center, Director of Medical Biostatistics – Denver

A representative from a health consumer organization
Denise de Percin, B.A., Executive Director, Colorado Consumer Health Initiative – Denver

A representative from a health insurer
Peggy SaBell, RN, MS, CIC, Regional Infection Control Director, Kaiser Foundation Health Plan of Colorado-Denver

A representative from a purchaser of health insurance
Kerry O'Connell, Construction Executive, Stapleton Infrastructure – Denver

Colorado Department of Public Health and Environment Committee Liaison
Patient Safety Initiatives Coordinator
Health Facilities and Emergency Medical Services Division
Colorado Department of Public Health and Environment
4300 Cherry Creek Drive South
Denver, Colorado 80246-1530
Phone 303-692-2800
Fax 303-753-6214
Email: cdphe.hfpatientsafety@state.co.us

Appendix B: Central Line-Associated Bloodstream Infection Validation Study: Preliminary Results

The CDPHE Patient Safety Program was formed and charged with completing a Validation Study for central line-associated bloodstream infections involving all 59 acute care hospitals.

The objective of the validation of the CLABSI data serves several purposes:

1. Determine the reliability and consistency of NHSN surveillance definitions.
2. Evaluate current surveillance methods used to detect infections.
3. Assess completeness of reporting to NHSN and CDPHE.
4. Where gaps exist, provide on-site education on the definitions, surveillance mechanisms and use of NHSN.

The first step in validating the central line-associated bloodstream infection data is to review the microbiology laboratory records of patients who had a positive blood culture and received care in a CCU, neonatal intensive care unit (NCCU), and LTACH up to 48 hours after discharge from the unit for the period January 1, 2010 through March 31, 2010. A list of patients who had a positive blood culture meeting these criteria has been requested from all facilities. Auditors will interview infection control practitioners (ICPs) using a questionnaire to further determine their understanding of surveillance best practices as defined by NHSN.

The audit process began in August, 2010, and involves two team members who schedule an on-site visit to review medical records and the surveillance process. Data retrieved from facilities for this project will be kept strictly confidential. Only a summarization of data will be published in an annual report and on the state's Patient Safety Program website. It is anticipated that chart reviews with on-site visits will conclude by April or May, 2011.

As a primary goal of the study CDPHE Patient Safety Program staff will review and follow up with each hospital that has been identified as having reported data inaccuracies or data irregularities. Cases determined to have been reported but not meeting the NHSN criteria will also be reviewed and discussed with hospital infection prevention staff to correct any misinterpretation of criteria. The hospital will be asked to update the NHSN database to reflect the corrections.

Preliminary findings demonstrate partial proficiency of surveillance definitions by the infection control preventionists (ICPs). There is some variance as to how the data is collected among the facilities as well as observance of best bundle practices for insertion of central lines. For

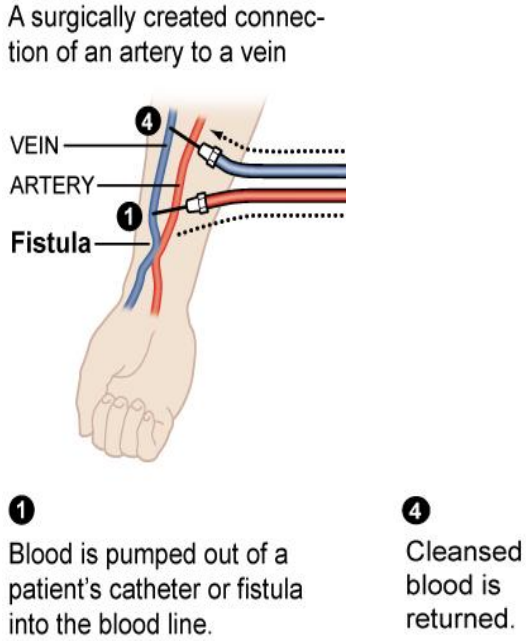
example, although NHSN has clear definitions for temporary and permanent central lines, it has been identified that there remains some confusion regarding line types based on interviews completed with facility personnel. Also, there has been some variance with collection times within facilities. NHSN has specified that collection of central line data be obtained at consistent times, but there has been as much variance as 12 hours day-to-day within a facility. Furthermore, due to staffing and time constraints at some facilities, the ICPs are not able to physically observe best practices with insertion of central lines. Although a checklist is employed and the ICP reviews these, there is no actual observance to verify that best practices are indeed completed by personnel inserting these lines. Anyone can complete a checklist but this does not necessarily validate appropriate practice. A final report of findings will be shared with the Colorado Health Facility-Acquired Infections Advisory Committee and all facilities reporting CLABSIs. Individual reports are being drafted to facilities as well. Finally, educational offerings based on findings of the team and questions and concerns by the ICPs are being offered by the Patient Safety Program team. Several ICPs have requested additional training with definitions and case study examples. Our first training occurred on October 13, 2010, at the state health department. Additional training opportunities will be scheduled around the state TBA in 2011.

Appendix C: Hemodialysis Access Types

Fistulas

Arteriovenous (AV) fistulas are created from the patient's own blood vessels. A surgeon creates an AV fistula by connecting an artery directly to the vein, most commonly performed in the patient's forearm. Connecting the artery to the vein causes more blood to flow into the vein. As a result, the vein grows larger and stronger making repeated needle insertions for dialysis treatment easier.

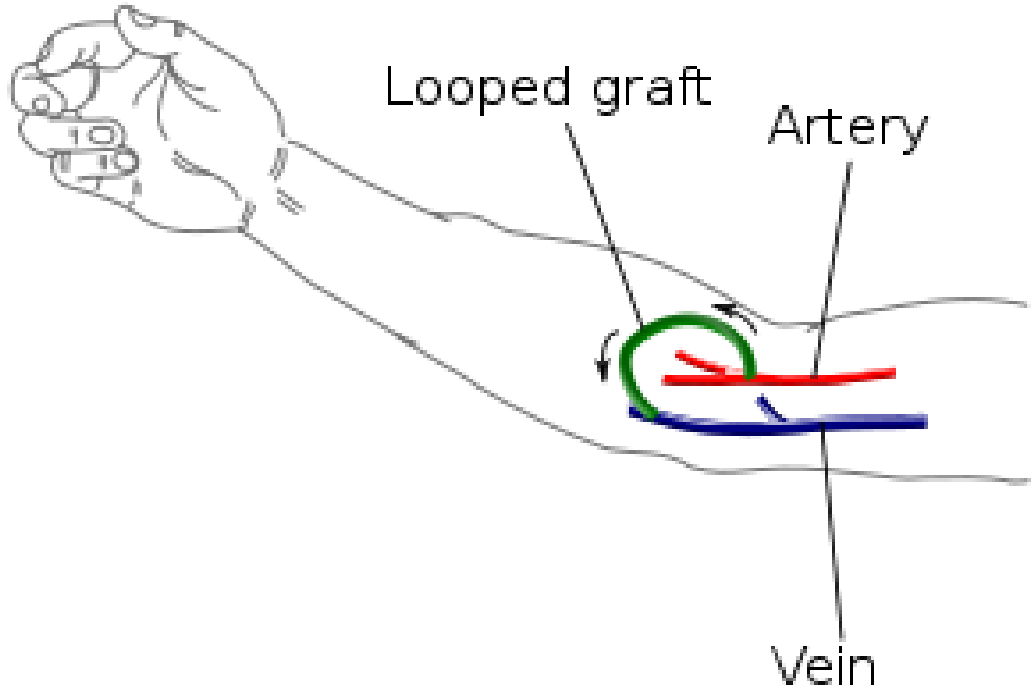
The time for a fistula to mature varies between several weeks to months. The patient will require a temporary access site in the meantime. Although complications such as clots and infection can occur, a fistula has less risk than other vascular access sites and can last for many years.[10]



Graphic courtesy of Al Granberg and ProPublica / Robin Fields

Grafts

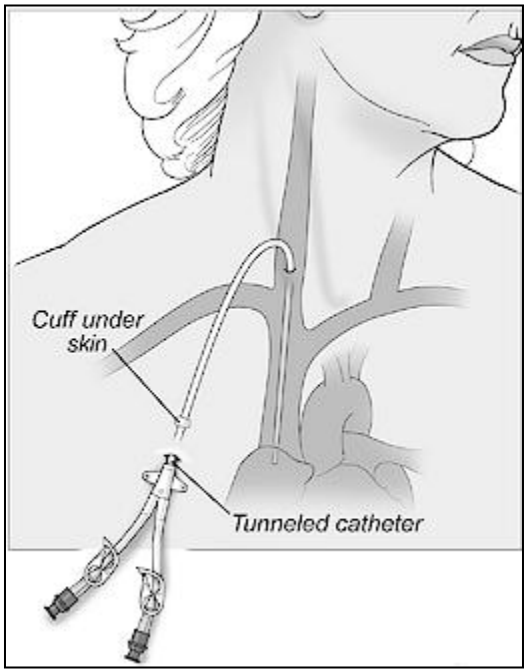
Arteriovenous grafts are considered for patients who have small veins that will not likely develop properly into a fistula. A surgeon connects an artery to a vein using a synthetic tube, or graft, implanted under the skin in the patient's arm. The graft becomes an artificial vein that can be used repeatedly for needle placement and blood access during dialysis treatment. Compared with properly formed fistulas, grafts tend to have more problems with clotting and infection and need replacement sooner. However, a well-cared for graft can last several years. One advantage of a graft is that it does not need to develop as a fistula does, so it can be used much sooner after placement, often within 2 or 3 weeks.[10]



Permanent central lines

In patients who are waiting for maturation of a fistula or graft or unable to sustain a fistula or graft but have chronic kidney disease and require multiple dialysis treatments each week, a tunneled or more permanent catheter can be inserted. This type of catheter is surgically inserted into a vein in the neck or chest and passed under the skin. Only the end of the catheter is brought through the skin through which dialysis can be given. Passing the catheter under the skin helps to anchor it in place, allow a patient to move more freely, and make it less visible.[10]

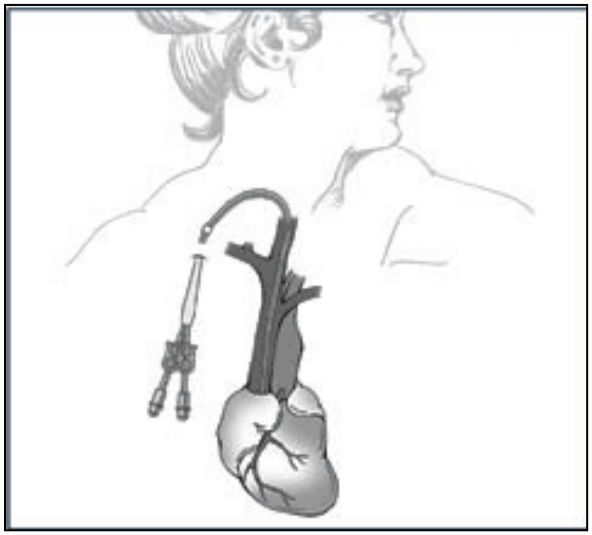
Catheters are not ideal for permanent access. They can clog, become infected, and cause injury to the veins in which they are placed. They are the best substitute, however, while a patient may need dialysis and until a more permanent solution is determined.



Temporary central lines

If kidney disease has progressed rapidly, a patient may not have time to get a permanent access before needing hemodialysis. S/he may need a temporary access. A catheter or tube is inserted into a vein in the patient's neck, chest, or leg near the groin area. It has two chambers to allow a two-way flow of blood.[10]

By NHSN definitions, these catheters are non-tunneled meaning they do not require tunneling under the skin and can be placed at the patient's bedside.



Appendix D: Health Facilities Reporting

Based on the mandatory reporting bill there are approximately 264 health facilities targeted to report health facility acquired infections. These include hospitals (including long-term acute care hospitals), hospital units, ambulatory surgery centers and dialysis treatment centers. Not all 264 facilities perform procedures selected for reporting.

Metrics will be reported by the following 79 hospitals and long-term acute care hospitals, 45 ambulatory surgery centers, and 60 dialysis centers. Health facilities reporting the data are listed alphabetically below with the procedures they currently perform and report. The first list includes hospitals and long-term acute care hospitals. The second list includes ambulatory surgery centers. The third list includes dialysis treatment centers. The numbers before the facility name correspond to the maps on the following pages.

