

Hospital-Acquired Infections (HAI) in California 2009–2015

The information on hospital-acquired infections (HAIs) in this summary is based on a combination of two sources of data to provide a richer picture of HAIs in California: (a) The 2009–2014 annual [CDC Healthcare-associated Infections \(HAI\) Progress Reports](#); and (b) 2009/2010–2015 California Department of Health [Healthcare-Associated Infections in California Hospitals Annual Reports](#). The adjusted standardized infection ratios (SIRs) shown below compare the California rates for eight HAIs to the national baseline for each measure. SIRs below 1.0 indicate that the HAI rate was lower during a particular year in California than the national baseline, whereas SIRs above 1.0 indicate that the California HAI rate was higher during that year. The last column shows the percentage difference for the California HAI rate compared to the national baseline for the latest available year, usually 2015. The SIRs are also shown in the figure.

Table 1: Hospital-Acquired Infections Standardized Infection Ratios (SIR): California vs. National Baselines, 2009-2015

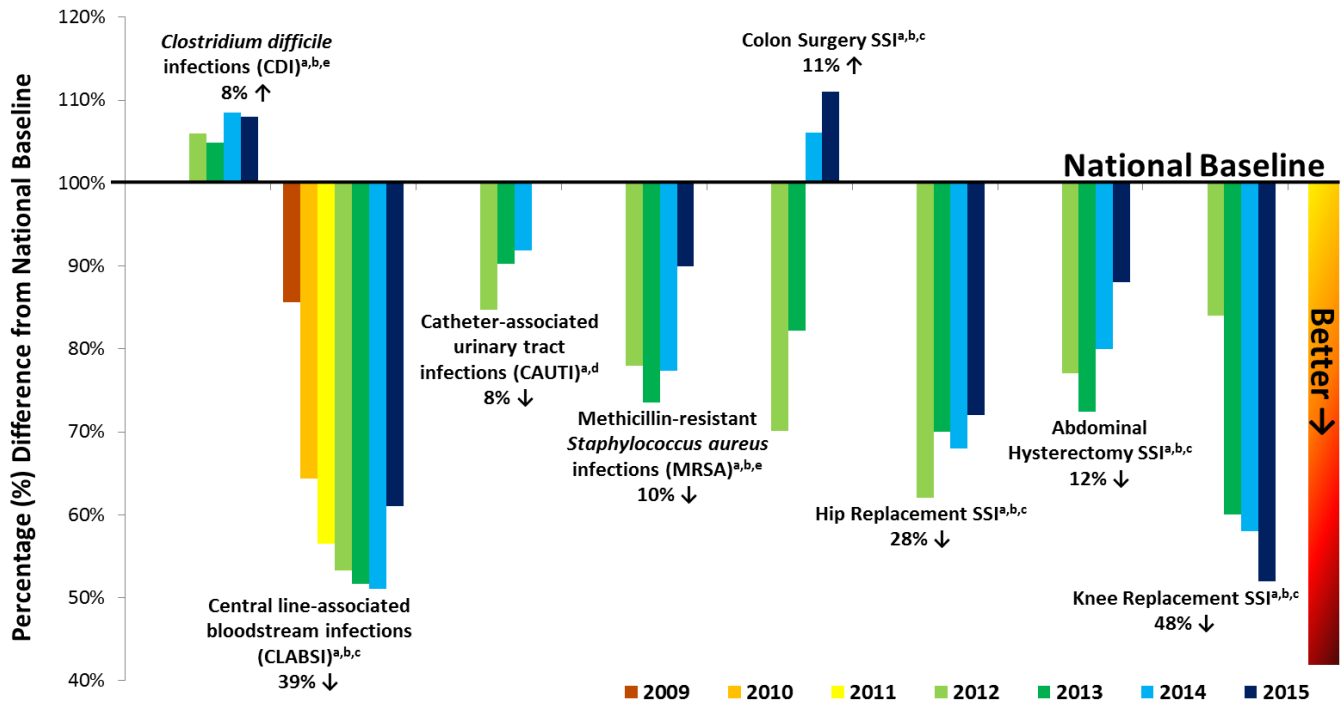
Hospital-Acquired Infection	2009	2010	2011	2012	2013	2014	2015	% Difference
<i>Clostridium difficile</i> infections (CDI) ^{a,b,e}				1.06	1.05	1.09	1.08	8%
Central line-associated bloodstream infections (CLABSI) ^{a,b,c}	0.86	0.64	0.57	0.53	0.52	0.51	0.61	-39%
Catheter-associated urinary tract infections (CAUTI) ^{a,d}				0.85	0.90	0.92		-8% ^f
Methicillin-resistant <i>Staphylococcus aureus</i> infections (MRSA) ^{a,b,e}				0.78	0.74	0.77	0.90	-10%
Colon Surgery surgical site infections (SSI) ^{a,b,c}				0.70	0.82	1.06	1.11	11%
Hip Replacement surgical site infections (SSI) ^{a,b,c}				0.62	0.70	0.68	0.72	-28%
Abdominal Hysterectomy surgical site infections (SSI) ^{a,b,c}				0.77	0.72	0.80	0.88	-12%
Knee Replacement surgical site infections (SSI) ^{a,b,c}				0.84	0.60	0.58	0.52	-48%

