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. Surgeries are performed as either inpatient or outpatient procedures.

Reportable infections occur within 30 days of the procedure or within one year if an implant was placed during the procedure. 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 location 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 (better) infections than expected based on national infection rates;
- 2. Statistically similar (same) infections as expected based on the national infection rates; or
- 3. Statistically more (worse) infections than expected based on national infection rates.

BREAST PROCEDURES

Background

Breast procedures for purposes of surveillance and reporting into NHSN involve those procedures with at least one incision to the skin in either male or female patients in either inpatient or outpatient surgery locations. There are 36 breast procedures that qualify in this category and can include an open biopsy of the breast, local excision of a lesion of the breast, insertion and removal of breast implants and radical mastectomies to name a few.

Results

Tables 15 and 16, show facility specific data for SSI attributed to **breast procedures** in hospitals and ASC, respectively, performed from Aug. 1, 2011 through July 31, 2013.

When numbers from all hospitals were combined, the statewide breast SSI rate was worse than the national average for this year and last year.

In this past reporting year, 61 hospitals reported 9,744 breast surgeries; 16 hospitals reported zero infections. Two hospitals (one less than last year) had breast SSI rates worse than the national average; all other hospitals had SSI rates similar to the national average. When numbers from all hospitals were combined (Table 5), the statewide breast SSI rate was worse than the national average for this year and last year.

Thirty-two ASC reported 5,714 breast surgeries. Fifteen ASC reported zero SSI. Individually and as a statewide aggregate, ASC had breast SSI rates similar to the national average.

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Table 15: Breast Surgeries in Hospitals, Aug. 1, 2011 – July 31, 2013

Table 13. Breast surgeric					Outpatient Combined)	: Aug. 1, 2011 – July	31, 2013			
			August 2011 –	July 2012	!		August 2012 -	July 2013		
Health Facility and City		Procedure Infection Count Count		SIR	National Comparison	Procedure Count	Infection Count	SIR	National Comparison	
Animas Surgical Hospital	Durango	122	0	0	Same	159	0	0	Same	
Arkansas Valley Regional MC	La Junta	4	***	***	***	7	***	***	***	
Aspen Valley Hospital	Aspen	25	0	0	Same	20	0	0	Same	
Boulder Community Hospital	Boulder	170	1	0.7	Same	110	0	0	Same	
Boulder Community Hospital- Foothills	Boulder	350	3	1.0	Same	176	0	0	Same	
Centura Avista Adventist Hospital	Louisville	160	1	0.7	Same	153	4	2.6	Same	
Centura Littleton Adventist Hospital	Littleton	282	5	3.8	Worse	307	4	2.7	Same	
Centura Penrose St Francis Health	Colorado Springs	101	0	0	Same	156	0	0	Same	
Centura Porter Adventist Hospital	Denver	560	3	1.4	Same	348	6	3	Worse	
Centura St Anthony Hospital	Lakewood	167	6	6.6	Worse	233	7	5.3	Worse	
Centura St Anthony North Hospital	Westminster	49	2	2.8	Same	44	1	1.7	Same	
Centura St Francis MC	Colorado Springs	134	0	0	Same	317	1	0.3	Same	
Centura St Mary Corwin MC	Pueblo	128	1	0.7	Same	148	2	1.2	Same	
Centura St Thomas More Hospital	Canon City	36	0	0	Same	14	***	***	***	
Colorado Plains MC	Fort Morgan	11	***	***	***	10	***	***	***	
Community Hospital	Grand Junction	80	1	1.2	Same	97	1	0.9	Same	
Delta County Memorial Hospital	Delta	47	2	4.0	Same	44	0	0	Same	
Denver Health MC	Denver	197	2	0.6	Same	167	3	1.0	Same	
East Morgan County Hospital	Brush	7	***	***	***	19	***	***	***	
Estes Park MC	Estes Park	0	***	***	***	1	***	***	***	
Exempla Good Samaritan MC	Lafayette	467	6	2.8	Worse	486	4	1.4	Same	
Exempla Lutheran MC	Wheat Ridge	464	4	1.7	Same	426	4	1.9	Same	
Exempla St Joseph Hospital	Denver	614	4	1.0	Same	920	7	1.2	Same	
Family Health West Hospital	Grand Junction	8	***	***	***	54	0	0	Same	
Grand River MC	Rifle	16	***	***	***	20	0	0	Same	
Gunnison Valley Hospital	Gunnison	1	***	***	***	0	***	***	***	
Heart of the Rockies Regional MC	Salida	14	***	***	***	18	***	***	***	
Kit Carson Memorial Hospital	Burlington	0	***	***	***	1	***	***	***	
Longmont United Hospital	Longmont	54	0	0	Same	93	2	2.1	Same	
McKee MC	Loveland	159	0	0	Same	142	1	0.8	Same	
MC of Aurora	Aurora	322	1	0.8	Same	283	3	2.6	Same	
MC of the Rockies	Loveland	244	1	0.3	Same	266	3	0.9	Same	

