Making Healthcare Safer for All Californians

Healthcare-Associated Infections in California Hospitals

Annual Report | January to December 2019

Report to the Legislature and the People of California
by the Healthcare-Associated Infections Program,
Center for Health Care Quality,
California Department of Public Health | October 2020

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MESSAGE FROM THE CHIEF OF THE HEALTHCARE-ASSOCIATED INFECTIONS PROGRAM

Each year, CDPH reports on California hospitals' incremental progress towards achieving HAI prevention goals. California hospitals' 2019 HAI incidence was significantly lower than national baselines for all reportable infection types. California's 2020 goal for CDI prevention was achieved in 2019, and nearly 30 percent of hospitals were on track to achieve 2020 reduction targets for at least three infection types. Over the past seven years, the CDPH HAI Program identified hospitals with high infection incidence and targeted them for outreach and intervention. The results of such interventions have demonstrated success, including among 95% of 20 hospitals targeted for CLABSI reduction and 100% of 44 hospitals targeted for SSI following specific procedure types.

The year 2019 marks the end of the pre-COVID-19 pandemic era, however. All California hospital prevention goals were on a 5-year trajectory to assess if targets were met in 2020, which will likely not be possible. Competing pressure on hospital infection prevention programs in their detection and management of COVID-19 during 2020 may result in underreporting of HAI and will make it difficult to assess continued progress toward 2020 HAI reduction targets. Moreover, shortages of personal protective equipment resulting in their reuse could potentially impact the spread of antimicrobial resistance (AR), C. difficile infection, and other HAI incidence. The potential overuse of antimicrobials for secondary bacterial infections in patients hospitalized with COVID-19 could also promote emergence of AR among hospital pathogens.

In past years, HAI program has conducted HAI and AR prevention outreach to hospitals based on their prior year's incidence; this year our HAI staff expertise in the detection, control, and prevention of infections in healthcare facilities have focused on COVID-19. As described in this report, CDPH HAI epidemiologists are conducting analyses on the effects of COVID-19 on HAI and AR prevention progress. CDPH is seeking advice from the HAI Advisory Committee about re-establishing short and long-term goals for HAI and AR prevention in California hospitals. Although much uncertainty exists on the effects of the COVID-19 pandemic on HAI and AR incidence, one thing is clear: adherence to all infection prevention practices is more important than ever to ensure safe patient care.

Erin Epson, MD
Medical Director & Chief
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ACKNOWLEDGEMENTS

The HAI Program would like to recognize the contributions of California hospitals that diligently track and report HAI data using the National Healthcare Safety Network protocols and definitions and for their continued dedication to ensuring the accuracy of the data used to produce this public report.

HAI Advisory Committee

The HAI Program Advisory Committee makes recommendations to CDPH on issues related to HAI surveillance, reporting, and prevention in California hospitals. The HAI Advisory Committee is comprised of voting members with HAI expertise or interest and non-voting liaison members who represent California HAI stakeholder organizations. The HAI Program thanks each member for their support and contributions.

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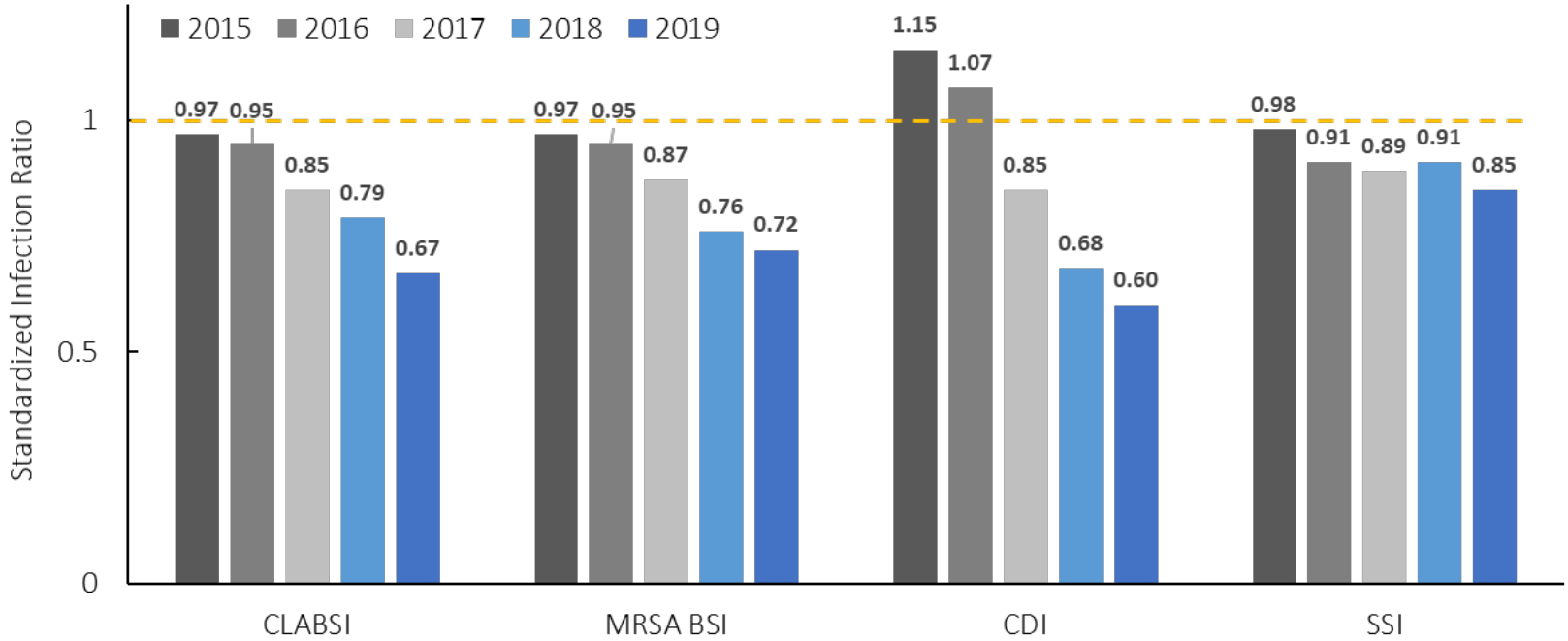
EXECUTIVE SUMMARY

The California Department of Public Health (CDPH) publishes healthcare-associated infections (HAI) data annually to provide information about the quality of hospital care and to monitor prevention progress (Health and Safety Code section 1288.55). This report presents California hospital HAI data for calendar year 2019.

In 2019, 401 California general acute care hospitals reported 1,586 fewer HAI than were reported in 2018. Hospitals prevented more HAI than in any previous reporting year for all infection types: central line-associated bloodstream infections (CLABSI), MRSA bloodstream infections (MRSA BSI), *C. difficile* infections (CDI), and surgical site infections (SSI). Statewide incidence for all reportable infection types continues to be lower (better) than 2015 national baselines (Figure 1).

The largest reductions in HAI incidence among hospitals were reported in CDI, a type of life-threatening diarrheal infection that occurs when a patient inadvertently ingests the organism and is treated with antibiotics. Since 2015, California hospitals reduced overall CDI incidence by 48%, exceeding the 2020 CDI reduction goal.

Figure 1. Healthcare-Associated Infection Incidence in California Hospitals, 2015-2019



NOTE. Dashed horizontal line reflects the national baseline for the standardized infection ratio (SIR). An SIR below the dashed line represents HAI prevention progress.

ANNUAL REPORT

Patients in hospitals are exposed to invasive devices, procedures, and medications that put them at risk for **healthcare-associated infections (HAI).** Most HAI can be prevented if health care providers and staff consistently adhere to infection prevention care practices [1].

This report provides an annual summary of HAI data reported by California hospitals to CDPH, in accordance with Health and Safety Code sections 1288.5 and 1288.55.

METHODS

California acute care hospitals track and report to CDPH five types of hospital-onset infections (Health and Safety Code section 1288.5):

Central line-associated bloodstream infections (CLABSI), methicillin-resistant *Staphylococcus aureus* (MRSA) bloodstream infections (BSI), vancomycin-resistant enterococci (VRE) BSI, *Clostridioides difficile* infections (CDI), and surgical site infections (SSI).

This report summarizes HAI data reported to CDPH via the Centers for Disease Control and Prevention (CDC) National Healthcare Safety Network (NHSN) In 2019, CDPH received HAI data from 332 acute care hospitals (including 227 community, 95 major teaching, and 10 pediatric acute care hospitals), 22 long-term acute care (LTAC) hospitals, 34 critical access hospitals, and 76 acute care rehabilitation hospitals and units. CDPH reports HAI data from LTAC, critical access, and rehabilitation hospitals in separate sections of this report because risk-adjustment methods are different for each hospital type.

Seventeen (4%) California hospitals did not report complete HAI data for 2019 (Table 1).

CDPH calculates and presents HAI risk based on national referent data (baselines) to track California hospital HAI prevention progress from year to year [2]. When available, CDPH reports HAI incidence using a measure called the **standardized infection ratio (SIR)**. The SIR is calculated by comparing the number of HAI that were reported by the hospital with the number of HAI that were predicted using 2015 national baseline data [3]. The predicted number of infections is determined by a risk adjustment process that accounts for differences in hospital and patient characteristics.

CDPH presents VRE BSI incidence as rates (per 10,000 patient days) because a risk adjustment model and SIR are not available.

The CDPH HAI Advisory Committee recommends that CDPH track each hospital's progress in meeting national HAI reduction goals [4]. From 2015 to 2020, all California hospitals should achieve 50% reductions in CLABSI and MRSA BSI incidence and 30% reduction in CDI and SSI. To be considered on track, hospitals must have SIRs at or below incremental targets each year (Figures 2 and 3).

