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

## January 15, 2008

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

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## **Table of Contents**

Introduction	iv
Health Facility Acquired Infections Disclosure Initiative	1
Implementing the Disclosure Initiative	2
Phase 1: Appoint an Advisory Committee	2
Phase 2: Select Clinical Metrics Surgical Site Infections	4
Cardiac Surgery Orthopedic Surgeries Central Line Associated Blood Stream Infections	4
Phase 3: Provide Technical Assistance	6
Phase 4: Evaluate the Initiative	7
Phase 5: Report Results	9
Limitations, Recommendations and Conclusion	10
Appendices	11
Appendix A Colorado Health Facility Acquired Infection Advisory Committee	
Appendix B Health Facilities Reporting	
Appendix C Important Terms and Abbreviations	

### List of Tables

Table 1: Colorado Health	Facility Acquired	l Infections Advisory	Committee Description.	2
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### List of Figures

Figure 1: Health Facilities Reporting Year One Metrics	.19
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## Introduction

This report is being written to fulfill the initial 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 June 2006. The bill was sponsored by Representative Bob McClusky and Senator Maryanne Keller.

Note: This report uses the term "health facility-acquired infections" since the scope of the Colorado mandatory reporting law includes hospitals, hospital units, ambulatory surgery centers and dialysis treatment centers.

This bill requires hospitals, hospital units, ambulatory surgery centers and dialysis treatment centers to report health facility acquired infections 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 initiative. The department is responsible for program implementation, oversight and reporting. The legislation requires the department's executive director to appoint an 11 member volunteer health facility acquired infections advisory committee to assist with these responsibilities.

The bill also mandates the department produce an annual report disclosing the results of the data submitted. This report serves as the first annual report, which is due to the Health and Human Services Committees of the House of Representatives and the Senate of the Colorado General Assembly by January 15, 2008.

This initial report describes:

- The disclosure initiative as described in the Act;
- The phased approach the department took in implementation;
- The initial reporting requirements and web-based reporting system; and
- The limitations in appropriately implementing the initiative.

This initial report does not include results from the reporting system as technical difficulties delayed enrollment and data submission for the hospitals reporting. Also, not all health facilities targeted for reporting are doing so as:

- 1. The current reporting system does not yet accept data from ambulatory surgery centers; and
- 2. The initial clinical procedures selected for reporting did not include a dialysis treatment center measure.

These factors resulted in a lack of adequate data to identify a baseline, make comparisons or provide a complete picture of health facility acquired infection trends in Colorado. Future reports should begin to fill in this picture.

## Health Facility Acquired Infections Disclosure Initiative

Health facility acquired infections are infections that occur during or after treatment for a separate medical condition in a health facility. The occurrence of health facility acquired infections is a growing concern among healthcare consumers, purchasers and workers. While the public is increasingly seeking information about health facility acquired infections, most hospitals and other healthcare facilities currently do not publicly report this data.

As consumer demand for public reporting of healthcare quality data continues to increase, policymakers across the nation have recognized this demand and the need for this information in consumer focused healthcare quality reports. This recognition has led 20 states to pass laws requiring mandatory public reporting of health facility acquired infections since 2004. Colorado's Hospital-Acquired Infections Disclosure Act (House Bill 06-1045) was approved in June 2006.

This bill requires hospitals, hospital units, ambulatory surgery centers and dialysis treatment centers to report health facility acquired infections data as a condition of their state licensure. The bill also calls for physicians to close the loop and ensure infections diagnosed during follow-up care visits are reported back to the facilities where the procedures were performed.

Many of these health facilities have collected and tracked health facility acquired infection data for decades, but this information was not released to the public. The intent of the law is to have all the targeted health facilities report infection data to one web-based system. The system will help to ensure facilities are using the same definitions and data constraints so that the information collected can be easily understood by the public and compared to national rates.

The Colorado Department of Public Health and Environment (the department) is the lead state agency administering the disclosure initiative. In accordance with the legislation, the department appointed an advisory committee to assist with initiative oversight, selecting the clinical procedures, assuring the quality and accuracy of the data, and developing and distributing the reports. The department is ultimately responsible for program implementation, oversight and reporting.

