WISCONSIN DEPARTMENT of HEALTH SERVICES

Division of Public Health
P-00340 (10/2021)

Healthcare-Associated Infections Prevention Program—2019 Report

Healthcare-associated infections (HAIs) are infections that occur while receiving health care. Patients undergoing surgical procedures or who have medical devices such as central lines, urinary catheters, and ventilators are at risk of acquiring HAIs. Infections caused by multidrug-resistant organisms such as methicillin-resistant *Staphylococcus aureus* (MRSA) can also be acquired in various healthcare settings.

The Wisconsin Division of Public Health (DPH) collects HAI data from hospitals on a voluntary basis and publicly reports aggregate data to monitor trends and to compare Wisconsin HAI occurrence to the national baseline. This comparison is made using a standardized infection ratio (SIR), calculated by dividing the number of observed HAIs by the number predicted based on national pooled data. These national data are collected through the Centers for Disease Control and Prevention (CDC) National Healthcare Safety Network (NHSN) and are represented in each graph with a value of 1.00 and a gray line. Hospital-specific data are displayed on the Wisconsin Hospital Association CheckPoint® website.

The NHSN system adjusts the SIR for a facility or state to account for risk factors that might cause infection rates to be higher or lower. The specific factors included in the risk adjustment for each infection type varies, but often includes hospital size and teaching status, patient population served by a hospital, and surgical patient characteristics. Lower SIRs indicate better progress toward preventing HAIs.

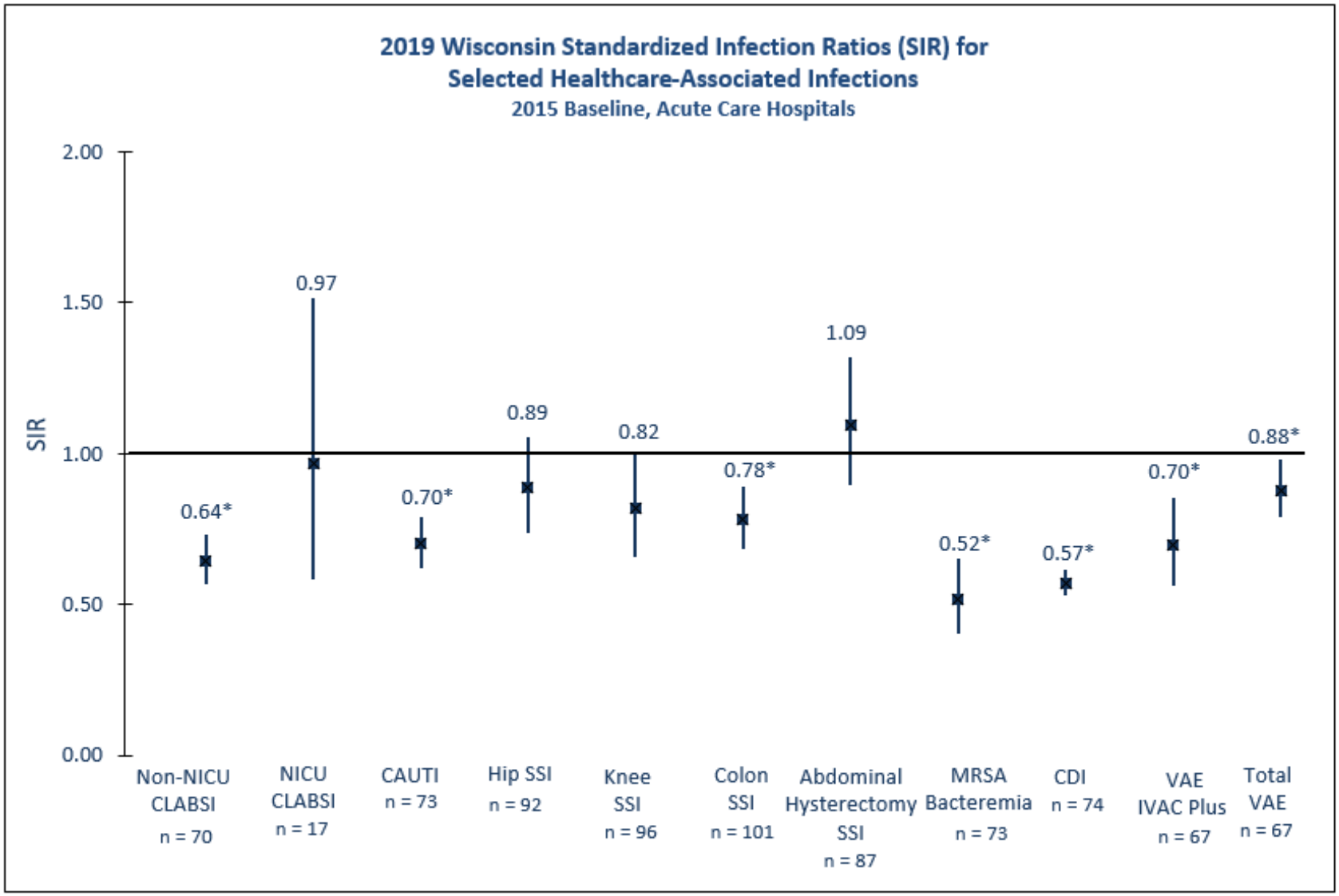
This report includes 2019 data for six HAIs: Central line-associated bloodstream infections (CLABSI), catheter-associated urinary tract infections (CAUTI), ventilator-associated events (VAE), surgical site infections (SSI), MRSA bacteremia (MRSA in the bloodstream), and *Clostridioides difficile* infections (CDI). Data were accessed from NHSN during January 2021 to allow sufficient time for complete data collection and reporting for calendar year 2019. Among 133 eligible Wisconsin hospitals, all provided data regarding at least one type of HAI to DPH.

As shown in Figures 1 and 2 below, several types of HAIs occurred less frequently than predicted in Wisconsin hospitals in 2019, when compared to the 2015 national baseline. SIRs for CAUTIs, SSIs after colon surgery, and MRSA bacteremia were lower than the national baseline across all hospital types included in this report, and these differences were statistically significant. SIRs for other HAIs were not significantly different from the national baseline.