Table 1. California Hospitals with Incomplete Reporting of Healthcare-Associated Infections Data, 2019

County Hospital	Infection Type(s) with Missing or Incomplete Data in 2019	Incomplete or Missing Data in Previous Years
Alameda Fairmont Hospital	CLABSI, MRSA BSI, VRE BSI, CDI	
El Dorado Barton Memorial Hospital	CLABSI, MRSA BSI, VRE BSI, CDI	
Inyo Southern Inyo Hospital	CLABSI, MRSA BSI, VRE BSI, CDI	2015, 2017, 2018
Los Angeles DOCS Surgical Hospital Greater El Monte Community Hospital Olympia Medical Center	CLABSI, MRSA BSI, VRE BSI, CDI CLABSI, MRSA BSI, VRE BSI, CDI CLABSI, MRSA BSI, VRE BSI, CDI	
Orange Anaheim Global Medical Center Fairview Developmental Center Healthbridge Children's Hospital, Orange West Anaheim Medical Center	CLABSI, MRSA BSI, VRE BSI, CDI CLABSI, MRSA BSI, VRE BSI, CDI CLABSI, MRSA BSI, VRE BSI, CDI MRSA BSI, VRE BSI, CDI	2016, 2017, 2018
Plumas Seneca District Hospital	VRE BSI	
Riverside Vibra Rehabilitation Hospital of Rancho Mirage	CLABSI, MRSA BSI, VRE BSI, CDI	
San Francisco Kentfield Hospital San Francisco	VRE BSI	
San Francisco Zuckerberg San Francisco General Hospital and Trauma Center	CLABSI, MRSA BSI, VRE BSI, CDI	
Sonoma Sonoma Valley Hospital	CLABSI, MRSA BSI, VRE BSI, CDI	
Stanislaus Central Valley Specialty Hospital	CLABSI	
Trinity Trinity Hospital	CLABSI, MRSA BSI, VRE BSI, CDI	

Figures 2 and 3. Standardized Infection Ratio (SIR) Targeted Reduction Goals by Year, HAI Infection Type, and Progress to Date among California Hospitals

Figure 2

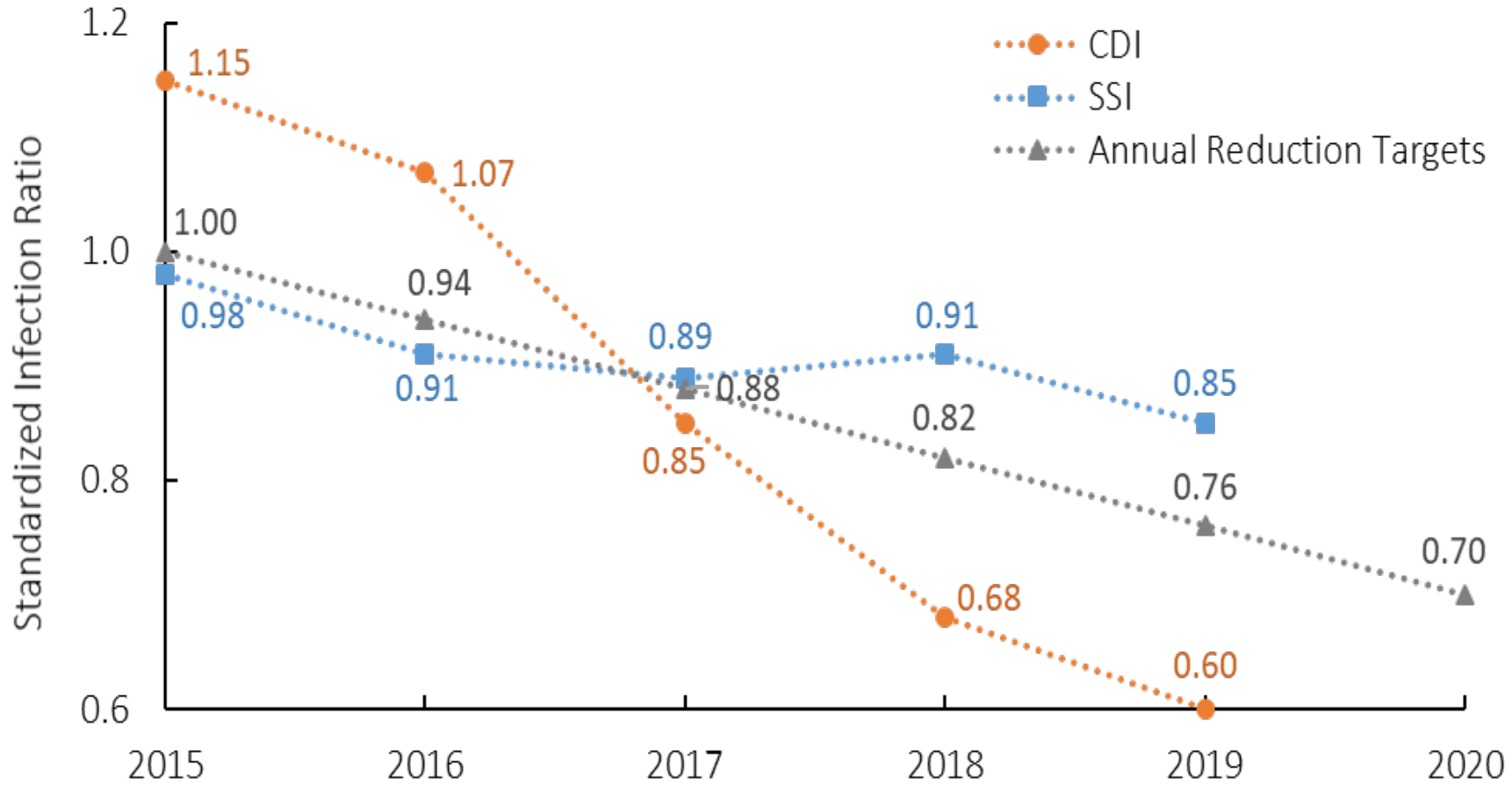
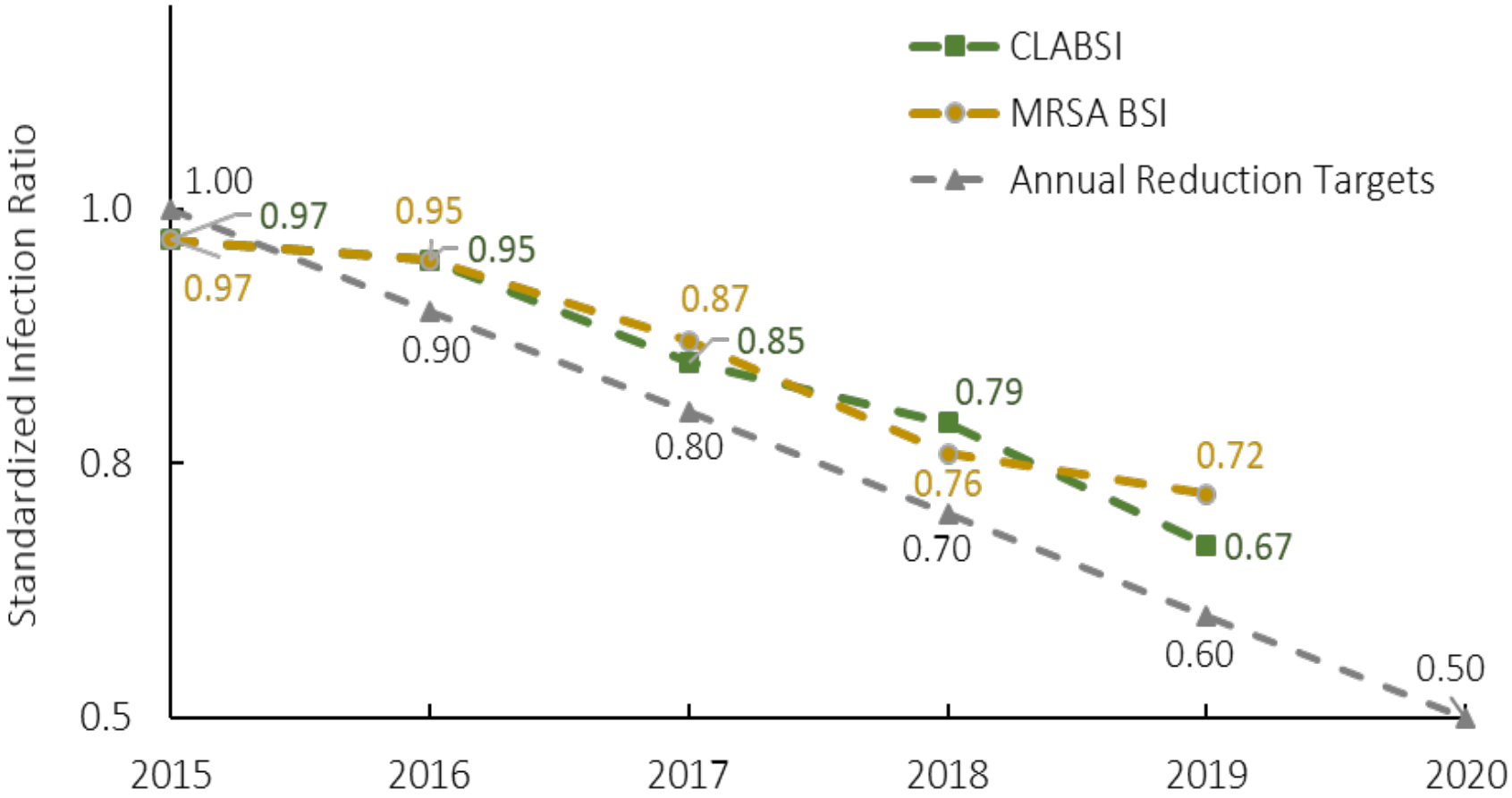


Figure 3



CDPH publishes annual HAI findings on its website (www.cdph.ca.gov/HAI). The webpage includes this report and two-page HAI profiles for each California hospital. The profiles show detailed HAI data reported in 2019 and graphs of annual infection trends since 2015. The profiles are also available via the CDPH interactive map, "My Hospital's Infections" (www.cdph.ca.gov/Programs/CHCQ/HAI/Pages/HAImap.aspx).

All HAI hospital-specific data tables are available for viewing or downloading at the California Health and Human Services Open Data Portal (data.chhs.ca.gov).

The Key Findings section of this report presents HAI data for the majority (332) of California hospitals.

KEY FINDINGS

Statewide risk for all reportable infection types is significantly lower or better than national baselines (Figure 1).In 2019, 193 (58%) hospitals in 32 counties have HAI incidence significantly better (★ , green star) than the national baseline (or statewide VRE BSI rate) and 45 (14%) hospitals in 20 counties had HAI incidence significantly worse (✖, red X) for at least one infection type (Appendix A).

