

2022 National

Critical Access

Introduction:

Welcome to the 2022 National and State HAI Progress Report using the 2015 baseline. This report is created by CDC staff with the National Healthcare Safety Network (NHSN).

This workbook includes national and state-specific SIR data for Critical Access Hospitals.

Scope of report:

HAI Types
Central line-associated bloodstream infections (CLABSI) by locations
Catheter-associated urinary tract infections (CAUTI) by locations
Ventilator-associated events (VAE) by locations
Surgical site infections (SSI)- All procedures for adults and pediatrics (using Complex Admission Readmission (A/R) model)
Surgical site infections (SSI)- adults (using Complex Admission Readmission (A/R) model), COLO and HYST
Hospital-onset methicillin-resistant <i>Staphylococcus aureus</i> (MRSA) bacteremia by facility-wide reporting
Hospital-onset <i>Clostridioides difficile</i> (CDI) by facility-wide reporting

National and State HAI Progress Report

Local Access Hospitals

eline and risk adjustment calculations. Standardized infection ratios (SIRs) are used to describe different HAI ty
ons. This year's report will compare 2022 SIRs to those from the prior year.
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National	State
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2022 Annual National and State HAI Progress Report

Critical Access Hospitals: Full series of tables for all national and state-specific data

Tables included in this report:

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22 from Critical Access Hospitals

Critical Access Hospitals

Hospitals

Regression, Adults \geq 18 years of age

Regression, Pediatrics < 18 years of age

Complex Admission/Readmission Model, Adults \geq 18 years of age

Table 1. Characteristics of NHSN Critical Access Hospitals reporting to NHSN by State¹, 2022:1a. Central line-associated bloodstream infections (CLABSI)²

State	2022					
	State NHSN Mandate ³	Any Validation ⁴	No. of Critical Access Hospitals Reporting ⁵	Locations (n) ²		
				Total	ICUs	Wards ²
Alabama	Yes	Yes	5	6	1	5
Alaska	No	No	5	8	1	7
Arizona	No	No	7	11	3	8
Arkansas	Yes	No	14	22	3	19
California	Yes	YesA	37	62	17	45
Colorado	Yes	Yes	27	31	4	27
Connecticut	No	No	0	.	.	.
D.C.	No	No	0	.	.	.
Delaware	No	No	0	.	.	.
Florida	No	No	6	8	0	8
Georgia	Yes	YesA	24	30	4	26
Guam	No	No	0	.	.	.
Hawaii	No	Yes	1	.	.	.
Idaho	No	No	20	27	3	24
Illinois	Yes	Yes	40	56	15	41
Indiana	Yes	Yes	35	57	15	42
Iowa	No	Yes	67	74	3	71
Kansas	No	Yes	66	77	4	73
Kentucky	No	No	27	36	5	31
Louisiana	No	No	9	14	2	12
Maine	Yes	No	16	29	2	27
Maryland	No	No	0	.	.	.
Massachusetts	Yes	Yes	3	.	.	.
Michigan	No	Yes	32	47	5	42
Minnesota	No	No	48	62	7	55
Mississippi	No	No	22	23	0	23
Missouri	No	No	26	36	7	29
Montana	No	No	15	26	4	22
Nebraska	No	No	29	34	4	30
Nevada	Yes	No	5	8	3	5
New Hampshire	Yes	Yes	12	20	6	14
New Jersey	No	No	0	.	.	.
New Mexico	Yes	No	10	22	6	16
New York	No	No	12	16	2	14
North Carolina	No	No	15	25	5	20
North Dakota	No	No	20	25	3	22
Ohio	No	Yes	29	46	11	35
Oklahoma	No	Yes	15	17	1	16
Oregon	Yes	Yes	23	45	13	32
Pennsylvania	Yes	Yes	15	30	6	24
Puerto Rico	Yes	Yes	0	.	.	.
Rhode Island	No	No	0	.	.	.
South Carolina	Yes	Yes	4	.	.	.
South Dakota	No	Yes	38	43	3	40
Tennessee	No	No	9	10	1	9
Texas	Yes	YesA	70	85	8	77
Utah	No	No	8	9	0	9
Vermont	No	No	8	11	3	8
Virgin Islands			0	.	.	.
Virginia	No	Yes	7	12	3	9
Washington	No	Yes	32	55	9	46
West Virginia	No	No	20	29	8	21
Wisconsin	No	No	55	81	11	70
Wyoming	No	No	13	15	2	13
All US			1,001	1,393	218	1,175

Table 1b-CAUTI

1b. Catheter-associated urinary tract infections (CAUTI)²

State	2022						
				Total	ICUs		
	Yes	No			Yes	No	
Alabama	Yes	No	5	6	Yes	No	5
Alaska	No	No	5	9	Yes	No	8
Arizona	No	No	7	11	Yes	No	8
Arkansas	No	No	15	24	Yes	No	20
California	No	No	36	63	Yes	No	46
Colorado	No	No	29	35	Yes	No	31
Connecticut	No	No	0	.	Yes	No	.
D.C.	No	No	0	.	Yes	No	.
Delaware	No	No	0	.	Yes	No	.
Florida	No	No	6	8	Yes	No	8
Georgia	Yes	No	24	30	YesA	No	26
Guam	No	No	0	.	Yes	No	.
Hawaii	No	Yes	1	.	Yes	No	.
Idaho	No	No	20	28	Yes	No	25
Illinois	No	No	42	59	Yes	No	44
Indiana	Yes	Yes	35	57	Yes	No	42
Iowa	No	Yes	72	80	Yes	No	77
Kansas	No	Yes	75	89	Yes	No	85
Kentucky	No	No	27	36	Yes	No	31
Louisiana	No	No	9	14	Yes	No	12
Maine	Yes	No	16	29	Yes	No	27
Maryland	No	No	0	.	Yes	No	.
Massachusetts	Yes	Yes	3	.	Yes	No	.
Michigan	No	Yes	33	49	Yes	No	44
Minnesota	Yes	No	68	90	Yes	No	81
Mississippi	No	No	25	27	Yes	No	27

Table 1b-CAUTI

Missouri	No	No	27	38	7	31
Montana	No	No	15	28	4	24
Nebraska	No	No	38	46	5	41
Nevada	No	No	5	8	3	5
New Hampshire	Yes	Yes	12	21	6	15
New Jersey	No	No	0	.	.	.
New Mexico	No	No	10	22	6	16
New York	No	No	12	15	2	13
North Carolina	No	No	15	28	5	23
North Dakota	No	No	20	27	3	24
Ohio	No	Yes	29	47	11	36
Oklahoma	No	Yes	17	19	1	18
Oregon	Yes	Yes	25	49	13	36
Pennsylvania	Yes	Yes	15	30	6	24
Puerto Rico	Yes	No	0	.	.	.
Rhode Island	No	No	0	.	.	.
South Carolina	Yes	Yes	4	.	.	.
South Dakota	No	Yes	38	43	3	40
Tennessee	No	No	9	10	1	9
Texas	No	No	71	86	8	78
Utah	No	No	8	9	0	9
Vermont	No	No	4	.	.	.
Virgin Islands			0	.	.	.
Virginia	No	Yes	7	12	3	9
Washington	No	Yes	32	57	9	48
West Virginia	Yes	No	21	30	8	22
Wisconsin	No	No	56	87	11	76
Wyoming	No	No	13	15	2	13
All US			1,056	1,490	221	1,269

Table 1c-VAE

1c. Ventilator-associated events (VAE)						
2022						
State				Total	ICUs	
Alabama	No	No	0	.	.	.
Alaska	No	No	3	.	.	.
Arizona	No	No	2	.	.	.
Arkansas	No	No	4	.	.	.
California	No	No	14	15	9	6
Colorado	No	No	2	.	.	.
Connecticut	No	No	0	.	.	.
D.C.	No	No	0	.	.	.
Delaware	No	No	0	.	.	.
Florida	No	No	3	.	.	.
Georgia	Yes	YesA	2	.	.	.
Guam	No	No	0	.	.	.
Hawaii	No	No	0	.	.	.
Idaho	No	No	3	.	.	.
Illinois	No	No	7	8	5	3
Indiana	No	No	16	18	14	4
Iowa	No	Yes	2	.	.	.
Kansas	No	No	10	10	2	8
Kentucky	No	No	6	9	3	6
Louisiana	No	No	2	.	.	.
Maine	No	No	5	5	2	3
Maryland	No	No	0	.	.	.
Massachusetts	No	No	1	.	.	.
Michigan	No	Yes	7	9	5	4
Minnesota	No	No	5	5	3	2
Mississippi	No	No	3	.	.	.

Table 1c-VAE

Missouri	No	No	7	7	5	2
Montana	No	No	2	.	.	.
Nebraska	No	No	0	.	.	.
Nevada	No	No	2	.	.	.
New Hampshire	No	No	5	7	5	2
New Jersey	No	No	0	.	.	.
New Mexico	No	No	4	.	.	.
New York	No	No	2	.	.	.
North Carolina	No	No	6	8	3	5
North Dakota	No	No	4	.	.	.
Ohio	No	Yes	10	13	8	5
Oklahoma	No	No	0	.	.	.
Oregon	No	No	8	12	6	6
Pennsylvania	Yes	Yes	10	11	4	7
Puerto Rico	Yes	Yes	0	.	.	.
Rhode Island	No	No	0	.	.	.
South Carolina	Yes	Yes	3	.	.	.
South Dakota	No	No	1	.	.	.
Tennessee	No	No	2	.	.	.
Texas	No	No	13	16	3	13
Utah	No	No	2	.	.	.
Vermont	No	No	0	.	.	.
Virgin Islands			0	.	.	.
Virginia	No	No	4	.	.	.
Washington	No	No	7	7	6	1
West Virginia	No	No	8	11	7	4
Wisconsin	No	No	12	17	8	9
Wyoming	No	No	3	.	.	.
All US			212	259	126	133

**Table 1. Characteristics of NHSN Critical Access Hospitals reporting to NHSN by State¹, 2022:
1d. Surgical site infections⁶**

State	2022			
	Any Validation ⁴	No. of Critical Access Hospitals Reporting	No. of Procedures ⁶ colon surgeries in adults	
Alabama	Yes	Yes	0	.
Alaska	Yes	No	1	.
Arizona	No	No	4	.
Arkansas	Yes	No	4	.
California	Yes	YesA	15	195
Colorado	Yes	Yes	12	104
Connecticut	Yes	No	0	.
D.C.	Yes	No	0	.
Delaware	No	No	0	.
Florida	No	No	2	.
Georgia	No	YesA	3	.
Guam	No	No	0	.
Hawaii	No	Yes	0	.
Idaho	No	No	4	.
Illinois	No	No	17	143
Indiana	Yes	Yes	17	141
Iowa	No	Yes	6	31
Kansas	No	Yes	10	79
Kentucky	Yes	No	10	33
Louisiana	No	No	2	.
Maine	No	No	8	82
Maryland	Yes	No	0	.
Massachusetts	Yes	Yes	2	.
Michigan	No	Yes	11	91
Minnesota	No	No	17	125
Mississippi	No	No	0	.
Missouri	No	No	6	29
Montana	No	No	5	49
Nebraska	No	No	4	.
Nevada	No	No	2	.
New Hampshire	Yes	Yes	7	69
New Jersey	No	No	0	.
New Mexico	No	No	3	.
New York	No	No	2	.
North Carolina	No	No	7	44
North Dakota	No	No	3	.
Ohio	No	Yes	10	92
Oklahoma	No	No	0	.
Oregon	Yes	Yes	17	215
Pennsylvania	Yes	Yes	5	30
Puerto Rico	Yes	No	0	.

Rhode Island	No	No	0	
South Carolina	Yes	No	1	
South Dakota	No	Yes	2	
Tennessee	No	No	1	
Texas	Yes	YesA	14	80
Utah	No	No	3	
Vermont	No	No	4	
Virgin Islands			0	
Virginia	No	Yes	3	
Washington	Yes	Yes	14	116
West Virginia	No	No	6	65
Wisconsin	No	No	28	286
Wyoming	No	No	5	14
All US			297	2,460

	2022			
State			No. of Critical Access Hospitals Reporting abdominal hysterectomy surgeries in adults ⁵	No. of Procedures ⁶ abdominal hysterectomy surgeries in adults
Alabama	Yes	Yes	0	.
Alaska	Yes	No	1	.
Arizona	No	No	1	.
Arkansas	Yes	No	3	.
California	Yes	YesA	10	70
Colorado	Yes	Yes	11	44
Connecticut	Yes	No	0	.
D.C.	Yes	No	0	.
Delaware	No	No	0	.
Florida	No	No	0	.
Georgia	No	YesA	4	.
Guam	No	No	0	.
Hawaii	No	Yes	1	.
Idaho	No	No	3	.
Illinois	No	No	8	116
Indiana	Yes	Yes	12	143
Iowa	No	Yes	2	.
Kansas	No	Yes	7	89
Kentucky	Yes	No	2	.
Louisiana	No	No	2	.
Maine	No	No	7	90
Maryland	Yes	No	0	.
Massachusetts	Yes	Yes	2	.
Michigan	No	Yes	9	181
Minnesota	No	No	13	164
Mississippi	No	No	0	.
Missouri	No	No	7	56
Montana	No	No	7	92
Nebraska	No	No	2	.
Nevada	No	No	1	.
New Hampshire	Yes	Yes	7	83
New Jersey	No	No	0	.
New Mexico	No	No	4	.
New York	No	No	2	.
North Carolina	No	No	7	69
North Dakota	No	No	3	.
Ohio	No	Yes	12	171
Oklahoma	No	No	0	.
Oregon	Yes	Yes	12	146
Pennsylvania	Yes	Yes	5	89
Puerto Rico	Yes	No	0	.