Hospitals and Long-Term Acute Care Hospitals

1 Animas Surgical Hospital
Durango, CO 81301
575 Rivergate Lane
970.247.3537
www.animassurgical.com
Performing & Reporting:
- Total/Partial Hip Replacement
- Total/Partial Knee Replacement
- Herniorrhaphy
- Abdominal Hysterectomy
- Vaginal Hysterectomy

2 Arkansas Valley Regional Medical Center
La Junta, CO 81050
1100 Carson Avenue
719.383.6000
www.avrmc.org
Performing & Reporting:
- Central Lines
- Herniorrhaphy
- Abdominal Hysterectomy
- Vaginal Hysterectomy

3 Aspen Valley Hospital
0401 Castle Creek Road
Aspen, CO 81611
970.544.1261
www.avhaspen.org
Performing & Reporting:
- Total/Partial Hip Replacement
- Total/Partial Knee Replacement
- Central Lines
- Herniorrhaphy
- Abdominal Hysterectomy
- Vaginal Hysterectomy

4 Boulder Community Hospital
1100 Balsam Avenue
Boulder, CO 80301
303.440.2273
www.bch.org
Performing & Reporting:
- Total/Partial Hip Replacement
- Total/Partial Knee Replacement
- Coronary Artery Bypass Grafts
- Central Lines
- Herniorrhaphy
- Abdominal Hysterectomy
- Vaginal Hysterectomy

5 Boulder Community Hospital- Foothills Campus
4747 Arapahoe Avenue
Boulder, CO 80303
303.440.2273
www.bch.org
Performing & Reporting:
- Central Lines
- Herniorrhaphy
- Abdominal Hysterectomy
- Vaginal Hysterectomy

6 Centura Health-Avista Adventist Hospital
100 Health Park Dr
Louisville, CO 80027
303.673.1000
www.avistahospital.org
Performing & Reporting:
- Total/Partial Hip Replacement
- Total/Partial Knee Replacement
- Central Lines
- Herniorrhaphy
- Abdominal Hysterectomy
- Vaginal Hysterectomy

7 Centura Health-Littleton Adventist Hospital
7700 S Broadway
Littleton, CO 80122
303.730.8900
www.mylittletonhospital.org
Performing & Reporting:
- Total/Partial Hip Replacement
- Total/Partial Knee Replacement
- Central Lines
- Herniorrhaphy
- Abdominal Hysterectomy
- Vaginal Hysterectomy

8 Centura Health-Penrose St. Francis Health Services
2222 N Nevada Ave
Colorado Springs, CO 80907
719.776.5000
www.penrosestfrancis.org
Performing & Reporting:
- Total/Partial Hip Replacement
- Total/Partial Knee Replacement
- Coronary Artery Bypass Graft
- Central Lines
- Herniorrhaphy
- Abdominal Hysterectomy
- Vaginal Hysterectomy

9 Centura Health-Porter Adventist Hospital
2525 S Downing St
Denver, CO 80210
303.778.1955
www.porterhospital.org
Performing & Reporting:
- Total/Partial Hip Replacement
- Total/Partial Knee Replacement
- Coronary Artery Bypass Grafts
- Central Lines
- Herniorrhaphy
- Abdominal Hysterectomy
- Vaginal Hysterectomy

10 Centura Health-St Anthony Central Hospital
4231 W 16th Ave
Denver, CO 80204
303.629.3511
www.stanthonyhosp.org
Performing & Reporting:
- Total/Partial Hip Replacement
- Total/Partial Knee Replacement
- Coronary Artery Bypass Grafts
- Central Lines
- Herniorrhaphy

11 Centura Health-St Anthony North Hospital
2551 W 84th Avenue
Westminster, CO 80031
303.426.2402
www.stanthonyhosp.org
Performing & Reporting:
- Total/Partial Hip Replacement
- Total/Partial Knee Replacement
- Central Lines
- Herniorrhaphy
- Abdominal Hysterectomy
- Vaginal Hysterectomy

12 Centura Health-St Francis Medical Center
6001 E Woodmen Road
Colorado Springs, CO 80923
www.centura.org
Performing and Reporting:
- Total/Partial Hip Replacement
- Total/Partial Knee Replacement
- Central Lines
- Herniorrhaphy
- Abdominal Hysterectomy
- Vaginal Hysterectomy

13 Centura Health-St Mary Corwin Medical Center
1008 Minnequa Ave
Pueblo, CO 81004
719.560.4000
www.stmarycorwin.org
Performing & Reporting:
- Total/Partial Hip Replacement
- Total/Partial Knee Replacement
- Central Lines
- Herniorrhaphy
- Abdominal Hysterectomy
- Vaginal Hysterectomy

14 Centura Health-St Thomas More Hospital
1338 Phay Ave
Canon City, CO 81212
719.285.2287
www.stmhospital.org
Performing & Reporting:
- Total/Partial Hip Replacement
- Total/Partial Knee Replacement
- Central Lines
- Herniorrhaphy
- Abdominal Hysterectomy
- Vaginal Hysterectomy

15 The Children's Hospital Association
13123 East 16th Avenue
Aurora, CO 80045
www.thechildrenshospital.org
Performing & Reporting:
- Total/Partial Hip Replacement
- Total/Partial Knee Replacement
- Central Lines
- Herniorrhaphy

16 Colorado Acute Long Term Hospital
1601 North Lowell Blvd.
Denver, Colorado 80204
http://www.lifecare-hospitals.com
Performing and Reporting:
Central lines (permanent and temporary)

17 Colorado Mental Health Institute at Pueblo
1600 W 24th St
Pueblo, CO 81003
www.cdhs.state.co.us/cmhip
Performing & Reporting:
Total/Partial Hip Replacement
Total/Partial Knee Replacement
Herniorrhaphy
Abdominal Hysterectomy
Vaginal Hysterectomy

18 Colorado Orthopaedic and Surgical Hospital
1830 Franklin Street Suite 200
Denver, CO 80218
www.mycosh.com
Performing and Reporting:
Total/Partial Hip Replacement
Total/Partial Knee Replacement
Herniorrhaphy

19 Colorado Plains Medical Center
1000 Lincoln St
Fort Morgan, CO 80701
www.coloradoplainsmedicalcenter.com
Performing & Reporting:
Total/Partial Hip Replacement
Total/Partial Knee Replacement
Central Lines
Herniorrhaphy
Abdominal Hysterectomy
Vaginal Hysterectomy

20 Community Hospital
2021 N 12th St
Grand Junction, CO 81501
www.gjhosp.org
Performing & Reporting:
Total/Partial Hip Replacement
Total/Partial Knee Replacement
Central Lines
Herniorrhaphy
Abdominal Hysterectomy
Vaginal Hysterectomy

21 Craig Hospital
3425 S Clarkson Street
Englewood, CO 80113
www.craighospital.org
Performing and Reporting:
Central lines (permanent and temporary)

22 Delta County Memorial Hospital
1501 E 3rd Street
Delta, CO 81416
www.deltahospital.org
Performing & Reporting:
Total/Partial Hip Replacement
Total/Partial Knee Replacement
Central Lines
Herniorrhaphy
Abdominal Hysterectomy
Vaginal Hysterectomy

23 Denver Health Medical Center
777 Bannock St
Denver, CO 80204
www.denverhealth.org
Performing & Reporting:
Total/Partial Hip Replacement
Total/Partial Knee Replacement
Central Lines
Herniorrhaphy
Abdominal Hysterectomy
Vaginal Hysterectomy

24 East Morgan County Hospital District
2400 W Edison St
Brush, CO 80723
www.bannerhealth.com
Performing & Reporting:
Total/Partial Hip Replacement
Total/Partial Knee Replacement
Herniorrhaphy

25 Estes Park Medical Center
555 Prospect Ave.
Estes Park, CO 80517
*www.epmed**center**.com*
Performing and Reporting:
Herniorrhaphy
Abdominal Hysterectomy
Vaginal Hysterectomy

26 Exempla Good Samaritan Medical Center
200 Exempla Circle
Lafayette, CO 80026
www.exempla.org
Performing & Reporting:
- Total/Partial Hip Replacement
- Total/Partial Knee Replacement
- Coronary Artery Bypass Grafts
- Central Lines
- Herniorrhaphy
- Abdominal Hysterectomy
- Vaginal Hysterectomy

27 Exempla Lutheran Medical Center
8300 W 38th Ave
Wheat Ridge, CO 80033
www.exempla.org
Performing & Reporting:
- Total/Partial Hip Replacement
- Total/Partial Knee Replacement
- Coronary Artery Bypass Grafts
- Central Lines
- Herniorrhaphy
- Abdominal Hysterectomy
- Vaginal Hysterectomy

28 Exempla Saint Joseph Hospital
1835 Franklin St
Denver, CO 80218
www.exempla.org
Performing & Reporting:
- Total/Partial Hip Replacement
- Total/Partial Knee Replacement
- Coronary Artery Bypass Grafts
- Central Lines
- Herniorrhaphy
- Abdominal Hysterectomy
- Vaginal Hysterectomy

29 Grand River Medical Center
501 Airport Road
Rifle, CO 81650
www.grhd.org
Performing & Reporting:
- Partial Hip Replacement
- Partial Knee Replacement
- Herniorrhaphy
- Abdominal Hysterectomy
- Vaginal Hysterectomy

30 Gunnison Valley Hospital
711 N Taylor Street
Gunnison, CO 81230
www.gvh-colorado.org
Performing & Reporting:
- Total/Partial Hip Replacement
- Total/Partial Knee Replacement
- Central Lines
- Herniorrhaphy
- Abdominal Hysterectomy
- Vaginal Hysterectomy

31 Heart of the Rockies Regional Medical Center
448 E First St
Salida, CO 81201
www.hrrmc.org
Performing & Reporting:
- Total/Partial Hip Replacement
- Total/Partial Knee Replacement
- Central Lines
- Herniorrhaphy
- Abdominal Hysterectomy
- Vaginal Hysterectomy

32 Kindred Hospital
1920 High St.
Denver, CO 80218
www.kindredhealthcare.com
Performing and Reporting:
- Central lines (permanent and temporary)

33 Kit Carson Memorial Hospital
286 16th St.
Burlington, CO 80807
www.kccmh.org
Performing and reporting:
- Herniorrhaphy

34 Kremmling Memorial Hospital District
214 S 4th Street
Kremmling, CO 80459
www.kremmlinghospital.org
Performing & Reporting:
- Partial Knee Replacement
- Herniorrhaphy

35 Lincoln Community Hospital
111 6th St.
Hugo, CO 80821
lincolncommunityhospitalandnursinghome.com
Performing and Reporting:
- Herniorrhaphy

36 Longmont United Hospital
1950 Mountain View Avenue
Longmont, CO 80502
www.luhcares.org
Performing & Reporting:
- Total/Partial Hip Replacement
- Total/Partial Knee Replacement
- Coronary Artery Bypass Grafts
- Central Lines
- Herniorrhaphy
- Abdominal Hysterectomy
- Vaginal Hysterectomy

37 McKee Medical Center
2000 Boise Ave
Loveland, CO 80539
www.bannerhealth.com
Performing & Reporting:
- Total/Partial Hip Replacement
- Total/Partial Knee Replacement
- Coronary Artery Bypass Grafts
- Central Lines
- Herniorrhaphy
- Abdominal Hysterectomy
- Vaginal Hysterectomy

38 The Medical Center of Aurora
1501 S Potomac St
Aurora, CO 80012
www.auroramed.com
Performing & Reporting:
- Total/Partial Hip Replacement
- Total/Partial Knee Replacement
- Coronary Artery Bypass Grafts
- Central Lines
- Herniorrhaphy
- Abdominal Hysterectomy
- Vaginal Hysterectomy

39 Medical Center of the Rockies
2500 Rocky Mountain Avenue
Loveland, CO 80538
www.pvhs.org
Performing & Reporting:
- Total/Partial Hip Replacement
- Total/Partial Knee Replacement
- Coronary Artery Bypass Grafts
- Central Lines
- Herniorrhaphy
- Abdominal Hysterectomy
- Vaginal Hysterectomy

40 Melissa Memorial Hospital
1001 Ea Johnson St.
Holyoke, CO 80734
http://www.melissamemorial.org
Performing and Reporting:
- Herniorrhaphy
- Abdominal Hysterectomy
- Vaginal Hysterectomy

41 Memorial Hospital Central
1400 E Boulder St
Colorado Springs, CO 80909
www.memorialhealthsystem.com
Performing & Reporting:
- Total/Partial Hip Replacement
- Total/Partial Knee Replacement
- Coronary Artery Bypass Grafts
- Central Lines
- Herniorrhaphy
- Abdominal Hysterectomy
- Vaginal Hysterectomy