## Implementing the Disclosure Initiative

Implementing the health facility acquired infections disclosure initiative is an in-depth process that has five main phases:

- 1. Appoint an advisory committee;
- 2. Select clinical metrics;
- 3. Provide technical assistance;
- 4. Evaluate the initiative; and
- 5. Report results.

Extensive work has gone into each phase of the implementation as described below.

## Phase 1: Appoint an Advisory Committee

The legislation requires the executive director of the department to appoint an 11 member health facility acquired infections advisory committee. The committee members are volunteers and are able to serve for as long as they desire. The Colorado Health Facility Acquired Infection Advisory Committee make-up is detailed in the table below.

Health Facility Acquired Infections Advisory Committee Description	# of Appointees	
Representative from a public hospital	1	
Representative from a private hospital	1	
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 healthcare epidemiology or infection control, and who has demonstrated an interest and expertise in health facility infection control	1	
Infection control practitioners, one from a stand alone ambulatory surgical center and three Registered Nurses who are certified by the Certification Board of Infection Control and Epidemiology	4	
Medical statistician with an advanced degree in such specialty or one clinical microbiologist with an advanced degree in such specialty	1	
Representative from a health consumer organization	1	
Representative from a health insurer	1	
Representative from a purchaser of health insurance	1	
Total Membership 11		

 Table 1: Colorado Health Facility Acquired Infections Advisory Committee Description

Many of the initiative elements had to be decided on through the committee. The legislation mandated that the committee assist the department with initiative oversight, selecting clinical procedures, assuring quality and accuracy of the data and developing and distributing the reports.

The selected committee members were notified in March 2007. A complete list of the current committee members can be found in appendix A. The committee first met on April 23, 2007. The legislation requires the committee to meet at least four times per year; however, the members have opted for monthly meetings in both 2007 and 2008.

The committee has provided the department invaluable expertise. The caliber of members that sit on the advisory committee will continue to play a pivotal role in future metric selection and reporting activities.

## Phase 2: Select Clinical Metrics

Phase two of the mandatory health facility acquired infection reporting initiative was to select the metrics health facilities would report. The department and the advisory committee were limited in selecting metrics by the following factors.

- 1. The legislation required health facilities to collect data on health facility acquired infection rates for specific clinical procedures, including a cardiac (heart) surgery, an orthopedic (skeletal) surgery and infections related to central-line (tube in vein) devices.
- 2. Metrics had to be supported by the web-based reporting system specified in the legislation.

The department also recognized the federal Healthcare Infection Control Practices Advisory Committee's (HICPAC) recommendation to gradually implement any new public reporting system by incrementally introducing new reporting requirements. HICPAC is the nation's expert in infection control and serves as the advisory committee to the Centers for Disease Control (CDC) and the Secretary of the Department of Health and Human Services (HHS). The HICPAC recommendation was important because it indicated that implementing a reporting system too quickly could contribute to poor data quality and data misinterpretation.

Taking into account these factors the committee and the department agreed that health facilities would initially report on:

- 1. Heart bypass surgery;
- 2. Hip and knee replacement surgeries; and

## Patient Safety Enhancement: Example 1

A local health facility wanted to decrease its surgical site infection rates. The facility focused on standardizing the timing and amount of prophylactic antibiotic administered before and after a surgery in order to prevent infections. Using education and computer reminders the facility was able to increase staff's compliance with surgical antibiotic guidelines, which the literature suggests will decrease surgical site infection rates.

3. Central-line associated bloodstream infections that develop in select intensive care units.

The committee is charged with recommending additional metrics that health facilities must report as the initiative continues to expand. A minimum of two additional clinical metrics will be selected in 2008 and again in 2010. The additional metrics will include at least one abdominal surgical procedure.

### **Surgical Site Infections**

Surgical site infections (SSI) are infections that are directly related to an operative procedure. In an attempt to gradually implement the mandatory reporting program, the department is requiring facilities report on a limited number of cardiac and orthopedic surgical procedures. The initial metrics will focus on:

### **Cardiac Surgery**

• Heart Bypass (Coronary Artery Bypass Grafts):

Heart bypass or coronary artery bypass graft (CABG, pronounced cabbage) 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.