Detailed information, including a comparison of 2018 and 2019 Wisconsin HAI data, the number of hospitals with a SIR above the national baseline, SIR values at key percentiles, and location-specific SIRs, is available on the following pages. Where possible, annual data are also

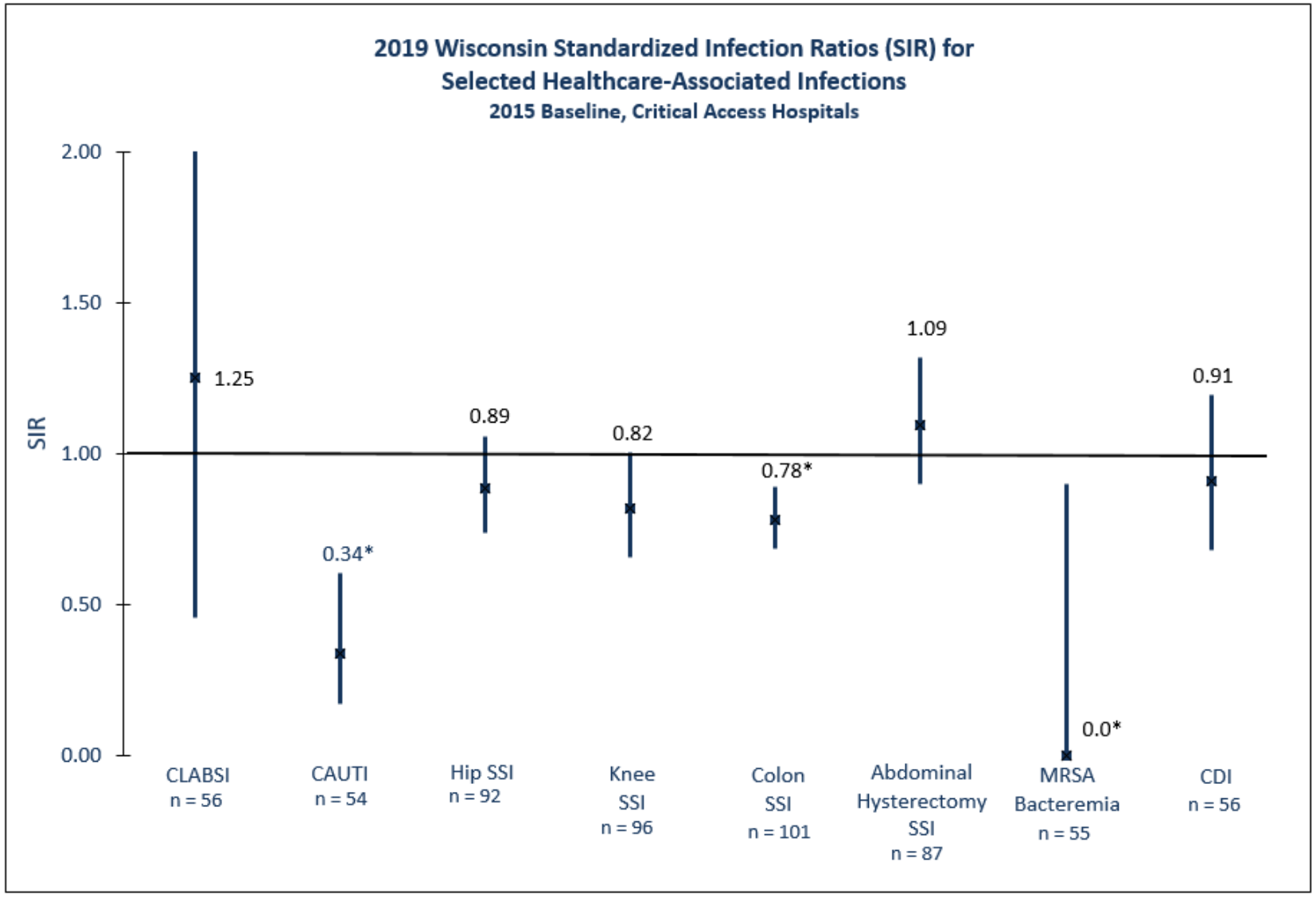
displayed separately for critical access and acute care hospitals. Critical access hospitals are those in rural areas with an official federal billing designation, and have 25 or fewer acute care inpatient beds, are located more than 35 miles from another hospital, maintain an average length of stay of 96 hours or less, and provide emergency care services. The remaining acute care hospitals, including children's hospitals, are grouped separately into reports.

Figure 1



Note: SSI data include all hospitals. Device-associated and MDRO data include only acute care hospitals.
* = statistically significant difference from the national baseline
n = number of reporting hospitals
— = 2015 national baseline
Accessed January 26, 2021

Figure 2



Note: SSI data include all hospitals. Device-associated and MDRO data include only critical access hospitals.
* = statistically significant difference from the national baseline
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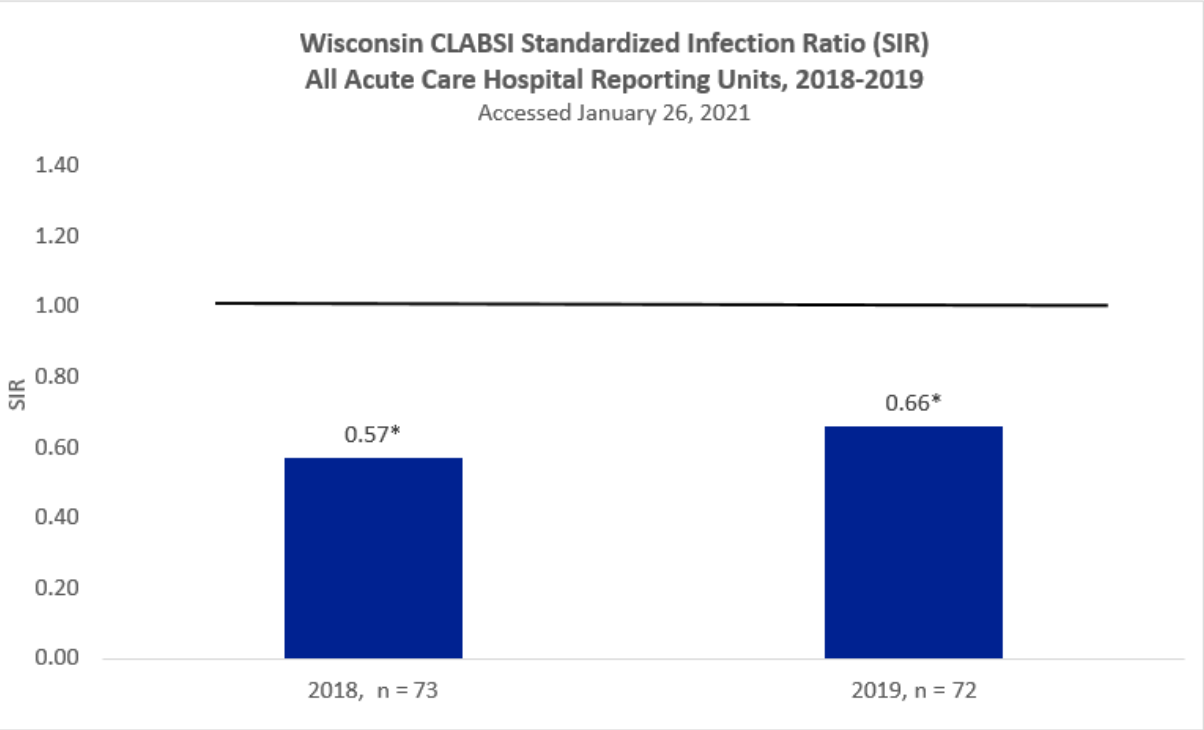
Accessed January 26, 2021