42 Memorial Hospital North
4050 Briargate Parkway
Colorado Springs, CO 80920
www.memorialhealthsystem.com
Performing & Reporting:
- Total/Partial Hip Replacement
- Total/Partial Knee Replacement
- Central Lines
- Herniorrhaphy
- Abdominal Hysterectomy
- Vaginal Hysterectomy

43 The Memorial Hospital
750 Hospital Loop
Craig, CO 81625
www.thememorialhospital.com
Performing & Reporting:
- Total/Partial Hip Replacement
- Total/Partial Knee Replacement
- Herniorrhaphy
- Abdominal Hysterectomy
- Vaginal Hysterectomy

44 Mercy Regional Medical Center
1010 Three Springs Blvd
Durango, CO 81301
www.mercydurango.org
Performing & Reporting:
- Total/Partial Hip Replacement
- Total/Partial Knee Replacement
- Central Lines
- Herniorrhaphy
- Abdominal Hysterectomy
- Vaginal Hysterectomy

45 Montrose Memorial Hospital
800 S 3rd St
Montrose, CO 81401
www.montrosehospital.com
Performing & Reporting:
- Total/Partial Hip Replacement
- Total/Partial Knee Replacement
- Central Lines
- Herniorrhaphy
- Abdominal Hysterectomy
- Vaginal Hysterectomy

46 Mount San Rafael Hospital
410 Benedicta Ave
Trinidad, CO 81082
http://www.msrhc.org
Performing and Reporting;
- Herniorrhaphy
- Abdominal Hysterectomy
- Vaginal Hysterectomy

47 North Colorado Medical Center
1801 16th Street
Greeley, CO 80631
www.bannerhealth.com
Performing & Reporting:
- Total/Partial Hip Replacement
- Total/Partial Knee Replacement
- Coronary Artery Bypass Grafts
- Central Lines
- Herniorrhaphy
- Abdominal Hysterectomy
- Vaginal Hysterectomy

48 North Suburban Medical Center
9191 Grant St
Thornton, CO 80229
www.northsuburban.com
Performing & Reporting:
- Total/Partial Hip Replacement
- Total/Partial Knee Replacement
- Central Lines
- Herniorrhaphy
- Abdominal Hysterectomy
- Vaginal Hysterectomy

49 Northern Colorado Long Term Acute Hospital
4401 A Union S.
Johnstown, CO 80534
http://ncltah.ernesthealth.com
Performing and Reporting:
- Central lines (permanent and temporary)

50 Parker Adventist Hospital
9395 Crown Crest Blvd
Parker, CO 80138
www.parkerhospital.org
Performing & Reporting:
- Total/Partial Hip Replacement
- Total/Partial Knee Replacement
- Central Lines
- Herniorrhaphy
- Abdominal Hysterectomy
- Vaginal Hysterectomy

51 Parkview Medical Center Inc
400 W 16th Street
Pueblo, CO 81003
www.parkviewmc.com
Performing & Reporting:
- Total/Partial Hip Replacement
- Total/Partial Knee Replacement
- Coronary Artery Bypass Grafts
- Central Lines
- Herniorrhaphy
- Abdominal Hysterectomy
- Vaginal Hysterectomy

52 Pikes Peak Regional Hospital
16420 Highway 24
Woodland Park, CO 80863
www.pikespeakregionalhospital.com
Performing & Reporting:
- Total/Partial Hip Replacement
- Total/Partial Knee Replacement
- Herniorrhaphy

53 Pioneers Medical Center
345 Cleveland St.
Meeker, CO 81641
http://www.pioneershospital.org
Performing and Reporting:
Herniorrhaphy

54 Platte Valley Medical Center
1600 Prairie Center Parkway
Brighton, CO 80601
www.pvmc.org
Performing & Reporting:
Total/Partial Hip Replacement
Total/Partial Knee Replacement
Central Lines
Herniorrhaphy
Abdominal Hysterectomy
Vaginal Hysterectomy

55 Poudre Valley Hospital
1024 S Lemay Ave
Fort Collins, CO 80524
www.pvhs.org
Performing & Reporting:
Total/Partial Hip Replacement
Total/Partial Knee Replacement
Central Lines
Herniorrhaphy
Abdominal Hysterectomy
Vaginal Hysterectomy

56 Presbyterian St Luke's Medical Center
1719 E 19th Ave
Denver, CO 80218
www.pslmc.com
Performing & Reporting:
Total/Partial Hip Replacement
Total/Partial Knee Replacement
Coronary Artery Bypass Grafts
Central Lines
Herniorrhaphy
Abdominal Hysterectomy
Vaginal Hysterectomy

57 Prowers Medical Center
401 Kendall Drive
Lamar, CO 81052
www.lmpc.org
Performing and Reporting:
Herniorrhaphy
Abdominal Hysterectomy
Vaginal Hysterectomy

58 Rose Medical Center
4567 E 9th Avenue
Denver, CO 80220
www.rosemed.com
Performing & Reporting:
Total/Partial Hip Replacement
Total/Partial Knee Replacement
Coronary Artery Bypass Grafts
Central Lines
Herniorrhaphy
Abdominal Hysterectomy
Vaginal Hysterectomy

59 San Luis Valley Regional Medical Center
106 Blanca Ave
Alamosa, CO 81101
www.slvrmc.org
Performing & Reporting:
Total/Partial Hip Replacement
Total/Partial Knee Replacement
Central Lines
Herniorrhaphy
Abdominal Hysterectomy
Vaginal Hysterectomy

60 Select Long Term Care Hospital-Colorado Springs
825 Pikes Peak Ave. Suite 500
Colorado Springs, CO 80903
www.selectmedicalcorp.com
Performing and Reporting:
Central lines (permanent and temporary)

61 Select Specialty Hospital-Denver South
2525 South Downing RD 3rd Floor
Denver, CO 80210
www.selectmedicalcorp.com
Performing and Reporting:
Central lines (permanent and temporary)

62 Select Specialty Hospital
1719 East 19th Ave 5B
Denver, CO 80218
www.selectmedicalcorp.com
Performing and Reporting:
Central line (permanent and temporary)

63 Sky Ridge Medical Center
10101 Ridge Gate Parkway
Lone Tree, CO 80124
www.skyridgemedcenter.com
Performing & Reporting:
- Total/Partial Hip Replacement
- Total/Partial Knee Replacement
- Coronary Artery Bypass Grafts
- Central Lines
- Herniorrhaphy
- Abdominal Hysterectomy
- Vaginal Hysterectomy

64 Southeast Colorado Hospital
373 East Tenth Ave.
Springfield, CO 81073
http://www.sechosp.org/
Performing and Reporting:
- Herniorrhaphy
- Abdominal Hysterectomy
- Vaginal Hysterectomy

65 Southwest Memorial Hospital
1311 N Mildred Rd
Cortez, CO 81321
www.swhealth.org
Performing & Reporting:
- Total/Partial Hip Replacement
- Total/Partial Knee Replacement
- Central Lines
- Herniorrhaphy
- Abdominal Hysterectomy
- Vaginal Hysterectomy

66 Spanish Peaks Regional Health Center
23500 US HWY 160
Walsenburg, CO 81089
http://www.sprhc.org
Performing and Reporting:
- Herniorrhaphy
- Abdominal Hysterectomy
- Vaginal Hysterectomy

67 St. Anthony Summit Medical Center
340 Peak One Drive
Frisco, CO 80443
www.stanthonyhosp.org
Performing & Reporting:
- Total/Partial Hip Replacement
- Total/Partial Knee Replacement
- Central Lines
- Herniorrhaphy
- Abdominal Hysterectomy
- Vaginal Hysterectomy

68 St Mary's Hospital and Medical Center
2635 N 7th Street
Grand Junction, CO 81502
www.stmarygj.org
Performing & Reporting:
- Total/Partial Hip Replacement
- Total/Partial Knee Replacement
- Coronary Artery Bypass Grafts
- Central Lines
- Herniorrhaphy
- Abdominal Hysterectomy
- Vaginal Hysterectomy

69 St. Vincent General Hospital District
822 W 4th Street
Leadville, CO 80461
http://www.svghd.org
Performing and Reporting:
- Herniorrhaphy
- Abdominal Hysterectomy
- Vaginal Hysterectomy

70 Sterling Regional Medical Center
615 Fairhurst St
Sterling, CO 80751
www.bannerhealth.com
Performing & Reporting:
- Total/Partial Hip Replacement
- Total/Partial Knee Replacement
- Central Lines
- Herniorrhaphy
- Abdominal Hysterectomy
- Vaginal Hysterectomy

71 Swedish Medical Center
501 E Hampden Avenue
Englewood, CO 80113
www.swedishhospital.com
Performing & Reporting:
- Total/Partial Hip Replacement
- Total/Partial Knee Replacement
- Coronary Artery Bypass Grafts
- Central Lines
- Herniorrhaphy
- Abdominal Hysterectomy
- Vaginal Hysterectomy

72 Triumph Acute Long Term Care Hospital
700 Potomac St. 2nd Floor
Aurora, CO 80011
www.triumph-healthcare.com
Performing and Reporting:
Central lines (permanent and temporary)

73 University of Colorado Hospital
12605 East 16th Avenue
Aurora, CO 80045
www.uch.edu
Performing & Reporting:
Total/Partial Hip Replacement
Total/Partial Knee Replacement
Coronary Artery Bypass Grafts
Central Lines
Herniorrhaphy
Abdominal Hysterectomy
Vaginal Hysterectomy

74 Vail Valley Medical Center
181 W Meadow Drive
Vail, CO 81657
www.vvmc.com
Performing & Reporting:
Total/Partial Hip Replacement
Total/Partial Knee Replacement
Central Lines
Herniorrhaphy
Abdominal Hysterectomy
Vaginal Hysterectomy

75 Valley View Hospital Association
1906 Blake Ave
Glenwood Springs, CO 81601
www.vvh.org
Performing & Reporting:
Total/Partial Hip Replacement
Total/Partial Knee Replacement
Central Lines
Herniorrhaphy
Abdominal Hysterectomy
Vaginal Hysterectomy

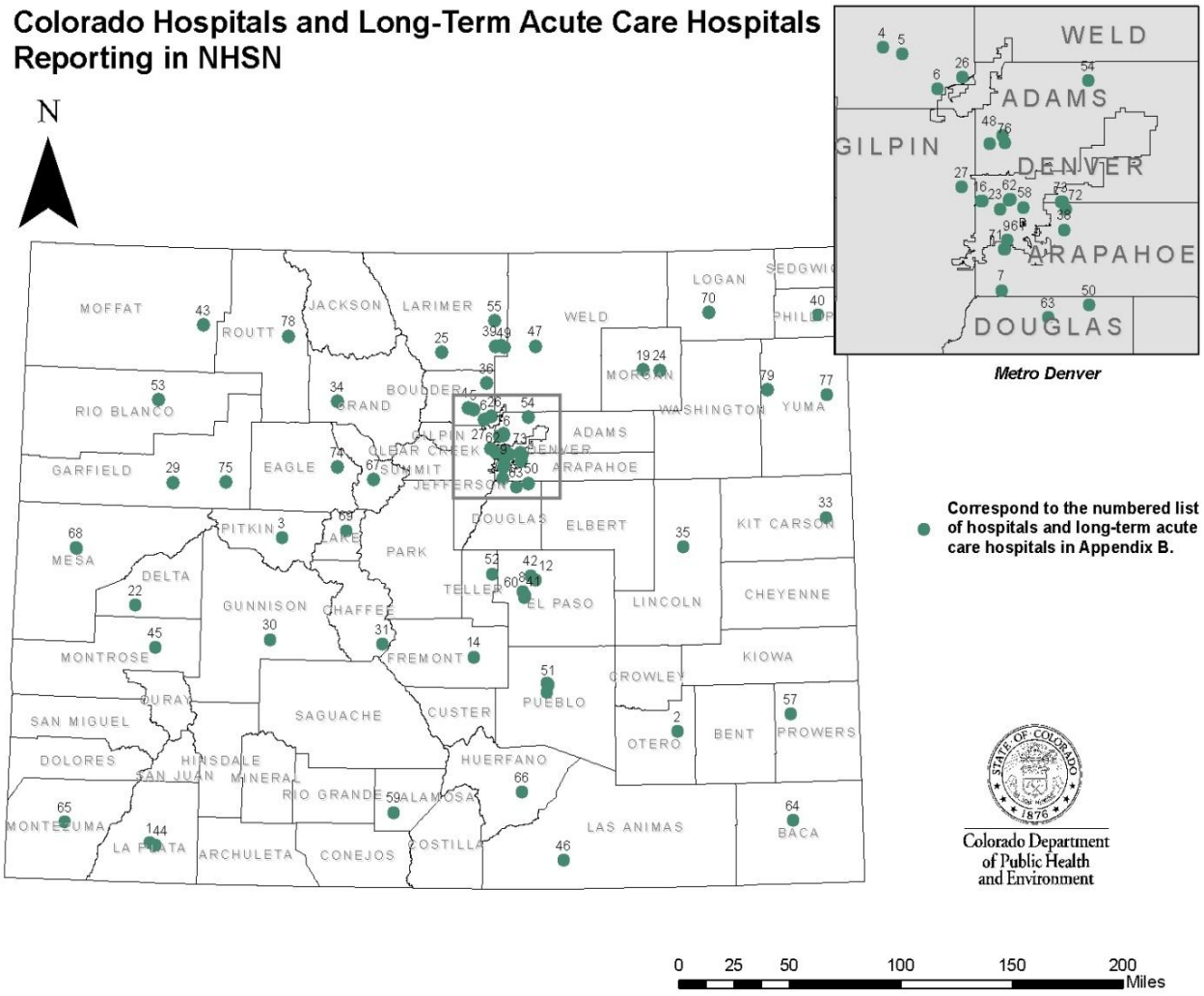
76 Vibra Long Term Acute Care Hospital
8451 Pearl St.
Thornton, CO 80229
www.vibrahealthcare.com
Performing and Reporting:
Central lines (permanent and temporary)