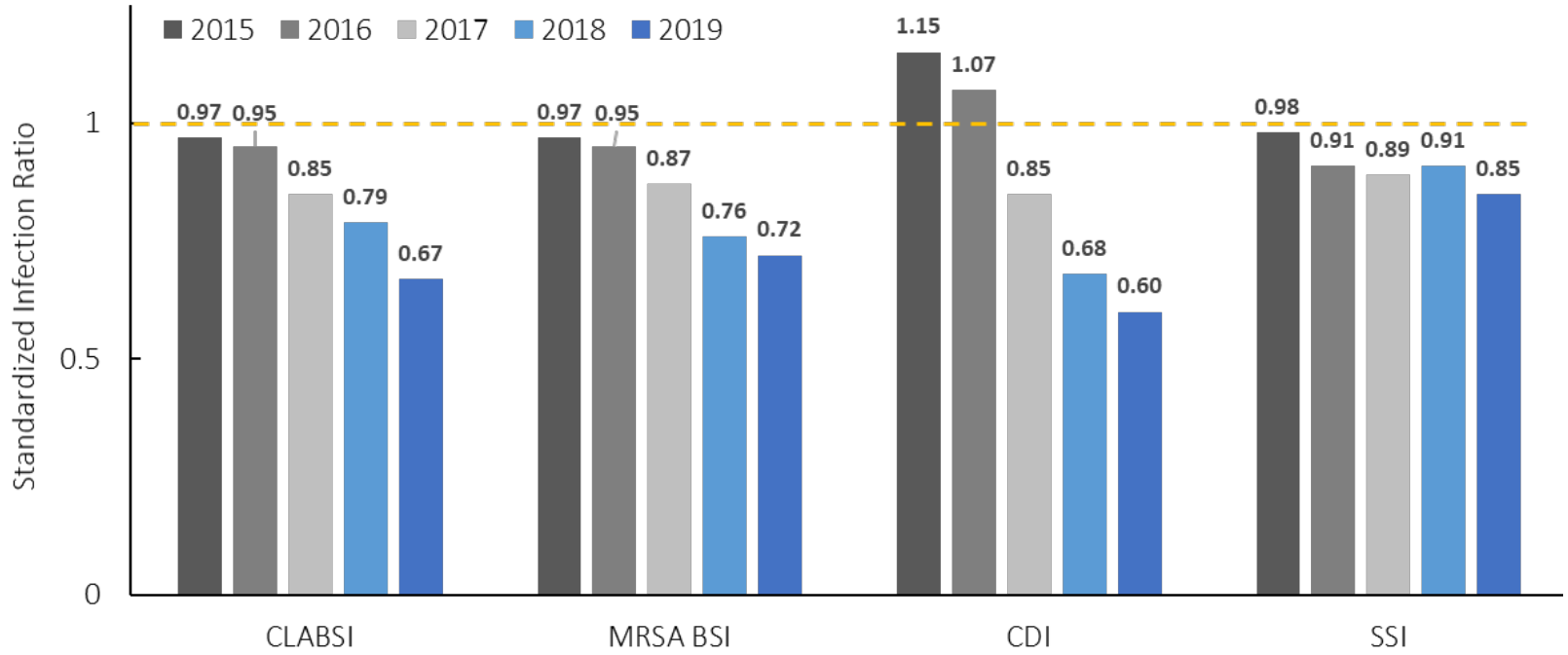
CLABSI

Overall, California hospitals reported 1,750 CLABSI, 325 fewer infections than in 2018. The statewide CLABSI SIR is 0.67, which represents a 15% decrease in CLABSI incidence since 2018 and a 31% decrease in CLABSI since 2015 California hospitals need to prevent 442 CLABSI to achieve the 2020 reduction goal.

MRSA BSI

Hospitals reported 606 MRSA BSI, 18 infections fewer than in 2018. The statewide SIR among hospitals is 0.72. California hospitals reduced MRSA BSI incidence by 26% since 2015. To meet the 2020 prevention goal, hospitals must prevent 185 MRSA BSI.

Figure 1. Healthcare-Associated Infection Incidence in California Hospitals, 2015-2019



NOTE. Dashed horizontal line reflects the national baseline for the standardized infection ratio (SIR). An SIR below the dashed line represents HAI prevention progress.

VRE BSI

In 2019, most California hospital types, except for small community hospitals (<125 beds), continued to make progress in reducing VRE BSI rates (Figure 4). Overall, hospitals reported 390 VRE BSI, 60 infections fewer than in 2018. Major teaching hospitals continue to have the highest VRE BSI rate (0.36 per 10,000 patient days) and accounted for 73% of all VRE BSI reported.

CDI

California hospitals reported 4,886 *C. difficile* infections in 2019, 845 fewer infections than 2018. The statewide CDI SIR among hospitals is 0.60, a reduction of 48% since 2015. The 2019 reductions achieved the 2020 prevention goal.

CDI can spread among hospitals, skilled nursing facilities, and medical clinics that share patients who are colonized or infected with C. difficile. For this reason, understanding CDI incidence by county can help inform state-wide prevention efforts.

In 2019, CDI incidence is significantly better than the national baseline in 30 (67%) counties (Figure 5). No counties had an SIR significantly above 1.0. Additionally, 37 (82%) counties achieved the 2020 prevention goal.

To meet 2020 HAI prevention goals, California hospitals must prevent 442 CLABSI, 185 MRSA bloodstream infections and at least 648 SSI.

Figure 4. Unadjusted VRE Bloodstream Infection Rates by California Hospital Type, 2015-2019

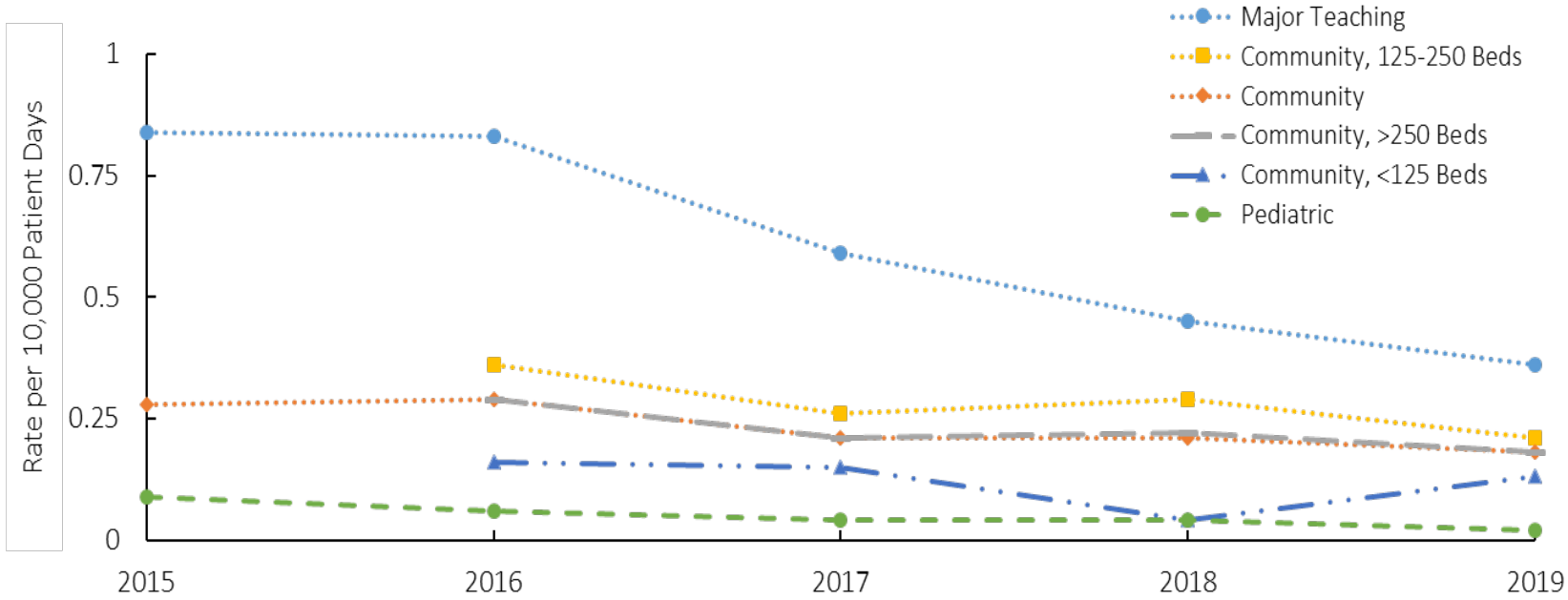
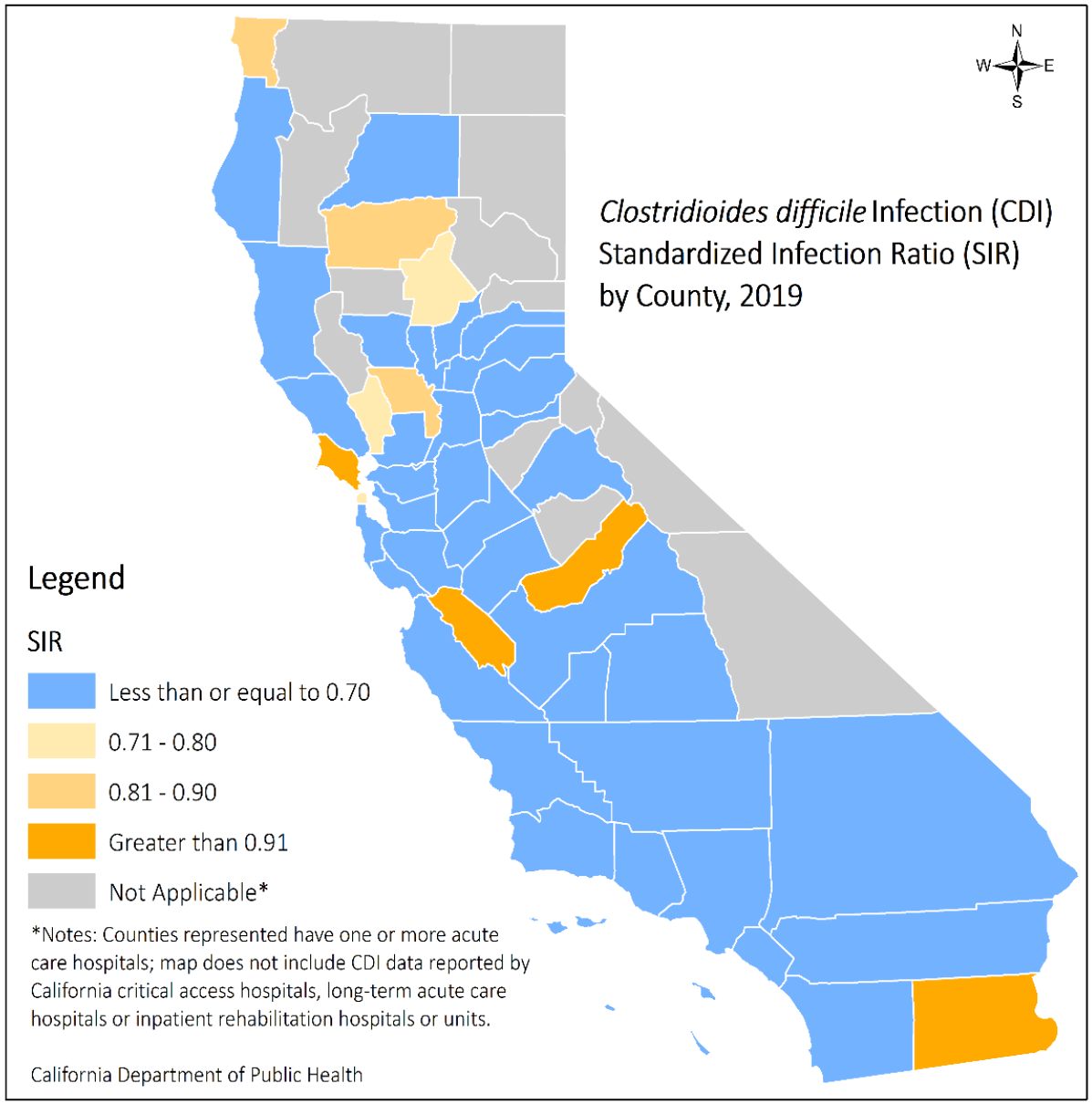


Figure 5. CDI Incidence by County, 2019



SSI

CDPH reports SSI data separately for adult (18 years and older) and pediatric (younger than 18 years) surgical patients because different risk adjustment models are applied to account for differences in the two patient groups.