Rhode Island	No	No	0	.
South Carolina	Yes	No	0	.
South Dakota	No	Yes	1	.
Tennessee	No	No	1	.
Texas	Yes	YesA	5	85
Utah	No	No	1	.
Vermont	No	No	5	112
Virgin Islands			0	.
Virginia	No	Yes	2	.
Washington	Yes	Yes	10	221
West Virginia	No	No	3	.
Wisconsin	No	No	21	150
Wyoming	No	No	2	.
All US			218	2,574

Table 1. Characteristics of NHSN Critical Access Hospitals reporting to NHSN by State¹, 2022:

1e. Hospital-onset methicillin-resistant *Staphylococcus aureus* bacteremia⁷

State	2022		
	Yes	No	Total
Alabama	No	No	3
Alaska	No	No	2
Arizona	No	No	7
Arkansas	No	No	13
California	Yes	YesA	36
Colorado	Yes	No	29
Connecticut	No	No	0
D.C.	No	No	0
Delaware	No	No	0
Florida	No	No	4
Georgia	Yes	YesA	21
Guam	No	No	0
Hawaii	No	Yes	2
Idaho	No	No	19
Illinois	Yes	Yes	50
Indiana	Yes	Yes	35
Iowa	No	Yes	64
Kansas	No	Yes	68
Kentucky	No	No	27
Louisiana	No	No	7
Maine	Yes	No	16
Maryland	No	No	0
Massachusetts	Yes	Yes	3
Michigan	No	Yes	32
Minnesota	No	No	48
Mississippi	No	No	21
Missouri	No	No	26
Montana	No	No	10
Nebraska	No	No	38
Nevada	Yes	No	5
New Hampshire	No	No	11
New Jersey	No	No	0
New Mexico	No	No	10
New York	No	No	9
North Carolina	No	No	13
North Dakota	No	No	21
Ohio	No	Yes	29
Oklahoma	No	Yes	17
Oregon	Yes	Yes	25
Pennsylvania	Yes	No	13
Puerto Rico	Yes	Yes	0
Rhode Island	No	No	0
South Carolina	Yes	Yes	4
South Dakota	No	No	39
Tennessee	No	No	7
Texas	Yes	No	67
Utah	No	No	7
Vermont	No	No	8
Virgin Islands			0
Virginia	No	Yes	6

Washington	No	Yes	30
West Virginia	No	No	15
Wisconsin	No	No	55
Wyoming	No	No	8
All US			980

1f. Hospital-onset *Clostridioides difficile*⁷

	2022		
State	Any Validation ⁴		
Alabama	No	No	3
Alaska	No	No	3
Arizona	No	No	8
Arkansas	No	No	13
California	Yes	YesA	36
Colorado	No	No	29
Connecticut	No	No	0
D.C	No	No	0
Delaware	No	No	0
Florida	No	No	5
Georgia	Yes	YesA	21
Guam	No	No	0
Hawaii	No	Yes	1
Idaho	No	No	20
Illinois	Yes	Yes	51
Indiana	Yes	Yes	35
Iowa	No	Yes	67
Kansas	No	Yes	67
Kentucky	No	No	27
Louisiana	No	No	8
Maine	Yes	No	16
Maryland	No	No	0
Massachusetts	Yes	Yes	3
Michigan	No	Yes	33
Minnesota	No	No	60
Mississippi	No	No	22
Missouri	No	No	27
Montana	No	No	10
Nebraska	No	No	38
Nevada	No	No	4
New Hampshire	Yes	No	11
New Jersey	No	No	0
New Mexico	Yes	No	10
New York	No	No	9
North Carolina	No	No	13
North Dakota	No	No	21
Ohio	No	Yes	29
Oklahoma	No	Yes	17
Oregon	Yes	Yes	25
Pennsylvania	Yes	No	12
Puerto Rico	Yes	Yes	0
Rhode Island	No	No	0
South Carolina	Yes	Yes	4
South Dakota	No	Yes	39

Tennessee	No	No	8
Texas	Yes	No	68
Utah	No	No	7
Vermont	No	No	8
Virgin Islands			0
Virginia	No	Yes	6
Washington	No	Yes	33
West Virginia	Yes	No	15
Wisconsin	No	No	56
Wyoming	No	No	13
All US			1,011

Footnotes for Tables 1a-1f:

1. United States, Washington, D.C., Guam, Puerto Rico and Virgin Islands

2. Data included in this table are from 2022 from critical access hospital ICUs (critical care units), NICUs (CLABSI only, see footnote 7), and ward plus (for this report wards also include step-down, mixed acuity and specialty care areas [hematology/oncology, bone marrow transplant]). This is only displayed if the state had at least 5 reporting facilities in 2022. Long-term acute care facilities and locations, inpatient rehabilitation facilities and locations, dialysis facilities and locations, and long term care facilities (skilled nursing facilities) are not included in Table 1.

3. Yes indicates that a legislative or regulatory requirement ("state mandate") for Critical Access Hospitals to report data for the given HAI type to the state health department or hospital association via NHSN was in effect at the beginning of the year. If no state mandate existed at the beginning of each year, but was implemented at some time during the year, the value of this column is "M" for midyear implementation. No indicates that a state mandate did not exist during the years included in this report. On Table 1c, the presence of a state mandate reflects a mandate for colon surgery or abdominal hysterectomy data.

4. Yes indicates that the state health department reported the completion of all of the following validation activities for NHSN data during that year: state health department had access to NHSN data, state health department performed an assessment of missing or implausible values on at least six months of the year's data prior to the freeze date of June 1, 2023 for 2022 data, and state health department contacted identified facilities. YesA indicates that the state also conducted an audit of facility medical or laboratory records prior to June 1, 2023 for 2022 data to confirm proper case ascertainment (although intensity of auditing activities varies by state). On Table 1d, validation information applies to either colon surgery or abdominal hysterectomy data. Information on validation efforts was requested from all states, regardless of the presence of a legislative mandate for the particular HAI type. Some states without mandatory reporting of a given HAI to the state health department have performed validation on NHSN data that is voluntarily shared with them by facilities in their jurisdiction.

5. The number of facilities reporting at least one month of "in-plan" data to NHSN may be lower than the number of facilities in the state identified in footnote 3, as some hospitals in a state may not be included in the state mandate (e.g., facilities that do not have units or perform procedure covered by the mandate, or the mandate covers only facilities above a certain bed size).

6. SSIs included are those classified as deep incisional or organ/space infections following inpatient procedures within colon and abdominal hysterectomy surgeries, detected during the same admission as the surgical procedure or upon readmission to the same facility. This is only displayed if the state had at least 5 reporting facilities in 2022

7. Hospital-onset is defined as event detected on the 4th day (or later) after admission to an inpatient location within the facility.

HAI and Patient Population	No. of Critical Access Hospitals Reporting ¹
CLABSI, all⁴	902
ICUs⁵	196
Wards⁶	889
CAUTI, all⁷	1,042
	204
	1,028
VAE, all⁷	133
	103
	38

1. The number of reporting facilities included in the SIR calculation. Due to SIR exclusion criteria
2. Percent of facilities with at least one predicted infection (event) that had an SIR significantly
3. Facility-specific percentiles are only calculated if at least 20 facilities had ≥ 1.0 predicted HAI
4. Data from all ICUs and wards (and other non-critical care locations).
5. Data from all ICUs; excludes wards (and other non-critical care locations). For VAE, pediatric
6. Data from all wards (for this table wards also include step-down and specialty care areas [in
7. Data from all ICUs and wards (and other non-critical care locations). For VAE, pediatric locations
IVAC-plus includes those events identified as infection-related ventilator-associated conditions

NOTE: Risk factors used in the calculation of the number of predicted device-associated infections
Risk factors used in the calculation of the number of predicted MRSA bacteremia and CDI are

Central line-associated bloodstream infections (CLABSIs), cathe

Total Patient Days	Total Device Days	No. of Infections (Events)			95% CI for SIR	
		Observed	Predicted	SIR	Lower	Upper
2,187,118	216,436	44	59.039	0.745	0.548	0.991
134,075	21,572	12	5.879	2.041	1.106	3.470
2,053,043	194,864	32	53.153	0.602	0.419	0.840
2,716,311	407,837	301	463.270	0.650	0.579	0.726
146,112	45,170	19	51.392	0.370	0.229	0.567
2,570,199	362,667	282	411.874	0.685	0.608	0.768
75,906	6,114	34	8.725	3.897	2.742	5.384
48,798	5,349	30	7.633	3.930	2.700	5.540
27,108	765	4	1.092	3.664	1.164	8.839

ia, this may be different from the numbers shown in Table 1. These tables contain data from Critical Access Ho greater than or less than the nominal value of the national SIR for the given HAI type. This is only calculated if in 2022. If a facility's predicted number of HAIs was <1.0, a facility-specific SIR was neither calculated nor inclu

c locations are excluded from SIR since pediatric and neonatal locations are excluded from VAE surveillance. cluding hematology/oncology, bone marrow transplant]). For VAE, pediatric locations are excluded from SIR sir tions are excluded from SIR since pediatric and neonatal locations are excluded from VAE surveillance. This inc n (IVAC) and possible ventilator-associated pneumonia (pVAP).

ions are listed in Appendix A.
listed in Appendix B.

Table 2a. National standardized infection ratios (SIRs) and facility-specific summary SIRs using HAI data for catheter-associated urinary tract infections (CAUTIs) and ventilator-associated events (VAE)

No. Facilities with ≥1 Predicted Infection (Event)	Facility-specific SIRs					5%	10%	15%
	No. Facilities with SIR Significantly > National SIR		No. Facilities with SIR Significantly < National SIR					
	N	% ²	N					
0	.	.	.	.	.	.	.
0	.	.	.	.	.	.	.
0	.	.	.	.	.	.	.
110	1	1%	1	1%	0.000	0.000	0.000	
11	0	0%	0	0%	.	.	.	
94	1	1%	1	1%	0.000	0.000	0.000	
0	.	.	.	.	.	.	.
0	.	.	.	.	.	.	.
0	.	.	.	.	.	.	.

spitals; as such, they exclude data from LTACHs, IRFs, and ACHs.
 at least 10 facilities had ≥ 1.0 predicted HAI in 2022.
 ded in the distribution of facility-specific SIRs.

nce pediatric and neonatal locations are excluded from VAE surveillance.
 ludes IVAC-plus events.

70%	75%	80%	85%	90%	95%
.
.
.
0.301	0.414	0.595	0.726	0.939	1.480
.
0.000	0.159	0.548	0.693	0.899	1.417
.
.
.

HAI and Patient Population	Reporting	
	No. of Critical Access Hospitals Reporting ¹	Total Admissions
MRSA bacteremia, facility-wide⁴	980	684,540
Hospital-onset <i>C. difficile</i>, facility-wide⁴	1,011	661,054

1. The number of reporting facilities included in the SIR calculation. Due to SIR exclusion criteria,
 2. Percent of facilities with at least one predicted infection (event) that had an SIR significantly greater than 1.0.
 3. Facility-specific percentiles are only calculated if at least 20 facilities had ≥ 1.0 predicted HAI in the facility.
 4. Hospital-onset is defined as event detected on the 4th day (or later) after admission to an inpatient unit.
- Note: Risk factors used in the calculation of the number of predicted MRSA bacteremia and CDI :>

Hospitals		Standardized Infection Ratio Data			95% CI	
Total Patient Days	Community-onset events	Hospital-onset events	Predicted Hospital-onset events	SIR	Lower	
2,770,042	236	61	57.660	1.058	0.816	
2,760,632	1,470	686	821.555	0.835	0.774	

this may be different from the numbers shown in Table 1. These tables contain data from Critical Access Hospitals that are greater than or less than the nominal value of the national SIR for the given HAI type. This is only calculated for 2022. If a facility's predicted number of HAIs was <1.0, a facility-specific SIR was neither calculated nor listed in Appendix B.

Table 2b. National standardized infection ratios (SIRs) and facility-specific summary statistics for hospital-onset methicillin-resistant *Staphylococcus aureus* (MRSA) in 2022

for SIR	Facility SIRs Compared to National SIR					
	No. Facilities with ≥ 1 Predicted Event	No. Facilities with SIR Significantly > National SIR		No. Facilities with SIR Significantly < National SIR		
Upper		N		N		
1.350	0	.	.	.	.
0.899	293	9	3%	1	0%	

ss Hospitals; as such, they exclude data from LTACHs, IRFs, and ACHs.
 ted if at least 10 facilities had ≥ 1.0 predicted HAI in 2022.
 r included in the distribution of facility-specific SIRs.

ery SIRs using HAI data reported to NHSN during 2022 by facility type, HAI, and patient population:
MRSA) bacteremia and hospital-onset *Clostridioides difficile* (CDI)

5%	10%	15%	20%	25%	30%	35%	40%	45%
0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.434	0.542

50%

55%

60%

65%

70%

75%

80%

85%

90%

0.623

0.708

0.793

0.884

0.972

1.331

1.551

1.746

1.966

95%

2.400

Surgical Procedure	No. of Critical Access Hospitals Reporting ²	No. of Procedures
US, all NHSN procedures	442	31,984
US, SCIP procedures only⁵	424	23945
AAA Abdominal aortic aneurysm repair ⁵	0	.
AMP Limb amputation	19	120
APPY Appendix surgery	58	796
AVSD Shunt for dialysis	0	.
BILI Bile duct, liver or pancreatic surgery	12	29
BRST Breast surgery	19	74
CABG Coronary artery bypass graft ^{5,6}	0	.
CARD Cardiac surgery ⁵	0	.
CEA Carotid endarterectomy	2	.
CHOL Gallbladder surgery	60	868
COLO Colon surgery ⁵	292	2,390
CRAN Craniotomy	0	.
CSEC Cesarean section	66	2,654
FUSN Spinal fusion	10	940
FX Open reduction of fracture	39	873
GAST Gastric surgery	24	264
HER Herniorrhaphy	47	343
HPRO Hip arthroplasty ⁵	270	7,536
HTP Heart transplant	0	.
HYST Abdominal hysterectomy ⁵	204	1,750
KPRO Knee arthroplasty ⁵	279	12,118
KTP Kidney transplant	0	.
LAM Laminectomy	8	191
LTP Liver transplant	0	.
NECK Neck surgery	0	.
NEPH Kidney surgery	1	.
OVRY Ovarian surgery	23	89
PACE Pacemaker surgery	3	.
PRST Prostate surgery	2	.
PVBY Peripheral vascular bypass surgery ⁵	0	.
REC Rectal surgery ⁵	13	36
SB Small bowel surgery	31	242
SPLE Spleen surgery	8	12
THOR Thoracic surgery	9	29
THYR Thyroid and/or parathyroid surgery	6	19
VHYS Vaginal hysterectomy ⁵	22	115
VSHN Ventricular shunt	0	.
XLAP Abdominal surgery	40	420

1. SSIs included are those classified as deep incisional or organ/space infections following inpatient
2. The number of reporting facilities included in the SIR calculation. Due to SIR exclusion criteria, thi
3. Risk factors used in the calculation of the number of predicted SSIs are listed in Appendix C.

4. Percent of facilities with at least one predicted infection that had an SIR significantly greater than 1.0
5. These procedures were presented in previous versions of the HAI Progress Report and follow selected SCIP procedures and the corresponding SCIP procedures are listed in Appendix E.
6. Coronary artery bypass graft includes procedures with either chest only or chest and donor site incision
7. Facility-specific percentiles are only calculated if at least 20 facilities had ≥ 1.0 predicted SSI in 2010

Table 2c. National standardized infection ratios (SIRs) and facility-specific summary SI

No. of Infections		SIR	95% CI for SIR		No. Hosp with ≥1 Predicted Infection	Facility- No. Hosp Significantly > N
Observed	Predicted³		Lower	Upper		
124	157.090	0.789	0.659	0.938	32	2
104	128.521	0.809	0.665	0.976	20	0
.
0	0.073	.	.	.	0	.
2	2.356	0.849	0.142	2.804	0	.
.
0	0.276	.	.	.	0	.
0	0.680	.	.	.	0	.
.
.
0	2.405	0.000	.	1.246	0	.
43	45.121	0.953	0.698	1.272	1	.
.
4	4.290	0.933	0.296	2.249	0	.
4	2.470	1.619	0.515	3.906	0	.
2	5.056	0.396	0.066	1.307	0	.
2	1.639	1.220	0.205	4.032	0	.
0	1.544	0.000	.	1.940	0	.
28	40.200	0.697	0.472	0.993	5	.
.
9	9.919	0.907	0.442	1.665	0	.
24	32.104	0.748	0.490	1.095	2	.
.
1	0.641	.	.	.	0	.
.
.
0	0.069	.	.	.	0	.
.
.
0	0.633	.	.	.	0	.
4	4.556	0.878	0.279	2.118	0	.
0	0.063	.	.	.	0	.
0	0.098	.	.	.	0	.
0	0.015	.	.	.	0	.
0	0.544	.	.	.	0	.
.
1	2.228	0.449	0.022	2.214	0	.

procedures that occurred in 2022 with a primary or other than primary skin closure technique, detected during the study period may be different from the numbers shown in Table 1. Refer to the Technical Appendix for information about

or less than the nominal value of the national SIR for the given procedure type. This is only calculated if at least one inpatient surgical procedure approximating procedures covered by the Surgical Care Improvement Project is included in the analysis.