### **Orthopedic Surgeries**

• Total or Partial Hip Replacements:

Hip replacement is 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 new, man-made parts.

• Total or Partial Knee Replacements:

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.

SSI rates are adjusted to take into account differences in patient risk factors for infection due to length of the surgery, type of surgical wound and the patient's physical condition. Surgical procedures selected for SSI reporting are serious, are performed in a variety of facilities, and tend to be associated with health facility acquired infections.

Most SSI from these types of surgeries 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.

The decision to report on the specific SSI types listed above was evidence-based. Some of the reasons to target these types of surgeries are they are:

- High volume procedures;
- Expensive for healthcare payers; and
- Performed at a number of health facilities in Colorado-often allowing consumers to choose where to receive treatment.

### **Central Line Associated Blood Stream Infections**

Central line associated blood stream infections (CLABSI) are primary bloodstream infections that are associated with the presence of a central line or an umbilical catheter (tube in umbilical cord) in neonates 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 or withdraw blood in a patient. Central lines can be either temporary or permanent.

Central line surveillance can occur in four types of health facility locations:

- 1. Intensive care units;
- 2. Specialty care units;
- 3. Neonatal intensive care units; and
- 4. Any other patient care location in the institution.

#### Patient Safety Enhancement: Example 2

A local health facility wanted to decrease central line bloodstream infection rates in its medical ICU. The facility focused on introducing industry best practices to standardize the way central-lines were inserted and simplify the supply gathering process by introducing ICU carts. Using education and process improvement, in one year the facility was able to decrease the central-line bloodstream infection rate in their medical ICU below that of the national average.

Reporting CLABSI by unit type allows for a fairer comparison between hospitals. It takes into account differences in the type of patients intensive care units (ICUs) treat and the different risks for infection. The department chose locations one and three from the list above, targeting reporting from neonatal and certain adult ICUs.

Most CLABSI occurring 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.

Like the SSI metrics the decision to report on CLABSI acquired in specific health facility locations was evidence-based. CLABSI often leads to additional days in the health facility, which can be expensive for healthcare payers, health facilities and patients. Evidence suggests that tracking CLABSI acquired in ICUs may lead to better adherence to preventive practices and decrease medical complications or death.

The department recognizes the public demand for data on a number of health metrics not covered by current legislation. The law does not require health facilities to report on specific types of infection (e.g. MRSA) or to report an overall facility infection rate.

The law requires facilities to report infections that can be acquired based on specific procedures or while being cared for using specific devices. Reports will not present infection information grouped by infection type, but instead by procedure type. For example, future reports will not track all cases of MRSA, but will track MRSA cases that develop from a hip replacement surgery (or other procedure types that are reported).

Experts in the field of infection control, including the CDC, have found that many procedures are performed in facility locations that have low infection rates. These experts recommend health facilities not attempt to collect an overall facility infection rate as this would divert resources from working to prevent infections in higher risk facility locations. As recommended, Colorado is requiring specific location and surgical procedure reporting, which will produce data elements that can be utilized by health facilities to target infection prevention and quality of care process improvements.

## Phase 3: Provide Technical Assistance

The third phase of implementation began during phase one and is ongoing. For over a year the department and the advisory committee members have been working with health facilities across the state to educate them on the legislative requirements. This initiative is new ground for many stakeholders and has required that the department provide information to health facilities on their roles and responsibilities and the new reporting system. This education includes disclosure initiative explanation, systems training and coaching and compliance monitoring details.

The department has partnered with a number of 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 and the Colorado Ambulatory Surgery Center Association 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 initiatives section<sup>1</sup> on the department Web site. The department uses the Web site to disseminate information to health facilities and the public regarding the initiative, the advisory committee and general health facility acquired infections educational resources.

## **Reporting System**

The National Healthcare Safety Network (NHSN) is a secure, internet-based surveillance system developed, administered and maintained by the CDC. The health facility acquired infections disclosure initiative in Colorado requires participating facilities use the NHSN system for reporting.

CDC initially opened NHSN enrollment to a limited number of facilities in 2005, followed by a national open enrollment for hospitals and outpatient hemodialysis centers in 2007. Currently, ambulatory surgery centers are not able to submit data to NHSN.