	Surgical Site Infectio	ns in Breast Proced	dures in Hospitals	(In- and O	utpatient Combined)	: Aug. 1, 2011 – July	31, 2013					
		August 2011 – July 2012					August 2012 – July 2013					
Health Facility and 0	Health Facility and City		Infection Count	SIR	National Comparison	Procedure Count	Infection Count	SIR	National Comparison			
Memorial Hospital Central	Colorado Springs	43	0	0	Same	27	0	0	Same			
Memorial Hospital North	Colorado Springs	190	4	1.7	Same	284	2	0.7	Same			
Mercy Regional MC	Durango	96	1	1.0	Same	132	0	0	Same			
Montrose Memorial Hospital	Montrose	53	0	0	Same	80	1	1.2	Same			
Mt San Rafael Hospital	Trinidad	10	***	***	***	2	***	***	***			
North Colorado MC	Greeley	154	0	0	Same	135	0	0	Same			
North Suburban MC	Thornton	37	0	0	Same	49	0	0	Same			
Pagosa Springs MC	Pagosa Springs	0	***	***	***	1	***	***	***			
Parker Adventist Hospital	Parker	76	0	0	Same	47	1	1.2	Same			
Parkview MC	Pueblo	222	1	1.2	Same	230	2	2.2	Same			
Pioneers MC	Meeker	4	***	***	***	0	***	***	***			
Platte Valley MC	Brighton	96	1	1.2	Same	69	1	1.7	Same			
Poudre Valley Hospital	Ft Collins	137	2	2.0	Same	192	3	2.1	Same			
Presbyterian St Luke's MC	Denver	434	0	0	Same	480	2	1.1	Same			
Prowers MC	Lamar	1	***	***	***	0	***	***	***			
Rocky Mountain Surgery Center	Englewood	5	***	***	***	3	***	***	***			
Rose MC	Denver	1,519	8	1.1	Same	1,407	10	1.5	Same			
San Luis Valley Regional MC	Alamosa	36	0	0	Same	30	0	0	Same			
Sky Ridge MC	Lone Tree	313	6	0.8	Same	492	3	0.4	Same			
Southwest Memorial Hospital	Cortez	25	1	5.2	Same	29	2	6.8	Same			
Spanish Peaks Regional Health Center	Walsenburg	3	***	***	***	2	***	***	***			
St Anthony Summit MC	Frisco	3	***	***	***	4	***	***	***			
St Mary's Hospital	Grand Junction	177	1	1.0	Same	186	1	1.1	Same			
Sterling Regional MC	Sterling	7	***	***	***	20	2	6.7	Same			
Swedish MC	Englewood	49	1	1.1	Same	102	0	0	Same			
The Children's Hospital	Aurora	17	***	***	***	7	***	***	***			
The Memorial Hospital	Craig	5	***	***	***	0	***	***	***			
University of Colorado Hospital	Aurora	298	7	2.7	Worse	410	2	0.6	Same			
Vail Valley MC	Vail	141	0	0	Same	96	3	2.8	Same			
Valley View Hospital	Glenwood Sprgs	140	0	0	Same	138	0	0	Same			
Wray Community Hospital	Wray	1	***	***	***	2	***	***	***			
Yampa Valley MC	Steamboat Springs	18	***	***	***	28	0	0	Same			

Surgical Site Infections in Breast Procedures in Hospitals (In- and Outpatient Combined): Aug. 1, 2011 – July 31, 2013										
		August 2011 –	July 201	2	August 2012 – July 2013					
Health Facility and City		Procedure Count	Infection Count	SIR	National Comparison	Procedure Count	Infection Count	SIR	National Comparison	
Yuma District Hospital	Yuma	6	***	***	***	4	***	***	***	

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

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

Table 16: Breast Surgeries in Ambulatory Surgery Centers (ASC): Aug. 1, 2011 –July 31, 2013