22. If a facility's predicted number of SSIs was < 1.0 , a facility-specific SIR was neither calculated nor included in the analysis.

Rs using adult surgical site infection (SSI) data¹ reported to NHSN from NHSN Critical Access Hos

specific SIRs								
with SIR > National SIR	No. Hosp with SIR		5%	10%	15%	20%	25%	
	Significantly	< National SIR						
% ⁴	N							
6%	0	0%	0.000	0.000	0.000	0.000	0.000	
0%	0	0%	0.000	0.000	0.000	0.000	0.000	
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g the same admission as the surgical procedure or upon readmission to the same facility.
t exclusion criteria.

at least 10 facilities had ≥ 1.0 predicted SSI in 2022.
Specific NHSN procedures

and in the distribution of facility-specific SIRs.

Surgical Procedure	No. of Acute Care Hospitals Reporting ²	No. of Procedures
US, all NHSN procedures	65	255
	18	26
	0	.
AMP Limb amputation	0	.
APPY Appendix surgery	38	159
AVSD Shunt for dialysis	0	.
BILI Bile duct, liver or pancreatic surgery	0	.
BRST Breast surgery	0	.
	0	.
	0	.
CEA Carotid endarterectomy	0	.
CHOL Gallbladder surgery	3	.
	5	7
CRAN Craniotomy (ALL AGE)	0	.
CSEC Cesarean section	15	21
FUSN Spinal fusion (AGE >=2)	1	.
FX Open reduction of fracture	10	40
GAST Gastric surgery	0	.
HER Herniorrhaphy	0	.
	7	7
HTP Heart transplant	0	.
	3	.
	5	9
KTP Kidney transplant	0	.
LAM Laminectomy	0	.
LTP Liver transplant	0	.
NECK Neck surgery	0	.
NEPH Kidney surgery	0	.
OVRY Ovarian surgery	0	.
PACE Pacemaker surgery	0	.
PRST Prostate surgery	0	.
	0	.
	0	.
SB Small bowel surgery	0	.
SPLE Spleen surgery	0	.
THOR Thoracic surgery	0	.
THYR Thyroid and/or parathyroid surgery	0	.
	0	.
VSHN Ventricular shunt	0	.
XLAP Abdominal surgery	5	5

1. SSIs included are those classified as deep incisional or organ/space infections following inpatient
2. The number of reporting facilities included in the SIR calculation. Due to SIR exclusion criteria, the statistics are only calculated for surgeries in which at least 5 facilities reported pediatric SSI data i

3. Risk factors used in the calculation of the number of predicted SSIs are listed in Appendix D.
4. Percent of facilities with at least one predicted infection that had an SIR significantly greater than 1.0 is reported in Appendix C.
5. These procedures were presented in previous versions of the HAI Progress Report and follow selected SCIP procedures and the corresponding SCIP procedures are listed in Appendix E.
6. Coronary artery bypass graft includes procedures with either chest only or chest and donor site incision.
7. Facility-specific percentiles are only calculated if at least 20 facilities had ≥ 1.0 predicted SSI in 2010.

Table 2d. National standardized infection ratios (SIRs) and facility-specific summary SIRs

<u>No. of Infections</u>		SIR	<u>95% CI for SIR</u>		No. Hosp with ≥1 Predicted Infection	Facility- No. Hosp Significantly > N
Observed			Lower	Upper		
1	0.789	.	.	.	0	.
0	0.397	.	.	.	0	.
.
.
1	0.183	.	.	.	0	.
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0	0.212	.	.	.	0	.
.
0	0.059	.	.	.	0	.
.
0	0.095	.	.	.	0	.
.
.
0	0.029	.	.	.	0	.
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0	0.098	.	.	.	0	.
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0	0.043	.	.	.	0	.

t procedures in pediatric patients less than 18 years that occurred in 2022 with a primary or other than primary procedure may be different from the numbers shown in Table 1. Refer to the Technical Appendix for information about procedures in 2022.

or less than the nominal value of the national SIR for the given procedure type. This is only calculated if at least one inpatient surgical procedure approximating procedures covered by the Surgical Care Improvement Project is included in the analysis.

22. If a facility's predicted number of SSIs was < 1.0 , a facility-specific SIR was neither calculated nor included in the analysis.

at least 10 facilities had ≥ 1.0 predicted SSI in 2022.
Specific NHSN procedures

and in the distribution of facility-specific SIRs.

All US	902	44	59.039	0.745	0.548	0.991	0
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1. Data from all ICUs and wards (and other non-critical care locations). CLABSIs identified as Mucosal Barrier Injury (MBI) are excluded from the SIRs. These tables contain data from Critical Access Hospitals; as such, they exclude data from LTACHs, IRFs, and ACHs.
2. Yes indicates the presence of a state mandate to report CLABSI data from any location to NHSN at the beginning of 2022. M indicates midyear implementation of a mandate. No indicates that a state mandate did not exist during 2022.
3. Yes indicates that the state health department reported the completion of all of the following validation activities: state health department had access to 2022 NHSN data, state health department performed an assessment of missing or implausible values on at least six months of 2022 NHSN data prior to June 1, 2023, and state health department contacted identified facilities. YesA indicates that the state also conducted an audit of facility medical or laboratory records prior to June 1, 2023 to confirm proper case ascertainment (although intensity of auditing activities varies by state). Information on validation efforts was requested from all states, regardless of the presence of a legislative mandate for the particular HAI type. Some states without mandatory reporting of a given HAI to the state health department have performed validation on NHSN data that is voluntarily shared with them by facilities in their jurisdiction.
4. The number of reporting facilities included in the SIR calculation. SIRs and accompanying statistics are only calculated for states in which at least 5 facilities reported CLABSI data in 2022.
5. Percent of facilities with at least one predicted CLABSI that had an SIR significantly greater or less than the nominal value of the 2022 national overall CLABSI SIR of 0.745. This is only calculated if at least 10 facilities had ≥ 1.0 predicted CLABSI in 2022.
6. Facility-specific key percentiles were only calculated if at least 20 facilities had ≥ 1.0 predicted CLABSI in 2022. If a facility's predicted number of CLABSI was < 1.0 , a facility-specific SIR was neither calculated nor included in the distribution of facility-specific SIRs.

Texas	Yes	7	0	0.127	.	.	0	.	.	.	.	.	.	.	.	.	.	.	.
Utah	No	0	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Vermont	No	3	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Virgin Islands		0	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Virginia	No	3	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Washington	No	8	2	0.452	.	.	0	.	.	.	.	.	.	.	.	.	.	.	.
West Virginia	No	8	1	0.327	.	.	0	.	.	.	.	.	.	.	.	.	.	.	.
Wisconsin	No	9	0	0.160	.	.	0	.	.	.	.	.	.	.	.	.	.	.	.
Wyoming	No	2	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
All US		196	12	5.879	2.041	1.106	3.470	0	.	.	.	.	.	.	.	.	.	.	.

1. Data from all ICUs; excludes wards (and other non-critical care locations). CLABSIs identified as Mucosal Barrier Injury (MBI) are excluded from the SIRs. These tables contain data from Critical Access Hospitals; as such, they exclude data from LTACHs, IRFs, and ACHs.
2. Yes indicates the presence of a state mandate to report CLABSI data from critical care units to NHSN at the beginning of 2022. M indicates midyear implementation of a mandate. No indicates that a state mandate did not exist during 2022. Note that almost all Critical Access Hospitals are required to report CLABSI data from ICUs to NHSN for participation in the Centers for Medicare and Medicaid Services' Hospital Inpatient Quality Reporting Program. YesA indicates that the state also conducted an audit of facility medical or laboratory records prior to June 1, 2023 to confirm proper case ascertainment (although intensity of auditing activities varies).
3. The number of reporting facilities included in the SIR calculation. SIRs and accompanying statistics are only calculated for states in which at least 5 facilities reported CLABSI data from at least one critical care location in 2022.
4. Percent of facilities with at least one predicted ICU CLABSI that had an SIR significantly greater or less than the nominal value of the 2022 national ICU CLABSI SIR of 2.041. This is only calculated if at least 10 facilities had at least one predicted ICU CLABSI in 2022.
5. Facility-specific key percentiles were only calculated if at least 20 facilities had ≥ 1.0 predicted ICU CLABSI in 2022. If a facility's predicted number of ICU CLABSI was < 1.0 , a facility-specific SIR was neither calculated nor included in the distribution of facility-specific SIRs.

**Table 3. State-specific standardized infection ratios (SIRs) and facility-specific SIR summary measures,
NHSN Critical Access Hospitals reporting during 2022
3c. Central line-associated bloodstream infections (CLABSI), ward (non-critical care) locations¹**

State		No. of Infections	95% CI for SIR			Facility-specific SIRs						
			Observed	Predicted	SIR	Lower	Upper	10%	25%	75%	90%	
Alabama	No	4	.	.	.	.	.	.	.	.	.	.
Alaska	No	4	.	.	.	.	.	.	.	.	.	.
Arizona	No	6	0	0.229	.	.	.	0	.	.	.	.
Arkansas	No	13	0	0.647	.	.	.	0	.	.	.	.
California	Yes	29	2	1.618	1.236	0.207	4.084	0	.	.	.	.
Colorado	No	24	0	0.669	.	.	.	0	.	.	.	.
Connecticut	No	0	.	.	.	.	.	.	.	.	.	.
D.C.	No	0	.	.	.	.	.	.	.	.	.	.
Delaware	No	0	.	.	.	.	.	.	.	.	.	.
Florida	No	6	0	0.273	.	.	.	0	.	.	.	.
Georgia	Yes	20	0	1.401	0.000	.	2.138	0	.	.	.	.
Guam	No	0	.	.	.	.	.	.	.	.	.	.
Hawaii	No	1	.	.	.	.	.	.	.	.	.	.
Idaho	No	16	0	0.373	.	.	.	0	.	.	.	.
Illinois	No	35	2	3.469	0.577	0.097	1.905	0	.	.	.	.
Indiana	Yes	35	0	2.078	0.000	.	1.442	0	.	.	.	.
Iowa	No	67	3	2.937	1.021	0.260	2.780	0	.	.	.	.
Kansas	No	58	1	2.979	0.336	0.017	1.656	0	.	.	.	.
Kentucky	No	26	5	3.163	1.581	0.579	3.504	0	.	.	.	.
Louisiana	No	8	1	0.993	.	.	.	0	.	.	.	.
Maine	Yes	15	0	1.328	0.000	.	2.256	0	.	.	.	.
Maryland	No	0	.	.	.	.	.	.	.	.	.	.
Massachusetts	Yes	2	.	.	.	.	.	.	.	.	.	.
Michigan	No	28	3	1.142	2.627	0.668	7.150	0	.	.	.	.
Minnesota	No	47	2	2.533	0.790	0.132	2.609	0	.	.	.	.
Mississippi	No	14	0	1.119	0.000	.	2.677	0	.	.	.	.
Missouri	No	24	1	1.405	0.712	0.036	3.510	0	.	.	.	.
Montana	No	13	0	0.624	.	.	.	0	.	.	.	.
Nebraska	No	24	0	0.931	.	.	.	0	.	.	.	.
Nevada	Yes	4	.	.	.	.	.	.	.	.	.	.
New Hampshire	No	12	0	0.914	.	.	.	0	.	.	.	.
New Jersey	No	0	.	.	.	.	.	.	.	.	.	.
New Mexico	Yes	10	0	0.273	.	.	.	0	.	.	.	.
New York	No	9	2	0.767	.	.	.	0	.	.	.	.
North Carolina	No	15	2	1.376	1.453	0.244	4.802	0	.	.	.	.
North Dakota	No	15	0	0.404	.	.	.	0	.	.	.	.
Ohio	No	28	1	1.830	0.546	0.027	2.695	0	.	.	.	.
Oklahoma	No	14	1	0.931	.	.	.	0	.	.	.	.
Oregon	Yes	23	0	1.518	0.000	.	1.973	0	.	.	.	.
Pennsylvania	Yes	13	1	1.142	0.876	0.044	4.319	0	.	.	.	.
Puerto Rico	Yes	0	.	.	.	.	.	.	.	.	.	.
Rhode Island	No	0	.	.	.	.	.	.	.	.	.	.
South Carolina	Yes	4	.	.	.	.	.	.	.	.	.	.
South Dakota	No	35	1	1.430	0.699	0.035	3.449	0	.	.	.	.
Tennessee	No	7	0	0.208	.	.	.	0	.	.	.	.
Texas	Yes	49	1	2.551	0.392	0.020	1.933	0	.	.	.	.
Utah	No	8	0	0.246	.	.	.	0	.	.	.	.
Vermont	No	7	0	0.775	.	.	.	0	.	.	.	.

Virgin Islands		0	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Virginia	No	7	0	0.494	.	.	.	0	.	.	.	.	.	.	.	.	.	.	.	.
Washington	No	29	1	1.968	0.508	0.025	2.506	0	.	.	.	.	.	.	.	.	.	.	.	.
West Virginia	No	17	1	1.017	0.983	0.049	4.849	0	.	.	.	.	.	.	.	.	.	.	.	.
Wisconsin	No	52	1	4.288	0.233	0.012	1.150	0	.	.	.	.	.	.	.	.	.	.	.	.
Wyoming	No	12	0	0.211	.	.	.	0	.	.	.	.	.	.	.	.	.	.	.	.
All US		889	32	53.153	0.602	0.419	0.840	0	.	.	.	.	.	.	.	.	.	.	.	.

1. Data from all wards (for this table wards also include step-down, mixed acuity and specialty care areas [including hematology/oncology, bone marrow transplant]). CLABSIs identified as Mucosal Barrier Injury (MBI) are excluded from the SIRs. These tables contain data from Critical Access Hospitals; as such, they exclude data from LTACHs, IRFs, and ACHs.
2. Yes indicates the presence of a state mandate to report CLABSI data from ward locations to NHSN at the beginning of 2022. M indicates midyear implementation of a mandate. No indicates that a state mandate did not exist during 2022.
3. The number of reporting facilities included in the SIR calculation. SIRs and accompanying statistics are only calculated for states in which at least 5 facilities reported CLABSI data from at least one ward in 2022. YesA indicates that the state also conducted an audit of facility medical or laboratory records prior to June 1, 2023 to confirm proper case ascertainment (although intensity of auditing activities one predicted ward CLABSI in 2022).
4. Percent of facilities with at least one predicted ward CLABSI that had an SIR significantly greater or less than the nominal value of the 2022 national ward CLABSI SIR of 0.602. This is only calculated if at least 10 facilities had at least one predicted ward CLABSI in 2022.
5. Facility-specific key percentiles were only calculated if at least 20 facilities had ≥ 1.0 predicted ward CLABSI in 2022. If a facility's predicted number of ward CLABSI was < 1.0 , a facility-specific SIR was neither calculated nor included in the distribution of facility-specific SIRs.