77 Wray Community District Hospital
1017 W 7th St
Wray, CO 80758
www.wcdh.org
Performing & Reporting:
Total/Partial Hip Replacement
Total/Partial Knee Replacement
Herniorrhaphy
Abdominal Hysterectomy
Vaginal Hysterectomy

78 Yampa Valley Medical Center
1024 Central Park Dr
Steamboat Springs, CO 80487
www.yvmc.org
Performing & Reporting:
Total/Partial Hip Replacement
Total/Partial Knee Replacement
Central Line
Herniorrhaphy
Abdominal Hysterectomy
Vaginal Hysterectomy

79 Yuma District Hospital
1000 West 8th Ave.
Yuma, CO 80759
http://www.yumahospital.org
Performing and Reporting:
Herniorrhaphy
Abdominal Hysterectomy

Colorado Hospitals and Long-Term Acute Care Hospitals Reporting in NHSN



Ambulatory Surgery Centers

1 Aberdeen Ambulatory Surgical Center, LLC
650 Dittmer Ave.
Pueblo, CO 81005
Performing and Reporting:
Herniorrhaphy

2 Arkansas Valley Surgery Center
933 Sells Ave
Canon City, CO 81212
Arkansasvalleysurgerycenter.com
Performing and Reporting:
Herniorrhaphy

3 ASC Durango at Mercy Regional Med Ctr.
1 Mercado Street Suite 210
Durango, CO 81301
www.ascdurango.org
Performing and Reporting:
Herniorrhaphy

4 Audubon Ambulatory Surgery Center
3030 N. Circle Drive
Colorado Springs, CO 80909
www.audubonsurgerycenter.com
Performing and Reporting:
Herniorrhaphy
Abdominal Hysterectomy
Vaginal Hysterectomy

5 Audubon ASC at St. Francis
6011 E Woodmen Road Suite 200
Colorado Springs, CO 80923
www.audubonsurgerycenter.com
Performing and Reporting:
Herniorrhaphy

6 Aurora Surgery Center
1300 South Potomac Street Suite 122
Aurora, CO 80012
www.aurorasurgerycenter.com
Performing and Reporting:
Herniorrhaphy
Abdominal Hysterectomy
Vaginal Hysterectomy

7 Black Canyon Surgical Center, LLC
611 East Star Court Suite C
Montrose, CO 81401
www.blackcanyonsurgicalcenter.com
Performing and Reporting:
Herniorrhaphy
Abdominal Hysterectomy

8 Boulder Medical Center, PC
2750 Broadway
Boulder, CO 80304
www.bouldermedicalcenter.com
Performing and Reporting:
Herniorrhaphy

9 Centrum Surgery Center, LTD
8200 E. Belleview Suite 300 E
Greenwood Village, CO 80111
www.centrumsurgicalcenter.com
Performing and Reporting:
Herniorrhaphy

10 Clear Creek Surgery Center, LLC
7809 West 38th Ave.
Wheat Ridge, CO 80033
clearcreeksurgery.com
Performing and Reporting:
Herniorrhaphy

11 Colorado Springs Surgery Center-ASC
1615 Medical Center Point
Colorado Springs, CO 80907
www.coloradospringssurgerycenter.com
Performing and Reporting:
Herniorrhaphy
Abdominal Hysterectomy

12 Crown Point Surgery Center-ASC
9397 Crown Crest Blvd. #110
Parker, CO 80138
Performing and Reporting:
Herniorrhaphy
Abdominal Hysterectomy

13 Denver Midtown Surgery Center-LTD
1919 East 18th Ave
Denver, CO 80206
www.midtownsurgicalcenter.com
Performing and Reporting:
Herniorrhaphy
Abdominal Hysterectomy
Vaginal Hysterectomy

14 Denver West Surgery Center
13952 Denver West Parkway Bldg 53 #100
Golden, CO 80401
www.denverwestsrugerycenter.net
Performing and Reporting:
Herniorrhaphy

15 Dry Creek Surgery Center, LLC-ASC
135 Inverness Drive East
Englewood, CO 80112
Closed February 2009

16 First Choice Outpatient Surgery Center at Community Hospital
2596 F Road
Grand Junction, CO 81505
yourcommunityhospital.com/outpatient surgery.cfm
Performing and Reporting:
Herniorrhaphy
Vaginal Hysterectomy

17 Grand Valley Surgical Center, LLC
710 Wellington Ave. Suite 21
Grand Junction, CO 81501
www.grnadvalleysurgicalcenter.com
Performing and Reporting:
Herniorrhaphy
Vaginal Hysterectomy

18 Harmony Surgery Center, LLC
2127 E Harmony Rd. Suite 200
Fort Collins, CO 80528
www.harmonyasc.com
Performing and Reporting:
Herniorrhaphy

19 Kaiser Permanente Ambulatory Surgery Center
2045 Franklin Street
Denver, CO 80205
www.kaiserpermanente.org
Performing and Reporting:
Herniorrhaphy

20 Lakewood Surgery Center
2201 Wadsworth Blvd.
Lakewood, CO 80214
www.lakewoodsurgicalcenter.com
Performing and Reporting:
Herniorrhaphy

21 Lincoln Surgery Center, LLC
11960 E Lioness Way #120
Parker, CO 80134
www.lincolnsurgerycenter.com
Performing and Reporting:
Herniorrhaphy

22 Longmont Surgery Center, LLC
2030 W Mountain View Ave #100
Longmont, CO 80501
Longmontsurgerycenter.com
Performing and Reporting:
Herniorrhaphy

23 Loveland Surgery Center, ASC
3800 N Grant Ave.
Loveland, CO 80538
www.lovelandsurgerycenter.com
Performing and Reporting:
Total/Partial Hip Replacement
Total/Partial Knee Replacement

24 MCR Surgery Center, LLC
2500 Rocky Mountain Ave Suite 200
Loveland, CO 80538
Performing and Reporting:
Herniorrhaphy
Abdominal Hysterectomy
Vaginal Hysterectomy

25 Midvalley Ambulatory Surgery Center, LLC
1450 E Valley Rd 202
Basalt, CO 81621
Performing and Reporting:
Herniorrhaphy

26 Minimally Invasive Spine Institute
300 Exempla Circle #130
Lafayette, CO 80026
www.coloradospineinstitute.com
Performing and Reporting:
Herniorrhaphy

27 North Colorado Surgery Center
2000 70th Ave
Greeley, CO 80634
Closed August 2009
Reporting:
Herniorrhaphy

28 North Suburban Surgery Center
9195 Grant Street Suite 200
Thornton, CO 80229
www.northsuburbansurgery.com
Performing and Reporting:
Herniorrhaphy

29 Orthopaedic Center of the Rockies, ASC
2500 E Prospect Road
Fort Collins, CO 80525
www.orthohealth.com
Performing and Reporting:
Total/Partial Hip Replacement
Total/Partial Knee Replacement

30 Park Ridge Surgery Center of Sky Ridge
10450 Park Meadows Drive Suite 200
Lonetree, CO 80124
Closed August 2009
Reporting:
Herniorrhaphy

31 Parkwest Surgery Center, LLC
3676 Parker Blvd Suite 140
Pueblo, CO 81008
Performing and Reporting:
Herniorrhaphy

32 Peak One Surgery Center
350 Peak One Drive
Frisco, CO 80443
www.peak1asc.com
Performing and Reporting:
Herniorrhaphy

33 Pueblo Surgery Center
25 Montebello Road
Pueblo, CO 81001
www.pueblosurgery.com
Performing and Reporting:
Herniorrhaphy
Total/Partial Knee Replacement
Abdominal Hysterectomy
Vaginal Hysterectomy

34 Renewal Surgery Center
9777 S Yosemite Street Suite 210
Lone Tree, CO 80124
Performing and Reporting:
Herniorrhaphy

35 Rocky Mountain Surgery Center, LLC
401 West Hampden Place Suite 100
Englewood, CO 80110
Rockymountainsurgery.com
Performing and Reporting:
Herniorrhaphy
Total/Partial Knee Replacement

36 Rose Surgical Center
4700 East Hale Parkway #200
Denver, CO 80220
Rosesurgicalcenter.com
Performing and Reporting:
Herniorrhaphy

37 Sky Ridge Surgical Center
10099 Ridge Gate Parkway Suite 100
Lone Tree, CO 80124
Skyridgesurgicalcenter.com
Performing and Reporting:
Herniorrhaphy

38 Skyline Surgery Center
2555 East 13th Street Suite 200
Loveland, CO 80537
www.bannerhealth.com
Performing and Reporting:
Herniorrhaphy
Total/Partial Knee Replacement
Abdominal Hysterectomy
Vaginal Hysterectomy

39 Summit View Surgery Center, LLC
7730 S Broadway
Littleton, CO 80122
Performing and Reporting:
Herniorrhaphy

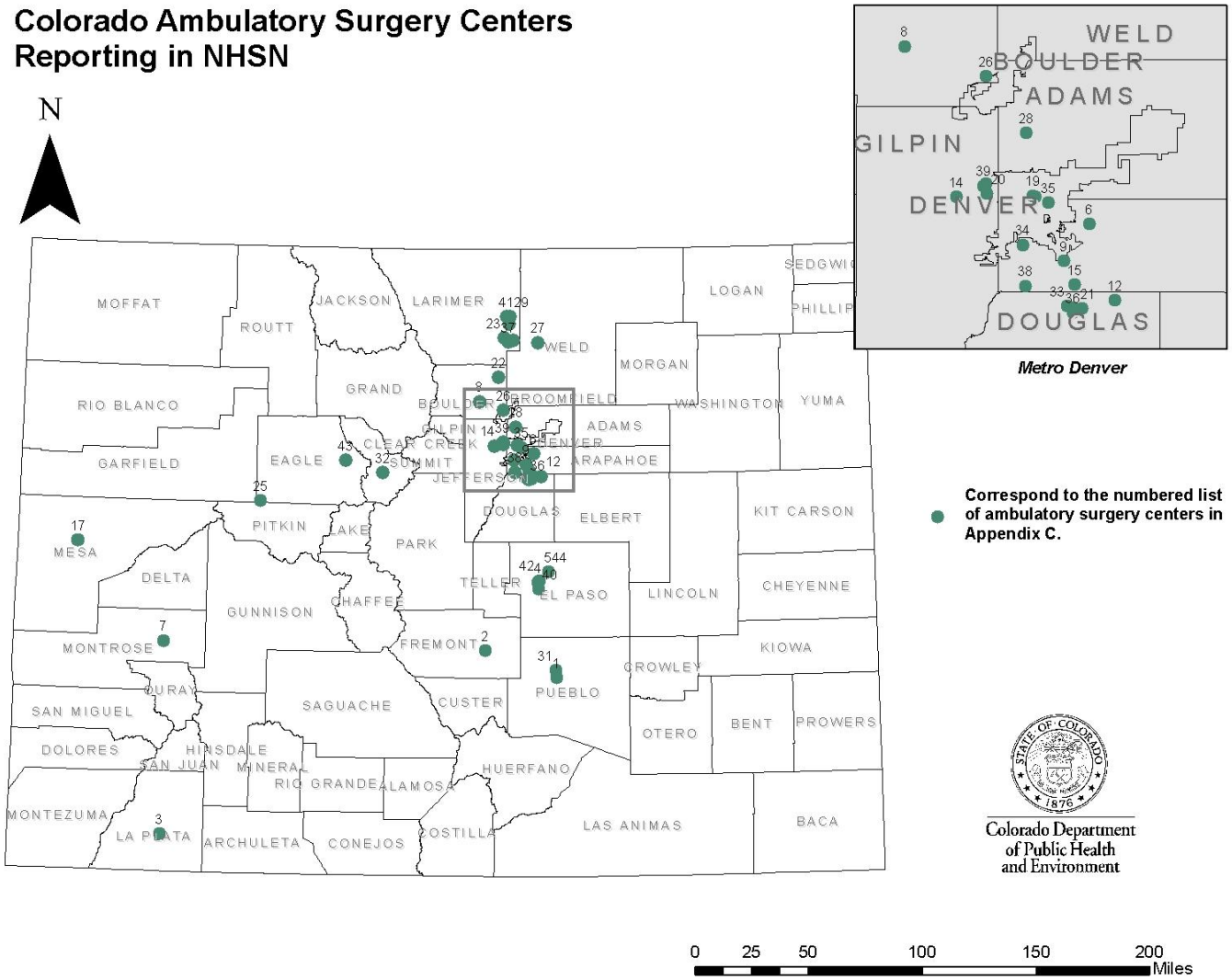
40 Surgery Center at Lutheran
3455 Lutheran Parkway Suite 150
Wheat Ridge, CO 80033
www.exempla.org
Performing and Reporting:
Herniorrhaphy
Abdominal Hysterectomy
Vaginal Hysterectomy