^aCDC: Healthcare-associated Infections (HAI) Progress Reports: <http://www.cdc.gov/hai/surveillance/progress-report/>

^bCDPH: Healthcare-Associated Infections in California Hospitals Annual Reports: <https://www.cdph.ca.gov/programs/hai/Pages/HAIReportsAndPrevention.aspx>

National Baseline: 2008^c, 2009^d, 2011^e Compared to latest year available (2014); all others reflect 2015 comparisons.

Hospital-Acquired Infections Standardized Infection Ratios (SIR) California vs. National Baselines: 2009-2015



Note: SSI = surgical site infections.

When estimates from CDC and CDPH conflicted, CDC estimates were used.

^aCDC: Healthcare-associated Infections (HAI) Progress Reports: <http://www.cdc.gov/hai/surveillance/progress-report/>

^bCDPH: Healthcare-Associated Infections in California Hospitals Annual Reports: <https://www.cdph.ca.gov/programs/hai/Pages/HAIReportsAndPrevention.aspx>

Data not available for all measures for all years; all available years are shown. National Baseline: 2008^c, 2009^d, 2011^e

Summary of Statewide HAI Findings

- Each year since each HAI measure was introduced, California hospitals overall have consistently outperformed the national baselines with regard to CLABSI, CAUTI, MRSA, hip replacement SSI, abdominal hysterectomy SSI, and knee replacement SSI.
- CDI has been an ongoing challenge statewide for California hospitals since this measure was introduced in 2012. During no year has the statewide CDI rate for California hospitals overall been lower than the national baseline. Furthermore, there is no suggestion that there has been improvement on this measure given that the past two years have been essentially flat (8-9% higher than the national baseline).
- Colon surgery SSI has recently become a challenge for California hospitals overall. In a dramatic switch starting in 2014, the colon surgery SSI rate for California hospitals has been higher than the national baseline: 6% higher in 2014 and 11% higher in 2015. During 2014 a 5% increase in colon surgery SSI was noted at the national level as well, suggesting that the increase noted in California may indeed be part of a larger concern ([click here for national HAI progress report](#)).

Additional SSI Measures only Available from the CDPH Report

The CDPH report includes SIRs for 19 other surgical procedures that are not included in the CDC HAI Progress Reports (Table 2). The interpretation of the SIRs for these procedures are the same—values less than one suggest that the California SSI rate for that procedure is lower than the national baseline. For 18 of these additional procedures California hospitals overall have directionally lower SSI rates than the national baseline. The one exception is appendix surgery, for which the SSI rate for California hospitals overall is 30% higher than the national baseline.