In Colorado, health facilities must enroll with and submit data to 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

<sup>&</sup>lt;sup>1</sup> http://www.cdphe.state.co.us/hf/static/patientsafety.html

Colorado Department of Public Health and Environment Health Facility Acquired Infections Annual Report January 2008

surveillance data must have a Certification in Infection Control and Epidemiology<sup>2</sup> or become certified within six month 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.

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, 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., multihospital system).

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

### **Participating Facilities**

This bill requires hospitals, hospital units, ambulatory surgery centers (ASC) and dialysis treatment centers (DTC) to report health facility acquired infections data to NHSN as a condition of their state licensure. Currently, Colorado holds licenses for 76 hospitals, 3 hospital units, 105 ASCs and 52 DTCs, totaling 236 facilities targeted for reporting. ASCs are not able to report using NHSN, but will be required to as soon as the system allows. A DTC procedure was not selected for the initial year, but DTCs are expected to report in future years. Of the 79 hospitals and hospital units, only 57 have indicated they perform any of the procedures selected for the initial reporting year. Although a limited number of facilities are currently reporting, the department must still monitor and educate all 236 facilities regarding the initiative.

## Phase 4: Evaluate the Initiative

The initiative implementation evaluation process is now underway. The department and the advisory committee have noted a number of potential process improvements and are hopeful that the lessons learned during this inaugural year will be utilized to improve the program going forward.

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

- 1. Committee participation
  - The department has aggressively sought committee membership, yet still has one opening for a representative from a health insurer.

<sup>&</sup>lt;sup>2</sup> The Certification Board of Infection Control and Epidemiology is an organization that certifies infection control practitioners 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.

- The department has recognized the need to develop processes to ensure committee involvement and satisfaction in order 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 NHSN training and enrollment process can take up to two months. Any mistakes made during the enrollment process can result in having to re-enroll, thus beginning the lengthy enrollment process again. Although constrained by resource limitations the Colorado Hospital Association and the CDC have provided some assistance in training health facilities.
  - In Colorado, one of the major challenges is that NHSN enrollment is currently not available for ambulatory surgery centers (ASC). Colorado is working closely with CDC and will inform ASCs in Colorado as soon as NHSN enrollment is available for those facility types.
  - NHSN is a federally managed and funded reporting system. The addition of any reporting element in the NHSN system is determined by the availability of federal funds (this includes ASC enrollment).
- 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.
  - The department is concerned that there are no resources designated to develop a state system that would ensure the accuracy and completeness of the data going into and being extracted from the reporting database.
    - Other states with mandatory health facility acquired infections reporting laws have designated money and resources to implement, oversee and validate the facility data collection processes.
      - For example, New York has a program director, program manager, data manager, data analyst, program operations director, an 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.
      - Although New York only requires hospitals to report, the total number of reporting facilities is comparable to those targeted for reporting in Colorado.
    - In contrast, Colorado primarily relies on one project manager to oversee the disclosure initiative with support from the volunteer advisory committee, department and division staff and the CDC staff responsible for the NHSN reporting database.
- 4. Reporting timeline
  - Due to issues identified above, not all the health facilities reporting year one metrics were doing so by the time this report was prepared in November 2007. The department is unable to produce a robust report until full reporting is achieved.

• It is projected that the department will begin releasing data in July 2008 in the semi-annual bulletin and will publish a full report in January 2009.

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.

## Phase 5: Report Results

The final phase of implementation is to develop a public report. This document is the initial report presenting the implementation plan and current status of the initiative. Initial data collection began July 31, 2007. At the time this report was prepared, only one month of data from 42 of the 57 reporting facilities was available for analysis. Although it is too soon to include health facility acquired infections data in this report, the report does provide the framework for future reports and includes important background information.

The disclosure initiative is in the start-up phase, and as such, there are many more elements yet to be decided. For instance, the department will produce a reporting calendar, documenting the data date ranges covered in each report and develop a standard reporting format. Much of this cannot be done until there is a better understanding of what information the data will reveal.