41 Surgery Center at Printers Park, LLC
175 S Union Blvd Suite 100
Colorado Springs, CO 80910
www.printersparksurg.com
Performing and Reporting:
Herniorrhaphy

42 Surgery Center of Fort Collins
1100 East Prospect Road
Fort Collins, CO 80525
Performing and Reporting:
Herniorrhaphy
Abdominal Hysterectomy
Vaginal Hysterectomy

43 Surgical Center at Premier
3920 N Union Blvd Suite 240
Colorado Springs, CO 80907
www.scpremier,net
Performing & Reporting:
Total/Partial Hip Replacement
Total/Partial Knee Replacement
Herniorrhaphy
Abdominal Hysterectomy
Vaginal Hysterectomy

44 Vail Valley Surgery Center. LLC
181 W Meadows Drive Suite 3R
Vail, CO 81657
www.vvmc.com
Performing and Reporting:
Herniorrhaphy
Vaginal hysterectomy


Colorado Ambulatory Surgery Centers
Reporting in NHSN
N
MOFFAT
ROUTT
JACKSON
LARIMER
WELD
LOGAN
PHILLIP
SEDGWI
MORGAN
RIO BLANCO
GRAND
BOULDER
BROOMFIELD
WASHINGTON
YUMA
GARFIELD
EAGLE
CLEAR CREEK
GILPIN
ADAMS
DENVER
ARAPAHOE
SUMMIT
JEFFERSON
DOUGLAS
ELBERT
KIT CARSON
PITKIN
LAKE
PARK
MESA
DELTA
TELLER
EL PASO
LINCOLN
CHEYENNE
GUNNISON
CHAFFEE
MONTROSE
FREMONT
CROWLEY
KIOWA
OURAY
SAN MIGUEL
SAGUACHE
CUSTER
PUEBLO
OTERO
BENT
PROWERS
DOLORES
HINSDALE
SAN JUAN
MINERAL
RIO GRANDE
ALAMOSA
HUERFANO
MONTEZUMA
LA PLATA
ARCHULETA
CONEJOS
COSTILLA
LAS ANIMAS
BACA
WELD
BOULDER
ADAMS
GILPIN
DENVER
DOUGLAS
Metro Denver
Correspond to the numbered list of ambulatory surgery centers in Appendix C.
Colorado Department of Public Health and Environment
0 25 50 100 150 200
Miles

Outpatient Dialysis Centers

1 Alamosa Dialysis
612 Del Sol Drive
Alamosa, CO 81101

2 Arvada Dialysis Center
9950 W 80th Ave Suite 25
Arvada, CO 80005

3 Aurora Dialysis Center
1411 S Potomac #100
Aurora, CO 80012

4 Belcaro Dialysis Center
755 S Colorado Blvd
Denver, CO 80246

5 Black Canyon Dialysis Center
3241 Rio Grande Ave. Unit D
Montrose, CO 81401

6 Boulder Dialysis Center
2880 Folsom Dr. #110
Boulder, CO 80304

7 Brighton Dialysis Center
4700 E. Bromley Lane Suite #103
Brighton, CO 80601

8 Commerce City Dialysis
6320 Holly St.
Commerce City, CO 80022

9 Cortez Dialysis Center
601 E Main St. Suite C
Cortez, CO 81321

10 Denver Dialysis Center
2900 Downing Unit C
Denver, CO 80205

11 Denver Women's Reception & Diagnostic Center
10900 Smith Road
Denver, CO 80239

12 Dialysis Clinic Inc. Grand Junction
2748 Crossroads Blvd.
Grand Junction, CO 81506

13 Dialysis Clinic Inc. Montrose
945 S. 4th St.
Montrose, CO 81401

14 Durango Dialysis Center
72 Suttle St. Unit D
Durango, CO 81303

15 East Aurora Dialysis
482 S. Chambers Rd.
Aurora, CO 80017

16 Englewood Dialysis Center
3247 S. Lincoln St.
Englewood, CO 80113

17 Fountain Dialysis
6910 Bandley Dr.
Fountain, CO 80817

18 Fresensius Denver Central Dialysis
765 South Broadway
Denver, CO 80209

19 Fresenius East Denver Dialysis
962 Potomac Circle
Aurora, CO 80011

20 Fresenius Lamar Dialysis Services
108 W. Lee Ave.
Lamar, CO 80209

21 Fresenius Park Hill Dialysis
7606 E. 36th Ave.
Denver, CO 80238

22 Fresenius Pueblo South Dialysis
3426 Lake Ave. Suite #110
Pueblo, CO 81004

23 Fresenius Rocky Mountain Dialysis
4600 Hale Parkway #120
Denver, CO 80220

24 Grand Junction Dialysis Center
710 Wellington Ave. Suite #20
Grand Junction, CO 81501

25 Kidney Center of Arvada
5265 Vance St.
Arvada, CO 80002

26 Kidney Center of Lafayette
2655 Crescent Dr. Suite C
Lafayette, CO 80026

27 Kidney Center of Lakewood
6166 W. Alameda Ave.
Denver, CO 80266

28 Kidney Center of Longmont
1960 Ken Pratt Blvd. Suite A
Longmont, CO 80501

29 Kidney Center of Westminster
8410 Decatur St.
Westminster, CO 80031

30 Lakewood Crossing Dialysis Center
1057 S Wadsworth Suite #100
Lakewood, CO 80226

31 Lakewood Dialysis Center
1750 Pierce St. Suite B
Lakewood, CO 80214

32 Liberty Dialysis Castle Rock LLC
4352 Trail Boss Drive
Castle Rock, CO 80104

33 Liberty Dialysis Colorado Springs Central
1910 Lelaray St.
Colorado Springs, CO 80909

34 Liberty Dialysis Colorado Springs North
2180 Hollowbrook Drive
Colorado Springs, CO 80918

35 Liberty Dialysis Colorado Springs South
2508 Airport Road
Colorado Springs, CO 80910

36 Liberty Dialysis Pueblo
850 Eagle Ridge Blvd.
Pueblo, CO 81008

37 Littleton Dialysis Center
209 W County Line Rd.
Littleton, CO 80126

38 Lonetree Dialysis Center
9777 Pyramid Court Suite #140
Englewood, CO 80112

39 Longmont Dialysis Center
1715 Iron Horse Dr. Suite #170
Longmont, CO 80501

40 Loveland Dialysis
2940 Ginnala Dr.
Loveland, CO 80538

41 Lowry Dialysis Center
7465 E 1st Ave. #A
Denver, CO 80230

42 Mesa County Dialysis
561 25 Road Suite D
Grand Junction, CO 81505

43 North Colorado Springs Dialysis
6071 E Woodmen Rd. Suite #100
Colorado Springs, CO 80923

44 North Metro Dialysis Center
12365 Huron Suite #500
Westminster, CO 80234

45 Northern Colorado Kidney Center
1213 Riverside Dr.
Fort Collins, CO 80524

46 Parker Dialysis Center
10371 S Parkglenn Way Suite #180
Parker, CO 80138

47 Pikes Peak Dialysis Center
2002 Lelaray St. Suite #130
Colorado Springs, CO 80909

48 Printers Place Dialysis Center
2802 International Circle
Colorado Springs, CO 80910

49 Qualicenters Canon City
2245 Fremont Dr.
Canon City, CO 81212

50 Qualicenters La Junta
1116 Carson Ave.
La Junta, CO 81050

51 Qualicenters Pueblo
41 Montbello Rd. Suite #200
Pueblo, CO 81004

52 Qualicenters Walsenburg
23450 US Highway 160
Walsenburg, CO 81089

53 Reliant Renal Care RRC Colorado Springs
1605 N Union Blvd. Suite #100
Colorado Springs, CO 80909

54 Reliant Renal Care RRC Trinidad
400 Benedicta Suite C
Trinidad, CO 81082

55 South Denver Dialysis Center
850 East Harvard Suite #60
Denver, CO 80210

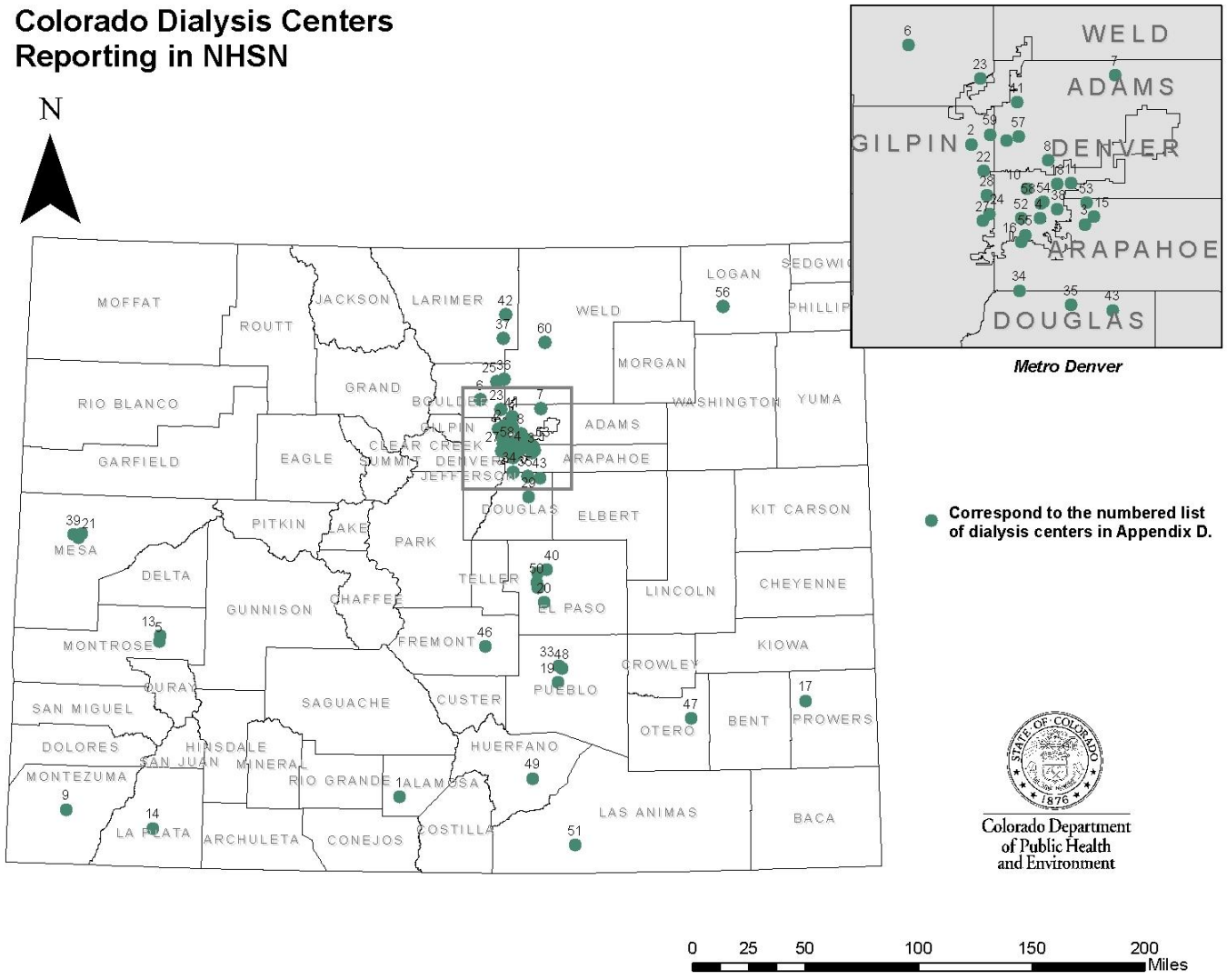
56 Sterling Regional Medcenter-ESRD
603 Holly Dr.
Sterling, CO 80751