Central Line-Associated Bloodstream Infections (CLABSI): Acute Care Hospitals: At the national level, the use of central lines in acute care hospitals decreased by about 3% from 2018 to 2019. Nationally, CLABSIs decreased by about 7% during this period, with the largest decrease (13%) in neonatal intensive care units (NICUs). These data come from the 2019 National and State Healthcare-Associated Infections Progress Report.



2019 Wisconsin Acute Care Hospital SIR at Key Percentiles

Better

10^{th}: 0.00
25^{th}: 0.30
50^{th}: 0.52
75^{th}: 0.69
90^{th}: 1.02

* Statistically significant difference from national baseline

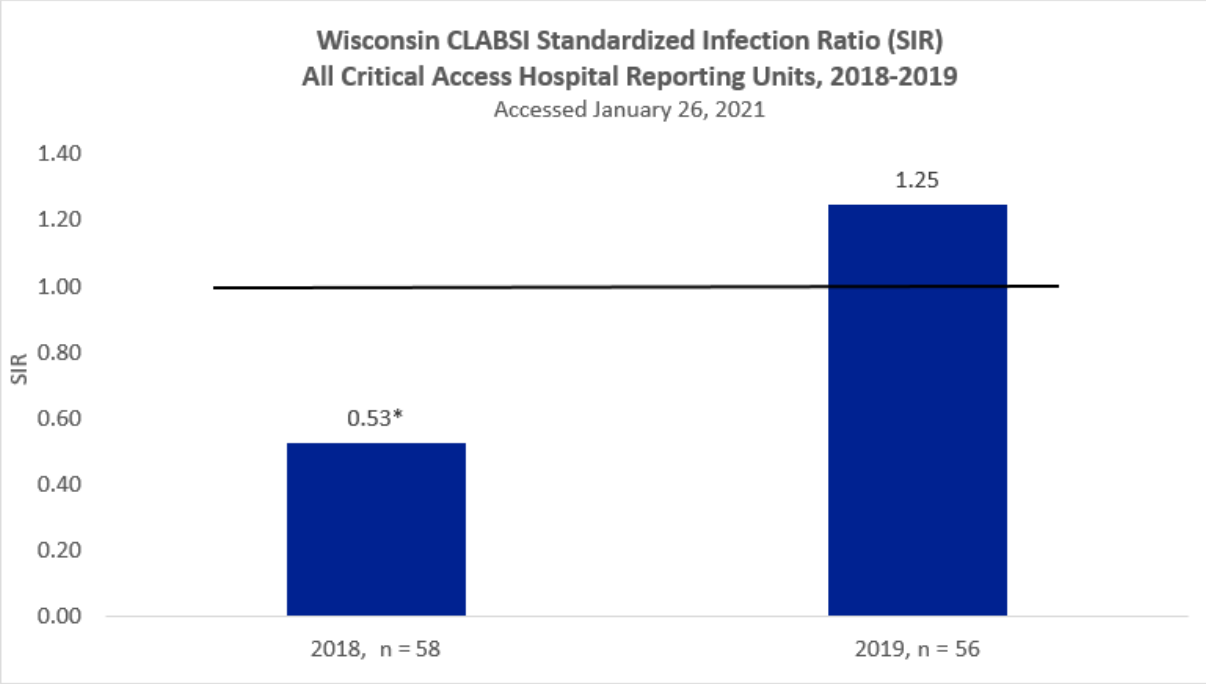
—National baseline (2015)

n = Number of reporting hospitals

Unit Type	Number of Reporting Acute Care Hospitals (Units)	Number of Infections	2019 SIR	Confidence Interval	Percent Difference from 2015 National Baseline (1.00)	Percent Change from 2018 - 2019
All units combined	72 (443)	262	0.66	0.58 – 0.74	44% lower	32% increase
NICUs	17 (17)	17	0.92	0.58 – 1.51	8% lower	111% increase
ICUs	65 (89)	65	0.52	0.41 – 0.66	48% lower	21% decrease
Non-ICUs	72 (337)	180	0.70	0.61 – 0.81	30% lower	34% increase

Wisconsin acute care hospitals with SIR >1.00 for 2019: 5 (7%)

CLABSI: Critical Access Hospitals: Among more than 700 critical access hospitals in the U.S., the number of CLABSIs reported decreased from 42 in 2018 to 25 in 2019, a 44% decrease.[1]



2019 Wisconsin Critical Access Hospital SIR at Key Percentiles

No critical access hospitals had enough data to calculate a SIR for the year.