Among adult patients, California hospitals reported 3,643 SSI in 2019. The majority of SSI (90%) were reported among 18 surgical procedure types, which accounted for 95% of surgeries among the 28 surgical procedure types hospitals are required to report (Table 2).

The statewide all-procedure adult SSI SIR was 0.85 in 2019. SSI risk was better than national baseline for 12 procedures and worse than national baseline for one procedure (spleen surgery). In total, 54 facilities had low SSI incidence for all procedure categories, and 18 facilities had significantly high SSI incidence for all procedure categories. (Appendices A and B). Ten facilities had significantly worse performance for the same procedure for multiple consecutive years (Table 3).

Among pediatric patients, hospitals reported 111 SSI in 23,181 surgical procedures in 2019. The pediatric SSI SIR was 0.83 a 2% increase from 2018.

Table 2. Hospital Surgical Site Infection Incidence in Adult Surgical Patients for 18 Most Common Surgical Procedure Categories, 2018 vs. 2019

Surgical Procedure Category	Standardized Infection Ratio 2018	Standardized Infection Ratio 2019	2018 Compared with National Baseline	On Track to Achieve 2020 Target Goal?	Met 2020 Target Goal?
Appendix surgery	0.80	0.62	Better	Yes	Yes
Cardiac surgery	0.82	0.68	Better	Yes	Yes
Cesarean section	0.91	0.88	Same	No	No
Colon surgery	0.96	0.84	Better	No	No
Coronary bypass, chest and donor incisions	0.90	0.73	Better	Yes	No
Exploratory abdominal surgery (laparotomy)	1.18	0.92	Same	No	No
Gallbladder surgery	0.95	0.83	Better	No	No
Gastric surgery	0.70	0.77	Better	No	No
Hip prosthesis	1.02	0.89	Same	No	No
Hysterectomy, abdominal	0.89	0.78	Better	No	No
Knee prosthesis	0.87	0.98	Same	No	No
Laminectomy	0.98	1.02	Same	No	No
Open reduction of fracture	1.01	0.94	Same	No	No
Ovarian surgery	1.16	0.83	Same	No	No
Pacemaker surgery	1.34	1.17	Same	No	No
Small bowel surgery	0.76	0.82	Better	No	No
Spinal fusion	0.88	0.87	Better	No	No
Thoracic surgery	0.81	0.64	Better	Yes	Yes

Table 3. Hospitals with Procedure-Specific Surgical Site Infection Risk in Adult Surgical Patients Worse than National Baseline for Consecutive Years

Facility Name	County	Procedures	Years Worse
Kaiser Foundation Hospital, San Leandro	Alameda	Colon surgery	2018, 2019
Enloe Medical Center, Esplanade	Butte	Coronary bypass, chest and donor incisions	2018, 2019
Methodist Hospital of Southern California	Los Angeles	Spinal fusion	2018, 2019
Monterey Park Hospital	Los Angeles	Colon surgery	2018, 2019
Methodist Hospital of Sacramento	Sacramento	Hip prosthesis	2017, 2018, 2019
Loma Linda University Medical Center	San Bernardino	Exploratory abdominal surgery (laparotomy)	2018, 2019
Scripps Mercy Hospital	San Diego	Bile duct, liver or pancreatic surgery	2018, 2019
Tri-City Medical Center	San Diego	Knee prosthesis	2018, 2019
UCSF Medical Center at Mission Bay	San Francisco	Bile duct, liver or pancreatic surgery	2018, 2019
Kaiser Foundation Hospital, Vacaville	Solano	Open reduction of fracture	2018, 2019

Impact of COVID-19 Pandemic on SSI Reporting and Incidence

In March 2020, California suspended HAI reporting requirements. Because some surgical site infections require a long post-procedure observation period, this suspension affected reporting for surgical site infections (SSIs) for the last three months of 2019. Thirty-eight facilities did not report complete data for SSIs for at least one month for October through December of 2019 by the deadline for inclusion in this report. Therefore, the numbers of SSI and procedures reported are suspected to be undercounts of the true number of infections and procedures.

CDPH performed two sensitivity analyses to estimate the possible impact of SSI underreporting for the fourth quarter of 2019 on statewide SIRs. In both analyses, the modified SIRs for statewide overall SSIs and statewide procedure-specific SSIs did not differ significantly from the unmodified SIRs. Thus, we expect that statewide SSI SIRs are not substantially biased due to underreporting.

HAI PREVENTION PROGRESS IN INDIVIDUAL HOSPITALS

Hospitals with Low HAI Incidence

In 2019, California hospitals prevented 1,248 more CLABSI, MRSA BSI, VRE BSI and CDI when compared with 2018.

Of 288 acute care hospitals with calculable SIRs across all four of these HAI types, 81 (28%) had met the 2019 target to be considered "on track" for three of the four HAI types, and 37 (13%) were "on track" for all four HAI types.

Individual hospitals are also successfully sustaining low HAI incidence. Thirty hospitals reported low CDI, CLABSI, or overall SSI incidence for four or five consecutive years from 2015 to 2019 (Table 4).

The CDPH HAI Program uses annually reported HAI data to target hospitals and communities for outreach and interventions. Two hospitals targeted in 2018 for multi-year high CLABSI incidence significantly improved.

In 2019, CDPH worked with 20 hospitals that reported 42% of all CLABSI in 2017 and held a CLABSI prevention workshop. Nineteen fewer CLABSI in 2019.

In 2019, the CDPH HAI Program performed outreach to 17 hospitals identified as having high levels of CDI. The outreach included either a letter sent to the hospital regarding implementation of CDI prevention strategies, or an offer for a CDPH HAI Program infection preventionist to provide onsite consultation regarding CDI prevention strategies.

Table 4. Hospitals with HAI Incidence Better than National Baselines for Four or Five Consecutive Years, 2015-2019

Hospital Name	County	HAI Type	# Years
Kaiser Foundation Hospital, San Leandro	Alameda	CDI	4
Enloe Medical Center, Esplanade	Butte	CLABSI	4
California Hospital Medical Center, Los Angeles	Los Angeles	CDI	5
Cedars-Sinai Medical Center	Los Angeles	CLABSI	5
Centinela Hospital Medical Center	Los Angeles	SSI	5
Emanate Health Queen of the Valley Hospital	Los Angeles	CLABSI	4
Kaiser Foundation Hospital, Baldwin Park	Los Angeles	SSI	4
LAC+USC Medical Center	Los Angeles	SSI	5
Providence Saint John's Health Center	Los Angeles	SSI	4
Natividad Medical Center	Monterey	CDI	5
College Hospital Costa Mesa	Orange	CDI	5
MemorialCare Orange Coast Medical Center	Orange	CLABSI	5
St. Jude Medical Center	Orange	CDI	5
University of California Irvine Medical Center	Orange	CLABSI	5
Riverside University Health System, Medical Center	Riverside	CDI	4
Southwest Healthcare System, Wildomar	Riverside	SSI	4
Mercy General Hospital	Sacramento	SSI	5
Mercy San Juan Medical Center	Sacramento	CLABSI	5
University of California Davis Medical Center	Sacramento	CLABSI	5
Arrowhead Regional Medical Center	San Bernardino	CDI	4
Kaiser Foundation Hospital, Fontana	San Bernardino	SSI	5
Redlands Community Hospital	San Bernardino	CLABSI SSI	5 4
St. Bernardine Medical Center	San Bernardino	SSI	4
Scripps Mercy Hospital	San Diego	CDI	4
Sharp Mary Birch Hospital For Women And Newborns	San Diego	CDI	5
Sharp Memorial Hospital	San Diego	CDI	4
Zuckerberg San Francisco General Hospital and Trauma Center	San Francisco	CDI	5
St. Joseph's Medical Center Of Stockton	San Joaquin	CLABSI	5
Kaiser Foundation Hospital, Redwood City	San Mateo	CDI	4
Regional Medical Center of San Jose	Santa Clara	CDI	5

Twelve (71%) of the 17 hospitals prioritized for outreach achieved a lower CDI incidence Compared with 2018. Eight (66%) of these hospitals were on track to achieve the 2020 CDI prevention goal.

CDPH invited 40 hospitals that reported 44% of all MRSA BSI in 2018 to participate in a targeted MRSA BSI prevention project. The hospitals were asked to review their 10 most recent hospital-onset MRSA BSI using an MRSA BSI Review Tool created by the HAI Program and NHSN Checklists. Thirty-four hospitals participated, and a total of 296 MRSA BSI events were reviewed. Of these, 238 events were validated by CDPH HAI Program infection preventionists through reviewing the data collection tools with hospital staff. Due to COVID-19, the project was paused on March 4, 2020. Among hospitals that participated in the MRSA BSI project, 14 (41%) were on track to achieve the 2020 reduction goal (SIR of 0.6) and 10 (29%) already met the 2020 reduction goal (SIR of 0.5).

Among 16 hospitals that reported 52% of all VRE BSI in 2017, 12 (75%) reported a reduction in VRE BSI rates in 2019 compared with 2017, resulting in 62 fewer VRE BSI reported by the 16 targeted hospitals.

The CDPH HAI Program continued to provide assistance to 44 hospitals that were prioritized in 2017 for outreach based on high SSI incidence compared with other California hospitals performing the same procedures.

Twelve (27%) hospitals showed significant reductions in SSI incidence from 2017 to 2019 for one of the targeted procedure types, including two hospitals with significant decreases in multiple procedure types.

Overall, all 44 (100%) targeted hospitals had a decrease in SSI incidence (defined as any reduction in SIR) for at least one of the procedures for which they had been targeted. Thirty-seven (84%) of these hospitals had improved SSI incidence for multiple surgical procedures.

Hospitals with High HAI Incidence

Four hospitals have HAI incidence that remains significantly higher (worse) than national baselines for five consecutive years, 2015-2019. Sixteen other hospitals are also worse for two or four consecutive years or for multiple HAI types in 2019 (Table 5).