57 Thornton Dialysis Center
8800 Fox Dr.
Thornton, CO 80260

58 University of Colorado Dialysis Services
4185 E 9th Ave
Denver, CO 80262

59 Westminster Dialysis Center
9035 Harlan St. #90
Westminster, CO 80031

60 Willow Station Dialysis
2343 W 27th St. #503
Greeley, CO 80634


Colorado Dialysis Centers
Reporting in NHSN
N
MOFFAT
ROUTT
JACKSON
LARIMER
WELD
LOGAN
PHILLIP
SEDGWI
MORGAN
RIO BLANCO
GRAND
BOULDER
WASHINGTON
YUMA
GILPIN
ADAMS
GARFIELD
EAGLE
CLEAR CREEK
SUMMIT
DENVER
ARAPAHOE
JEFFERSON
DOUGLAS
ELBERT
KIT CARSON
PITKIN
LAKE
PARK
MESA
DELTA
TELLER
LINCOLN
CHEYENNE
GUNNISON
CHAFFEE
EL PASO
MONTROSE
FREMONT
CROWLEY
KIOWA
OURAY
SAGUACHE
CUSTER
PUEBLO
SAN MIGUEL
OTERO
BENT
PROWERS
DOLORES
HINSDALE
HUERFANO
SAN JUAN
MINERAL
MONTEZUMA
RIO GRANDE
ALAMOSA
LA PLATA
ARCHULETA
CONEJOS
COSTILLA
LAS ANIMAS
BACA
WELD
ADAMS
GILPIN
DENVER
ARAPAHOE
DOUGLAS
Metro Denver
Correspond to the numbered list of dialysis centers in Appendix D.
Colorado Department of Public Health and Environment
0 25 50 100 150 200
Miles

Appendix E: Prevention Collaboratives

Colorado established two new ARRA funded HAI prevention collaborative: one targeting Surgical Site Infections (SSI) and the other targeting *Clostridium difficile* infections. The Colorado Department of Public Health (CDPHE) Patient Safety Program has partnered with the Colorado Hospital Association (CHA) and Dr. Connie Price, from Denver Health and Hospitals, to implement the collaborative.

The purpose of the collaborative is to enlist volunteers to work together to reduce health facility acquired infections through data sharing and collaborative learning. Participants are expected to enter SSI and CDI-related outcome data into NHSN and data for various process measures (i.e., hand hygiene, appropriate hair removal, environmental cleaning, etc.) into the CHA website (explained below).

The goals of the SSI Collaborative are to reduce the admission and readmission SSI standardized infection ratio (SIR) by at least 15% from baseline or to zero. The CDI collaborative goal is to reduce the facility-wide healthcare facility-onset CDI event rates by at least 15% from baseline or to zero. Twenty facilities for each collaborative were targeted for enrollment and 20 had enrolled in each; however, some facilities dropped out due to reported workload burden. Currently 20 and 17 facilities, participate in the SSI and CDI collaborative, respectively.

The CHA has also contracted with an experienced infection preventionist, Amber Miller, from Lutheran Medical Center, to conduct annual comprehensive training courses that cover infection prevention, basic epidemiology, and NHSN reporting. The CDPHE's Patient Safety Program employed Tamara Hoxworth, a Quality Improvement Specialist, to serve as the liaison between CHA and CDPHE and provide NHSN technical assistance to collaborative participants and present CDPHE- and NHSN-specific information at collaborative sessions.

The CHA has developed a secure website for all facilities participating in the prevention collaborative. Participants use the website to submit their process measure data monthly, and to blog with other collaborative members on prevention problems, approaches, and successes. The website will be the primary vehicle for sharing information among participating facilities during the project, including HAI data. A webinar or conference call is held monthly with collaborative participants to discuss reporting, prevention issues or hold presentations by expert speakers on relevant topics.

Feedback reports depicting the first quarter of data (April – June 2010) were provided to participating facilities. The reports enabled facilities to compare their own infection rates and process measures to other facilities in the collaborative, as well as to national and state averages.

Appendix F: Standardized Infection Ratio

The Standardized Infection Ratio (SIR) is a risk adjusted summary measure that accounts for the type of procedure and risk category. The following example demonstrates how the SIR is calculated and how to determine if a hospital's ratio is significantly different from the national average.

Hospital A performed 190 hip prosthesis procedures last year and 5 surgical site infections (SSIs) occurred. Table 1 shows risk category with the number of SSIs, number of hip prosthesis procedures, SSI rate for the risk category, national SSI rate based on the National Healthcare Safety Network (NHSN), and the expected number of SSIs.

Table 1. Hip prosthesis procedures and SSI rates by risk category

Risk category	# of SSIs	# of hip prosthesis procedures	Hospital SSI Rate (SSIs per 100 procedures)	NHSN Rate (SSIs per 100 procedures)	Expected # of SSIs
0	1	100	1.0	0.86	0.86
1	2	60	3.3	1.65	0.99
2,3	2	30	6.7	2.52	0.76
TOTAL	5	190	--	--	2.61

An example for calculating the SSI rate for risk category 1, expected number of SSIs for risk category 1, and total expected SSIs is shown below:

$$\text{SSI Rate for risk category1} = \frac{2\ \text{SSIs}}{60\ \text{procedures}} * 100 = 3.3$$

$$\text{Expected SSIs for risk category1} = \#\ \text{of procedures} * \text{NHSN rate} = 60 * 1.65/100 = 0.99$$

$$\text{Expected SSIs overall} = \sum \text{expected SSIs} = 0.86 + 0.99 + 0.76 = 2.61$$

The SIR is the ratio of the observed to expected SSIs collapsed over all risk categories, i.e. after adjusting for the risk of the procedure.

$$\text{SIR} = \frac{\text{observed SSIs}}{\text{expected SSIs}} = \frac{5}{2.61} = 1.92$$

Interpretation of the SIR is done by comparing a hospital's value to 1.0 (observed and expected number of SSIs are the same). In other words, the number of infections is what was expected based on the national average. If the SIR value is greater than 1.0, there are more infections than expected, and if the SIR value is less than 1.0, there are fewer infections than expected. In this example, Hospital A has 92% more SSIs than expected.

The statistical significance of Hospital A's observed SSIs compared to its expected SSIs based on the national average is tested using a Poisson test. A p-value is computed from the test and helps to determine if the difference in the SSI rate is due to chance alone. If the p-value is greater than or equal to 0.05, then there is no significant difference between the hospital's SSI count and the expected count based on the national rate.

If the p-value is less than 0.05, then the difference is statistically significant, and the value of the SIR determines whether the hospital is better than or worse than the national average. If the SIR is greater than 1, then the hospital has significantly more CLABSIs than were expected based on the national average. The converse also applies where if the SIR is less than 1, the hospital has significantly fewer CLABSIs than were expected. In this case, the p-value associated with the SIR is equal to 0.22, which means that the number of infections for Hospital A is neither statistically higher nor lower than the expected number based on the national comparison.

Appendix G: Neonatal Critical Care Unit Central Line Associated Bloodstream Infection rate and Umbilical Catheter Associated Bloodstream Infection rate calculation using the Standardized Infection Ratio

The neonatal critical care unit central line associated bloodstream infection rate and the umbilical catheter-associated bloodstream infection rate were calculated by dividing the number of infections by the number of central line days or umbilical catheter days and multiplying this number by 1000.

The national comparison is a risk-standardized comparison that accounts for the birth weight of the babies. There are five birth weight categories for the neonates:

1. Less than or equal to 1.65 pounds (≤ 750 grams)
2. 1.66 to 2.2 pounds (751 – 1000 grams)
3. 2.3 to 3.3 pounds (1001 – 1500 grams)
4. 3.4 to 5.5 pounds (1501 – 2500 grams)
5. Greater than 5.5 pounds (≥ 2500 grams)

The comparison is performed by using the Standardized Infection Ratio (SIR), which is the ratio of observed infections in a given facility to expected number of infections a facility would be expected to have if it has the same infection rate as the national rate, when standardized for the distribution of infections across the various birth weight categories.

The following example demonstrates how the SIR is calculated and how to determine if a hospital's ratio is significantly different from the national average:

> Hospital A had 450 central line days in all neonates last year and 9 central line-associated bloodstream infections (CLABSIs) occurred. Table 1 shows for each birth weight category: the number of CLABSIs, number of central line days, CLABSI rate for the birth weight category, national CLABSI rate based on the National Healthcare Safety Network (NHSN), and the expected number of CLABSIs.

Table 1. Central line days and CLABSI rates by birth weight category

Risk category	# of CLABSIs	# of central line days	Hospital CLABSI Rate (CLABSIs per 1000 procedures)	NHSN Rate (CLABSIs per 1000 procedures)	Expected # of CLABSIs
≤ 1.65 lbs	1	1000	1.0	4.9	4.9
1.66 – 2.2lbs	2	1350	1.5	3.2	4.3
2.3 – 3.3lbs	3	1250	2.4	2.0	2.5
3.4 – 5.5lbs	2	1500	4.0	1.5	2.3
≥ 5.5lbs	1	1400	2.5	1.2	1.3
TOTAL	9	6500	--	--	15.3

An example for calculating the CLABSI rate for birth weight category 1, expected number of CLABSIs for birth weight category 1, and total expected CLABSIs is shown below:

$$\text{CLABSI rate for birth weight category 1} = \frac{1 \text{ CLABSI}}{100 \text{ central line days}} * 100 = 1.0$$

Expected CLABSIs for birth weight category 1 = # of central line days * NHSN rate = 100 * 4.9/100 = 4.9

Expected CLABSIs overall = $\sum$ expected CLABSIs = 4.9 + 4.3 + 2.5 + 2.3 + 1.3 = 15.3

The SIR is the ratio of the observed to expected CLABSIs collapsed over all risk categories, i.e. after standardizing for the birth weight categories.

$$\text{SIR} = \frac{\text{observed CLABSIs}}{\text{expected CLABSIs}} = \frac{9}{15.3} = 0.59$$

Interpretation of the SIR is done by comparing a hospital's value to 1.0 (observed and expected number of CLABSIs are the same). In other words, the number of infections is what was expected based on the national average. If the SIR value is greater than 1.0, there are more infections than expected, and if the SIR value is less than 1.0, there are fewer infections than expected. In this example, Hospital A has 59% as many CLABSIs as expected.

The statistical significance of Hospital A's observed CLABSIs compared to its expected CLABSIs based on the national average is tested using a Poisson test. A p-value is computed from the test and helps to determine if the difference in the CLABSI rate is due to chance alone. If the p-value is greater than or equal to 0.05, then there is no significant difference between the hospital's CLABSI count and the expected count based on the national rate.

If the p-value is less than 0.05, then the difference is statistically significant, and the value of the SIR determines whether the hospital is better than or worse than the national average. If the SIR is greater than 1, then the hospital has significantly more CLABSIs than were expected based on the national average. The converse also applies where if the SIR is less than 1, the hospital has significantly fewer CLABSIs than were expected.

In this case, the p-value associated with the SIR is equal to 0.12, which means that the number of infections for Hospital A is neither statistically higher nor lower than the expected number based on the national comparison.