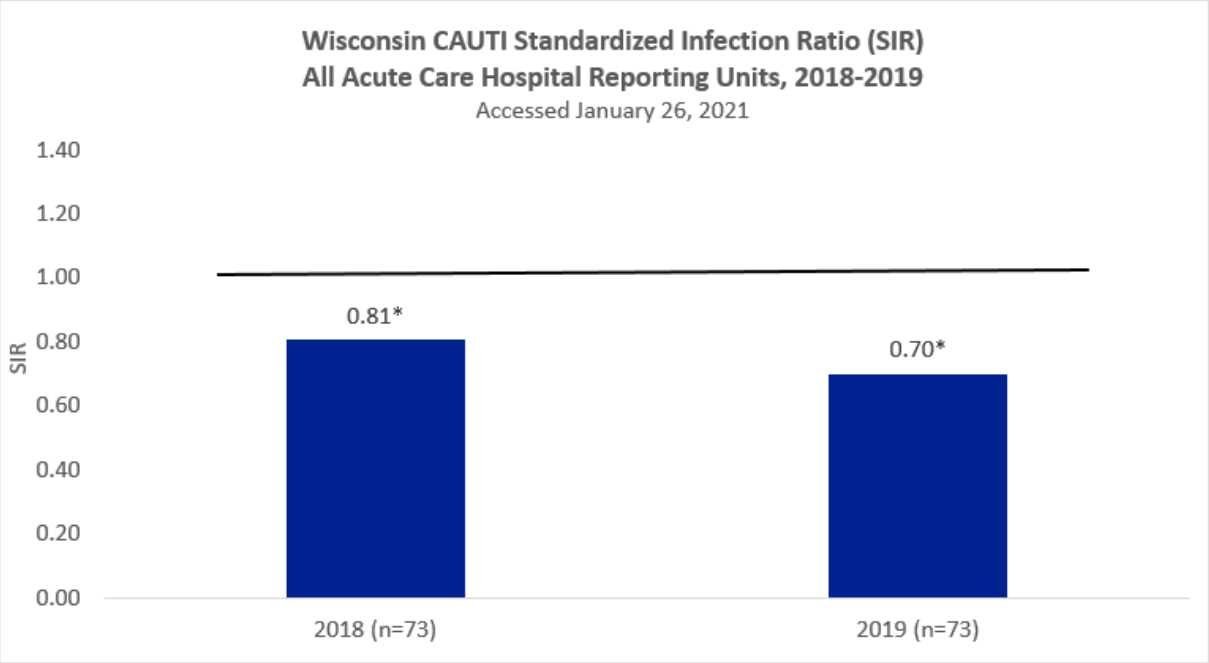
* Statistically significant difference from national baseline

— National baseline (2015)

n = Number of reporting hospitals

Unit Type	Number of Reporting Critical Access Hospitals (Units)	Number of Infections	2019 SIR	Confidence Interval	Percent Difference from 2015 National Baseline (1.00)	Percent Change from 2018 - 2019
All units combined	56 (90)	5	1.25	0.46 – 2.80	25% higher	138% increase
ICUs	13 (13)	0	Not calculated			
Non-ICUs	56 (77)	5	1.29	0.47 – 2.90	29% higher	139% increase

Catheter-Associated Urinary Tract Infections (CAUTI): Acute Care Hospitals: Nationally, CAUTIs decreased about 8% between 2018 and 2019 among acute care hospital patients, with the largest decrease (12%) seen in intensive care units (ICUs).[1]



2019 Wisconsin Acute Care Hospital SIR at Key Percentiles

Better

10^{th}: 0.22
25^{th}: 0.39
50^{th}: 0.66
75^{th}: 1.23
90^{th}: 1.74

* Statistically significant difference from national baseline

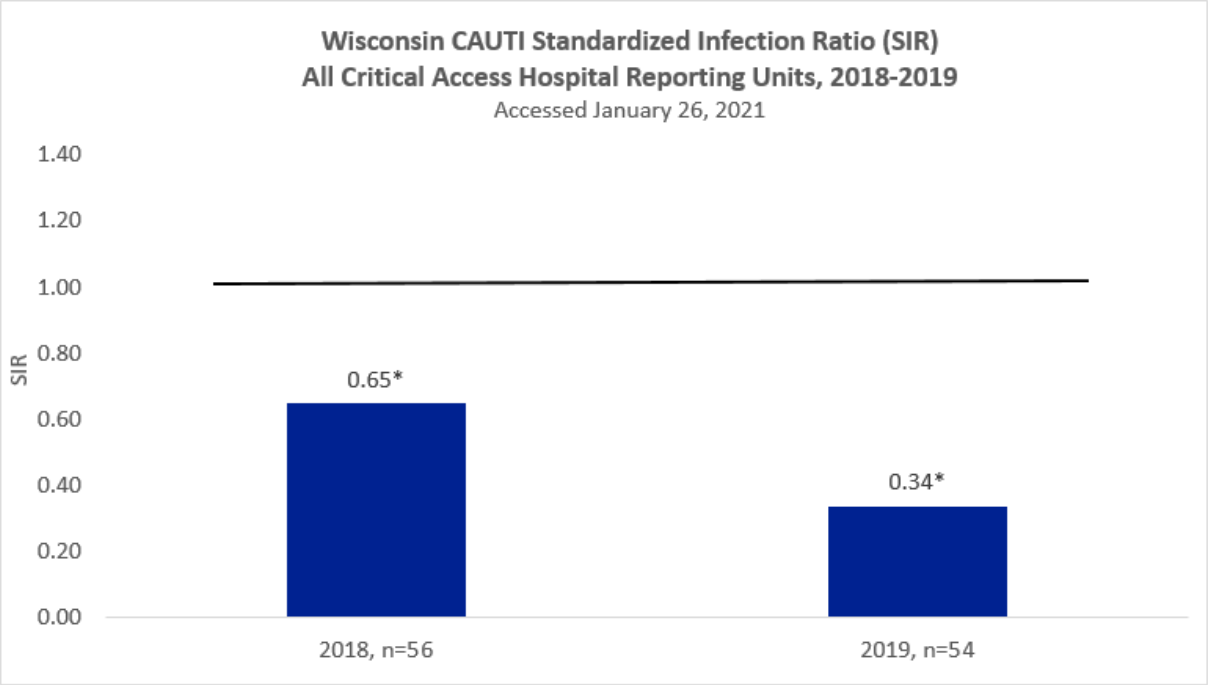
— National baseline (2015)

n = Number of reporting hospitals

Unit Type	Number of Reporting Acute Care Hospitals (Units)	Number of Infections	2019 SIR	Confidence Interval	Percent Difference from 2015 National Baseline (1.00)	Percent Change from 2018 - 2019
All units combined	72 (434)	263	0.70	0.62 – 0.79	30% lower	9% decrease
ICUs	66 (92)	127	0.76	0.63 – 0.90	24% lower	15% decrease
Non-ICUs	72 (342)	136	0.65	0.56 – 0.77	35% lower	8% decrease

Wisconsin acute care hospitals with SIR >1.00 during 2019: 17 (23%)

CAUTI: Critical Access Hospitals: Among critical access hospital patients in the U.S., the number of CAUTIs reported decreased from 245 in 2018 to 174 in 2019, a 28% decrease.[1]