As no comparable system has been in place there are no baseline data, and trend data will not be available for several years. The issue of data validation is a concern for the department and many stakeholder groups throughout Colorado. If facility specific data are entered incorrectly or are not complete the data may be skewed. For example, some of the procedures, like hip or knee replacements, require ongoing monitoring for a full year to verify if a procedure related infection has occurred. Because the mandatory reporting began July 31, 2007 a complete year of data will not be available until October of 2008. All these factors affect the department's ability to publish a complete report at this time.

The department plans to produce a brief in July 2008, which will include some of the data elements discussed above. A complete report will be available in January 2009 that will show the results from the initial reporting period.

## Limitations, Recommendations and Conclusion

Throughout this report, the department raised several concerns about the initiative including: inadequate technical support for NHSN enrollment; inability to sufficiently support expected data validation processes; and limitations on the technical and professional support necessary to produce reports that are accurate, actionable and above all useful to the public. In the department's effort to look for ways to improve the health facility acquired infections disclosure initiative the department would like to highlight a few of these limitations.

The statute calls for physicians to report any infections diagnosed at follow-up care visits back to health facilities where the original procedures were performed. Although infections should be tracked in this way, the department has no authority or system in place to ensure this is actually taking place. All currently participating health facilities have been notified of this requirement and asked to inform members of their medical staff about the requirement. Neither the department nor another Colorado regulatory agency has the authority to monitor or enforce the physician reporting requirement.

Although the legislation was written assuming the CDC staff responsible for NHSN would handle the majority of facility training, the department and the advisory committee have spent a tremendous amount of time training the few hospitals that are currently reporting. The department has expended all available staff enrolling 25 percent of the targeted facilities. Selection of metrics that require additional facilities to enroll and report to NHSN will be delayed or avoided until additional resources are available.

In addition, the department is unable to monitor compliance for many of the health facilities types that should eventually report to NHSN. A data validation system would not only compare claims data to the data submitted to NHSN, it would also require data abstractors to audit facility medical records. Currently, the department does not have adequate resources to support compliance monitoring audits through claims data analysis or medical record reviews.

Lastly, the department would like to recommend that new legislation for mandatory infection reporting not be considered at this time. Recently, drug-resistant organisms, like MRSA, have been increasingly covered by the media. The CDC is creating a multidrug-resistance organisms (MDRO) module for the NHSN system. CDC projects the MDRO module will be ready for facility reporting in May 2008. The Colorado Health Facility Acquired Infections Advisory Committee is considering selecting the MDRO module for future reporting requirements.

In conclusion, the department has made significant strides, with the available resources, towards implementation of House Bill 06 1045 including:

- Appointing the Colorado Health Facility Acquired Infections Advisory Committee;
- Selecting the initial reporting metrics;
- Providing technical assistance to approximately 240 health facilities impacted by the law; and
- Ensuring the 57 hospitals reporting the initial metrics are enrolled in and submitting data to NHSN.

# Health Facility Acquired Infections Report

# Appendices

## Appendix A

### **Colorado Health Facility Acquired Infection Advisory Committee**

#### A representative from a public hospital

Lynn Baldvins, R.N., M.S.N., C.I.C., Memorial Health Systems Infection Program Manager – Colorado Springs

#### A representative from a private hospital

Susan K. Mazula, R.N., B.S.N., C.I.C., C.O.H.N., Infection Prevention Coordinator - Sky Ridge Medical Center -Lone Tree

#### 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 stand alone ambulatory surgical center and three Registered Nurses who are certified by the Certification Board of Infection Control and Epidemiology

- 1. Cynthia S. Richardson, R.N., Clinical Director, Northwest Regional Ambulatory Surgery Center – Monument
- 2. Mary Ellen Anderson, R.N., M.S.N, C.I.C., Heart of the Rockies Regional Medical Center, Infection Control Nurse – Salida
- 3. Susan A. Dolan, R.N., M.S.P.N., C.I.C., Hospital Epidemiologist, The Children's Hospital Denver
- 4. Amber Miller, R.N., M.S.N., C.I.C., Manager Infection Prevention and Control, Lutheran Medical Center Arvada

## 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

Vacant

#### A representative from a purchaser of health insurance

Kerry O'Connell, Construction Executive, Stapleton Infrastructure - Denver

## Appendix B

### **Health Facilities Reporting**

Based on the mandatory reporting bill there are approximately 240 health facilities targeted to report health facility acquired infections. Many of the health facilities targeted to report will not report on the initial set of metrics because:

- Dialysis procedures are not included in the initial reporting requirements;
- Ambulatory surgery centers are not able to enroll in and submit data to NHSN; and
- Some health facilities do not perform the procedures selected for the initial reporting requirements.