Su	rgical Site Infections in E				•	31, 2013				
			August 2011	– July 201	.2	August 2012 – July 2013				
Health Facility and City	Procedure Count	Infection Count	SIR	National Comparison	Procedure Count	Infection Count	SIR	National Comparison		
ASC Durango at Mercy Medical Center	Durango	50	0	0	Same	15	***	***	***	
Aberdeen Ambulatory Surgical Center	Pueblo	344	0	0	Same	354	0	0	Same	
Arkansas Valley Surgery Center	Canon City	6	***	***	***	8	***	***	***	
Audubon Ambulatory Surgery Center	Colo Springs	247	0	0	Same	83	0	0	Same	
Audubon Ambulatory Surgery Center at St. Francis	Colo Springs	5	***	***	***	11	***	***	***	
Avista Surgery Center	Boulder	432	1	0.5	Same	453	2	1.1	Same	
Black Canyon Surgical Center	Montrose	3	***	***	***	0	***	***	***	
Centrum Surgical Center	Greenwood Village	516	1	0.4	Same	502	0	0	Same	
Clear Creek Surgery Center	Wheat Ridge	22	0	0	Same	13	***	***	***	
Colorado Springs Surgery Center	Colo Springs	133	0	0	Same	110	1	1.9	Same	
Crown Point Surgery Center	Parker	58	0	0	Same	125	0	0	Same	
Denver Midtown Surgery Center	Denver	73	0	0	Same	33	0	0	Same	
1st Choice Outpatient Surgery Ctr at Comm. Hosp.	Grand Junction	168	0	0	Same	129	0	0	Same	
Grand Valley Surgical Center	Grand Junction	253	2	1.6	Same	233	1	1.0	Same	
Harmony Ambulatory Surgery Center	Ft Collins	349	1	0.5	Same	370	3	1.2	Same	
Kaiser Permanente Ambulatory Surgery Center	Denver	258	3	2.0	Same	212	0	0	Same	
Longmont Surgery Center	Longmont	114	0	0	Same	115	0	0	Same	
Midvalley Ambulatory Surgery Center LLC	Basalt	0	***	***	***	2	***	***	***	
North Suburban Surgery Center	Thornton	52	0	0	Same	30	0	0	Same	
Parkwest Surgery Center	Pueblo	2	***	***	***	6	***	***	***	
Peak One Surgery Center	Frisco	2	***	***	***	0	***	***	***	
Pueblo Surgery Center	Pueblo	16	***	***	***	14	***	***	***	

^{***} Indicates value not shown due to suppression of infection data, no national or historical rate available, or an expected infection count of zero.

Sı	ırgical Site Infections in	Breast Procedu	res in ASCs (Ou	tpatient):	Aug. 1, 2011 – July	y 31, 2013			
		August 2011	– July 201	12	August 2012 – July 2013				
Health Facility and City		Procedure Count	Infection Count	SIR	National Comparison	Procedure Count	Infection Count	SIR	National Comparison
Red Rocks Surgery Center	Golden	113	0	0	Same	133	0	0	Same
Renewal Surgery Center	Lone Tree	535	0	0	Same	126	0	0	Same
Rocky Mountain Surgery Center	Englewood	5	***	***	***	3	***	***	***
Rose Surgical Center	Denver	205	0	0	Same	171	0	0	Same
Sky Ridge Surgical Center	Lone Tree	2	***	***	***	1	***	***	***
Skyline Surgery Center	Loveland	26	0	0	Same	129	0	0	Same
Southwest Colorado Surgical Center	Cortez	2	***	***	***	4	***	***	***
Summit View Surgery Center	Littleton	48	1	5.2	Same	68	0	0	Same
Surgery Center At Lutheran	Wheat Ridge	129	0	0	Same	133	2	3.5	Same
Surgery Center At Printers Park	Colo Springs	502	9	3.4	Worse	588	4	1.2	Same
Surgery Center Of Ft Collins	Ft Collins	111	0	0	Same	160	2	1.7	Same
Surgical Center At Premier	Colo Springs	586	0	0	Same	603	0	0	Same

The standardized infection ratio (SIR) is the ratio of observed to expected infections adjusted for procedure risk factors. National comparison based on the indirect adjustment of modeled risk factors for each procedure type. *** Indicates value not shown due to suppression of infection data, no national or historical rate available, or an expected infection count of zero. Infections for facilities performing less than 20 procedures per year are suppressed to protect confidential health information. These facilities fulfilled reporting requirements.

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