2019
Wisconsin Critical Access Hospital SIR at Key Percentiles

Better ↑

10^{th}: 0.00
25^{th}: 0.00
50^{th}: 0.00
75^{th}: 0.62
90^{th}: 1.23

* Statistically significant difference from national baseline

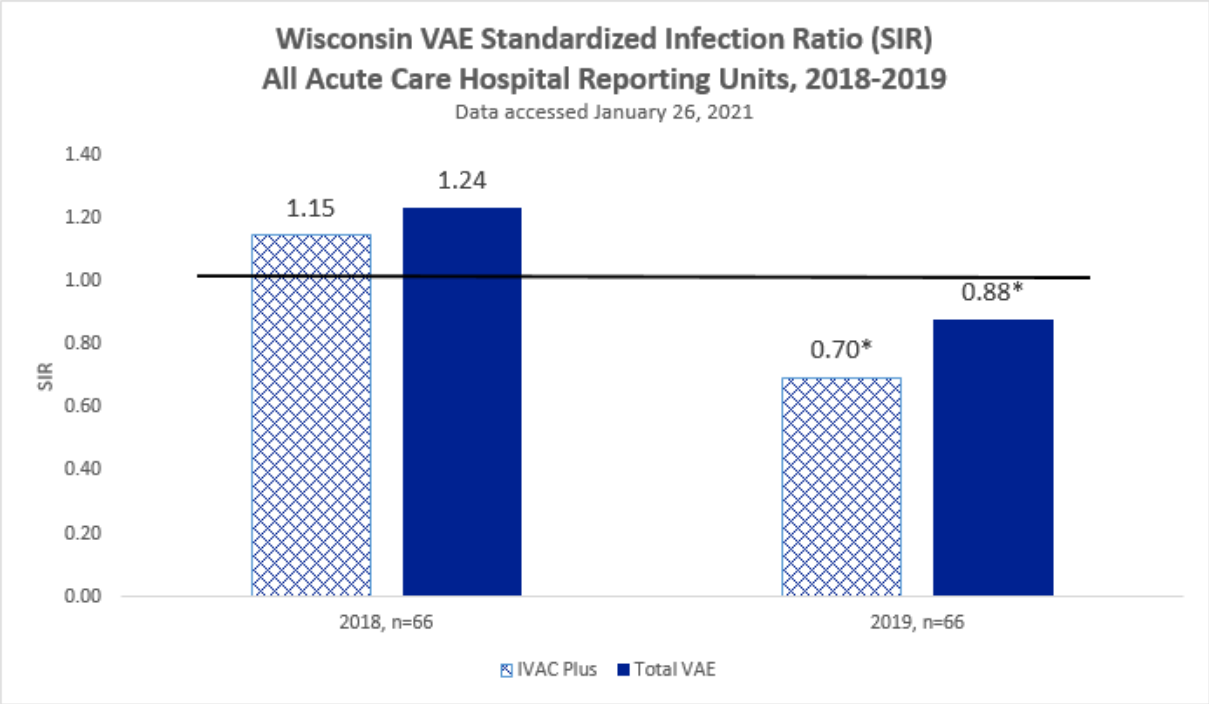
— National baseline (2015)

n = Number of reporting hospitals

Unit Type	Number of Reporting Critical Access Hospitals (Units)	Number of Infections	2019 SIR	Confidence Interval	Percent Difference from 2015 National Baseline (1.00)	Percent Change from 2018 - 2019
All units combined	58 (89)	10	0.34*	0.17 – 0.60	66% lower	48% decrease
ICUs	13 (13)	0	0.00	0.00 – 1.56	100% lower	100% decrease
Non-ICUs	55 (76)	10	0.36*	0.18 – 0.65	64% lower	44% decrease

Wisconsin critical access hospitals with SIR >1.00 during 2019: 2. Only nine critical access hospitals were able to calculate a facility SIR for this measure, five of those being 0.

Ventilator-Associated Events (VAE): Acute Care Hospitals: Surveillance for ventilator-associated events includes both infections and other conditions that may or may not represent true infections. The "Total VAE" measure includes all ventilator-associated events. "IVAC Plus" includes all ventilator-associated events except for ventilator-associated conditions. Data shown is for acute care hospitals only.



2019
Wisconsin Acute Care Hospital
SIR at Key Percentiles

	Total VAE	IVAC Plus
Better ↑	10th: 0.00	10th: 0.00
	25th: 0.00	25th: 0.00
	50th: 0.53	50th: 0.59
	75th: 1.76	75th: 1.29
	90th: 3.19	90th: 1.95

* Statistically significant difference from the national baseline

^ Statistically significant difference

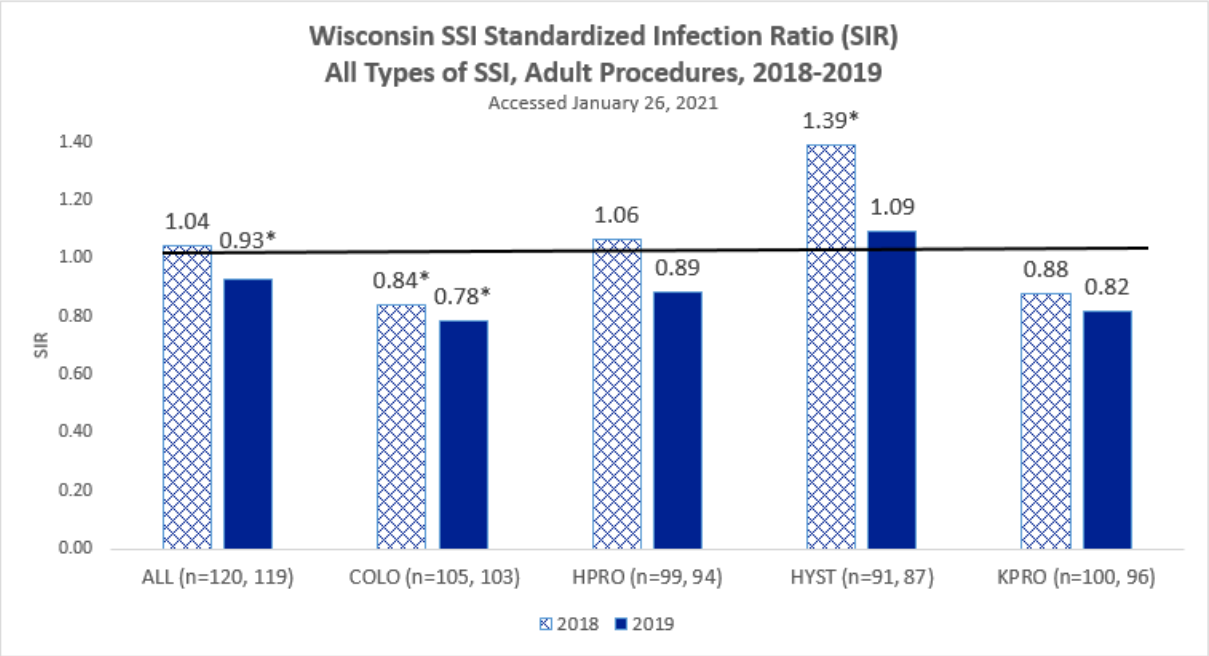
— National baseline (2015)