Initial metrics will only be reported by the following 57 hospitals. Health facilities reporting the initial metrics are listed alphabetically below with the procedures they currently perform. The numbers before the facility names correspond to the map on page 19.

- Animas Surgical Hospital Durango, CO 81301 575 Rivergate Lane www.animassurgical.com Performing & Reporting: Total/Partial Hip Replacement Total/Partial Knee Replacement
- 2 Arkansas Valley Regional Medical Center La Junta, CO 81050 1100 Carson Avenue www.avrmc.org Performing & Reporting: Central Lines
- 3 Aspen Valley Hospital 0401 Castle Creek Road Aspen, CO 81611 www.avhaspen.org Performing & Reporting: Total/Partial Hip Replacement Total/Partial Knee Replacement Central Lines
- 4 Boulder Community Hospital 1100 Balsam Avenue Boulder, CO 80301 www.bch.org Performing & Reporting: Total/Partial Hip Replacement Total/Partial Knee Replacement Coronary Artery Bypass Grafts Central Lines

- 5 Boulder Community Hospital- Foothills Campus
   4747 Arapahoe Avenue
   Boulder, CO 80303
   www.bch.org
   Performing & Reporting: Central Lines
- 6 Centura Health-Avista Adventist Hospital 100 Health Park Dr Louisville, CO 80027 www.avistahospital.org Performing & Reporting: Total/Partial Hip Replacement Total/Partial Knee Replacement Central Lines

- Centura Health-Littleton Adventist Hospital 7700 S Broadway Littleton, CO 80122 www.mylittletonhospital.org Performing & Reporting: Total/Partial Hip Replacement Total/Partial Knee Replacement Central Lines
- 8 Centura Health-Penrose St. Francis Health Services 2222 N Nevada Ave Colorado Springs, CO 80907 www.penrosestfrancis.org Performing & Reporting: Total/Partial Hip Replacement Total/Partial Knee Replacement Coronary Artery Bypass Graft Central Lines
- 9 Centura Health-Porter Adventist Hospital 2525 S Downing St Denver, CO 80210 www.porterhospital.org Performing & Reporting: Total/Partial Hip Replacement Total/Partial Knee Replacement Coronary Artery Bypass Grafts Central Lines

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

- 11 Centura Health-St Anthony North Hospital 2551 W 84th Avenue Westminster, CO 80031 www.stanthonyhosp.org Performing & Reporting: Total/Partial Hip Replacement Total/Partial Knee Replacement Central Lines
- 12 Centura Health-St Mary Corwin Medical Center 1008 Minnequa Ave Pueblo, CO 81004 www.stmarycorwin.org Performing & Reporting: Total/Partial Hip Replacement Total/Partial Knee Replacement Central Lines
- 13 Centura Health-St Thomas More Hospital 1338 Phay Ave Canon City, CO 81212 www.stmhospital.org Performing & Reporting: Total/Partial Hip Replacement Total/Partial Knee Replacement Central Lines
- 14 The Children's Hospital Association 13123 East 16th Avenue Denver, CO 80218 www.thechildrenshospital.org Performing & Reporting: Total/Partial Hip Replacement Total/Partial Knee Replacement Central Lines

- 15 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
- 16 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
- 17 Community Hospital 2021 N 12th St Grand Junction, CO 81501 www.gjhosp.org Performing & Reporting: Total/Partial Hip Replacement Total/Partial Knee Replacement Coronary Artery Bypass Grafts Central Lines
- 18 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

- 19 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
- 20 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
- 21 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
- 22 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

- 23 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
- 24 Grand River Medical Center 501 Airport Road Rifle, CO 81650 www.grhd.org Performing & Reporting: Partial Hip Replacement Partial Knee Replacement
- 25 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
- 26 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