Vermont	No	No	4	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Virgin Islands			0	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Virginia	No	Yes	7	2	2.359	0.848	0.142	2.801	0	.	.	.	.	.	.	.	.	.	.	.
Washington	No	Yes	31	20	15.622	1.280	0.804	1.942	3	.	.	.	.	.	.	.	.	.	.	.
West Virginia	Yes	No	20	7	12.374	0.566	0.247	1.119	3	.	.	.	.	.	.	.	.	.	.	.
Wisconsin	No	No	56	20	26.523	0.754	0.474	1.144	4	.	.	.	.	.	.	.	.	.	.	.
Wyoming	No	No	13	4	5.718	0.700	0.222	1.687	2	.	.	.	.	.	.	.	.	.	.	.
All US			1,042	301	463.270	0.650	0.579	0.726	110	1%	1%	0.000	0.000	0.000	0.414	0.939				

1. Data from all ICUs and wards (and other non-critical care locations). This excludes NICUs. These tables contain data from Critical Access Hospitals; as such, they exclude data from LTACHs, IRFs, and ACHs.
2. Yes indicates the presence of a state mandate to report CAUTI data from any location to NHSN at the beginning of 2022. M indicates midyear implementation of a mandate. No indicates that a state mandate did not exist during 2022.
3. Yes indicates that the state health department reported the completion of all of the following validation activities: state health department had access to 2022 NHSN data, state health department performed an assessment of missing or implausible values on at least six months of 2022 NHSN data prior to June 1, 2023, and state health department contacted identified facilities. YesA indicates that the state also conducted an audit of facility medical or laboratory records prior to June 1, 2023 to confirm proper case ascertainment (although intensity of auditing activities varies by state). Information on validation efforts was requested from all states, regardless of the presence of a legislative mandate for the particular HAI type. Some states without mandatory reporting of a given HAI to the state health department have performed validation on NHSN data that is voluntarily shared with them by facilities in their jurisdiction.
4. The number of reporting facilities included in the SIR calculation. SIRs and accompanying statistics are only calculated for states in which at least 5 facilities reported CAUTI data in 2022.
5. Percent of facilities with at least one predicted CAUTI that had an SIR significantly greater or less than the nominal value of the 2022 national overall CAUTI SIR of 0.650. This is only calculated if at least 10 facilities had at least one predicted CAUTI in 2022.
6. Facility-specific key percentiles were only calculated if at least 20 facilities had ≥ 1.0 predicted CAUTI in 2022. If a facility's predicted number of CAUTI was < 1.0 , a facility-specific SIR was neither calculated nor included in the distribution of facility-specific SIRs.

Tennessee	No	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Texas	No	7	1	1.787	0.560	0.028	2.760	0	.	.	.	.	.	.	.	.	.	.	.	.
Utah	No	0	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Vermont	No	2	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Virgin Islands		0	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Virginia	No	3	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Washington	No	8	3	2.183	1.374	0.350	3.740	0	.	.	.	.	.	.	.	.	.	.	.	.
West Virginia	Yes	8	1	1.943	0.515	0.026	2.538	0	.	.	.	.	.	.	.	.	.	.	.	.
Wisconsin	No	10	3	0.977	.	.	.	0	.	.	.	.	.	.	.	.	.	.	.	.
Wyoming	No	2	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
All US		204	19	51.392	0.370	0.229	0.567	11	0%	0%	.	.	.	.	.	.	.	.	.	.

1. Data from all ICUs; excludes wards (and other non-critical care locations) and NICUs. These tables contain data from Critical Access Hospitals; as such, they exclude data from LTACHs, IRFs, and ACHs.
2. Yes indicates the presence of a state mandate to report CAUTI data from critical care units to NHSN at the beginning of 2022. M indicates midyear implementation of a mandate.
No indicates that a state mandate did not exist during 2022. Note that almost all Critical Access Hospitals are required to report CAUTI data from ICUs to NHSN for participation in the Centers for Medicare and Medicaid Services' Hospital Inpatient Quality Reporting Program.
3. The number of reporting facilities included in the SIR calculation. SIRs and accompanying statistics are only calculated for states in which at least 5 facilities reported CAUTI data from at least one critical care location in 2022.
YesA indicates that the state also conducted an audit of facility medical or laboratory records prior to June 1, 2023 to confirm proper case ascertainment (although intensity of auditing activities if at least 10 facilities had at least one predicted ICU CAUTI in 2022).
4. Percent of facilities with at least one predicted ICU CAUTI that had an SIR significantly greater or less than the nominal value of the 2022 national ICU CAUTI SIR of 0.370. This is only calculated if at least 10 facilities had at least one predicted ICU CAUTI in 2022.
5. Facility-specific key percentiles were only calculated if at least 20 facilities had ≥ 1.0 predicted ICU CAUTI in 2022. If a facility's predicted number of ICU CAUTI was < 1.0 , a facility-specific SIR was neither calculated nor included in the distribution of facility-specific SIRs.

Virgin Islands		0	.	.	.	.	.	.	.	.	.	.	.	.	.
Virginia	No	7	2	1.934	1.034	0.173	3.417	0	.	.	.	.	.	.	.
Washington	No	31	17	13.440	1.265	0.761	1.984	2	.	.	.	.	.	.	.
West Virginia	Yes	20	6	10.433	0.575	0.233	1.196	2	.	.	.	.	.	.	.
Wisconsin	No	56	17	25.548	0.665	0.401	1.044	4	.	.	.	.	.	.	.
Wyoming	No	13	4	5.217	0.767	0.244	1.849	2	.	.	.	.	.	.	.
All US		1,028	282	411.874	0.685	0.608	0.768	94	2%	5%	0.000	0.000	0.000	0.159	0.899

1. Data from all wards (for this table wards also include stepdown, mixed acuity and specialty care areas [including hematology/oncology, bone marrow transplant]). This excludes NICU. These tables contain data from Critical Access Hospitals; as such, they exclude data from LTACHs, IRFs, and ACHs.
2. Yes indicates the presence of a state mandate to report CAUTI data from ward locations to NHSN at the beginning of 2022. M indicates midyear implementation of a mandate. No indicates that a state mandate did not exist during 2022.
3. The number of reporting facilities included in the SIR calculation. SIRs and accompanying statistics are only calculated for states in which at least 5 facilities reported CAUTI data from at least one ward in 2022. YesA indicates that the state also conducted an audit of facility medical or laboratory records prior to June 1, 2023 to confirm proper case ascertainment (although intensity of auditing activities at least 10 facilities had at least one predicted ward CAUTI in 2022).
4. Percent of facilities with at least one predicted ward CAUTI that had an SIR significantly greater or less than the nominal value of the 2022 national ward CAUTI SIR of 0.685. This is only calculated if at least 10 facilities had at least one predicted ward CAUTI in 2022.
5. Facility-specific key percentiles were only calculated if at least 20 facilities had ≥ 1.0 predicted ward CAUTI in 2022. If a facility's predicted number of ward CAUTI was < 1.0 , a facility-specific SIR was neither calculated nor included in the distribution of facility-specific SIRs.

Utah	No	No	0	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Vermont	No	No	0	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Virgin Islands			0	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Virginia	No	No	2	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Washington	No	No	6	1	0.936	.	.	.	.	0	.	.	.	.	.	.	.	.	.	.
West Virginia	No	No	7	0	0.412	.	.	.	.	0	.	.	.	.	.	.	.	.	.	.
Wisconsin	No	No	8	3	0.230	.	.	.	.	0	.	.	.	.	.	.	.	.	.	.
Wyoming	No	No	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
All US			133	34	8.725	3.897	2.742	5.384	0	.	.	.	.	.	.	.	.	.	.	.

- Data from all ICUs and wards (and other non-critical care locations). This excludes NICUs. Pediatric locations (ICUs or wards) are excluded, since pediatric and neonatal locations are excluded from VAE surveillance. These tables contain data from Critical Access Hospitals; as such, they exclude data from LTACHs, IRFs, and ACHs.
- Yes indicates the presence of a state mandate to report VAE data from any location to NHSN at the beginning of 2022. M indicates midyear implementation of a mandate. No indicates that a state mandate did not exist during 2022.
- Yes indicates that the state health department reported the completion of all of the following validation activities: state health department had access to 2022 NHSN data, state health department performed an assessment of missing or implausible values on at least six months of 2022 NHSN data prior to June 1, 2023, and state health department contacted identified facilities. YesA indicates that the state also conducted an audit of facility medical or laboratory records prior to June 1, 2023 to confirm proper case ascertainment (although intensity of auditing activities varies by state). Information on validation efforts was requested from all states, regardless of the presence of a legislative mandate for the particular HAI type. Some states without mandatory reporting of a given HAI to the state health department have performed validation on NHSN data that is voluntarily shared with them by facilities in their jurisdiction.
- The number of reporting facilities included in the SIR calculation. SIRs and accompanying statistics are only calculated for states in which at least 5 facilities reported VAE data in 2022.
- Percent of facilities with at least one predicted VAE that had an SIR significantly greater or less than the nominal value of the 2022 national overall VAE SIR of 3.897. This is only calculated if at least 10 facilities had at least one predicted VAE in 2022.
- Facility-specific key percentiles were only calculated if at least 20 facilities had ≥ 1.0 predicted VAE in 2022. If a facility's predicted number of VAE was < 1.0 , a facility-specific SIR was neither calculated nor included in the distribution of facility-specific SIRs.

Table 6. State-specific standardized infection ratios (SIRs) and facility-specific SIR summary measures, NHSN Critical Access Hospitals reporting during 2022

6a. Surgical site infections (SSI) following colon surgery¹ in adults, ≥ 18years

State			No. of Critical Access Hospitals Reporting ⁴		No. of Infections		95% CI for SIR			Facility-specific SIRs				
	Yes	No	No. of Reporting ⁴	No. of Procedures	Observed	Predicted	SIR	Lower	Upper	No. of hosp with at least 1 predicted SSI	10%	25%	75%	90%
Alabama	Yes	Yes	0	.	.	.	.	.	.	.	.	.	.	.
Alaska	Yes	No	1	.	.	.	.	.	.	.	.	.	.	.
Arizona	No	No	4	.	.	.	.	.	.	.	.	.	.	.
Arkansas	Yes	No	4	.	.	.	.	.	.	.	.	.	.	.
California	Yes	YesA	15	193	7	3.775	1.854	0.811	3.668	0	.	.	.	.
Colorado	Yes	Yes	12	96	2	1.581	1.265	0.212	4.179	0	.	.	.	.
Connecticut	Yes	No	0	.	.	.	.	.	.	.	.	.	.	.
D.C.	Yes	No	0	.	.	.	.	.	.	.	.	.	.	.
Delaware	No	No	0	.	.	.	.	.	.	.	.	.	.	.
Florida	No	No	2	.	.	.	.	.	.	.	.	.	.	.
Georgia	No	YesA	3	.	.	.	.	.	.	.	.	.	.	.
Guam	No	No	0	.	.	.	.	.	.	.	.	.	.	.
Hawaii	No	Yes	0	.	.	.	.	.	.	.	.	.	.	.
Idaho	No	No	4	.	.	.	.	.	.	.	.	.	.	.
Illinois	No	No	16	139	0	2.604	0.000	.	1.150	0	.	.	.	.
Indiana	Yes	Yes	17	139	2	2.810	0.712	0.119	2.352	0	.	.	.	.
Iowa	No	Yes	6	28	1	0.555	.	.	.	0	.	.	.	.
Kansas	No	Yes	10	77	1	1.404	0.712	0.036	3.513	0	.	.	.	.
Kentucky	Yes	No	9	30	1	0.734	.	.	.	0	.	.	.	.
Louisiana	No	No	2	.	.	.	.	.	.	.	.	.	.	.
Maine	No	No	8	82	1	1.645	0.608	0.030	2.999	0	.	.	.	.
Maryland	Yes	No	0	.	.	.	.	.	.	.	.	.	.	.
Massachusetts	Yes	Yes	2	.	.	.	.	.	.	.	.	.	.	.
Michigan	No	Yes	11	90	0	1.691	0.000	.	1.772	0	.	.	.	.
Minnesota	No	No	17	122	0	2.345	0.000	.	1.277	0	.	.	.	.
Mississippi	No	No	0	.	.	.	.	.	.	.	.	.	.	.
Missouri	No	No	6	28	3	0.517	.	.	.	0	.	.	.	.
Montana	No	No	5	48	5	0.961	.	.	.	0	.	.	.	.
Nebraska	No	No	4	.	.	.	.	.	.	.	.	.	.	.
Nevada	No	No	2	.	.	.	.	.	.	.	.	.	.	.
New Hampshire	Yes	Yes	7	69	1	1.397	0.716	0.036	3.531	0	.	.	.	.
New Jersey	No	No	0	.	.	.	.	.	.	.	.	.	.	.
New Mexico	No	No	3	.	.	.	.	.	.	.	.	.	.	.
New York	No	No	2	.	.	.	.	.	.	.	.	.	.	.
North Carolina	No	No	7	44	1	0.775	.	.	.	0	.	.	.	.
North Dakota	No	No	3	.	.	.	.	.	.	.	.	.	.	.
Ohio	No	Yes	9	89	2	1.691	1.183	0.198	3.908	0	.	.	.	.
Oklahoma	No	No	0	.	.	.	.	.	.	.	.	.	.	.
Oregon	Yes	Yes	16	205	4	3.847	1.040	0.330	2.508	0	.	.	.	.
Pennsylvania	Yes	Yes	5	30	0	0.562	.	.	.	0	.	.	.	.
Puerto Rico	Yes	No	0	.	.	.	.	.	.	.	.	.	.	.
Rhode Island	No	No	0	.	.	.	.	.	.	.	.	.	.	.
South Carolina	Yes	No	1	.	.	.	.	.	.	.	.	.	.	.
South Dakota	No	Yes	2	.	.	.	.	.	.	.	.	.	.	.
Tennessee	No	No	1	.	.	.	.	.	.	.	.	.	.	.
Texas	Yes	YesA	13	73	1	1.271	0.787	0.039	3.879	0	.	.	.	.
Utah	No	No	3	.	.	.	.	.	.	.	.	.	.	.
Vermont	No	No	4	.	.	.	.	.	.	.	.	.	.	.
Virgin Islands			0	.	.	.	.	.	.	.	.	.	.	.
Virginia	No	Yes	3	.	.	.	.	.	.	.	.	.	.	.
Washington	Yes	Yes	14	111	0	1.982	0.000	.	1.511	0	.	.	.	.
West Virginia	No	No	6	63	1	1.132	0.884	0.044	4.358	0	.	.	.	.
Wisconsin	No	No	28	282	3	5.118	0.586	0.149	1.595	1	.	.	.	.
Wyoming	No	No	5	14	0	0.222	.	.	.	0	.	.	.	.
All US			292	2,390	43	45.121	0.953	0.698	1.272	1				

1. Critical Access Hospitals are not required to report SSIs following inpatient colon procedures in adults 18 years and older to NHSN for participation in the Centers for Medicare and Medicaid Services' (CMS) Hospital Inpatient Quality Reporting Program. SSIs included in this table are those classified as deep incisional or organ/space infections following NHSN-defined inpatient colon procedures that occurred in 2022 with a primary or other than primary skin closure technique, detected during the same admission as the surgical procedure or upon readmission to the same facility. The colon surgery SSI data published in this report use different risk adjustment methodology and a different subset of data than that which are used for public reporting by CMS.
2. Yes indicates the presence of a state mandate to report SSIs following colon surgery to NHSN at the beginning of 2022. M indicates midyear implementation of a mandate. No indicates that a state mandate did not exist during 2022.
3. Yes indicates that the state health department reported the completion of all of the following validation activities: state health department had access to 2022 NHSN data, state health department performed an assessment of missing or implausible values on at least six months of 2022 NHSN data prior to June 1, 2023, and state health department contacted identified facilities. YesA indicates that the state also conducted an audit of facility medical or laboratory records prior to June 1, 2023 to confirm proper case ascertainment (although intensity of auditing activities varies by state). Information on validation efforts was requested from all states, regardless of the presence of a legislative mandate for the particular HAI type. Some states without mandatory reporting of a given HAI to the state health department have performed validation on NHSN data that is voluntarily shared with them by facilities in their jurisdiction.
4. The number of reporting facilities included in the SIR calculation. Due to SIR exclusion criteria, this may be different from the numbers shown in Table 1. Refer to the Technical Appendix for information about exclusion criteria. SIRs and accompanying statistics are only calculated for states in which at least 5 facilities reported SSI data following colon surgery in 2022.
5. Percent of facilities with at least one predicted colon surgery SSI that had an SIR significantly greater or less than the nominal value of the 2022 national colon surgery SIR of 0.953. This is only calculated if at least 10 facilities had at least one predicted colon surgery SSI in 2022.
6. Facility-specific key percentiles were only calculated if at least 20 facilities had ≥ 1.0 predicted colon surgery SSI in 2022. If a facility's predicted number of colon surgery SSI was < 1.0 , a facility-specific SIR was neither calculated nor included in the distribution of facility-specific SIRs.