Appendix H: Consumer Resources

Hospital and Surgical Patients:

Every day patients receiving medical treatment acquire infections in healthcare facilities. Spending time in a hospital or getting surgery puts patients at risk for healthcare-associated infections (HAI), such as blood, surgical site, or urinary tract infections. These infections can have devastating physical, emotional and financial results. However, there are actions that healthcare consumers and providers can take to reduce HAI. The following ten steps, published by the Centers for Disease Control and Prevention[1], are simple activities that patients and their healthcare providers can follow to reduce the likelihood of acquiring HAIs and improve healthcare safety in general:

1. Speak up: Tell your doctor about any worries you have about your safety and ask them what they are doing to protect you.
2. Keep hands clean: If you do not see your providers clean their hands, ask them to do so. Also, remind your loved ones and visitors. Washing hands can prevent the spread of germs.
3. Ask if you still need a central line or urinary catheter: A central line catheter is a tube inserted into a central vein for giving fluids and medicines and for obtaining diagnostic information to assess your condition and guide your treatment. A urinary catheter is a tube placed in the urethra to drain urine from the bladder into an attached bag or container. It is used in patients undergoing surgery or who are confined to a bed and are physically unable to use a bed pan. Leaving any catheter in place too long increases the chances of getting an infection.
4. Ask your healthcare provider: "will there be a new needle, new syringe, and a new vial for this procedure or injection?" Healthcare providers should never reuse needles or syringes on more than one patient.
5. Be careful with medications: Avoid taking too much medicine by following package directions. Also, to avoid harmful drug interactions, tell your doctor about all medicines you are taking.
6. Get smart about antibiotics: Help prevent antibiotic resistance by taking all your antibiotics as prescribed, and not sharing your antibiotics with other people. Remember that antibiotics don't work against viruses like the ones that cause the common cold.
7. Watch out for *Clostridium difficile: C. difficile* is a germ that can cause severe diarrhea in the elderly and in persons with weakened immune systems. Tell your doctor if you have severe diarrhea, especially if you are also taking an antibiotic.
8. Know the signs and symptoms of infection: Some skin infections, like Methicillin-resistant *Staphylococcus aureus* (MRSA), appear as redness, pain, or drainage at an intravenous catheter site or surgical incision site. A fever may or may not be present. Tell your doctor if you have these symptoms.
9. Get your flu shot: Protect yourself against the flu and other complications by getting vaccinated.

10. Prepare for surgery: Ask your doctor what you should do to prepare for surgery and tell him/her about any medical conditions you have. The following list, published by the U.S. Department of Health and Human Services, Agency for Healthcare Research and Quality, includes suggested questions to ask your surgeon and other members of your surgical team to help you prepare for surgery. Additional information can be found on their website at http://www.ahrq.gov.
    - ✓ Why do I need surgery?
    - ✓ What kind of surgery do I need?
    - ✓ What will you be doing?
    - ✓ Have you done this surgery before? How many times?
    - ✓ How successful is this surgery?
    - ✓ Will I need anesthesia?
    - ✓ How long will the surgery take?
    - ✓ What will happen after the surgery?
    - ✓ What kind of pain can I expect?
    - ✓ How long will I be in the hospital?
    - ✓ How long will it take me to recover?
    - ✓ What are the benefits and risks of having this surgery?
    - ✓ What are the possible complications?
    - ✓ What are the alternatives to surgery?
    - ✓ How much will the surgery cost?
    - ✓ Will my insurance cover the surgery?
    - ✓ Why is your hospital best for this surgery?

These and other sets of guidelines for preventing such HAI as central line and urinary catheter associated infections, as well as *C. difficile* and MRSA infections can be found on CDC's website, www.cdc.gov.

Dialysis Facility Patients:

In addition to hospital and surgical patients, chronic hemodialysis patients are at high risk for HAI. Their heightened risk is, in part, due to the nature of the hemodialysis process. This process requires vascular access (generally through insertion of a catheter into a vein in the arm or other body site) for prolonged periods, thus increasing the risk of infection through contaminated medical equipment, supplies, environmental surfaces, and hands of healthcare personnel. Hemodialysis patients also have weakened immune systems that increase their susceptibility to infections, and they are more likely to require hospitalizations and surgeries which further increase exposure to HAI. The following steps, published by the National Institutes of Health, National Institute of Diabetes, Digestive and Kidney Diseases, can help dialysis patients protect their vascular access site and reduce risk of infection.

- ✓ Make sure your nurse or technician checks your access site before each treatment.
- ✓ Keep your access site clean at all times.
- ✓ Use your access site only for dialysis.
- ✓ Be careful not to bump or cut your access.
- ✓ Don't let anyone put a blood pressure cuff on your access arm.
- ✓ Don't wear jewelry or tight clothes over your access site.
- ✓ Don't sleep with your access arm under your head or body.
- ✓ Don't lift heavy objects or put pressure on your access arm.
- ✓ Check the pulse in your access every day.

These steps and other useful information can be found on the National Kidney and Urologic diseases Information Clearing house website: http://kidney.niddk.nih.gov/kudiseases/pubs/vascularaccess/#venouscatheter.

Another useful internet tool for hemodialysis patients is Medicare's Dialysis Facility Compare (DFC). This website provides useful information about kidney disease, the dialysis process, and Medicare-approved dialysis facilities nationwide. It presents facility contact information and characteristics such as types of dialysis offered (in-center hemodialysis, peritoneal dialysis, and home hemodialysis training), number of treatment stations, number of shifts starting 5 PM or later, initial date of Medicare certification, and ownership type (profit or non-profit). It provides a "compare" function, so that consumers can compare selected facilities in terms of characteristics, services, and healthcare quality indicators. This information can help dialysis patients select dialysis facilities that best meet their needs, and patients already receiving dialysis can review their facility's information and discuss it with their dialysis caregivers. DFC also provides a kidney disease dictionary, a list of dialysis patient rights and responsibilities, frequently asked questions, and links to national kidney disease and transplant organizations that provide valuable educational materials.

Healthcare Consumer Resources:

Healthcare quality means that patients get the right medicine, treatments, and medical tests at the right times for their condition. Facilities vary in the quality of care they provide, but there are many resources available to inform decisions about where to receive healthcare. Valuable information for healthcare related decisions can be found on the websites listed below. The first three websites listed enable facility comparisons on various quality indicators, and include two Centers for Medicare and Medicaid Services (CMS) websites that compare CMS approved facilities nationwide and a Colorado Hospital Association website that compares hospitals in Colorado only.

- Medicare Hospital Compare website: www.hospitalcompare.hhs.gov or www.medicare.gov.
- Medicare Dialysis Facility Compare website: www.medicare.gov/dialysis/home.asp.
- Colorado Hospital Report Card website: www.cha.com.
- Centers for Disease Control: www.cdc.gov.
- The Leap Frog Group: http://www.leapfroggroup.org/
- Institute for Healthcare Improvement: http://www.ihi.org/ihi
- Colorado Foundation for Medical Care: http://www.cfmc.org

The practice of posting healthcare facility information on websites encourages accountability and continuous improvement in the quality of care provided. Beyond website resources, there are several national and international associations focused on safe healthcare that can also provide useful information on HAI and healthcare quality, in general:

- Agency for Healthcare Research and Quality
- American Hospital Association (AHA)
- Association for Professionals in Infection Control and Epidemiology (APIC)
- Centers for Medicare & Medicaid Services (CMS)
- Consumer's Union
- Council of State and Territorial Epidemiologists (CSTE)
- Department of Health and Human Services
- Food and Drug Administration
- Infectious Diseases Society of America (IDSA)
- The Joint Commission (TJC)
- Safe Care Campaign
- Safe Injection Practices Coalition

- Society for Healthcare Epidemiology of America (SHEA)

To get the best use of the resources presented above, consumers should also always consult with their doctors, hospitals, families and friends before deciding where to receive care. In doing so, they should consider the experience of the facility, staff and other quality indicators in addition to the infection data presented in this report. This report should be used as one of many quality indicators and cannot, on its own, provide a complete picture of healthcare quality in Colorado facilities.

The Hospital Report Card released by The Colorado Hospital Association is a valuable internet source for consumers in Colorado. The website offers user-friendly data with graphs and tables and incorporates additional patient safety metrics among hospitals The Hospital Report Card can be viewed at the following link: www.cha.com. As infections are not the only adverse event that may happen to a consumer, it is important to weigh all factors in judging the quality of healthcare.

Appendix I: Glossary of Terms and Abbreviations

Glossary of terms

Term	Definition
Access-associated Bacteremia	The presence of bacteria in the blood verified by culture with the source identified as the vascular access site or is unknown.
Active Surveillance	A system used by a trained infection preventionist (IP) to look for infections during a patient's hospital stay. A variety of tools are used to identify infections and determine if they are related to their hospital stay or to determine if an infection was present on hospital admission. These tools may include, but are not limited to, information from various sources such as the laboratory, radiology department, surgical service units, nursing care units and patient treatment areas, environmental services, rounds with unit staff, electronic clinical data reporting systems, and pharmacy reports.
Ambulatory Surgery Center	A facility which operates exclusively for the purpose of providing surgical services to patients not requiring hospitalization.
Arteriovenous (AV) Fistula	A surgically created connection between an artery and a vein usually in the forearm for the purpose of vascular access during hemodialysis treatments. The vein portion grows larger allowing easier access during hemodialysis. Patients must have another means of access for hemodialysis until the fistula matures (usually weeks to months). A fistula can last several years and has the lowest complication rate of dialysis access types.
Arteriovenous (AV) Graft	A surgically implanted synthetic tube or graft under the skin in the arm connecting an artery to a vein for the purpose of vascular access during hemodialysis. Usually performed when a patient's veins are too small to develop properly into a fistula. A graft can last several years.
Bacteremia	The presence of viable bacteria in circulating blood and which can be persistent or recurrent due to infection.
Birth weight Categories	The weight of an infant at the time of birth. Infants remain in their birth weight category even if they gain weight. Birth weight category is important because the lower the birth weight, the higher the risk of developing an infection.
Bloodstream Infection (BSI)	An infection of the blood.
Case	Instance of a particular disease, injury, or other health condition that meet selected criteria.

Case Definition	Set of uniformly applied criteria for determining whether a person should be identified as having a particular disease, injury, or other health condition. In epidemiology, particularly for an outbreak investigation, a case definition specifies clinical criteria and details of time, place and person.
CAUTI	Catheter-associated urinary tract infection. A urinary tract infection that occurs in a patient who had an indwelling urethral urinary catheter in place within the 7-day period before the onset of the urinary tract infection.
Central line	A flexible tube (intravascular catheter) that terminates at or close to the heart or in one of the great vessels. A central line provides access to a large vein that can be used to give fluids, measure the amount of fluid in the body, or to give medication.
Central line-associated bloodstream infection (CLABSI)	A primary bloodstream infection (BSI) in a patient that had a central line within the 48-hour period before the development of the BSI. If the BSI develops within 48-hours of discharge from a location, it is associated with the discharging location.
Central Line Bloodstream Infection (CLABSI) Rate	The total number of central line-associated bloodstream infections divided by the number of central line days multiplied by 1,000. Lower rates are better.
Central Line Days (Device Days)	The total number of days a central line is used for patients in a CCU or a NCCU. A daily count of patients with a central line in place is performed at the same time each day. Each patient with one or more central lines at the time the daily count is performed is counted as one central line day.
Certification Board of Infection Control and Applied Epidemiology (CBIC)	The Certification Board of Infection Control and Epidemiology, Inc., is an organization that certifies infection preventionists based on their educational background and professional experience, in conjunction with testing their knowledge base through a standardized exam. The credential awarded is CIC, Certification in Infection Control and Epidemiology. One must have two years of infection control experience in order to sit for the boards. Certification must be renewed every five years.

Clinical Sepsis	A patient 1 year of age or younger who has at least one of the following clinical signs or symptoms with no other recognized cause: fever (> 38° C rectal), hypothermia (< 37°C rectal), temporary absence of breathing, or an abnormally slow heart rate; *and* blood culture not done or no organisms detected in blood *and* no apparent infection at another site, *and* physician institutes treatment for sepsis. Note: Removed as a CDC/NHSN infection type as of 1/01/2010.
Confidence Interval	The range of possible rates within which there is a 95% confidence that the real infection rate for that hospital lies, given the number of infections and procedures observed in that hospital in a specific time period.
Coronary Artery Bypass Graft Surgery	A surgical treatment for heart disease in which a vein or artery from another part of the body is used to create an alternate path for blood to flow to the heart bypassing a blocked artery.
Critical Care Unit (CCU)	A nursing care area that provides intensive observation, diagnosis, and therapeutic procedures for adults and/or children who are critically ill. In Colorado certain intensive care units designated as such by the facility are required by law to report central line-associated bloodstream infections. These include: medical-surgical critical care (MSCCU), medical critical care (MCCU), surgical critical care (SCCU), cardiothoracic critical care (CTCCU), cardiac critical care (CCCU), and neonatal critical care (NCCU) levels II/III and III.
Device Days	The number of patients who have a specific device (e.g., central line, ventilator, or indwelling urinary catheter) recorded at the same time each day for each day of the month with a total sum obtained for the month.
Device-Associated Infection	An infection in a patient with a device (e.g., ventilator or central line) that was used within the 48-hour period before onset of infection.
Dialysis Event (DE)	An event for a dialysis patient involving any one of three possible scenarios: 1) hospitalization; 2) intravenous (IV) antimicrobial start; or 3) a positive blood culture. Dialysis event reporting involves *outpatient* facilities only.
Donor Incision Site	The site of a secondary incision by a surgeon for the purpose of removing tissue such as a vein, artery, or skin to be used at the primary incision site.
Drug-resistant infections	Infections that are resistant to antibiotics commonly used to kill infections.
Epidemiology	The study of the distribution and determinants of health conditions or events among populations and the application of that study to control health problems.
Exposure	Contact with a cause of, or possession of a characteristic that is a determinant of a particular health problem.