- 27 Kremmling Memorial Hospital District 214 S 4th Street Kremmling, CO 80459 www.kremmlinghospital.org Performing & Reporting: Total/Partial Hip Replacement Coronary Artery Bypass Grafts Central Lines
- 28 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
- 29 McKee Medical Center 2000 Boise Ave Loveland, CO 80539 www.bannerhealth.com Performing & Reporting: Total/Partial Hip Replacement Total/Partial Knee Replacement Central Lines
- 30 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

- 31 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
- 32 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
- 33 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
- 34 The Memorial Hospital 785 Russell St Craig, CO 81625 www.thememorialhospital.com Performing & Reporting: Coronary Artery Bypass Grafts Central Lines

- 35 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
- 36 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
- **37** 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
- 38 North Suburban Medical Center 9191 Grant St Thornton, CO 80229 www.northsuburban.com Performing & Reporting: Total/Partial Hip Replacement Total/Partial Knee Replacement

- 39 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
- 40 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
- **41** Pikes Peak Regional Hospital 16420 Highway 24 Woodland Park, CO 80863 www.pikespeakregionalhospital.com Performing & Reporting: Total/Partial Hip Replacement Total/Partial Knee Replacement
- 42 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

- **43** 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
- 44 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
- **45** 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
- 46 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 Coronary Artery Bypass Grafts Central Lines

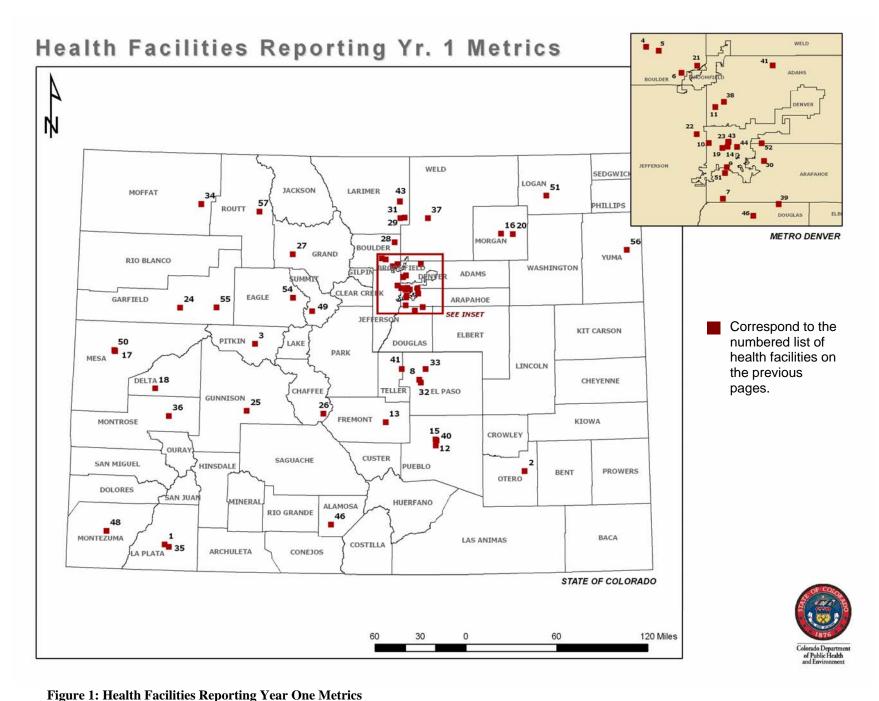
- 47 Sky Ridge Medical Center 10101 Ridge Gate Parkway Lone Tree, CO 80124 www.skyridgemedcenter.com Performing & Reporting: Total/Partial Hip Replacement Total/Partial Knee Replacement Coronary Artery Bypass Grafts Central Lines
- **48** Southwest Memorial Hospital 1311 N Mildred Rd Cortez, CO 81321 www.swhealth.org Performing & Reporting: Total/Partial Hip Replacement Total/Partial Knee Replacement Central Lines
- **49** 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
- 50 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

- 51 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
- 52 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
- 53 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
- 54 Vail Valley Medical Center 181 W Meadow Drive Vail, CO 81657 www.vvmc.com Performing & Reporting: Total/Partial Hip Replacement Total/Partial Knee Replacement Coronary Artery Bypass Grafts Central Lines

55 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

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

**57** 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 Lines



#### 1: Health Facilities Reporting Year One Metrics

## Appendix C

### **Important Terms and Abbreviations**

**Ambulatory surgery center (ASC)** are typically freestanding health facility that can keep patients for up to 23 hours to perform surgical procedures.