Table 5. Hospitals with HAI Incidence Worse than National Baselines or Pooled Statewide Average Rate in 2019 for Multiple Infection Types or in Consecutive Years

Hospital Name	County	HAI Type	Worse than 2015 National Baseline
Clovis Community Medical Center	Fresno	SSI	2018, 2019
Ridgecrest Regional Hospital	Kern	SSI	2018, 2019
Children's Hospital Los Angeles	Los Angeles	CDI	2017, 2018, 2019
City of Hope Helford Clinical Research Hospital	Los Angeles	CDI VRE BSI	2016, 2017, 2018, 2019 2015, 2016, 2017, 2018, 2019
Hollywood Presbyterian Medical Center	Los Angeles	CLABSI	2018, 2019
Monterey Park Hospital	Los Angeles	CDI SSI	2019 2018, 2019
Pacifica Hospital of the Valley	Los Angeles	CLABSI	2018, 2019
Palmdale Regional Medical Center	Los Angeles	SSI	2018, 2019
Ronald Reagan UCLA Medical Center	Los Angeles	VRE BSI	2015, 2016, 2017, 2018, 2019
Saint Vincent Medical Center	Los Angeles	CLABSI	2018, 2019
USC Kenneth Norris Jr. Cancer Hospital	Los Angeles	CLABSI MRSA BSI VRE BSI	2019 2019 2019
Huntington Beach Hospital	Orange	CDI SSI	2018, 2019 2019
Methodist Hospital of Sacramento	Sacramento	MRSA BSI SSI	2019 2019
Loma Linda University Medical Center	San Bernardino	VRE BSI	2016, 2017, 2018, 2019
Scripps Memorial Hospital, Encinitas	San Diego	SSI	2018, 2019
Sharp Chula Vista Medical Center	San Diego	CLABSI	2018, 2019
UCSF Medical Center	San Francisco	CDI	2015, 2016, 2017, 2018, 2019
Twin Cities Community Hospital	San Luis Obispo	SSI	2018, 2019
Stanford Health Care	Santa Clara	VRE BSI	2015, 2016, 2017, 2018, 2019
Kaiser Foundation Hospital, Vacaville	Solano	SSI	2018, 2019

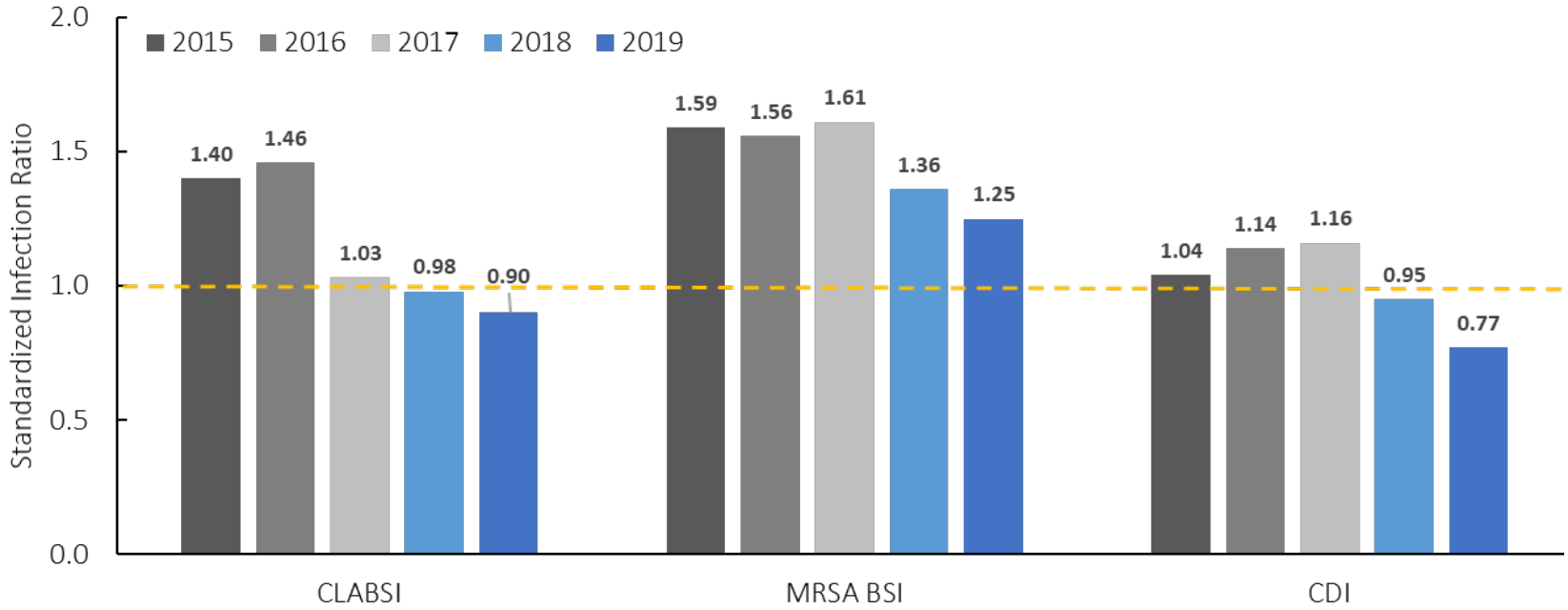
LONG-TERM ACUTE CARE (LTAC) HOSPITALS

LTAC hospitals provide complex care to patients that typically require prolonged acute care (greater than 25 days) for respiratory ventilation, multiple intravenous (IV) medications, or complex wound care.

CLABSI in LTAC Hospitals

In 2019, LTAC hospitals reported 252 CLABSI, 36 fewer than in 2018. The statewide CLABSI SIR is 0.90, a decrease of 36% since 2015. LTAC hospitals are not on track to meet the 2020 CLABSI reduction goal and need to prevent 112 infections to achieve the target SIR of 0.50.

Figure 6. Healthcare-Associated Infection Incidence in California Long-Term Acute Care Hospitals, 2015-2019



NOTE. Dashed horizontal line reflects the national baseline for the standardized infection ratio (SIR). An SIR below the dashed line represents HAI prevention progress.

MRSA BSI in LTAC Hospitals

For the fifth consecutive year, California LTAC hospitals were worse than national baseline for MRSA BSI incidence. In 2019, LTAC hospitals reported 81 MRSA BSI, 12 infections fewer than the number reported in 2018. The statewide SIR among LTAC hospitals is 1.25, which represents an 8% reduction since 2018. To meet the 2020 prevention goal for reducing MRSA BSI incidence, LTAC hospitals need to prevent 49 MRSA BSI.

VRE BSI in LTAC Hospitals

In 2019, 22 LTAC hospitals reported 38 VRE BSI, 34 infections fewer than in 2018.

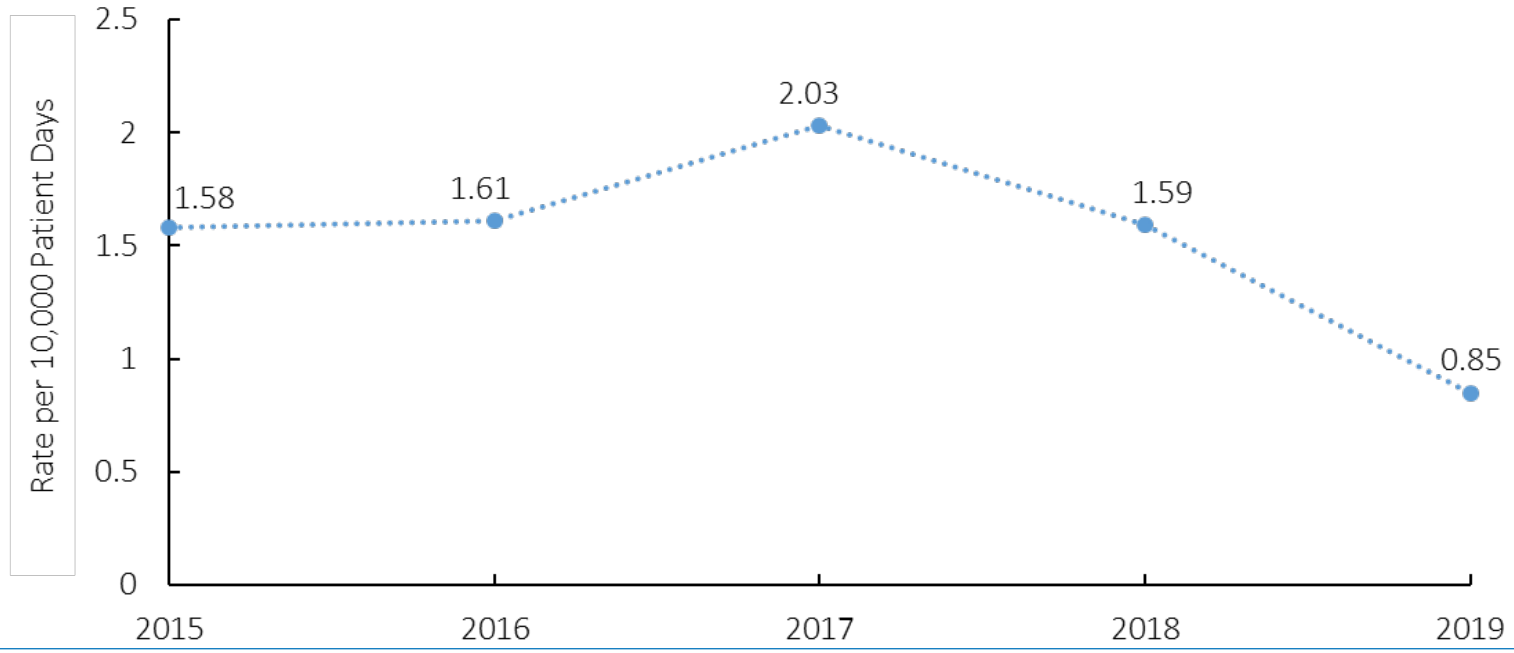
CDI in LTAC Hospitals

California LTAC hospitals reported 390 CDI, 125 infections fewer than in 2018. The statewide SIR among LTAC hospitals is 0.77, and 2019 is the first year LTAC hospitals collectively achieved a CDI incidence better than the national baseline. This SIR represents a 26% reduction in CDI incidence compared with 2015.

LTAC hospitals must prevent 35 infections to achieve the CDPH 2020 prevention goal for CDI.

California LTAC hospitals must prevent 112 CLABSI, 49 MRSA bloodstream infections and 35 C. difficile infections to meet the 2020 HAI prevention goals.

Figure 7. Unadjusted VRE Bloodstream Infection Rates among Long-Term Acute Care Hospitals, 2015-2019



Individual LTAC Hospitals' HAI Performance

One LTAC hospital, Vibra Hospital of Northern California (Shasta County), had significantly low CLABSI incidence for five consecutive years during 2015-2019. No LTAC hospitals were better than national baselines consecutively from 2015 to 2019 for MRSA BSI or CDI incidence.

In 2019, seven (32%) LTAC hospitals achieved the CLABSI 2020 reduction goal in 2019 and five LTAC hospitals (23%) met the 2020 MRSA BSI SIR reduction goal of 0.5.

Five (23%) LTAC hospitals had a CDI SIR that was significantly better than the national baseline in 2019. No LTAC hospitals were worse than the national baseline in 2019.

Eight (36%) LTAC hospitals were on track to meet the CDPH 2020 prevention goal for CDI in 2019 and 7 (32%) already achieved the goal.

One LTAC hospital, Kindred Hospital, Westminster (Orange County), had significantly high CLABSI incidence for five consecutive years from 2015 to 2019.