n = Number of reporting hospitals

Event Type	Number of Reporting Acute Care Hospitals (Units)	Number of Infections	2019 SIR	Confidence Interval	Percent Difference from 2015 National Baseline (1.00)	Percent Change from 2018 - 2019
IVAC Plus	66 (314)	91	0.70*	0.56 – 0.81	30% lower	39% decrease^
Total VAE	66 (314)	321	0.88*	0.79 – 0.98	12% lower	29% decrease^

Wisconsin acute care hospitals with total VAE SIR >1.00 for 2019: 15 (23%)

Surgical Site Infections (SSI): All Hospitals: Surgical site infections are classified by the type of procedure with which they are associated, as well as the depth of the infection, and can involve tissues under the skin, organs, or implanted material. The data below are for adult procedures in all hospitals combined. As shown in the table, Wisconsin hospitals saw a statistically significant decrease in the SSI SIR for all procedures combined from 2018 to 2019.



2019 Wisconsin All Adult Procedures Combined SIR at Key Percentiles

Better

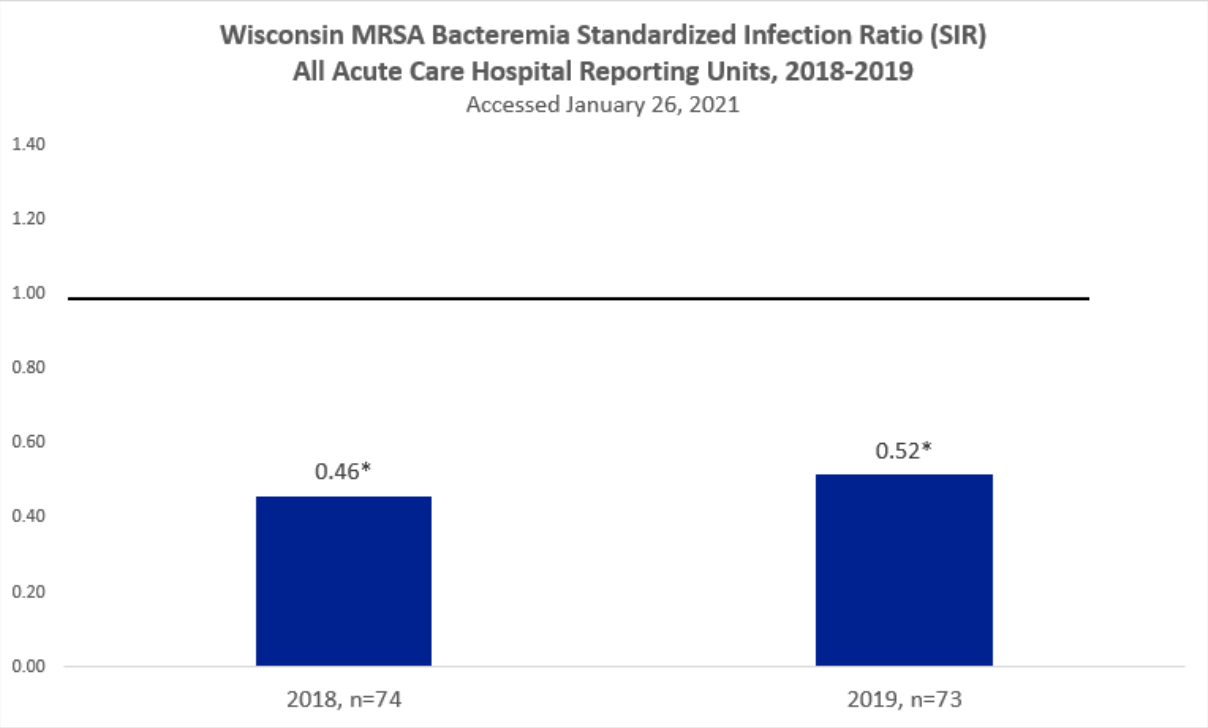
10^{th}: 0.00
25^{th}: 0.48
50^{th}: 0.90
75^{th}: 1.28
90^{th}: 2.15

* Statistically significant difference from the national baseline
^ Statistically significant difference
— National baseline (2015)
n = Number of reporting hospitals

Procedure Type	Number of Reporting Hospitals (Procedures)	Number of Infections (Any Type of SSI)	2019 SIR (Superficial, Deep, and Organ/Space Infections Included)	Confidence Interval	Percent Difference from 2015 National Baseline (1.00)	Percent Change from 2018 - 2019
All procedures combined (ALL)	119 (72,984)	965	0.93	0.87 – 0.98	7% lower	11% decrease^
Colon procedures (COLO)	103 (5,675)	220	0.78	0.68 – 0.89	22% lower	7% decrease
Hip replacement (HPRO)	94 (13,084)	118	0.89	0.74 – 1.06	11% lower	17% decrease
Abdominal hysterectomy (HYST)	87 (6,264)	103	1.09	0.90 – 1.32	9% higher	21% decrease
Knee replacement (KPRO)	96 (18,167)	85	0.82	0.66 – 1.01	18% lower	7% decrease

Wisconsin hospitals with SIR >1.00 (All Procedures Combined) for 2019: 36 (30%)

Methicillin-resistant *Staphylococcus aureus* (MRSA) Bacteremia: Acute Care Hospitals: Patients treated with antibiotics or who have devices such as central lines, urinary catheters, and ventilators are at high risk of acquiring HAIs caused by MRSA and other multidrug-resistant organisms. This measure includes laboratory-identified MRSA in the bloodstream occurring more than three days after a hospital admission.