CDC is the Centers for Disease Control and Prevention.

CDPHE is Colorado Department of Public Health and Environment.

**Case** an instance of a particular disease, injury, or other health conditions that meets selected criteria.

**Central line** a flexible tube that is inserted near the patient's heart or into one of the large veins or arteries. 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 infections (CLABSI)** are infections in a patient who has a central line that was used within the 48-hour period before the onset of the infection.

**Definition** a 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.

**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.

**Drug-resistant infections** have become resistant to antibiotics commonly used to kill infections caused by resistant strains of bacteria. Usually, other antibiotics can be used to kill drug-resistant 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** having come into contact with a cause of, or possessing a characteristic that is a determinant of, a particular health problem.

**HHS** the federal Department of Health and Human Services.

**Health** a state of complete physical, mental, and social well-being and not merely the absence of disease or other infirmity.

**Healthcare-associated infection (HAI)** is an infection that occurs in a healthcare setting while seeking care for a separate condition. In this report the term HAI is not used and has been replace with Health Facility Acquired Infections.

**Health facility acquired infection** occurs in a patient while in a healthcare setting for treatment of a separate condition.

**Heart bypass** or coronary artery bypass graft (CABG, pronounced cabbage) 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.

**Hip replacement** is 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. The surgical procedure for a hip replacement involves removing the damaged cartilage and bone from the hip joint and replacing them with new, man-made parts.

**Infant** child less than one year old.

**Infection** invasion of the body tissues of a host by an infectious agent, whether or not it causes disease.

**Intensive care unit (ICU)** a nursing care area that provides intensive observation, diagnosis, and therapeutic procedures for adults and/or children who are critically ill.

**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.

**Location** the specific patient care area to which a patient is assigned while receiving care in the healthcare facility.

**MRSA** methicillin-resistant Staphylococcus aureus. Methicillin is an antibiotic drug commonly used to treat Staphylococcus (staph) infections. Some strains of staph are not killed by methicillin. If the staph infection is not killed by methicillin then it is called methicillin-resistant Staphylococcus aureus, or MRSA.

**Metric** a measurement for calculating health outcomes. There are both process metrics that measure adherence to standard health quality processes and outcome metrics that measure the number of patients affected by specific medical treatments.

#### Mortality death.

**NHSN** or the National Healthcare Safety Network is a CDC developed web based health facility acquired infections reporting system.

Neonate a patient who is an infant less than or up to 30 days of age (NHSN definitions).

**Neonatal intensive care unit (NICU)** a patient care area that provides care to the most critically ill infants.

**Nosocomial** of or related to hospitals a secondary disorder associated with being treated in a hospital 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.

**Operation** a single trip to the operating room (OR) where a surgeon makes at least one incision through the skin or mucous membrane, including laparoscopic approach, and closes the incision before the patient leaves the OR.

**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).

Prevalence the number or proportion of cases or events or attributes among a given population.

**Rate** an expression of the relative frequency with which an event occurs among a defined population per unit of time, calculated as the number of new cases or deaths during a specified period divided by either person-time or the average (midinterval) population. In epidemiology, it is often used more casually to refer to proportions that are not truly rates (e.g., attack rate or case-fatality rate).

**Risk** the probability that an 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 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.

Surveillance, active public health surveillance in which the health agency solicits reports.

**Surgical Site Infections (SSI)** are 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.

Symptom any indication of disease noticed or felt by a patient.

The department is the Colorado Department of Public Health and Environment.

Trend movement or change in frequency over time, usually upwards or downwards.

**Umbilical catheter** is a long, soft plastic tube that is placed in the umbilical cord either through the umbilical artery or umbilical vein to allow fluids and medications to be given over an extended period of time.

**Validity** the degree to which a measurement, questionnaire, test, or study or any other datacollection tool measures what it is intended to measure.