CRITICAL ACCESS HOSPITALS

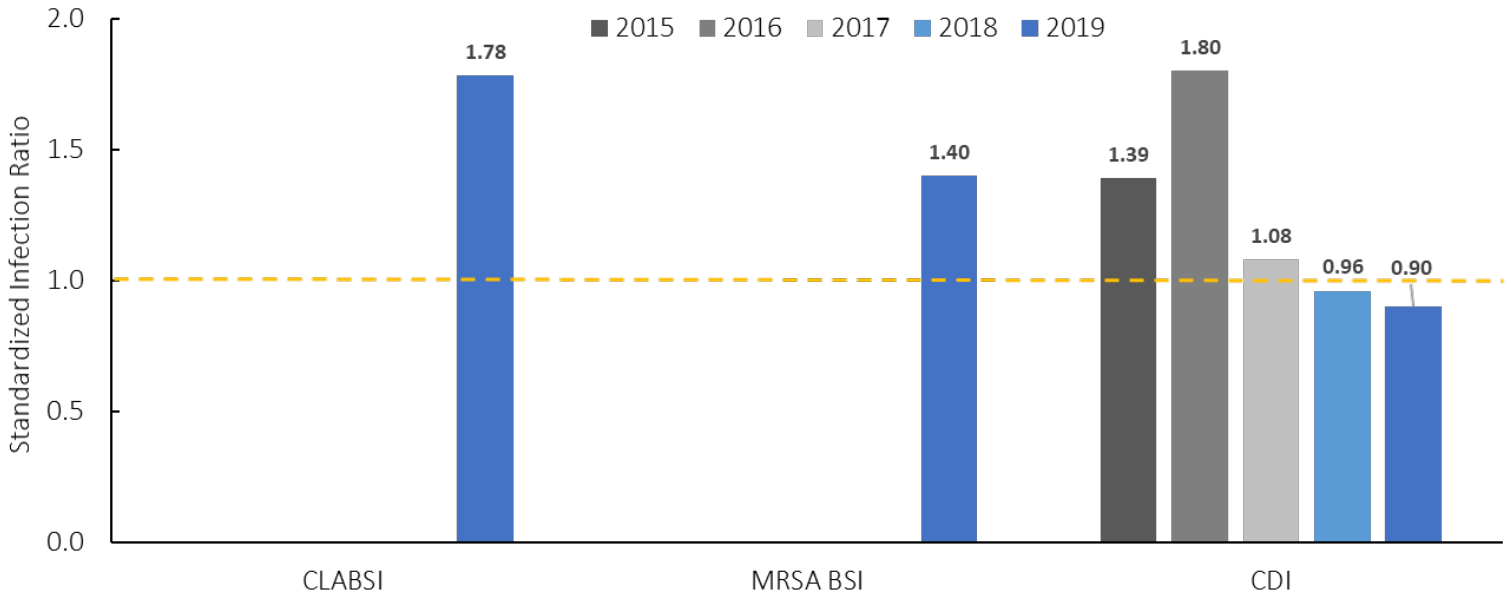
Critical access hospitals have 25 beds or less and are located more than 35 miles from another hospital (with some exceptions). Patients in critical access hospitals stay on average four days or less.

In 2019, 34 California critical access hospitals reported four CLABSI, three MRSA BSI, and zero VRE BSI versus zero infections in 2018.

Critical access hospitals reported 26 hospital-onset CDI, two infections fewer than the number reported in 2018. The statewide CDI SIR among critical access hospitals is 0.90, which represents an 6% reduction since 2018. Statewide, critical access hospitals are not on track to meet the 2020 CDI prevention goal (SIR less than or equal to 0.70) and must prevent six CDI to meet the prevention target.

In 2019, 16 (59%) critical access hospitals are on track to meet the CDPH prevention goal for CDI and 15 (56%) already achieved the goal.

Figure 8. Healthcare-Associated Infection Incidence in California Critical Access Hospitals, 2015-2019



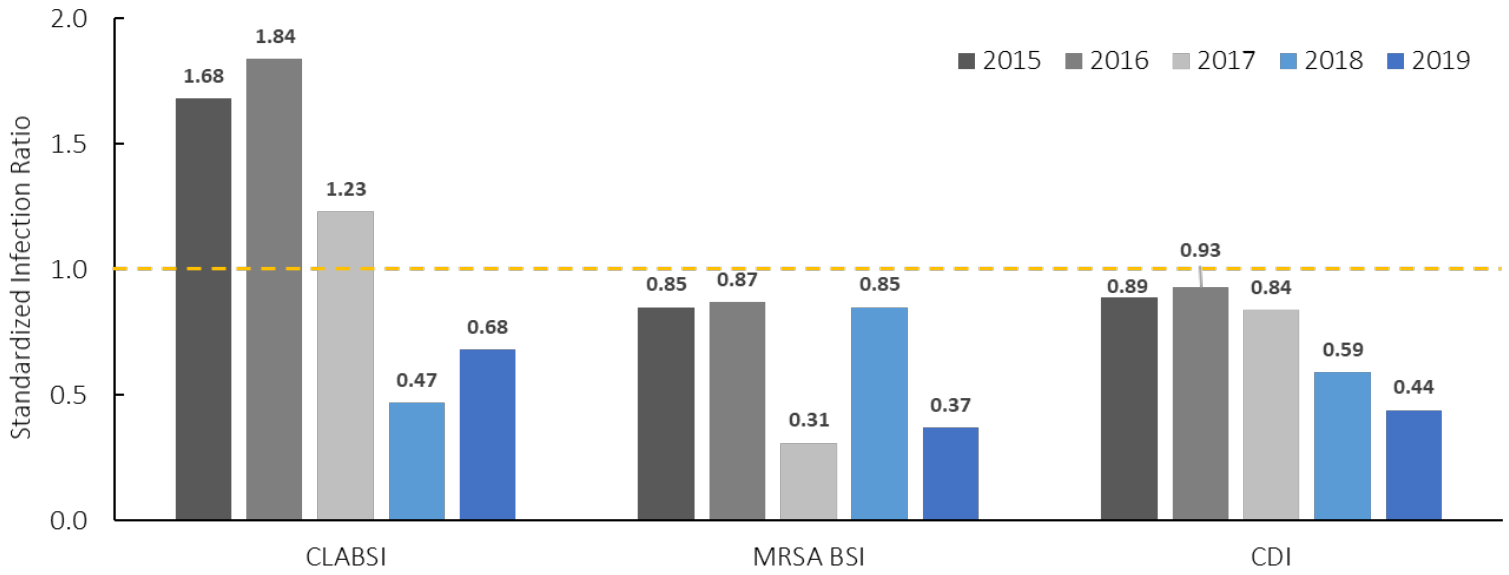
NOTE. Dashed horizontal line reflects the national baseline for the standardized infection ratio (SIR). An SIR below the dashed line represents HAI prevention progress.

REHABILITATION HOSPITALS AND UNITS

Acute care rehabilitation hospitals and units evaluate and restore function to patients who suffer from acute or chronic pain, musculoskeletal problems, stroke, and catastrophic events resulting in complete or partial paralysis.

In 2019, 13 freestanding rehabilitation hospitals and 63 hospital-based acute care rehabilitation units reported four MRSA BSI and 113 CDI, exceeding the 2020 prevention goals for both infection types (Figure 9). Rehabilitation hospitals and units reported 34 fewer CDI in 2019 compared with 2018, resulting in a 23% reduction in statewide CDI incidence. Rehabilitation hospitals and units also reported 11 CLABSI and zero VRE BSI. To achieve the 2020 reduction target goal for all reportable HAI types, rehabilitation hospitals and units need to prevent three CLABSI. Eighteen rehabilitation hospitals and units achieved the CLABSI 2020 reduction goal.

Figure 9. Healthcare-Associated Infection Incidence in California Rehabilitation Hospitals and Units, 2015-2019



NOTE. Dashed horizontal line reflects the national baseline for the standardized infection ratio (SIR). An SIR below the dashed line represents HAI prevention progress.

PUBLIC HEALTH ACTION

In 2020, the CDPH HAI Program paused our statewide and regional HAI/AR prevention initiatives and is focusing our infection prevention efforts and resources on the COVID-19 pandemic response. Specifically, CDPH will continue to:

- Provide infection preventionist consultation and support to long-term care facilities and hospitals for COVID-19 prevention and control.
- Support local health departments in investigation and response to COVID-19 outbreaks in healthcare and other residential facilities.
- Assist in the upload of hospital and long-term care COVID-19 data, as per the U.S. Health and Human Services Department and CDC.
- Work on special analytic projects, including: analyses of the impact of hospital COVID-19 burden on reporting and incidence of selected HAI; analyses of differences in racial, ethnic and socioeconomic status at the facility- and neighborhood-level and COVID-19 among California skilled nursing facilities; analyses of the impacts of testing and other infection control measures on containment of COVID-19 outbreaks in skilled nursing facilities; and analytical projects by epidemiologists for targeted HAI prevention, such as a recent study that evaluated a method to identify hospitals contributing to CDI at subsequent hospitalizations, which may inform CDI prevention efforts [5].

Impacts of the COVID-19 Pandemic on HAI Reporting and Incidence

While the scope of the potential impact of COVID-19 on HAI remains to be seen, there are several ways COVID-19 could impact HAI incidence and reporting, which might vary by HAI type. Laboratory reportable HAI, specifically, CDI, MRSA BSI, and VRE BSI, are usually reported through automated processes. Despite the temporary suspension of reporting requirements, 84% of hospitals reported first quarter 2020 data for these three HAI.

A recent online poll targeting infection prevention and hospital epidemiology staff indicated that 79% of respondents are dedicating more than 75% of their time to COVID-19 efforts. Although informal, this survey highlights the potential diversion of staff resources to COVID-19 response efforts. With less case identification and surveillance of traditional HAI, there is also a reduction in mitigation and prevention activities, which can lead to increases in HAI incidence [6].

PPE shortages resulted in implementation of contingency and crisis strategies that included discontinuation of glove and gown use for endemic pathogens such as MRSA, potentially leading to increased exposures and transmission [7]. Healthcare personnel extended use of isolation gowns might also lead to transmission and outbreaks of other pathogens such as *C. difficile* and other multi-drug resistant organisms, such as *Candida auris*.

CDPH, as well as clinicians, scientists and healthcare epidemiologists, are concerned that inappropriate use of antimicrobials in the treatment of COVID-19 patients might result in increases in antimicrobial resistance and HAI [8-10].

According to a systematic review of published studies, 72% of COVID-19 patients received antimicrobial therapy despite limited evidence of a bacterial or fungal coinfection [11]. CDPH recommends that clinicians work with their antimicrobial stewardship programs to guide the appropriate use of antimicrobials in the treatment of patients with COVID-19 and a bacterial or fungal coinfection.

Additional CDPH Follow Up

- Continue to seek guidance and advice from the HAI Advisory Committee and other State partners engaged in HAI prevention.
- Continue to build the infection prevention workforce by modifying the CDPH two-day classroom course, "Basics of Infection Prevention" to make it an online course.