Table 6. State-specific standardized infection ratios (SIRs) and facility-specific SIR summary measures, NHSN Critical Access Hospitals reporting during 2022
6b. Surgical site infections (SSI) following abdominal hysterectomy surgery¹ in adults ≥ 18 years

State	No. of Critical Access Hospitals Reporting ⁴		No. of Procedures	No. of Infections		95% CI for SIR			Facility-specific SIRs					
	Yes	No		Observed	Predicted	SIR	Lower	Upper	10%	25%	75%	90%		
Alabama	Yes	Yes	0		-	-	-	-	-	-	-	-	-	
Alaska	Yes	No	1		-	-	-	-	-	-	-	-	-	
Arizona	No	No	1		-	-	-	-	-	-	-	-	-	
Arkansas	Yes	No	3		-	-	-	-	-	-	-	-	-	
California	Yes	YesA	9	46	1	0.273	-	-	0	-	-	-	-	
Colorado	Yes	Yes	10	31	0	0.175	-	-	0	-	-	-	-	
Connecticut	Yes	No	0		-	-	-	-	-	-	-	-	-	
D.C.	Yes	No	0		-	-	-	-	-	-	-	-	-	
Delaware	No	No	0		-	-	-	-	-	-	-	-	-	
Florida	No	No	0		-	-	-	-	-	-	-	-	-	
Georgia	No	YesA	2		-	-	-	-	-	-	-	-	-	
Guam	No	No	0		-	-	-	-	-	-	-	-	-	
Hawaii	No	Yes	1		-	-	-	-	-	-	-	-	-	
Idaho	No	No	3		-	-	-	-	-	-	-	-	-	
Illinois	No	No	8	91	2	0.590	-	-	0	-	-	-	-	
Indiana	Yes	Yes	12	129	0	0.707	-	-	0	-	-	-	-	
Iowa	No	Yes	2		-	-	-	-	-	-	-	-	-	
Kansas	No	Yes	7	44	1	0.205	-	-	0	-	-	-	-	
Kentucky	Yes	No	2		-	-	-	-	-	-	-	-	-	
Louisiana	No	No	2		-	-	-	-	-	-	-	-	-	
Maine	No	No	7	83	0	0.408	-	-	0	-	-	-	-	
Maryland	Yes	No	0		-	-	-	-	-	-	-	-	-	
Massachusetts	Yes	Yes	1		-	-	-	-	-	-	-	-	-	
Michigan	No	Yes	8	20	0	0.151	-	-	0	-	-	-	-	
Minnesota	No	No	13	78	0	0.426	-	-	0	-	-	-	-	
Mississippi	No	No	0		-	-	-	-	-	-	-	-	-	
Missouri	No	No	6	44	0	0.241	-	-	0	-	-	-	-	
Montana	No	No	6	37	0	0.218	-	-	0	-	-	-	-	
Nebraska	No	No	2		-	-	-	-	-	-	-	-	-	
Nevada	No	No	1		-	-	-	-	-	-	-	-	-	
New Hampshire	Yes	Yes	7	65	0	0.401	-	-	0	-	-	-	-	
New Jersey	No	No	0		-	-	-	-	-	-	-	-	-	
New Mexico	No	No	4		-	-	-	-	-	-	-	-	-	
New York	No	No	2		-	-	-	-	-	-	-	-	-	
North Carolina	No	No	6	50	0	0.361	-	-	0	-	-	-	-	
North Dakota	No	No	3		-	-	-	-	-	-	-	-	-	
Ohio	No	Yes	10	89	0	0.456	-	-	0	-	-	-	-	
Oklahoma	No	No	0		-	-	-	-	-	-	-	-	-	
Oregon	Yes	Yes	12	139	0	0.815	-	-	0	-	-	-	-	
Pennsylvania	Yes	Yes	4		-	-	-	-	-	-	-	-	-	
Puerto Rico	Yes	No	0		-	-	-	-	-	-	-	-	-	
Rhode Island	No	No	0		-	-	-	-	-	-	-	-	-	
South Carolina	Yes	No	0		-	-	-	-	-	-	-	-	-	
South Dakota	No	Yes	1		-	-	-	-	-	-	-	-	-	
Tennessee	No	No	1		-	-	-	-	-	-	-	-	-	
Texas	Yes	No	5	56	0	0.280	-	-	0	-	-	-	-	
Utah	No	No	1		-	-	-	-	-	-	-	-	-	
Vermont	No	No	5	81	1	0.410	-	-	0	-	-	-	-	
Virgin Islands			0		-	-	-	-	-	-	-	-	-	
Virginia	No	Yes	2		-	-	-	-	-	-	-	-	-	
Washington	Yes	Yes	9	122	0	0.698	-	-	0	-	-	-	-	
West Virginia	No	No	3		-	-	-	-	-	-	-	-	-	
Wisconsin	No	No	20	146	2	0.673	-	-	0	-	-	-	-	
Wyoming	No	No	2		-	-	-	-	-	-	-	-	-	
All US			204	1,750	9	9.919	0.907	0.442	1.665	0	-	-	-	-

1. Critical Access Hospitals are not required to report SSIs following inpatient abdominal hysterectomy procedures in adults 18 years and older to NHSN for participation in the Centers for Medicare and Medicaid Services' (CMS) Hospital Inpatient Quality Reporting Program. SSIs included are those classified as deep incisional or organ/space infections following NHSN-defined inpatient abdominal hysterectomy procedures that occurred in 2022 with a primary or other than primary skin closure technique, detected during the same admission

- as the surgical procedure or upon readmission to the same facility. The abdominal hysterectomy SSI data published in this report use different risk adjustment methodology and a different subset of data than that which are used for public reporting by CMS.
2. Yes indicates the presence of a state mandate to report SSIs following abdominal hysterectomy surgery to NHSN at the beginning of 2022. M indicates midyear implementation of a mandate. No indicates that a state mandate did not exist during 2022.
 3. Yes indicates that the state health department reported the completion of all of the following validation activities: state health department had access to 2022 NHSN data, state health department performed an assessment of missing or implausible values on at least six months of 2022 NHSN data prior to June 1, 2023, and state health department contacted identified facilities. YesA indicates that the state also conducted an audit of facility medical or laboratory records prior to June 1, 2023 to confirm proper case ascertainment (although intensity of auditing activities varies by state). Information on validation efforts was requested from all states, regardless of the presence of a legislative mandate for the particular HAI type. Some states without mandatory reporting of a given HAI to the state health department have performed validation on NHSN data that is voluntarily shared with them by facilities in their jurisdiction.
 4. The number of reporting facilities included in the SIR calculation. Due to SIR exclusion criteria, this may be different from the numbers shown in Table 1. Refer to the Technical Appendix for information about exclusion criteria. SIRs and accompanying statistics are only calculated for states in which at least 5 facilities reported SSI data following abdominal hysterectomy surgery in 2022.
 5. Percent of facilities with at least one predicted abdominal hysterectomy SSI that had an SIR significantly greater or less than the nominal value of the 2022 national abdominal hysterectomy SIR of 0.907. This is only calculated if at least 10 facilities had at least one predicted abdominal hysterectomy SSI in 2022.
 6. Facility-specific key percentiles were only calculated if at least 20 facilities had ≥ 1.0 predicted abdominal hysterectomy SSI in 2022. If a facility's predicted number of abdominal hysterectomy SSI was < 1.0 , a facility-specific SIR was neither calculated nor included in the distribution of facility-specific SIRs.

**Table 7. State-specific standardized infection ratios (SIRs) and facility-specific SIR summary measures,
NHSN Critical Access Hospitals reporting during 2022
Hospital-onset methicillin-resistant *Staphylococcus aureus* (MRSA) bacteremia, facility-wide¹**

State			No. of Events		95% CI for SIR		Facility-specific SIRs			
	Observed	Predicted	SIR	Lower	Upper	No. of hosp with at least 1 predicted HO MRSA bacteremia	10%	25%	75%	90%
Alabama	No	No	3	.	.	.	.	.	.	.
Alaska	No	No	2	.	.	.	.	.	.	.
Arizona	No	No	7	1	0.383	.	.	0	.	.
Arkansas	No	No	13	1	0.552	.	.	0	.	.
California	Yes	YesA	36	3	2.388	1.256	0.320	3.419	0	.
Colorado	Yes	No	29	2	1.350	1.481	0.248	4.895	0	.
Connecticut	No	No	0	.	.	.	.	.	.	.
D.C.	No	No	0	.	.	.	.	.	.	.
Delaware	No	No	0	.	.	.	.	.	.	.
Florida	No	No	4	.	.	.	.	.	.	.
Georgia	Yes	YesA	21	1	1.840	0.543	0.027	2.680	0	.
Guam	No	No	0	.	.	.	.	.	.	.
Hawaii	No	Yes	2	.	.	.	.	.	.	.
Idaho	No	No	19	2	0.801	.	.	.	0	.
Illinois	Yes	Yes	50	4	2.910	1.375	0.437	3.316	0	.
Indiana	Yes	Yes	35	1	2.288	0.437	0.022	2.156	0	.
Iowa	No	Yes	64	1	2.677	0.374	0.019	1.842	0	.
Kansas	No	Yes	68	1	2.785	0.359	0.018	1.771	0	.
Kentucky	No	No	27	9	2.020	4.455	2.173	8.176	0	.
Louisiana	No	No	7	1	0.545	.	.	.	0	.
Maine	Yes	No	16	4	1.791	2.233	0.710	5.387	0	.
Maryland	No	No	0	.	.	.	.	.	.	.
Massachusetts	Yes	Yes	3	.	.	.	.	.	.	.
Michigan	No	Yes	32	1	1.617	0.618	0.031	3.050	0	.
Minnesota	No	No	48	1	2.438	0.410	0.021	2.023	0	.
Mississippi	No	No	21	2	1.282	1.560	0.262	5.154	0	.
Missouri	No	No	26	2	2.174	0.920	0.154	3.039	0	.
Montana	No	No	10	0	0.880	.	.	.	0	.
Nebraska	No	No	38	0	1.199	0.000	.	2.499	0	.
Nevada	Yes	No	5	1	0.372	.	.	.	0	.
New Hampshire	No	No	11	1	1.177	0.850	0.043	4.190	0	.
New Jersey	No	No	0	.	.	.	.	.	.	.
New Mexico	No	No	10	0	0.645	.	.	.	0	.
New York	No	No	9	0	0.671	.	.	.	0	.
North Carolina	No	No	13	4	1.255	3.187	1.013	7.688	0	.
North Dakota	No	No	21	0	0.756	.	.	.	0	.
Ohio	No	Yes	29	1	2.304	0.434	0.022	2.141	0	.
Oklahoma	No	Yes	17	0	0.679	.	.	.	0	.
Oregon	Yes	Yes	25	3	2.074	1.446	0.368	3.937	0	.
Pennsylvania	Yes	No	13	1	1.101	0.908	0.045	4.479	0	.
Puerto Rico	Yes	Yes	0	.	.	.	.	.	.	.
Rhode Island	No	No	0	.	.	.	.	.	.	.
South Carolina	Yes	Yes	4	.	.	.	.	.	.	.
South Dakota	No	No	39	1	1.365	0.733	0.037	3.613	0	.
Tennessee	No	No	7	0	0.202	.	.	.	0	.
Texas	Yes	No	67	2	2.620	0.763	0.128	2.522	0	.
Utah	No	No	7	0	0.201	.	.	.	0	.

Vermont	No	No	8	2	0.967	.	.	.	0	.	.	.	.	.	.	.	.	.	.
Virgin Islands			0	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Virginia	No	Yes	6	2	0.594	.	.	.	0	.	.	.	.	.	.	.	.	.	.
Washington	No	Yes	30	2	2.098	0.953	0.160	3.150	0	.	.	.	.	.	.	.	.	.	.
West Virginia	No	No	15	0	1.260	0.000	.	2.378	0	.	.	.	.	.	.	.	.	.	.
Wisconsin	No	No	55	3	4.005	0.749	0.191	2.039	0	.	.	.	.	.	.	.	.	.	.
Wyoming	No	No	8	0	0.261	.	.	.	0	.	.	.	.	.	.	.	.	.	.
All US			980	61	57.660	1.058	0.816	1.350	0	.	.	.	.	.	.	.	.	.	.