Table 2: Surgical Site Infection Standardized Infection Ratios (SIR): California vs. National Baselines, 2015

Surgical Procedure	2015 SIR	% Difference
Abdominal aortic aneurysm repair	0.31	-69%
Appendix surgery	1.30	30%
Bile duct, liver or pancreatic surgery	0.25	-75%
Cardiac surgery	0.59	-41%
Cesarean section	0.23	-77%
Coronary bypass, chest incisions only	0.51	-49%
Coronary bypass, chest & donor incisions	0.51	-49%
Exploratory abdominal surgery (laparotomy)	0.90	-10%
Gallbladder surgery	0.99	-1%
Gastric surgery	0.63	-37%
Hysterectomy, vaginal	0.92	-8%
Kidney transplant	0.25	-75%
Laminectomy	0.52	-48%
Liver transplant	0.27	-73%
Open reduction of fracture	0.52	-48%
Rectal surgery	0.79	-21%
Small bowel surgery	0.75	-25%
Spinal fusion	0.62	-38%
Spine re-fusion	0.59	-41%

Hospital-specific Findings

When possible, the CDPH report also calculates hospital-specific SIRs for the various HAI measures and identifies hospitals that had high incidence of the same HAI type for 2 or more years. These hospitals are targets for “public health outreach,” meaning onsite consultations by the CDPH HAI Program during the year. The 60 such targeted hospitals with elevated rates for 2014 and 2015 are shown in Table 3 by region (39 are in HASC, 7 in HASDIC, and 14 in HC). Nine hospitals had two HAI measures that were elevated during 2014 and 2015 and three hospitals had three elevated HAI measures (Olympia Medical Center, Riverside Community Hospital, and USC Kenneth Norris Jr. Cancer Hospital).

Table 3: California Hospitals Targeted by CDPH for “Public Health Outreach” due to Consistently High HAI Rates during both 2014 and 2015

Targeted Hospitals	HAI Type(s) Resulting in Intervention	County	Region	Incomplete Measures	HIIN	AHRQ ICU: CLABSI CAUTI	CDC STRIVE
Antelope Valley Hospital	CLABSI	Los Angeles	HASC	VRE	CalHIIN		
Arrowhead Regional Medical Center	SSI: Appendix surgery	San Bernardino	HASC		CalHIIN		
Barlow Respiratory Hospital	CLABSI	Los Angeles	HASC				
Beverly Hospital	CDI	Los Angeles	HASC		CalHIIN		
California Pacific Medical Center - Pacific Campus Hospital	VRE	San Francisco	HC		CalHIIN		
Cedars-Sinai Medical Center	CDI	Los Angeles	HASC				
Children’s Hospital Los Angeles	CLABSI	Los Angeles	HASC				
City of Hope Helford Clinical Research Hospital	CDI VRE	Los Angeles	HASC				
Community Regional Medical Center	CLABSI	Fresno	HC		Premier		
Corona Regional Medical Center	CDI	Riverside	HASC		CalHIIN		
Feather River Hospital	CDI	Butte	HC		Premier		
Garfield Medical Center	CDI	Los Angeles	HASC		CalHIIN	Yes	
Highland Hospital	SSI: Colon surgery	Alameda	HC				
Hoag Memorial Hospital Presbyterian	CDI CLABSI	Orange	HASC		CalHIIN		
Kaiser Foundation Hospital, Fontana	SSI: Appendix surgery	San Bernardino	HASC		CalHIIN		
Kaiser Foundation Hospital, Oakland/Richmond	SSI: Appendix surgery	Alameda	HC		CalHIIN		
Kaiser Foundation Hospital, Riverside	CDI	Riverside	HASC		CalHIIN		
Kaiser Foundation Hospital, San Diego	CDI	San Diego	HASDIC		CalHIIN		
Kaiser Foundation Hospital, South Bay	CDI	Los Angeles	HASC		CalHIIN		