REFERENCES

1. Umscheid CA, Mitchell MD, Doshi JA, et al. Estimating the Proportion of Healthcare-Associated Infections that are Reasonably Preventable and the Related Mortality and Costs. *Infection Control and Hospital Epidemiology*; 32(2), 2011.
2. Centers for Disease Control and Prevention. Paving the Path Forward: 2015 Rebaseline. Accessed July 2019. www.cdc.gov/nhsn/2015rebaseline
3. Centers for Disease Control and Prevention. The NHSN Standardized Infection Ratio (SIR): A Guide to the SIR, March 2018. Accessed July 2019. www.cdc.gov/nhsn/pdfs/ps-analysis-resources/nhsn-sir-guide.pdf
4. U.S. Department of Health and Human Services, U.S. Department of Defense, U.S. Department of Labor and U.S. Department of Veterans Affairs. National Action Plan to Prevent Health Care-Associated Infections: Road Map to Elimination, 2013. Accessed July 2019. health.gov/hcq/prevent-hai-action-plan.asp
5. Magro M, Rosenberg J, and Epson E. Characterizing *Clostridioides difficile* infections and hospital exposures in California using surveillance and administrative data, 2014–2015. *Infection Control & Hospital Epidemiology.* 2020; 1-6. doi.org/10.1017/ice.2020.447
6. Stevens MP, Doll M, Pryor R, Godbout E, Cooper K, Bearman G. Impact of COVID-19 on traditional healthcare-associated infection prevention efforts [published online ahead of print, 2020 Apr 16]. *Infect Control Hosp Epidemiol*. 2020; 1-2. doi:10.1017/ice.2020.141
7. COVID-19 infection prevention and control in healthcare settings: questions and answers. Centers for Disease Control and Prevention website. www.cdc.gov/coronavirus/2019-ncov/hcp/faq.html?CDC_AA_refVal=https%3A%2F%2Fwww.cdc.gov%2Fcoronavirus%2F2019-ncov%2Fhcp%2Finfection-control-faq.html. Accessed July 19, 2020.
8. Sandhu A, Tillotson G, Polistico J, Salimnia H, Cranis M, Moshos J, et al. *Clostridioides difficile* in COVID-19 patients, Detroit, Michigan, USA, March–April 2020. *Emerg Infect Dis*. 2020;26.
9. Clancy CJ, Nguyen MH. COVID-19, superinfections and antimicrobial development: What can we expect? [published online ahead of print, 2020 May 1]. *Clin Infect Dis*. 2020; ciaa524. doi:10.1093/cid/ciaa524
10. Spernovasilis NA, Kofteridis DP. COVID-19 and antimicrobial stewardship: What is the interplay? [published online ahead of print, 2020 May 15] *Infect Control Hosp Epidemiol*. 2020:1-2. doi:10.1017/ice.2020.246
11. Rawson TM, Moore LSP, Zhu N, et al. Bacterial and fungal co-infection in individuals with coronavirus: A rapid review to support COVID-19 antimicrobial prescribing [published online ahead of print, 2020 May 2]. *Clin Infect Dis*. 2020; ciaa530. doi:10.1093/cid/ciaa530

Appendix A. California Hospitals with Healthcare-Associated Infection Incidence Better (★) or Worse (✖) than National Baseline or Statewide Pooled Average Rate, 2019

Hospitals by County	CDI	CLABSI	MRSA BSI	VRE BSI	SSI
Alameda					
Alta Bates Summit Medical Center	★				
Alta Bates Summit Medical Center, Alta Bates Campus	★		★		
Eden Medical Center	★				
Highland Hospital	★		✖		
Kaiser Foundation Hospital, Fremont	★				
Kaiser Foundation Hospital, Oakland/Richmond	★				
Kaiser Foundation Hospital, San Leandro	★				
San Leandro Hospital	✖				
UCSF Benioff Children's Hospital Oakland		★			
Washington Hospital	★				
Butte					
Enloe Medical Center, Esplanade		★			
Oroville Hospital	★				
Contra Costa					
Contra Costa Regional Medical Center	★				
John Muir Medical Center, Concord Campus					★
John Muir Medical Center, Walnut Creek Campus	★				
Kaiser Foundation Hospital, Antioch	★				
Kaiser Foundation Hospital, Richmond Campus	★				
Kaiser Foundation Hospital, Walnut Creek					✖
Sutter Delta Medical Center	★				
El Dorado					
Marshall Medical Center	★				
Fresno					
Clovis Community Medical Center				★	✖
Community Regional Medical Center	★				
Fresno Heart and Surgical Hospital	★				
Humboldt					
St. Joseph Hospital, Eureka	★	★			
Kern					
Adventist Health Bakersfield	★				
Bakersfield Memorial Hospital	★	★			★
Delano Regional Medical Center	★				
Kern Medical Center	★		✖		
Mercy Hospital					★
Mercy Southwest Hospital	★				
Ridgecrest Regional Hospital					✖
Los Angeles					
Adventist Health Glendale	★	★			★
Adventist Health White Memorial	★				★

Appendix A. California Hospitals with Healthcare-Associated Infection Incidence Better (★) or Worse (✖) than National Baseline or Statewide Pooled Average Rate, 2019

Hospitals by County	CDI	CLABSI	MRSA BSI	VRE BSI	SSI
Alhambra Hospital Medical Center				✖	
Antelope Valley Hospital	★				★
Beverly Hospital	★				★
California Hospital Medical Center, Los Angeles	★	★		★	
Cedars-Sinai Marina Del Rey Hospital					★
Cedars-Sinai Medical Center	★	★		✖	★
Centinela Hospital Medical Center	★	★			★
Children's Hospital Los Angeles	✖	★	★		
City of Hope Helford Clinical Research Hospital	✖			✖	★
Coast Plaza Hospital	✖				
East Los Angeles Doctors Hospital	★				
Emanate Health Foothill Presbyterian Hospital		★			
Emanate Health Inter-Community Hospital		★			★
Emanate Health Queen of the Valley Hospital	★	★			
Garfield Medical Center					★
Glendale Memorial Hospital and Health Center	★	★			
Good Samaritan Hospital, Los Angeles	★				
Henry Mayo Newhall Hospital	★				
Hollywood Presbyterian Medical Center	★	✖			★
Huntington Memorial Hospital		★	★		
Kaiser Foundation Hospital, Baldwin Park					★
Kaiser Foundation Hospital, Downey	★		★		
Kaiser Foundation Hospital, Los Angeles	★				★
Kaiser Foundation Hospital, Panorama City	★			✖	
Kaiser Foundation Hospital, South Bay	★	★			
Kaiser Foundation Hospital, West LA	★				
Kaiser Foundation Hospital, Woodland Hills	★				
Keck Hospital of USC				✖	★
L.A. Downtown Medical Center	★				
LAC+USC Medical Center	★			★	★
LAC/Harbor UCLA Medical Center	★				
LAC/Olive View UCLA Medical Center	★				★
Martin Luther King Jr. Community Hospital	★				
MemorialCare Long Beach Medical Center	★				
Methodist Hospital of Southern California	★		★		✖
Mission Community Hospital		★			★
Monterey Park Hospital	✖				✖
Northridge Hospital Medical Center	★				
Pacifica Hospital of the Valley		✖			
Palmdale Regional Medical Center	★				✖
PIH Health Hospital, Whittier	★				★

Appendix A. California Hospitals with Healthcare-Associated Infection Incidence Better (★) or Worse (✖) than National Baseline or Statewide Pooled Average Rate, 2019

Hospitals by County	CDI	CLABSI	MRSA BSI	VRE BSI	SSI
Pomona Valley Hospital Medical Center	★				
Providence Cedars-Sinai Tarzana Medical Center	★				
Providence Holy Cross Medical Center	★	★			★
Providence Little Company of Mary Medical Center Torrance	★	★	★		
Providence Saint John's Health Center		★	✖		★
Providence Saint Joseph Medical Center	★	★			★
Ronald Reagan UCLA Medical Center				✖	★
Saint Francis Medical Center	★	★			★
Saint Vincent Medical Center		✖			★
San Dimas Community Hospital	★				
Santa Monica - UCLA Medical Center and Orthopedic Hospital	★			✖	★
Sherman Oaks Hospital	★				
St. Mary Medical Center, Long Beach	★				
Torrance Memorial Medical Center	★	★			
USC Kenneth Norris Jr. Cancer Hospital		✖	✖	✖	
USC Verdugo Hills Hospital					★
Valley Presbyterian Hospital	★				★
Whittier Hospital Medical Center	★				★
Madera					
Valley Children's Hospital		★			
Marin					
Kaiser Foundation Hospital, San Rafael					✖
Merced					
Mercy Medical Center	★				
Monterey					
Community Hospital of The Monterey Peninsula	★				
Natividad Medical Center	★				
Salinas Valley Memorial Hospital	★	★			
Napa					
Adventist Health St. Helena		★			
Orange					
AHMC Anaheim Regional Medical Center	★				
College Hospital Costa Mesa	★				
Fountain Valley Regional Hospital and Medical Center	★				✖
Garden Grove Hospital and Medical Center	★				
Hoag Hospital Irvine					★
Hoag Memorial Hospital Presbyterian	★		★		★
Huntington Beach Hospital	✖				✖
Kaiser Foundation Hospital, Orange County, Anaheim		★			

Appendix A. California Hospitals with Healthcare-Associated Infection Incidence Better (★) or Worse (✖) than National Baseline or Statewide Pooled Average Rate, 2019

Hospitals by County	CDI	CLABSI	MRSA BSI	VRE BSI	SSI
La Palma Intercommunity Hospital	★				
Los Alamitos Medical Center					✖
MemorialCare Orange Coast Medical Center	★	★			
MemorialCare Saddleback Medical Center	★				
Mission Hospital Regional Medical Center	★				
St. Joseph Hospital, Orange	★		★		
St. Jude Medical Center	★		★		
University of California Irvine Medical Center	★	★			
Placer					
Kaiser Foundation Hospital, Roseville	★		★		✖
Sutter Auburn Faith Hospital	★				
Sutter Roseville Medical Center	★	★			
Riverside					
Desert Regional Medical Center	★				
Doctors Hospital of Riverside	★				★
Eisenhower Medical Center		★			
Hemet Global Medical Center	★	★			
Kaiser Foundation Hospital, Riverside	★				
Menifee Global Medical Center	★				
Riverside Community Hospital	★	★	★		★
Riverside University Health System - Medical Center	★	★			
Southwest Healthcare System, Wildomar		✖			★
Temecula Valley Hospital	★				
Sacramento					
Kaiser Foundation Hospital, Sacramento	★				
Kaiser Foundation Hospital, South Sacramento	★	★			
Mercy General Hospital	★		★		★
Mercy Hospital of Folsom					★
Mercy San Juan Medical Center	★	★		★	★
Methodist Hospital of Sacramento			✖		✖
Sutter Medical Center, Sacramento	★	★			
University of California Davis Medical Center	★	★			
San Bernardino					
Arrowhead Regional Medical Center	★		★		
Community Hospital of San Bernardino					★
Desert Valley Hospital	★				
Kaiser Foundation Hospital, Fontana		★			★
Kaiser Foundation Hospital, Ontario	★				
Loma Linda University Children's Hospital	★	★		★	
Loma Linda University Medical Center	★			✖	
Redlands Community Hospital		★			★

Appendix A. California Hospitals with Healthcare-Associated Infection Incidence Better (★) or Worse (✖) than National Baseline or Statewide Pooled Average Rate, 2019