- Critical Access Hospitals are not required to report facility-wide MRSA bacteremia data to NHSN for participation in the Centers for Medicare and Medicaid Services' (CMS) Hospital Inpatient Quality Reporting Program. Hospital-onset is defined as event detected on the 4th day (or later) after admission to an inpatient location within the facility.
- Yes indicates the presence of a state mandate to report facility-wide MRSA bacteremia data to NHSN at the beginning of 2022. M indicates midyear implementation of a mandate. No indicates that a state mandate did not exist during 2022.
- Yes indicates that the state health department reported the completion of all of the following validation activities: state health department had access to 2022 NHSN data, state health department performed an assessment of missing or implausible values on at least six months of 2022 NHSN data prior to June 1, 2023, and state health department contacted identified facilities. YesA indicates that the state also conducted an audit of facility medical or laboratory records prior to June 1, 2023 to confirm proper case ascertainment (although intensity of auditing activities varies by state). Information on validation efforts was requested from all states, regardless of the presence of a legislative mandate for the particular HAI type. Some states without mandatory reporting of a given HAI to the state health department have performed validation on NHSN data that is voluntarily shared with them by facilities in their jurisdiction.
- The number of reporting facilities included in the SIR calculation. Due to SIR exclusion criteria, this may be different from the numbers shown in Table 1. Refer to the Technical Appendix for information about exclusion criteria. SIRs and accompanying statistics are only calculated for states in which at least 5 facilities reported MRSA bacteremia data in 2022.
- Percent of facilities with at least one predicted hospital-onset MRSA bacteremia that had an SIR significantly greater or less than the nominal value of the 2022 national hospital-onset MRSA bacteremia SIR of 1.058. This is only calculated if at least 10 facilities had at least one predicted hospital-onset MRSA bacteremia in 2022.
- Facility-specific key percentiles were only calculated if at least 20 facilities had ≥ 1.0 predicted hospital-onset MRSA bacteremia in 2022. If a facility's predicted number of hospital-onset MRSA bacteremia was < 1.0 , a facility-specific SIR was neither calculated nor included in the distribution of facility-specific SIRs.

**Table 8. State-specific standardized infection ratios (SIRs) and facility-specific SIR summary measures,
NHSN Critical Access Hospitals reporting during 2022
Hospital-onset *Clostridioides difficile* (CDI), facility-wide¹**

State			No. of Events		95% CI for SIR		Facility-specific SIRs			
	Observed	Predicted	SIR	Lower	Upper	No. of hosp with at least 1 predicted HO CDI	10%	25%	75%	90%
Alabama	No	No	3	.	.	.	.	.	.	.
Alaska	No	No	3	.	.	.	.	.	.	.
Arizona	No	No	8	3	5.691	0.527	0.134	1.435	2	.
Arkansas	No	No	13	3	6.747	0.445	0.113	1.210	2	.
California	Yes	YesA	36	25	33.708	0.742	0.491	1.079	12	0%
Colorado	No	No	29	18	18.778	0.959	0.586	1.486	7	.
Connecticut	No	No	0	.	.	.	.	.	.	.
D.C	No	No	0	.	.	.	.	.	.	.
Delaware	No	No	0	.	.	.	.	.	.	.
Florida	No	No	5	2	3.971	0.504	0.084	1.664	1	.
Georgia	Yes	YesA	21	11	21.519	0.511	0.269	0.888	7	.
Guam	No	No	0	.	.	.	.	.	.	.
Hawaii	No	Yes	1	.	.	.	.	.	.	.
Idaho	No	No	20	6	11.218	0.535	0.217	1.112	3	.
Illinois	Yes	Yes	51	53	39.978	1.326	1.003	1.721	12	0%
Indiana	Yes	Yes	35	33	34.557	0.955	0.668	1.326	9	.
Iowa	No	Yes	67	31	34.592	0.896	0.620	1.256	8	.
Kansas	No	Yes	67	28	33.726	0.830	0.563	1.184	9	.
Kentucky	No	No	27	27	28.100	0.961	0.646	1.379	15	7%
Louisiana	No	No	8	4	6.260	0.639	0.203	1.541	3	.
Maine	Yes	No	16	19	29.936	0.635	0.393	0.973	13	0%
Maryland	No	No	0	.	.	.	.	.	.	.
Massachusetts	Yes	Yes	3	.	.	.	.	.	.	.
Michigan	No	Yes	33	17	23.782	0.715	0.430	1.121	8	.
Minnesota	No	No	60	47	43.364	1.084	0.805	1.429	17	0%
Mississippi	No	No	22	13	18.010	0.722	0.401	1.203	7	.
Missouri	No	No	27	29	38.106	0.761	0.519	1.079	8	.
Montana	No	No	10	5	11.389	0.439	0.161	0.973	4	.
Nebraska	No	No	38	17	14.690	1.157	0.697	1.815	2	.
Nevada	No	No	4	.	.	.	.	.	.	.
New Hampshire	Yes	No	11	23	16.466	1.397	0.907	2.063	11	9%
New Jersey	No	No	0	.	.	.	.	.	.	.
New Mexico	Yes	No	10	9	8.694	1.035	0.505	1.900	3	.
New York	No	No	9	5	10.821	0.462	0.169	1.024	6	.
North Carolina	No	No	13	6	15.611	0.384	0.156	0.799	7	.
North Dakota	No	No	21	8	8.432	0.949	0.441	1.802	2	.
Ohio	No	Yes	29	28	33.956	0.825	0.559	1.176	15	0%
Oklahoma	No	Yes	17	15	8.749	1.714	0.996	2.764	2	.
Oregon	Yes	Yes	25	30	29.227	1.026	0.705	1.447	11	0%
Pennsylvania	Yes	No	12	15	17.441	0.860	0.500	1.387	8	.
Puerto Rico	Yes	Yes	0	.	.	.	.	.	.	.
Rhode Island	No	No	0	.	.	.	.	.	.	.
South Carolina	Yes	Yes	4	.	.	.	.	.	.	.
South Dakota	No	Yes	39	10	16.283	0.614	0.312	1.095	1	.
Tennessee	No	No	8	6	2.518	2.383	0.966	4.956	0	.
Texas	Yes	No	68	26	34.479	0.754	0.503	1.089	7	.
Utah	No	No	7	0	2.391	0.000	.	1.253	0	.
Vermont	No	No	8	19	14.294	1.329	0.824	2.037	7	.
Virgin Islands	.	.	0	.	.	.	.	.	.	.
Virginia	No	Yes	6	3	10.749	0.279	0.071	0.760	5	.

Washington	No	Yes	33	18	31.897	0.564	0.345	0.875	15	0%	0%	.	.	.	.	.
West Virginia	Yes	No	15	17	20.007	0.850	0.512	1.333	10	10%	0%	.	.	.	.	.
Wisconsin	No	No	56	43	59.788	0.719	0.527	0.960	27	0%	0%	0.000	0.000	0.578	0.902	1.621
Wyoming	No	No	13	3	6.199	0.484	0.123	1.317	1	.	.	.	.	.	.	.
All US			1,011	686	821.555	0.835	0.774	0.899	293	3%	1%	0.000	0.000	0.623	1.331	1.966

- Critical Access Hospitals are not required to report facility-wide CDI data to NHSN for participation in the Centers for Medicare and Medicaid Services' (CMS) Hospital Inpatient Quality Reporting Program. Hospital-onset is defined as event detected on the 4th day (or later) after admission to an inpatient location within the facility.
- Yes indicates the presence of a state mandate to report facility-wide CDI data to NHSN at the beginning of 2022. M indicates midyear implementation of a mandate. No indicates that a state mandate did not exist during 2022.
- Yes indicates that the state health department reported the completion of all of the following validation activities: state health department had access to 2022 NHSN data, state health department performed an assessment of missing or implausible values on at least six months of 2022 NHSN data prior to June 1, 2023, and state health department contacted identified facilities. YesA indicates that the state also conducted an audit of facility medical or laboratory records prior to June 1, 2023 to confirm proper case ascertainment (although intensity of auditing activities varies by state). Information on validation efforts was requested from all states, regardless of the presence of a legislative mandate for the particular HAI type. Some states without mandatory reporting of a given HAI to the state health department have performed validation on NHSN data that is voluntarily shared with them by facilities in their jurisdiction.
- The number of reporting facilities included in the SIR calculation. Due to SIR exclusion criteria, this may be different from the numbers shown in Table 1. Refer to the Technical Appendix for information about exclusion criteria. SIRs and accompanying statistics are only calculated for states in which at least 5 facilities reported CDI data in 2022.
- Percent of facilities with at least one predicted hospital-onset CDI that had an SIR significantly greater or less than the nominal value of the 2022 national hospital-onset CDI SIR of 0.835. This is only calculated if at least 10 facilities had at least one predicted hospital-onset CDI in 2022.
- Facility-specific key percentiles were only calculated if at least 20 facilities had ≥ 1.0 predicted hospital-onset CDI in 2022. If a facility's predicted number of hospital-onset CDI was < 1.0 , a facility-specific SIR was neither calculated nor included in the distribution of facility-specific SIRs.

Table 9. Changes in national standardized infection ratios (SIRs) using HAI data reported from all NHSN Critical Access Hospitals. Central line-associated bloodstream infections (CLABSIs), catheter-associated urinary tract infections (CAUTIs), ventilator-associated events (VAEs), *Clostridioides difficile* infections, and surgical site infections (SSIs) following Surgical Care Improvement Program (SCIP) implementation.

	2021				2022	
	No. of Critical Access Hospitals Reporting	Observed	Predicted	SIR	Observed	SIR
CLABSI, all locations¹	838	56	57.328	0.977	902	44
CLABSI, ICUs ²	194	19	7.290	2.606	196	12
CLABSI, Wards ³	824	37	50.038	0.739	889	32
CAUTI, all locations¹	984	267	368.254	0.725	1,042	301
CAUTI, ICUs ²	204	31	46.460	0.667	204	19
CAUTI, Wards ³	970	236	321.790	0.733	1,028	282
VAE, all¹	141	61	15.169	4.021	133	34
ICUs ²	108	49	11.985	4.088	103	30
Wards ³	39	12	3.184	3.769	38	4
Hospital-onset MRSA bacteremia, facility-wide⁴	889	43	53.229	0.808	980	61
Hospital-onset <i>C. difficile</i> infections, facility-wide⁴	923	549	769.927	0.713	1,011	686
SSI, combined SCIP procedures⁵	403	96	116.822	0.822	424	104
SSI, Abdominal aortic aneurysm repair	1	.	.	.	0	.
SSI, Coronary artery bypass graft ⁶	0	.	.	.	0	.
SSI, Cardiac surgery	0	.	.	.	0	.
SSI, Colon surgery	283	43	41.798	1.029	292	43
SSI, Hip arthroplasty	249	18	33.827	0.532	270	28
SSI, Abdominal hysterectomy	200	13	10.862	1.197	204	9
SSI, Knee arthroplasty	267	22	28.844	0.763	279	24
SSI, Peripheral vascular bypass surgery	1	.	.	.	0	.

SSI, Rectal surgery	13	0	0.828	13	0
SSI, Vaginal hysterectomy	18	0	0.621	22	0

* Statistically significant, $p < 0.0500$. Statistical significance based on two-tailed p -value < 0.05 , reflected in the relative percent change in magnitude.

1. Data from all ICUs and wards (and other non-critical care locations). This excludes LTAC locations (or facilities) and IRF locations (or facilities) and AC
2. Data from all ICUs; excludes wards (and other non-critical care locations), LTAC locations (or facilities), and IRF locations (or facilities).
3. Data from all wards (for this table wards also include step-down and specialty care areas [including hematology/oncology, bone marrow transplant]. Th
4. Hospital-onset is defined as event detected on the 4th day (or later) after admission to an inpatient location within the facility.
5. These procedures were presented in previous versions of the HAI Progress Report and follow select inpatient surgical procedures with a primary and o using NHSN surgical procedure categorizations. Includes SSIs that were classified as deep incisional or organ/space, and were detected upon admissi
6. Coronary artery bypass graft includes procedures with either chest only or chest and donor site incisions.

hospitals reporting during 2022 by HAI and patient population:
 VTEs (VAEs), methicillin-resistant *Staphylococcus aureus* (MRSA) bacteremia,
 and surgical site infection (SSIs) after major orthopedic (SCIP) procedures, 2021 compared to 2022

Predicted	SIR	Percent Change	Direction of Change, Based on Statistical Significance	p-value
59.039	0.745	24%	No change	0.1799
5.879	2.041	22%	No change	0.5162
53.153	0.602	19%	No change	0.3970
463.270	0.650	10%	No change	0.1925
51.392	0.370	45%	Decrease	0.0415
411.874	0.685	7%	No change	0.4358
8.725	3.897	3%	No change	0.8914
7.633	3.930	4%	No change	0.8724
1.092	3.664	3%	No change	0.9968
57.660	1.058	31%	No change	0.1757
821.555	0.835	17%	Increase	0.0057
128.521	0.809	2%	No change	0.9128
.
.
.
45.121	0.953	7%	No change	0.7236
40.200	0.697	31%	No change	0.3773
9.919	0.907	24%	No change	0.5332
32.104	0.748	2%	No change	0.9445
.

0.633	.	.	.	.
0.544	.	.	.	.

SHs.

is excludes LTAC locations [or facilities] and IRF locations [or facilities]).

Other primary skin closure technique approximating the procedures covered by SCIP,
ion or readmission. Specific NHSN procedures and the corresponding SCIP procedures are listed in Appendix C

Table 10. Changes in state-specific standardized infection ratios (SIRs) between 2021 and 2022 from NHSN Critical Access Hospitals
10a. Central line-associated bloodstream infections (CLABSI), all locations¹

State ²	All Critical Access Hospitals Reporting to NHSN				
	2021 SIR	2022 SIR	Percent Change ³	Direction of Change, Based on Statistical Significance	p-value
Alabama	.	.	.	.	.
Alaska	.	.	.	.	.
Arizona	.	.	.	.	.
Arkansas	.	.	.	.	.
California	1.440	1.594	11%	No change	0.8890
Colorado	.	.	.	.	.
Connecticut	.	.	.	.	.
D.C.	.	.	.	.	.
Delaware	.	.	.	.	.
Florida	.	.	.	.	.
Georgia	0.000	0.000	0%	.	Inestimable
Guam	.	.	.	.	.
Hawaii	.	.	.	.	.
Idaho	.	.	.	.	.
Illinois	0.000	0.532	>>100%	.	Inestimable
Indiana	1.999	0.000	.	.	.
Iowa	0.392	1.019	160%	No change	0.4508
Kansas	0.347	0.327	6%	No change	0.9709
Kentucky	0.384	1.821	374%	No change	0.1273
Louisiana	.	0.966	.	.	.
Maine	1.268	0.000	100%	No change	0.2812
Maryland	.	.	.	.	.
Massachusetts	.	.	.	.	.
Michigan	3.234	2.521	22%	No change	0.7639
Minnesota	0.756	0.767	1%	No change	0.9900
Mississippi	.	0.000	.	.	.
Missouri	1.698	0.640	62%	No change	0.4391
Montana	.	.	.	.	.
Nebraska	.	0.000	.	.	.
Nevada	.	.	.	.	.
New Hampshire	.	.	.	.	.
New Jersey	.	.	.	.	.
New Mexico	.	.	.	.	.
New York	.	.	.	.	.
North Carolina	3.098	1.956	37%	No change	0.5688
North Dakota	.	.	.	.	.
Ohio	2.257	0.456	80%	No change	0.1278
Oklahoma	.	.	.	.	.
Oregon	0.471	0.478	1%	No change	0.9929
Pennsylvania	0.000	1.477	>>100%	.	Inestimable
Puerto Rico	.	.	.	.	.
Rhode Island	.	.	.	.	.
South Carolina	.	.	.	.	.
South Dakota	.	0.664	.	.	.
Tennessee	.	.	.	.	.
Texas	0.329	0.374	14%	No change	0.9373
Utah	.	.	.	.	.
Vermont	.	.	.	.	.
Virgin Islands	.	.	.	.	.
Virginia	.	.	.	.	.
Washington	2.162	1.239	43%	No change	0.4534
West Virginia	2.254	1.487	34%	No change	0.6793
Wisconsin	0.858	0.225	74%	No change	0.2376
Wyoming	.	.	.	.	.
All US	0.977	0.745	24%	No change	0.1799

* Statistically significant, p < 0.0500. Statistical significance based on two-tailed p-value < 0.05, reflected in the relative percent change in magnitude.