2019
Wisconsin Acute Care Hospital
SIR at Key Percentiles

Better ↑

10^{th}: 0.00
25^{th}: 0.29
50^{th}: 0.60
75^{th}: 0.90
90^{th}: 1.11

* Statistically significant difference from the national baseline

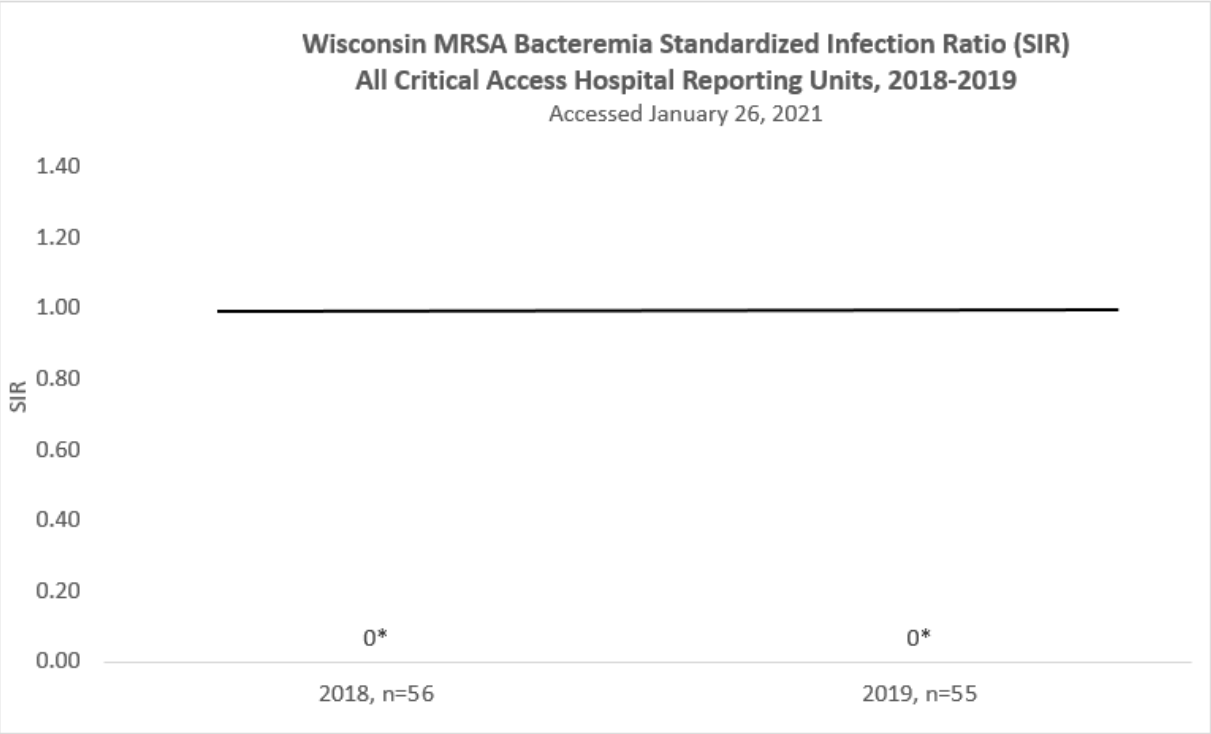
— National baseline (2015)

n = Number of reporting hospitals

Unit Type	Number of Reporting Acute Care Hospitals	Number of Healthcare-onset (>3 days after admission) Laboratory-identified MRSA in the Bloodstream	2019 SIR	Confidence Interval	Percent Difference from 2015 National Baseline (1.00)	Percent Change from 2018 - 2019
All units combined	73	67	0.52*	0.40 – 0.65	48% lower	12% increase

Wisconsin acute care hospitals with SIR >1.00 for 2019: 6 (8%)

MRSA Bacteremia: Critical Access Hospitals: At the national level, there was almost no change in the number of hospital-onset MRSA bacteremia events among critical access hospital patients between 2018 and 2019.[1]



2019
Wisconsin Critical Access Hospital SIR at Key Percentiles
No hospitals had enough data to calculate a SIR for the year.

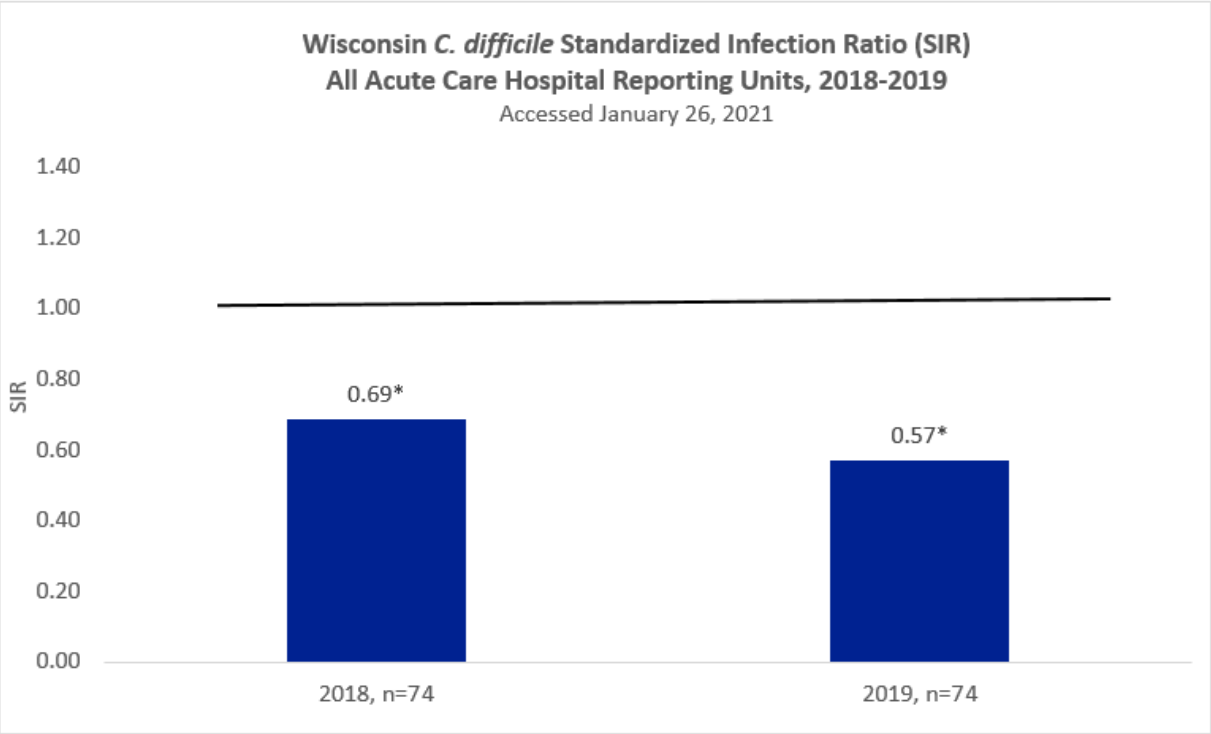
* Statistically significant difference from the national baseline

