

COLORADO FACILITY SPECIFIC HEALTH CARE-ACQUIRED INFECTION DATA - SURGICAL SITE INFECTION OVERVIEW

Surgical site infections (SSI) are infections directly related to a surgical procedure. It is estimated that more than 20 percent of HAI are attributed to SSI, equating to infections in approximately two percent of all surgical procedures nationally.⁵ The impact from an SSI can be devastating, often leading to a longer hospital stay, additional treatment and higher costs.⁶ The economic toll per patient occurrence is estimated to be between \$3,000 and \$25,500 depending on the procedure and pathogen(s) involved.^{1,7} Overall in the United States, SSI can cost consumers and health care payers from 3 to 10 billion dollars each year.¹

Surgical procedures required for SSI reporting are selected because they are (1) performed at a high volume, (2) performed at a variety of facilities, and (3) associated with a high risk for SSI. The surgeries monitored for SSI in Colorado include cardiac procedures, hip and knee replacements, hernia repairs, hysterectomies (abdominal and vaginal), and breast and colon procedures. The NHSN manual defines reportable procedures for surveillance as those that occur in a single trip to an operating room where the incision is closed following the procedure.² Surgeries are performed as either inpatient or outpatient procedures.

Reportable infections occur within 30 or 90 days of the procedure, depending on the type of procedure and infection depth. Common signs of infection include fever, pain or tenderness, drainage from the incision site, redness, or presence of an abscess. In NHSN, SSI are classified into three different categories based on the depth of the infection.

- Superficial incision infection, which involves only the top layers of the skin.
- Deep incision, which involves deeper soft tissues (e.g., fascia and muscle layers).
- Organ space, which involves any part of the body that is opened or manipulated during the surgical procedure, excluding the top layers of skin, fascia or muscle layers.

Every table presenting SSI data below lists each facility in Colorado that performed the designated procedure, its city, the number of procedures performed, number of infections, standardized infection ratio (SIR) and a comparison to national infection data. For a detailed explanation of how the SIR is calculated, see Appendix B. There are three categories that indicate how a facility's own infection rate compares to the national infection rate. These are:

1. Statistically fewer infections than expected based on national infection rates (**better**);
2. Statistically similar infections as expected based on the national infection rates (**same**); or
3. Statistically more infections than expected based on national infection rates (**worse**).

CARDIAC PROCEDURES

BACKGROUND

A heart bypass, also known as a 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. There are two types of coronary artery bypass graft surgeries: one that has both chest and donor site incisions (CBGB) and one that uses a chest incision only (CBGC). Both types involve replacing damaged sections of one or more 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 CBGB. Based on the small number of CBGC surgeries performed, most SSI data associated with CBGC had to be suppressed to protect confidential health information and therefore, CBGC data are not presented in this report.

RESULTS

Table 9 shows facility-specific data for SSI attributed to CBGB surgeries performed in hospitals from August 1, 2014 through July 31, 2015. Historical data for two previous reporting periods are also provided.

Fifteen hospitals reported a total of 1,670 **CBGB** surgeries this past year. Five hospitals reported zero SSI. All individual hospital's rates were the same as the national rate. While statewide CBGB SSI rates in the previous two reporting periods were better than national rates, this year, the statewide CBGB SSI rate was similar to the national rate.

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TABLE 9: Number of Surgical Site Infections and Standardized Infection Ratios for Coronary Artery Bypass Grafts with Chest and Donor Site Incisions in Hospitals – Colorado, August 2012-July 2015

Surgical Site Infections in Coronary Artery Bypass Grafts With Chest And Donor Site Incisions: August 1, 2012 – July 31, 2015													
Health Facility and City		August 2012- July 2013				August 2013- July 2014				August 2014- July 2015			
		No. of Procedures	No. of Infections	SIR	National Comparison	No. of Procedures	No. of Infections	SIR	National Comparison	No. of Procedures	No. of Infections	SIR	National Comparison
Boulder Community Hospital	Boulder	54	0	0	Same	56	0	0	Same	9	***	***	***
Centura Penrose St Francis Health	Colorado Springs	183	3	1	Same	226	2	0.5	Same	211	2	0.6	Same
Centura Porter Adventist Hospital	Denver	96	1	0.7	Same	98	2	1.5	Same	90	2	1.5	Same
Centura St Anthony Hospital	Lakewood	64	0	0	Same	74	0	0	Same	74	0	0	Same
Exempla Lutheran MC	Wheat Ridge	89	0	0	Same	78	1	0.6	Same	70	0	0	Same
Exempla St Joseph Hospital	Denver	230	0	0	Better	213	0	0	Better	210	3	0.8	Same
MC of Aurora	Aurora	58	2	1.6	Same	80	0	0	Same	130	0	0	Same
MC of the Rockies	Loveland	169	0	0	Better	249	4	0.7	Same	227	3	0.6	Same
Memorial Hospital Central	Colorado Springs	168	2	0.8	Same	151	2	0.9	Same	154	5	2.2	Same
North Colorado MC	Greeley	54	2	2	Same	64	0	0	Same	63	1	0.9	Same
Parkview MC	Pueblo	56	0	0	Same	15	***	***	***	65	1	0.9	Same
Presbyterian St Luke's MC	Denver	15	***	***	***	11	***	***	***	0	***	***	***
Rose MC	Denver	15	***	***	***	15	***	***	***	25	1	2	Same
Sky Ridge MC	Lone Tree	22	0	0	Same	23	0	0	Same	0	***	***	***
St Mary's Hospital	Grand Junction	111	2	1.2	Same	110	1	0.6	Same	118	0	0	Same
Swedish MC	Englewood	56	1	1.1	Same	65	2	1.8	Same	87	0	0	Same
University of Colorado Hospital	Aurora	96	1	0.4	Same	92	2	0.8	Same	137	3	0.9	Same

Note: SIR=Standardized Infection Ratio, the ratio of observed to expected infections adjusted for procedure risk factors; MC=Medical Center.

National comparison based on the indirect adjustment of modeled risk factors for each procedure type.

Infections for facilities performing less than 20 procedures per year are suppressed to protect confidential health information. These facilities fulfilled reporting requirements.

*** Indicates value not shown due to suppression of infection data, no national or historical rate available, or an expected infection count of less than 1.

Source: National Health Care Safety Network (NHSN) Database.