Targeted Hospitals	HAI Type(s) Resulting in Intervention	County	Region	Incomplete Measures	HIIN	AHRQ ICU: CLABSI CAUTI	CDC STRIVE
Kaiser Foundation Hospital, Walnut Creek	CDI	Contra Costa	HC		CalHIIN		
Kaiser Foundation Hospital, West LA	CDI	Los Angeles	HASC		CalHIIN		
Kaiser Foundation Hospital, Woodland Hills	CLABSI	Los Angeles	HASC		CalHIIN		
Kern Medical Center	SSI: Colon surgery	Kern	HC		CalHIIN	Yes	
Kindred Hospital, Westminster	MRSA	Orange	HASC				
La Palma Intercommunity Hospital	CDI	Orange	HASC		CalHIIN		
Loma Linda University Medical Center	CLABSI MRSA	San Bernardino	HASC		Premier		
Loma Linda University Medical Center - Murrieta	CLABSI	Riverside	HASC		Premier		
Long Beach Memorial Medical Center	CDI	Los Angeles	HASC		CalHIIN		
Los Alamitos Medical Center	CDI	Orange	HASC		CalHIIN		
Los Angeles Community Hospital	MRSA	Los Angeles	HASC				
Marina Del Rey Hospital	CDI	Los Angeles	HASC				
Menifee Valley Medical Center	CDI	Riverside	HASC		CalHIIN		
Olympia Medical Center	CDI CLABSI VRE	Los Angeles	HASC		CalHIIN		
Pacifica Hospital of the Valley	CLABSI	Los Angeles	HASC				
Pomerado Hospital	SSI: Hip prosthesis	San Diego	HASDIC		CalHIIN		
Pomona Valley Hospital Medical Center	CDI SSI: Appendix surgery	Los Angeles	HASC		CalHIIN		
Presbyterian Intercommunity Hospital	SSI: Spinal fusion	Los Angeles	HASC				
Providence Saint Joseph Medical Center	CDI SSI: Appendix surgery	Los Angeles	HASC	VRE	CalHIIN		
Redlands Community Hospital	CDI	San Bernardino	HASC		CalHIIN		
Regional Medical Center of San Jose	CLABSI SSI: Appendix surgery	Santa Clara	HC		CalHIIN		
Riverside Community Hospital	CDI SSI: Appendix surgery SSI: Colon surgery	Riverside	HASC				
Ronald Reagan UCLA Medical Center	CLABSI VRE	Los Angeles	HASC		Vizient		
San Antonio Regional Hospital	SSI: Appendix surgery SSI: Colon surgery	San Bernardino	HASC		CalHIIN		
San Geronio Memorial Hospital	CDI	Riverside	HASC		CalHIIN		
Santa Clara Valley Medical Center	SSI: Colon surgery	Santa Clara	HC		CalHIIN		
Scripps Memorial Hospital -	SSI: Gallbladder	San Diego	HASDIC		CalHIIN		

Targeted Hospitals	HAI Type(s) Resulting in Intervention	County	Region	Incomplete Measures	HIIN	AHRQ ICU: CLABSI CAUTI	CDC STRIVE
Encinitas	surgery						
Scripps Memorial Hospital - La Jolla	SSI: Spinal fusion	San Diego	HASDIC		CalHIIN		
Seton Medical Center	CDI	San Mateo	HC		CalHIIN		
Sharp Chula Vista Medical Center	CDI	San Diego	HASDIC		CalHIIN		Yes
Sharp Memorial Hospital	CDI	San Diego	HASDIC		CalHIIN		Yes
Sherman Oaks Hospital	CDI	Los Angeles	HASC		CalHIIN		
St Johns Pleasant Valley Hospital	CDI	Ventura	HASC		Dignity		
St Rose Hospital	CDI	Alameda	HC		CalHIIN		
St. Bernardine Medical Center	VRE	San Bernardino	HASC		Dignity		
Stanford Health Care	SSI: Colon surgery VRE	Santa Clara	HC		Vizient		
University of California Irvine Medical Center	CDI	Orange	HASC		Vizient		
University of California, San Diego Medical Center	CDI	San Diego	HASDIC		Vizient		
USC Kenneth Norris Jr. Cancer Hospital	CDI CLABSI VRE	Los Angeles	HASC				
Valleycare Medical Center	CDI	Alameda	HC				
Washington Hospital	CDI	Alameda	HC				

Note: VRE = Vancomycin-resistant *enterococci* bloodstream infections.