Great Vessel	Based on NHSN criteria for reporting central line BSI, the following are considered great vessels: aorta, pulmonary artery, superior vena cava, inferior vena cava, brachiocephalic veins, internal jugular veins, subclavian veins, external iliac veins, common iliac veins, common femoral veins, and in neonates, the umbilical artery and vein.
Health	State of complete physical, mental and social well-being and not merely the absence of disease or other infirmity.
Health Facility Acquired Infection or Healthcare-Associated Infection (HAI)	An infection of a patient that occurs in a healthcare setting which was not present or incubating at the time of admission and is not related to a previous admission.
Heart bypass or coronary artery bypass graft (CABG)	A surgery used to bypass blocked heart arteries by creating new passages for blood to flow to the heart muscle. Arteries or veins from other parts of the body are used as grafts.
Hip Replacement Surgery	An elective procedure for people with severe hip damage or pain related to chronic osteoarthritis, rheumatoid arthritis or other degenerative processes involving the hip joint. Hip replacement surgery involves removing damaged cartilage and bone from the hip joint and replacing them with new, man-made parts.
Implant	A nonhuman-derived object, material, or tissue that is permanently placed in a patient during an operation. Examples include: heart valves, metal rods, mesh, wires, screws, cements, hip replacements and other devices.
Infant	A child less than one year old.
Infection	An invasion of the body tissues by an infectious agent regardless of whether or not it causes disease.
Infection Preventionist (IP)	A health professional who has special training in infection prevention and monitoring.
Inpatient	A patient whose date of admission to a healthcare facility and the date of discharge are different calendar days.
IV Antimicrobial Start	The first dose of a medication given intravenously to kill microscopic infectious organisms such as bacteria and viruses in the body.

Knee Replacement	Surgery (arthroplasty) is an elective procedure for people with severe knee damage and pain related to osteoarthritis, rheumatoid arthritis, and traumatic arthritis. A total knee replacement involves removing the damaged cartilage and bone from the surface of the knee joint and replacing them with a man-made surface of metal and plastic. A partial knee replacement involves replacing only part of the knee joint.
Local Access Infection	Pus, redness, or swelling of the vascular access site without the presence of access-associated bacteremia, patient hospitalization, or initiation of an IV antimicrobial agent.
Location	The specific patient care area to which a patient is assigned while receiving care in the healthcare facility.
Long-Term Acute Care Hospital (LTACH)	A specialty care hospital that cares for patients with serious medical conditions that require intense, special treatment for long periods of time (an average length of stay is 25 days).
Methicillin-Resistant *Staphylococcus aureus* (MRSA)	A strain of Staphylococcus (Staph) infection that is not killed by Methicillin, a drug commonly used to treat Staph infections.
Metric	A measurement for calculating health outcomes. There are both process metrics that measure adherence to standard healthcare quality processes, and outcome metrics that measure the number of patients affected by specific medical treatments.
Mortality	Death
National Healthcare Safety Network (NHSN)	A standardized data reporting system that Colorado healthcare facilities must use to identify and report select HAIs and enter required data on uninfected patients. NHSN is a secure, internet-based surveillance (monitoring and reporting) system managed by the CDC's Division of Healthcare Quality Promotion
NHSN Operative Procedure	A procedure that meets the following criteria: 1) performed on a patient who is a NHSN inpatient or outpatient; 2) takes place during an operation; and 3) included in the NHSN operative procedure categories.
Neonate	A patient who is an infant less than or up to 30 days of age (NHSN definitions).
Neonatal Critical Care Unit (NCCU)	A patient care area that provides care to the most critically ill infants.

Nosocomial	New condition associated with being treated in a hospital (e.g., hospital-acquired infection), but unrelated to the patient's primary condition.
Operating Room (OR)	A patient care area that meets the American Institute of Architects (AIA) criteria for an operating room. This may include an operating room, C-Section room, interventional radiology room or a cardiac catheterization lab.
Operative Procedure	An operation that takes place during a single trip to the operating room (OR) where a surgeon makes at least one incision (cut) through the skin or mucous membrane, and stitches or staples the incision before the patient leaves the OR.
Outpatient	A patient whose date of admission to the healthcare facility and the date of discharge are the same day.
Patient Days	The total number of inpatients for a particular unit determined at the same time each day for every day of the month recorded as a total sum for the month.
Permanent Central Line	A catheter that is tunneled under the skin on the chest wall. Includes certain dialysis catheters (e.g., Hickman, Groshong, Broviac) and implantable venous access ports (e.g., Port-a-Cath). Some dialysis patients may still have a port used for hemodialysis; however, most dialysis patients do not use this type of access due to the increased risk of infection. Ports are frequently used for administration of chemotherapeutic agents.
PICC Line	A peripherally inserted central catheter placed in the arm of the patient. By NHSN definition it is a temporary central line.
Population	The total number of inhabitants of a geographic area or the total number of persons in a particular group (e.g., the number of persons engaged in a certain occupation).
Post-discharge Surveillance	The process IPs use to seek out infections after patients have been discharged from the hospital. It includes screening various data sources including re-admissions, emergency department visits, and/or contacting the patient's doctor.
Prevalence	The number or proportion of cases, events or attributes among a given population.
Rate	An expression of the relative frequency with which an event occurs among a defined population and specific time period calculated as the number of new cases or deaths during a specified period divided by either person-time or the average (mid-interval) population. In epidemiology, it is often used in reference to proportions that are not truly rates (e.g., attack rate or case-fatality rate).
Risk	The probability that an adverse event will occur (e.g., that a person will be affected by, or die from, an illness, injury, or other health condition within a specified time or age span).
Risk Adjustment	Risk adjustment accounts for differences in patient populations and allows for hospitals to be compared. A hospital that performs a large number of complex procedures on very sick patients would be expected to have a higher infection rate than a hospital that performs more routine procedures on healthier patients.
Risk-Adjusted	For surgical site infections, the risk-adjusted rate is based on a comparison of the actual (observed) rate and the

Rate	expected rate if nationwide the patients had the same distribution of risk factors as the hospital. For CLABSIs, the adjusted rate is a comparison of the actual rate and the expected rate based on national rates for each ICU or within birth weight categories for neonates.
Risk Factor	An aspect of personal behavior or lifestyle, an environmental exposure, or a hereditary characteristic that is associated with an increase in the occurrence of a particular disease, injury, or other health condition.
Standardized Infection Ratio (SIR)	The Standardized Infection Ratio (SIR) is a risk adjusted summary measure that accounts for the type of procedure and risk category. The SIR provides an overall score for a procedure at each health facility based on the expected number of infections after adjusting for the risk category. It is the ratio of the observed to expected number of SSIs. The SIR can be used as a comparison measure between facilities. However, overall crude rates for SSIs (not risk adjusted) should never be compared between facilities due to inherent differences in the patient risk distribution in each facility.
Surveillance, Active	Public health surveillance in which the health agency solicits reports.
Surgical Site Infections (SSIs)	Infections that are directly related to an operative procedure. Some SSIs are minor and only involve the skin or subcutaneous tissue. Other SSIs may be deeper and more serious.
Surgical Site Infection Rate	Surgical site infection rates per 100 operative procedures are found by dividing the number of SSIs by the total number of specific operative procedures within a given reporting period. The results are then multiplied by 100. These calculations are performed separately for each type of surgical procedure. They are listed by risk level.
Symptom	Any indication of disease noticed or felt by a patient.
Temporary Central Line	A central line that is not tunneled.
The Department	The Colorado Department of Public Health and Environment (CDPHE).
Transfer Rule	If a device-associated infection develops within 48 hours of transfer from one inpatient location to another in the same facility, the infection is attributed to the transferring location.
Trend	Movement or change in frequency over time, usually upwards or downwards**.**
Umbilical Catheter	A tube that is inserted through an umbilical blood vessel (artery or vein) in a neonate.
Umbilical Catheter Days (Device Days)	The total number of days an umbilical catheter is present in newborns in a NCCU. The count is performed at the same time each day. Each newborn with both an umbilical catheter and a central line is counted as one umbilical catheter day.
Validation	A method of assessing the completeness and accuracy of reported HAI data.

Validity	The degree to which a measurement, questionnaire, test, or study or any other data-collection tool measures what it is intended to measure.
Vascular Access Infection	An infection that is either a local access infection or access-associated bacteremia.
Ventilator-Associated Pneumonia (VAP)	A pneumonia (PNEU) that occurs in a patient who was intubated and ventilated at the time of or within 48 hours before the onset of the pneumonia. There is no minimum time period required. If the PNEU develops in a patient within 48 hours of discharge from a location, the VAP is associated with the discharging location, not the current location.
Wound Class	An assessment of the likelihood and degree of contamination of a surgical wound at the time of the operation. Wounds are divided into four classes: Clean: An uninfected operation body site is encountered and the respiratory, digestive, genital, or uninfected urinary tracts are not entered. Clean-Contaminated: Operation body sites in which the respiratory, digestive, genital or urinary tracts are entered under controlled conditions and without unusual contamination. Contaminated: Operation body sites that have recently undergone trauma, operations with major breaks in sterile technique (e.g., open cardiac massage) or gross spillage from the gastrointestinal tract. Dirty or Infected: Includes old traumatic wounds with retained dead tissue and those that involve existing infection or perforated intestines

Abbreviations

AAB	Access-associated Bacteremia
ASC	Ambulatory Surgery Center
BSI	Bloodstream Infection
CABG	Coronary Artery Bypass Graft
CBIC	Certification Board of Infection Control and Epidemiology, Inc.
CCU	Critical Care Unit
CDC	Centers for Disease Control and Prevention
CDPHE	Colorado Department of Public Health and Environment
CHA	Colorado Hospital Association
CIC	Certification in Infection Control and Epidemiology
CL	Central Line
CLABSI	Central Line-Associated Bloodstream Infection
COHFAIAC	Colorado Health Facilities-Acquired Infection Advisory Committee
CMS	Centers for Medicare and Medicaid Services
DE	Dialysis Event
DIP	Deep Incisional Infection at the Primary Surgical Site (for CABG procedures, this would be the chest site)
DIS	Deep Incisional Infection at the Secondary Surgical Site (for CABG procedures, this would be the donor vessel site)
DRI	Dialysis-related Infection
DTC	Dialysis Treatment Center
HAI	Healthcare-Associated Infection or Hospital-Acquired Infection
HHS	Department of Health and Human Services
HER	Hernia repair
HICPAC	Healthcare Infection Control Practices Advisory Committee
HPRO	Hip prosthesis (total or partial)
ICP	Infection Control Professional or Preventionist (interchangeable with IP)
ICU	Intensive care unit
IP	Infection Professional or Preventionist
KPRO	Knee prosthesis (total or partial)
LAI	Local access Infection
LTACH	Long Term Acute Care Hospital

MDRO	Multi-Drug Resistant Organism
MRSA	Methicillin-Resistant *Staphylococcus aureus*
NCCU	Neonatal Critical Care Unit
NHSN	National Healthcare Safety Network
PICC	Peripherally inserted central catheter
SHEA	Society for Healthcare Epidemiology of America
SIP	Superficial Incisional Infection at a primary surgical site (e.g., chest incision site for CABG procedure)
SIR	Standardized Infection Ratio
SIS	Superficial Incisional Infection at a secondary surgical site (e.g., donor vessel site for CABG procedure),
SSI	Surgical Site Infection
UB	Umbilical Catheter
UCABI	Umbilical Catheter-Associated Bloodstream Infection
VAP	Ventilator-Associated Pneumonia