1. Data from all ICUs, wards (and other non-critical care locations). This excludes LTAC locations (or facilities) and IRF locations (or facilities).

2. States without SIR either in 2021 and/or 2022 and therefore subsequent data not calculated

3. For states with >>100% value in the percent change field, the p-value cannot be estimated due to sparse data reported within the facility type.

The p-value is indicated as inestimable when the numerator and/or denominator of percent change = 0.

Table 10. Changes in state-specific standardized infection ratios (SIRs) between 2021 and 2022 from NHSN Critical Access Hospitals					
10b. Catheter-associated urinary tract infections (CAUTI), all locations ¹					
	All Critical Access Hospitals Reporting to NHSN				
	2021 SIR	2022 SIR	Direction of Change, Based on Statistical Significance		p-value
Alabama	0.000	0.334	>>100%		Inestimable
Alaska	.	.	.		.
Arizona	1.701	0.506	236%	No change	0.2941
Arkansas	1.263	1.286	2%	No change	0.9885
California	0.599	0.611	2%	No change	0.9664
Colorado	0.626	0.954	34%	No change	0.5116
Connecticut	.	.	.		.
D.C.	.	.	.		.
Delaware	.	.	.		.
Florida	0.000	0.375	>>100%		Inestimable
Georgia	0.529	0.289	83%	No change	0.4282
Guam	.	.	.		.
Hawaii	.	.	.		.
Idaho	1.431	0.595	141%	No change	0.1874
Illinois	0.539	0.375	44%	No change	0.4670
Indiana	0.413	0.485	15%	No change	0.7810
Iowa	0.320	0.555	42%	No change	0.2170
Kansas	0.512	0.616	17%	No change	0.6194
Kentucky	1.389	0.756	84%	No change	0.0646
Louisiana	0.293	0.366	20%	No change	0.8900
Maine	0.339	0.469	28%	No change	0.6272
Maryland	.	.	.		.
Massachusetts	.	.	.		.
Michigan	0.374	0.650	42%	No change	0.4710
Minnesota	0.905	0.666	36%	No change	0.3686
Mississippi	0.721	0.778	7%	No change	0.9111
Missouri	2.331	1.094	113%	No change	0.0726
Montana	0.183	0.754	76%	No change	0.0662
Nebraska	0.577	0.498	16%	No change	0.8388
Nevada	0.000	0.000	0%		Inestimable
New Hampshire	0.209	0.338	38%	No change	0.5340
New Jersey	.	.	.		.
New Mexico	0.344	0.000	100%	No change	0.1988
New York	2.415	1.411	71%	No change	0.4959
North Carolina	0.933	0.654	43%	No change	0.4633
North Dakota	0.536	0.556	4%	No change	0.9489
Ohio	0.671	0.660	2%	No change	0.9659
Oklahoma	4.230	0.793	433%	Increase	0.0011
Oregon	1.085	0.468	132%	No change	0.0668
Pennsylvania	1.779	0.563	216%	Increase	0.0423
Puerto Rico	.	.	.		.
Rhode Island	.	.	.		.
South Carolina	.	.	.		.
South Dakota	0.392	1.221	68%	No change	0.1102
Tennessee	0.000	1.712	>>100%		Inestimable
Texas	0.816	0.735	11%	No change	0.7837
Utah	0.000	0.650	>>100%		Inestimable
Vermont	.	.	.		.
Virgin Islands	.	.	.		.
Virginia	0.854	0.848	1%	No change	0.9946
Washington	1.636	1.280	28%	No change	0.4418
West Virginia	0.111	0.566	80%	No change	0.0979
Wisconsin	0.690	0.754	8%	No change	0.7879
Wyoming	0.163	0.700	77%	No change	0.1917
All US	0.725	0.650	10%	No change	0.1925

* Statistically significant, p < 0.0500. Statistical significance based on two-tailed p-value < 0.05, reflected in the relative percent change in magnitude.

1. Data from all ICUs, wards (and other non-critical care locations). This excludes LTAC locations (or facilities) and IRF locations (or facilities).
2. States without SIR either in 2021 and/or 2022 and therefore subsequent data not calculated
3. For states with >>100% value in the percent change field, the p-value cannot be estimated due to sparse data reported within the facility type. The p-value is indicated as inestimable when the numerator and/or denominator of percent change = 0.

Table 10. Changes in state-specific standardized infection ratios (SIRs) between 2021 and 2022 from NHSN Critical Access Hospitals
10c. Ventilator-associated events (VAE), all locations¹

	All Critical Access Hospitals Reporting to NHSN				
	2021 SIR	2022 SIR	Direction of Change, Based on Statistical Significance		p-value
Alabama
Alaska
Arizona
Arkansas
California	8.009	1.635	80%	Decrease	0.0135
Colorado
Connecticut
D.C.
Delaware
Florida
Georgia
Guam
Hawaii
Idaho
Illinois
Indiana	0.000	.	.	.	.
Iowa
Kansas
Kentucky
Louisiana
Maine
Maryland
Massachusetts
Michigan
Minnesota
Mississippi
Missouri
Montana
Nebraska
Nevada
New Hampshire
New Jersey
New Mexico
New York
North Carolina
North Dakota
Ohio	11.778	.	.	.	.
Oklahoma
Oregon
Pennsylvania
Puerto Rico
Rhode Island
South Carolina
South Dakota
Tennessee
Texas
Utah
Vermont
Virgin Islands
Virginia
Washington	1.578	.	.	.	.
West Virginia
Wisconsin
Wyoming
All US	4.021	3.897	3%	No change	0.8914

* Statistically significant, p < 0.0500. Statistical significance based on two-tailed p-value < 0.05, reflected in the relative percent change in magnitude.

1. Data from all ICUs, wards (and other non-critical care locations). This excludes LTAC locations (or facilities) and IRF locations (or facilities).
2. All states without SIR both in 2021 and 2022 and therefore subsequent data not calculated
3. For states with >>100% value in the percent change field, the p-value cannot be estimated due to sparse data reported within the facility type. The p-value is indicated as inestimable when the numerator and/or denominator of percent change = 0.

Table 10. Changes in state-specific standardized infection ratios (SIRs) between 2021 and 2022 from NHSN Critical Access Hospitals

10d. Surgical site infections (SSI) following colon surgery¹

All Critical Access Hospitals Reporting to NHSN					
	2021 SIR	2022 SIR	Direction of Change, Based on Statistical Significance		p-value
Alabama	.	.	.	.	.
Alaska	.	.	.	.	.
Arizona	.	.	.	.	.
Arkansas	.	.	.	.	.
California	1.497	1.854	24%	No change	0.7306
Colorado	0.899	1.265	41%	No change	0.8316
Connecticut	.	.	.	.	.
D.C.	.	.	.	.	.
Delaware	.	.	.	.	.
Florida	.	.	.	.	.
Georgia	.	.	.	.	.
Guam	.	.	.	.	.
Hawaii	.	.	.	.	.
Idaho	.	.	.	.	.
Illinois	0.438	0.000	100%	No change	0.4672
Indiana	0.387	0.712	84%	No change	0.6727
Iowa	.	.	.	.	.
Kansas	1.821	0.712	61%	No change	0.4934
Kentucky	.	.	.	.	.
Louisiana	.	.	.	.	.
Maine	0.622	0.608	2%	No change	0.9883
Maryland	.	.	.	.	.
Massachusetts	.	.	.	.	.
Michigan	3.266	0.000	100%	Decrease	0.0199
Minnesota	1.066	0.000	100%	No change	0.1976
Mississippi	.	.	.	.	.
Missouri	.	.	.	.	.
Montana	.	.	.	.	.
Nebraska	.	.	.	.	.
Nevada	.	.	.	.	.
New Hampshire	0.582	0.716	23%	No change	0.8968
New Jersey	.	.	.	.	.
New Mexico	.	.	.	.	.
New York	.	.	.	.	.
North Carolina	0.000	.	.	.	.
North Dakota	.	.	.	.	.
Ohio	0.000	1.183	>>100%	.	Inestimable
Oklahoma	.	.	.	.	.
Oregon	1.394	1.040	25%	No change	0.6777
Pennsylvania	.	.	.	.	.
Puerto Rico	.	.	.	.	.
Rhode Island	.	.	.	.	.
South Carolina	.	.	.	.	.
South Dakota	.	.	.	.	.
Tennessee	.	.	.	.	.
Texas	0.000	0.787	>>100%	.	Inestimable
Utah	.	.	.	.	.
Vermont	.	.	.	.	.
Virgin Islands	.	.	.	.	.
Virginia	.	.	.	.	.
Washington	0.514	0.000	100%	No change	0.4951
West Virginia	2.299	0.884	62%	No change	0.4499
Wisconsin	0.684	0.586	14%	No change	0.8561
Wyoming	.	.	.	.	.
All US	1.029	0.953	7%	No change	0.7236

* Statistically significant, p < 0.0500. Statistical significance based on two-tailed p-value < 0.05, reflected in the relative percent change in magnitude.

1. SSIs included are those classified as deep incisional or organ/space infections following NHSN-defined inpatient colon procedures with both primary and other detected during the same admission as the surgical procedure or upon readmission to the same facility.
2. States without SIR either in 2021 and/or 2022 and therefore subsequent data not calculated
3. For states with >>100% value in the percent change field, the p-value cannot be estimated due to sparse data reported within the facility type. The p-value is indicated as inestimable when the numerator and/or denominator of percent change = 0.

· than primary skin closure technique,

Table 10. Changes in state-specific standardized infection ratios (SIRs) between 2021 and 2022 from NHSN Critical Access Hospitals

10e. Surgical site infections (SSI) following abdominal hysterectomy surgery¹

	All Critical Access Hospitals Reporting to NHSN				
	2021 SIR	2022 SIR	Direction of Change, Based on Statistical Significance	p-value	
Alabama	
Alaska	
Arizona	
Arkansas	
California	
Colorado	
Connecticut	
D.C.	
Delaware	
Florida	
Georgia	
Guam	
Hawaii	
Idaho	
Illinois	
Indiana	
Iowa	
Kansas	
Kentucky	
Louisiana	
Maine	
Maryland	
Massachusetts	
Michigan	
Minnesota	
Mississippi	
Missouri	
Montana	
Nebraska	
Nevada	
New Hampshire	
New Jersey	
New Mexico	
New York	
North Carolina	
North Dakota	
Ohio	
Oklahoma	
Oregon	
Pennsylvania	
Puerto Rico	
Rhode Island	
South Carolina	
South Dakota	
Tennessee	
Texas	
Utah	
Vermont	
Virgin Islands	
Virginia	
Washington	
West Virginia	
Wisconsin	2.941	.	.	.	
Wyoming	
All US	1.197	0.907	24%	No change	0.5332

* Statistically significant, p < 0.0500. Statistical significance based on two-tailed p-value < 0.05, reflected in the relative percent change in magnitude.

1. SSIs included are those classified as deep incisional or organ/space infections following NHSN-defined inpatient abdominal hysterectomy procedures w detected during the same admission as the surgical procedure or upon readmission to the same facility.
2. States without SIR both in 2021 and 2022 and therefore subsequent data not calculate. For any state with a referent SIR of 0.000, the percent change v
3. For states with >>100% value in the percent change field, the p-value cannot be estimated due to sparse data reported within the facility type. The p-value is indicated as inestimable when the numerator and/or denominator of percent change = 0.

with a primary or other than primary skin closure technique,

was reflected as greater than 100 percent.

Table 10. Changes in state-specific standardized infection ratios (SIRs) between 2021 and 2022 from NHSN Critical Access Hospitals					
10f. Hospital-onset methicillin-resistant <i>Staphylococcus aureus</i> (MRSA) bacteremia, facility-wide¹					
	All Critical Access Hospitals Reporting to NHSN				
	2021 SIR	2022 SIR	Direction of Change, Based on Statistical Significance		p-value
Alabama	.	.	.	.	.
Alaska	.	.	.	.	.
Arizona	.	.	.	.	.
Arkansas	.	.	.	.	.
California	1.264	1.256	1%	No change	0.9941
Colorado	0.756	1.481	96%	No change	0.6368
Connecticut	.	.	.	.	.
D.C.	.	.	.	.	.
Delaware	.	.	.	.	.
Florida	.	.	.	.	.
Georgia	1.813	0.543	70%	No change	0.3242
Guam	.	.	.	.	.
Hawaii	.	.	.	.	.
Idaho	.	.	.	.	.
Illinois	0.774	1.375	78%	No change	0.5403
Indiana	0.425	0.437	3%	No change	0.9856
Iowa	0.491	0.374	24%	No change	0.8645
Kansas	0.372	0.359	3%	No change	0.9823
Kentucky	0.540	4.455	725%	Increase	0.0167
Louisiana	.	.	.	.	.
Maine	1.199	2.233	86%	No change	0.5046
Maryland	.	.	.	.	.
Massachusetts	.	.	.	.	.
Michigan	1.292	0.618	52%	No change	0.6007
Minnesota	0.000	0.410	>>100%	.	Inestimable
Mississippi	.	1.560	.	.	.
Missouri	0.471	0.920	95%	No change	0.6379
Montana	0.000	.	.	.	.
Nebraska	.	0.000	.	.	.
Nevada	.	.	.	.	.
New Hampshire	0.000	0.850	>>100%	.	Inestimable
New Jersey	.	.	.	.	.
New Mexico	.	.	.	.	.
New York	.	.	.	.	.
North Carolina	0.850	3.187	275%	No change	0.2451
North Dakota	.	.	.	.	.
Ohio	1.245	0.434	65%	No change	0.3979
Oklahoma	.	.	.	.	.
Oregon	0.997	1.446	45%	No change	0.7133
Pennsylvania	.	0.908	.	.	.
Puerto Rico	.	.	.	.	.
Rhode Island	.	.	.	.	.
South Carolina	.	.	.	.	.
South Dakota	.	0.733	.	.	.
Tennessee	.	.	.	.	.
Texas	0.440	0.763	73%	No change	0.7066
Utah	.	.	.	.	.
Vermont	.	.	.	.	.
Virgin Islands	.	.	.	.	.
Virginia	.	.	.	.	.
Washington	1.471	0.953	35%	No change	0.6657
West Virginia	2.175	0.000	100%	No change	0.1427
Wisconsin	1.014	0.749	26%	No change	0.7124
Wyoming	.	.	.	.	.
All US	0.808	1.058	31%	No change	0.1757

* Statistically significant, p < 0.0500. Statistical significance based on two-tailed p-value < 0.05, reflected in the relative percent change in magnitude.