Hospitals by County	CDI	CLABSI	MRSA BSI	VRE BSI	SSI
San Antonio Regional Hospital	★				
St. Bernardine Medical Center	✖				★
St. Mary Medical Center, Apple Valley	★				
Victor Valley Global Medical Center	★				
San Diego					
Alvarado Hospital Medical Center	✖				
Grossmont Hospital	★	★			
Kaiser Foundation Hospital, San Diego	★	★			
Palomar Medical Center	★				
Paradise Valley Hospital	★				
Scripps Memorial Hospital, Encinitas	★				✖
Scripps Memorial Hospital, La Jolla	★	★			
Scripps Mercy Hospital	★				
Scripps Mercy Hospital Chula Vista	★				
Sharp Chula Vista Medical Center	★	✖			
Sharp Mary Birch Hospital For Women And Newborns	★				
Sharp Memorial Hospital	★	★			
Tri-City Medical Center	★				
UC San Diego Health Hillcrest	★	★			
UC San Diego Health La Jolla		★	★	✖	★
San Francisco					
California Pacific Medical Center, Mission Bernal Campus	★				
California Pacific Medical Center, Pacific Campus		★			
California Pacific Medical Center, Van Ness Campus		★			★
Kaiser Foundation Hospital, San Francisco	★	★			
Saint Francis Memorial Hospital	★				
St. Mary's Medical Center					★
UCSF Medical Center	✖	★			
San Joaquin					
Adventist Health Lodi Memorial	★				
Doctors Hospital of Manteca				✖	
San Joaquin General Hospital	★		✖		
St. Joseph's Medical Center Of Stockton	★	★			
Sutter Tracy Community Hospital	★				
San Luis Obispo					
French Hospital Medical Center	★				
Sierra Vista Regional Medical Center	★				
Twin Cities Community Hospital					✖
San Mateo					
Kaiser Foundation Hospital, Redwood City	★				

Appendix A. California Hospitals with Healthcare-Associated Infection Incidence Better (★) or Worse (✖) than National Baseline or Statewide Pooled Average Rate, 2019

Hospitals by County	CDI	CLABSI	MRSA BSI	VRE BSI	SSI
Kaiser Foundation Hospital, South San Francisco	★				
Mills-Peninsula Medical Center	★	★			★
Seton Medical Center	★				
Santa Barbara					
Goleta Valley Cottage Hospital					✖
Marian Regional Medical Center	★				
Santa Barbara Cottage Hospital			★	★	
Santa Clara					
El Camino Health	★	★			
Good Samaritan Hospital, San Jose					✖
Kaiser Foundation Hospital, Santa Clara	★				★
Lucile Packard Children's Hospital Stanford		★			
Regional Medical Center of San Jose	★				
Santa Clara Valley Medical Center		★			
Stanford Health Care		★		✖	
Santa Cruz					
Dominican Hospital	★				
Shasta					
Shasta Regional Medical Center	★				★
Solano					
Kaiser Foundation Hospital and Rehab Center, Vallejo	★				
Kaiser Foundation Hospital, Vacaville					✖
Sutter Solano Medical Center	★				
Sonoma					
Kaiser Foundation Hospital, Santa Rosa	★				
Petaluma Valley Hospital	★				
Santa Rosa Memorial Hospital	★	★			
Stanislaus					
Doctors Medical Center	★	★			★
Emanuel Medical Center	★				
Kaiser Foundation Hospital, Modesto	★				★
Memorial Medical Center	★	★			★
Tulare					
Kaweah Delta Medical Center	★			★	★
Ventura					
Adventist Health Simi Valley	★				★
Community Memorial Hospital, San Buenaventura	★				
Los Robles Hospital & Medical Center	★	★			✖
Ventura County Medical Center	★				
Yuba					
Adventist Health and Rideout	★	★			

Appendix B. California Hospitals with Surgical Site Infection Incidence Better or Worse than National Baseline, 2019

Hospitals by County	Better	Worse
Alameda		
Kaiser Foundation Hospital, Fremont	Small bowel surgery	No data
Kaiser Foundation Hospital, San Leandro		Colon surgery
Washington Hospital		Hip prosthesis
Butte		
Enloe Medical Center, Esplanade		Coronary bypass, chest and donor incisions
Contra Costa		
John Muir Medical Center, Concord Campus	Hip prosthesis; Small bowel surgery	
John Muir Medical Center, Walnut Creek Campus		Small bowel surgery
Kaiser Foundation Hospital, Walnut Creek		Exploratory abdominal surgery (laparotomy); Hip prosthesis; Hysterectomy, abdominal
El Dorado		
Marshall Medical Center		Hip prosthesis
Fresno		
Clovis Community Medical Center		Appendix surgery; Hip prosthesis
Community Regional Medical Center		Spleen surgery
Fresno Heart and Surgical Hospital		Bile duct, liver or pancreatic surgery
Humboldt		
St. Joseph Hospital, Eureka		Small bowel surgery
Imperial		
Pioneers Memorial Healthcare District		Gallbladder surgery
Los Angeles		
Adventist Health White Memorial	Spinal fusion	
Cedars-Sinai Medical Center	Rectal surgery	
City of Hope Helford Clinical Research Hospital	Exploratory abdominal surgery (laparotomy)	
Emanate Health Queen of the Valley Hospital	Knee prosthesis	
Glendale Memorial Hospital and Health Center		Cesarean section
Henry Mayo Newhall Hospital		Small bowel surgery
Kaiser Foundation Hospital, Baldwin Park	Colon surgery	
Kaiser Foundation Hospital, Downey		Open reduction of fracture

Appendix B. California Hospitals with Surgical Site Infection Incidence Better or Worse than National Baseline, 2019

Hospitals by County	Better	Worse
Kaiser Foundation Hospital, Los Angeles	Spinal fusion	Exploratory abdominal surgery (laparotomy) - Pediatric
Kaiser Foundation Hospital, Panorama City		Gastric surgery
Kaiser Foundation Hospital, West LA	Small bowel surgery	
LAC+USC Medical Center	Colon surgery	
LAC/Harbor UCLA Medical Center		Laminectomy; Spinal fusion
LAC/Olive View UCLA Medical Center	Colon surgery	
Methodist Hospital of Southern California		Spinal fusion
Monterey Park Hospital		Colon surgery
Pomona Valley Hospital Medical Center	Cesarean section	Hysterectomy, abdominal
Providence Saint John's Health Center	Colon surgery; Hip prosthesis	
Providence Saint Joseph Medical Center	Small bowel surgery	Exploratory abdominal surgery (laparotomy)
Ronald Reagan UCLA Medical Center	Colon surgery	
Torrance Memorial Medical Center	Spinal fusion	Hysterectomy, abdominal
Merced		
Mercy Medical Center		Knee prosthesis
Nevada		
Sierra Nevada Memorial Hospital		Hip prosthesis
Orange		
Fountain Valley Regional Hospital and Medical Center		Exploratory abdominal surgery (laparotomy); Spinal fusion
Hoag Orthopedic Institute		Spinal fusion
Kaiser Foundation Hospital, Orange County, Irvine		Exploratory abdominal surgery (laparotomy)
Los Alamitos Medical Center		Knee prosthesis
St. Jude Medical Center		Cesarean section; Spinal fusion
University of California Irvine Medical Center		Kidney surgery
Placer		
Kaiser Foundation Hospital, Roseville		Small bowel surgery
Riverside		
Eisenhower Medical Center		Pacemaker surgery
Hemet Global Medical Center		Hip prosthesis
Riverside Community Hospital	Colon surgery; Exploratory abdominal surgery (laparotomy)	

Appendix B. California Hospitals with Surgical Site Infection Incidence Better or Worse than National Baseline, 2019

Hospitals by County	Better	Worse
Riverside University Health System - Medical Center	Exploratory abdominal surgery (laparotomy)	
Southwest Healthcare System, Wildomar	Small bowel surgery	
Temecula Valley Hospital		Appendix surgery
Sacramento		
Kaiser Foundation Hospital, Sacramento		Small bowel surgery
Mercy General Hospital	Coronary bypass, chest and donor incisions	Knee prosthesis
Mercy San Juan Medical Center	Small bowel surgery	
Methodist Hospital of Sacramento		Hip prosthesis; Knee prosthesis
Sutter Medical Center, Sacramento	Coronary bypass, chest and donor incisions	Bile duct, liver or pancreatic surgery
University of California Davis Medical Center	Rectal surgery	Thoracic surgery
San Bernardino		
Kaiser Foundation Hospital, Fontana	Colon surgery	
Loma Linda University Medical Center		Colon surgery; Coronary bypass, chest and donor incisions; Exploratory abdominal surgery (laparotomy)
San Antonio Regional Hospital		Gallbladder surgery
St. Bernardine Medical Center	Colon surgery; Small bowel surgery	Knee prosthesis
San Diego		
Grossmont Hospital		Laminectomy
Pomerado Hospital		Open reduction of fracture
Scripps Green Hospital	Knee prosthesis	
Scripps Memorial Hospital, Encinitas		Cesarean section; Spinal fusion
Scripps Memorial Hospital, La Jolla		Colon surgery
Scripps Mercy Hospital		Bile duct, liver or pancreatic surgery; Colon surgery
Sharp Coronado Hospital and Healthcare Center		Colon surgery
Sharp Memorial Hospital		Laminectomy
Tri-City Medical Center		Knee prosthesis
UC San Diego Health Hillcrest	Open reduction of fracture	
UC San Diego Health La Jolla	Colon surgery; Hip prosthesis; Liver transplant	Kidney surgery; Spleen surgery

Appendix B. California Hospitals with Surgical Site Infection Incidence Better or Worse than National Baseline, 2019

Hospitals by County	Better	Worse
San Francisco		
UCSF Medical Center at Mission Bay		Bile duct, liver or pancreatic surgery
San Luis Obispo		
Twin Cities Community Hospital		Open reduction of fracture
Santa Barbara		
Goleta Valley Cottage Hospital		Hip prosthesis; Open reduction of fracture
Santa Barbara Cottage Hospital		Gallbladder surgery
Santa Clara		
El Camino Health		Bile duct, liver or pancreatic surgery; Pacemaker surgery
Good Samaritan Hospital, San Jose		Bile duct, liver or pancreatic surgery; Gallbladder surgery; Small bowel surgery
Kaiser Foundation Hospital, San Jose		Gallbladder surgery
Lucile Packard Children's Hospital Stanford		Colon surgery - Pediatric
Stanford Health Care		Spleen surgery
Santa Cruz		
Dominican Hospital		Cesarean section; Gallbladder surgery
Solano		
Kaiser Foundation Hospital, Vacaville		Open reduction of fracture; Small bowel surgery
Sutter Solano Medical Center		Hip prosthesis
Stanislaus		
Doctors Medical Center	Small bowel surgery	
Emanuel Medical Center		Hip prosthesis; Knee prosthesis
Kaiser Foundation Hospital, Modesto	Colon surgery	
Memorial Medical Center	Colon surgery	
Tulare		
Kaweah Delta Medical Center		Hysterectomy, abdominal
Ventura		
Los Robles Hospital & Medical Center		Cesarean section; Colon surgery
Yolo		
Woodland Memorial Hospital		Knee prosthesis
Yuba		
Adventist Health and Rideout		Open reduction of fracture