— National baseline (2015)

n = Number of reporting hospitals

Unit Type	Number of Reporting Critical Access Hospitals	Number of Healthcare-onset (>3 days after admission) Laboratory-identified MRSA in the Bloodstream	2019 SIR	Confidence Interval	Percent Difference from 2015 National Baseline (1.00)	Percent Change from 2018 - 2019
All units combined	55	0	0.00	0.00 – 0.90	100% lower	No change

Clostridioides difficile (C. difficile): **Acute Care Hospitals:** Persons at highest risk of *C. difficile* infection include older hospital patients or nursing home residents receiving prolonged antibiotic therapy. The measure shown here includes laboratory-identified *C. difficile* occurring more than three days after a hospital admission. As shown in the table, the number of *C. difficile* infections among acute care hospital patients in Wisconsin decreased by 17% from 2018 to 2019, which was a statistically significant decrease.



2019
Wisconsin Acute Care Hospital
SIR at Key Percentiles

Better

10^{th}: 0.21
25^{th}: 0.37
50^{th}: 0.53
75^{th}: 0.71
90^{th}: 0.94

* Statistically significant difference from the national baseline

^ Statistically significant difference

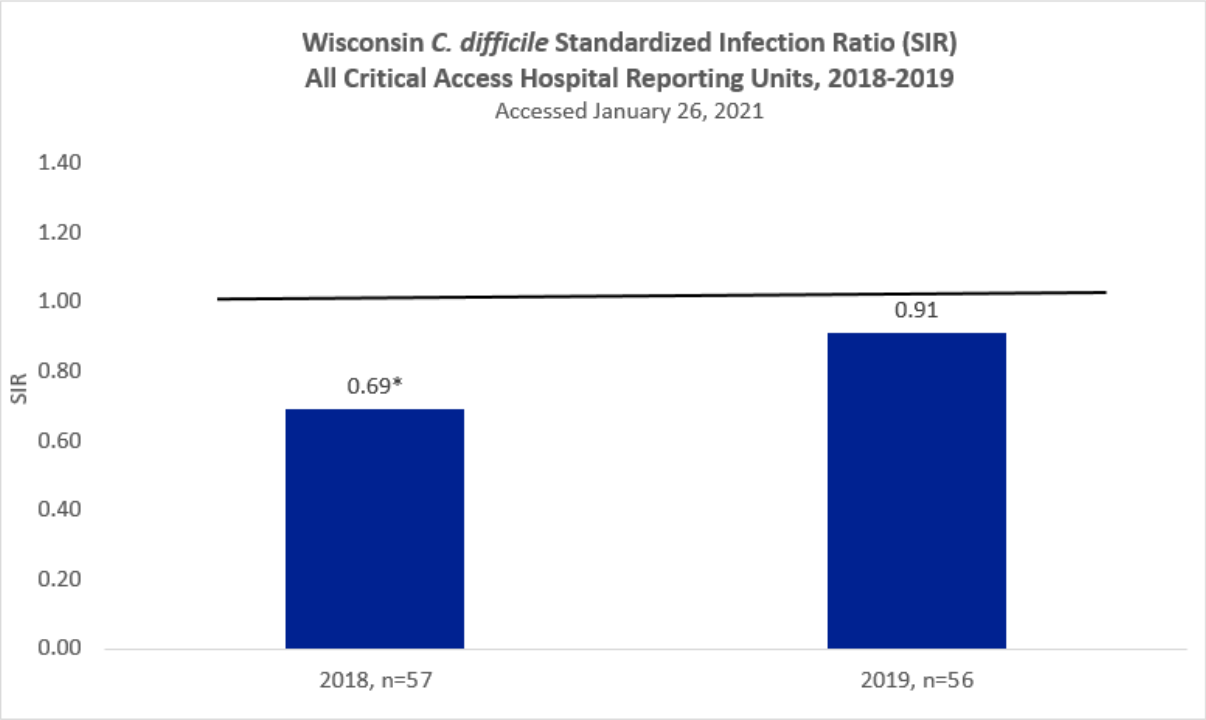
—National baseline (2015)

n = Number of reporting hospitals

Unit Type	Number of Reporting Acute Care Hospitals	Number of Healthcare-onset (>3 days after admission) *C. difficile* Laboratory-identified Events	2019 SIR	Confidence Interval	Percent Difference from 2015 National Baseline (1.00)	Percent Change from 2018 - 2019
All units combined	74	1,225	0.57*	0.53 – 0.61	43% lower	17% decrease^

Wisconsin acute care hospitals with SIR >1.00 for 2019: 5 (7%)

***C. difficile*: Critical Access Hospitals:** The number of hospital-onset *C. difficile* infections reported by critical access hospitals in the U.S. remained roughly the same in 2018 and 2019, with 533 reported in 2018 and 558 reported in 2019.[1]



2019
Wisconsin Critical Access Hospital SIR at Key Percentiles

Better

10^{th}: 0.00
25^{th}: 0.00
50^{th}: 0.85
75^{th}: 1.29
90^{th}: 1.81

* Statistically significant difference from the national baseline

— National baseline (2015)

n = Number of reporting hospitals

Unit Type	Number of Reporting Critical Access Hospitals	Number of Healthcare-onset (>3 days after admission) *C. difficile* Laboratory-identified Events	2019 SIR	Confidence Interval	Percent Difference from 2015 National Baseline (1.00)	Percent Change from 2018 - 2019
All units combined	556	53	0.91	0.68 – 1.20	9% lower	36% increase

Wisconsin critical access hospitals with SIR >1.00 for 2019: 7 (13%)

[1] Centers for Disease Control and Prevention. 2019 National and State Healthcare-Associated Infections Progress Report. https://www.cdc.gov/hai/data/portal/progress-report.html. Accessed January 26, 2021.