1. Hospital-onset is defined as event detected on the 4th day (or later) after admission to an inpatient location within the facility.
2. States without SIR either in 2021 and/or 2022 and therefore subsequent data not calculated
3. For states with >>100% value in the percent change field, the p-value cannot be estimated due to sparse data reported within the facility type. The p-value is indicated as inestimable when the numerator and/or denominator of percent change = 0.

Table 10. Changes in state-specific standardized infection ratios (SIRs) between 2021 and 2022 from NHSN Critical Access Hospitals

10g. Hospital-onset *Clostridioides difficile* infection (CDI), facility-wide¹

	All Critical Access Hospitals Reporting to NHSN				
	2021 SIR	2022 SIR	Direction of Change, Based on Statistical Significance		p-value
Alabama	.	.	.	.	.
Alaska	.	.	.	.	.
Arizona	0.417	0.527	26%	No change	0.7824
Arkansas	0.406	0.445	10%	No change	0.9140
California	0.843	0.742	12%	No change	0.6425
Colorado	1.097	0.959	13%	No change	0.6854
Connecticut	.	.	.	.	.
D.C.	.	.	.	.	.
Delaware	.	.	.	.	.
Florida	0.612	0.504	18%	No change	0.8581
Georgia	0.591	0.511	14%	No change	0.7331
Guam	.	.	.	.	.
Hawaii	.	.	.	.	.
Idaho	0.977	0.535	45%	No change	0.2324
Illinois	1.195	1.326	11%	No change	0.6231
Indiana	0.688	0.955	39%	No change	0.2178
Iowa	0.419	0.896	114%	Increase	0.0181
Kansas	0.741	0.830	12%	No change	0.6898
Kentucky	0.836	0.961	15%	No change	0.6367
Louisiana	0.978	0.639	35%	No change	0.5424
Maine	0.789	0.635	20%	No change	0.5047
Maryland	.	.	.	.	.
Massachusetts	.	.	.	.	.
Michigan	0.397	0.715	80%	No change	0.1531
Minnesota	0.580	1.084	87%	Increase	0.0136
Mississippi	0.432	0.722	67%	No change	0.3047
Missouri	0.527	0.761	44%	No change	0.2074
Montana	0.304	0.439	44%	No change	0.6005
Nebraska	1.315	1.157	12%	No change	0.7142
Nevada	.	.	.	.	.
New Hampshire	1.285	1.397	9%	No change	0.7778
New Jersey	.	.	.	.	.
New Mexico	1.212	1.035	15%	No change	0.7335
New York	1.149	0.462	60%	No change	0.1277
North Carolina	0.490	0.384	22%	No change	0.6663
North Dakota	0.870	0.949	9%	No change	0.8843
Ohio	0.531	0.825	55%	No change	0.1395
Oklahoma	0.309	1.714	455%	Increase	0.0083
Oregon	0.592	1.026	73%	No change	0.0728
Pennsylvania	0.657	0.860	31%	No change	0.5188
Puerto Rico	.	.	.	.	.
Rhode Island	.	.	.	.	.
South Carolina	.	.	.	.	.
South Dakota	0.795	0.614	23%	No change	0.5696
Tennessee	0.801	2.383	198%	No change	0.1832
Texas	0.733	0.754	3%	No change	0.9238
Utah	0.376	0.000	100%	No change	0.5265
Vermont	0.546	1.329	143%	Increase	0.0380
Virgin Islands	.	.	.	.	.
Virginia	0.342	0.279	18%	No change	0.8114
Washington	0.688	0.564	18%	No change	0.5418
West Virginia	1.058	0.850	20%	No change	0.4986
Wisconsin	0.737	0.719	2%	No change	0.9099
Wyoming	0.588	0.484	18%	No change	0.8151
All US	0.713	0.835	17%	Increase	0.0057

* Statistically significant, p < 0.0500. Statistical significance based on two-tailed p-value < 0.05, reflected in the relative percent change in magnitude.

- Hospital-onset is defined as event detected on the 4th day (or later) after admission to an inpatient location within the facility.
- States without SIR either in 2021 and/or 2022 and therefore subsequent data not calculated
- For states with >>100% value in the percent change field, the p-value cannot be estimated due to sparse data reported within the facility type. The p-value is indicated as inestimable when the numerator and/or denominator of percent change = 0.

**Appendix A. Factors used in NHSN risk adjustment of the device-associated HAIs
Negative Binomial Regression Models¹ in Critical Access Hospitals**

HAI Type	Validated Parameters for Risk Model
CLABSI (non-NICU)	Intercept Medical School Affiliation* Location Type Facility Type* Facility Bed size*
CLABSI (NICU)	Intercept Birthweight
CAUTI	Intercept Medical School Affiliation* Location Facility Type* Facility Bed size*
VAE	Intercept Medical School Affiliation* School Type* Location Type Facility Type* Facility Bed size* Medical

1. SIR Guide: <https://www.cdc.gov/nhsn/pdfs/ps-analysis-resources/nhsn-sir-guide.pdf>

* Facility bed size, facility type and medical school affiliation are taken from the Annual Hospital Survey.

Appendix B. Factors used in NHSN risk adjustment of the MRSA Bacteremia and *C. difficile* Negative Binomial Regression Models¹ in Critical Access Hospitals

HAI Type	Validated Parameters for Risk Model
MRSA bacteremia	Intercept
<i>C. difficile</i>	Intercept Inpatient CO admission prevalence rate* CDI test type ⁺ Medical school affiliation [‡] Number of ICU beds [‡] Facility type size [‡] from an ED or 24-hour observation unit Bed Reporting

1. MRSA bacteremia and CDI risk adjustment methodology in the SIR Guide: <https://www.cdc.gov/nhsr>

* Inpatient community-onset prevalence is calculated as the # of inpatient community-onset MRSA blood culture admissions x 100.

** Average length of stay is taken from the Annual Hospital Survey. It is calculated as: total # of annual patient admissions / total # of inpatient days.

‡ Medical school affiliation, number of ICU beds, and facility bed size are taken from the Annual Hospital Survey.

+ CDI test type is reported on the FacWideIN MDRO denominator form on the 3rd month of each quarter.

[/pdfs/ps-analysis-resources/nhsn-sir-guide.pdf](#)

events, divided by total

patient days / total # of annual admissions.

Survey.

**Appendix C. List of NHSN procedures included in this report
Admission/Re-admission SSI Logistic Regression Model¹, 4**

NHSN Procedure Code	NHSN Procedure
AAA	Abdominal aortic aneurysm
AMP	Limb amputation
APPY	Appendectomy
AVSD	Arteriovenous shunt for dialysis
BILI	Bile duct, liver or pancreatic surgery
BRST	Breast surgery
CABG	Coronary artery bypass graft
CARD	Cardiac surgery
CEA	Carotid endarterectomy
CHOL	Cholecystectomy
COLO	Colon surgery
CRAN	Craniotomy
CSEC	Cesarean delivery
FUSN	Spinal fusion
FX	Open reduction of long bone fracture
GAST	Gastric surgery
HER	Herniorrhaphy
HPRO	Hip arthroplasty
HTP	Heart transplant
HYST	Abdominal hysterectomy
KPRO	Knee arthroplasty
KTP	Kidney transplant
LTP	Liver transplant
NECK	Neck surgery
NEPH	Kidney surgery
OVRV	Ovarian surgery
PACE	Pacemaker surgery
PRST	Prostate surgery
PVBY	Peripheral vascular bypass surgery
REC	Rectal surgery

RFUSN	Refusion of spine
SB	Small-bowel surgery
SPLE	Spleen surgery
THOR	Thoracic surgery
THYR	Thyroid and/or parathyroid surgery
VHYS	Vaginal hysterectomy
VSHN	Ventricular shunt
XLAP	Exploratory Laparotomy

1. SSI risk adjustment methodology: SIR Guide: <https://www.cdc.gov/nhsn/pdfs/sirguide>

* These risk factors originate from the Annual Facility Survey.

† None of the variables investigated were statistically significant.

As a result, the overall incidence will be used in the SIR calculation.

Exclusion Criteria: SIR Guide: <https://www.cdc.gov/nhsn/pdfs/sirguide>

**rt with predictive risk factors from the NHSN Complex
Adults ≥ 18 years of age**

Validated Parameters for Risk Model
<i>Intercept-only model*</i>
anesthesia, wound class, hospital bed size*, age
gender, wound class, hospital bed size*, procedure duration
gender, emergency, trauma, hospital bed size*, scope, age, procedure duration
ASA score, closure, age, procedure duration, BMI
emergency, medical school affiliation*, age, procedure duration, BMI
gender, diabetes, ASA score, trauma, wound class, medical school affiliation*, hospital bed size*, age, procedure duration, BMI, age-gender interaction
wound class
gender, diabetes, ASA score, wound class, hospital bed size*, age, procedure duration, age-gender interaction
gender, diabetes, trauma, anesthesia, ASA score, wound class, hospital bed size*, scope, closure, age, procedure duration, BMI
diabetes, trauma, ASA score, age, procedure duration, wound class
emergency, ASA score, wound class, medical school affiliation*, hospital bed size*, age, procedure duration, duration of labor
gender, diabetes, trauma, ASA score, medical school affiliation*, hospital bed size*, procedure duration, BMI, spinal level, approach
gender, diabetes, ASA score, wound class, closure, age, procedure duration, BMI
wound class, scope, age, procedure duration, BMI
gender, ASA score, wound class, medical school affiliation*, hospital bed size*, scope, age, procedure duration, BMI
diabetes, trauma, anesthesia, ASA score, wound class, medical school affiliation*, hospital bed size*, age, procedure duration, BMI, procedure type
closure
diabetes, ASA score, hospital bed size*, scope, age, procedure duration, BMI
gender, trauma, anesthesia, ASA score, wound class, medical school affiliation*, hospital bed size*, age, procedure duration, BMI, procedure type
procedure duration, diabetes, ASA score, hospital bed size*, BMI
age
procedure duration
wound class
age
BMI, diabetes, procedure duration, number of beds
ASA score, procedure duration, number of beds, oncology

age, procedure duration, number of beds
gender, age, procedure duration, oncology
ASA score
procedure duration, medical school affiliation*
medical school affiliation*
age
ASA score, closure, diabetes, procedure duration, emergency, gender, scope, wound class, trauma

[dc.gov/nhsn/pdfs/ps-analysis-resources/nhsn-sir-guide.pdf](https://www.dhs.gov/nhsn/pdfs/ps-analysis-resources/nhsn-sir-guide.pdf)

ly associated with SSI risk in these procedure categories.
 lation (i.e., intercept-only model).

[s/ps-analysis-resources/nhsn-sir-guide.pdf](https://www.dhs.gov/nhsn/pdfs/ps-analysis-resources/nhsn-sir-guide.pdf)

**Appendix D. List of NHSN procedures included in this re
Complex Admission/Re-admission SSI Logistic Regressi**

NHSN Procedure Code	NHSN Procedure
AAA	Abdominal aortic aneurysm
AMP	Limb amputation
APPY	Appendectomy
AVSD	Arteriovenous shunt for dialysis
BILI	Bile duct, liver or pancreatic surgery
BRST	Breast surgery
CARD	Cardiac surgery
CABG	Coronary artery bypass graft
CEA	Carotid endarterectomy
CHOL [†]	Cholecystectomy
COLO	Colon surgery
CRAN, age ≥2	Craniotomy
CRAN, age <2 [†]	
CSEC	Cesarean delivery
FUSN, age ≥2	Spinal fusion
FUSN, age <2	
FX	Open reduction of long bone fracture
GAST	Gastric surgery
HER [†]	Herniorrhaphy
HPRO [†]	Hip arthroplasty
HTP	Heart transplant
HYST [†]	Abdominal hysterectomy
KPRO [†]	Knee arthroplasty
KTP [†]	Kidney transplant
LAM [†]	Laminectomy
LTP [‡]	Liver transplant
NECK	Neck surgery
NEPH	Kidney surgery
OVRY	Ovarian surgery
PACE	Pacemaker surgery
PRST	Prostate surgery
PVBY	Peripheral vascular bypass surgery
REC [†]	Rectal surgery
RFUSN [†]	Refusion of spine
SB	Small-bowel surgery
SPLE	Spleen surgery
THOR	Thoracic surgery
THYR	Thyroid and/or parathyroid surgery
VHYS	Vaginal hysterectomy
VSHN	Ventricular shunt
XLAP	Exploratory Laparotomy

* These risk factors originate from the Annual Facility Survey

^ Sufficient national data were not available for analysis. As a

As a result, the overall incidence will be used in the SIR cal

port with predictive risk factors from the NHSN
 ion Model¹, Pediatrics < 18 years of age

Validated Parameters for Risk Model
No SIR available^
No SIR available^
Hospital bed size*, procedure duration, wound class
Trauma
procedure duration, age
closure, wound class, age, trauma, procedure duration
BMI, anesthesia
duration of labor
ASA score, BMI
Procedure duration, closure technique
diabetes, wound class
Trauma
Age
Trauma

as a result, no SIRs can be calculated for these procedures.
 calculation (i.e., intercept-only model).

Appendix E. List of NHSN procedures and corresponding SCIP procedures included in this report with factors used in the NHSN risk adjustment of the Complex Admission/Readmission Model¹ for adults

SCIP Procedure	NHSN Procedure	Validated Parameters for Risk Model
Vascular	Abdominal aortic aneurysm repair	
	Peripheral vascular bypass surgery	BMI, diabetes, procedure duration, number of beds
Coronary artery bypass graft	Coronary artery bypass graft with both chest and donor site incisions	emergency, medical school affiliation*, age, procedure duration, BMI
	Coronary artery bypass graft with chest incision only	
Other cardiac	Cardiac surgery	gender, diabetes, ASA score, trauma, wound class, medical school affiliation*, hospital bed size*, age, procedure duration, BMI, age-gender interaction
Colon surgery	Colon surgery	gender, diabetes, trauma, anesthesia, ASA score, wound class, hospital bed size*, scope, closure, age, procedure duration, BMI
	Rectal surgery	ASA score, procedure duration, number of beds, oncology
Hip arthroplasty	Hip arthroplasty	diabetes, trauma, anesthesia, ASA score, wound class, medical school affiliation*, hospital bed size*, age, procedure duration, BMI, procedure type
Abdominal hysterectomy	Abdominal hysterectomy	diabetes, ASA score, hospital bed size*, scope, age, procedure duration, BMI
Knee arthroplasty	Knee arthroplasty	gender, trauma, anesthesia, ASA score, wound class, medical school affiliation*, hospital bed size*, age, procedure duration, BMI, procedure type
Vaginal hysterectomy	Vaginal hysterectomy	medical school affiliation*

* These risk factors originate from the Annual Facility Survey.

As a result, the overall incidence will be used in the SIR calculation (i.e., intercept-only model).

Additional Resources

SIR Guide: <https://www.cdc.gov/nhsn/pdfs/ps-analysis-resources/nhsn-sir-guide.pdf>

Technical Appendix (2022 Report): <http://www.cdc.gov/hai/progress-report/index.html>

Explains the methodology used to produce the HAI Report.

HAI Progress Report Home Page: <http://www.cdc.gov/hai/progress-report/index.html>

The complete HAI Report, including the Executive Summary and previous reports, can be found at the above

website.