2018 Nationa

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Introduction:

Welcome to the 2018 National and State HAI Progress Report using the 2015 base
by comparing the number of observed infections to the number of predicted infecti
This report is created by CDC staff with the National Healthcare Safety Network (N

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

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 *Staphylococcus aureus* (MRSA) bacteremia by facility-wide reporting
Hospital-onset *Clostridioides difficile* (CDI) by facility-wide reporting

al and State HAI Progress Report

cal Access Hospitals

eline and risk adjustment calculations. Standardized infection ratios (SIRs) are used to describe different HAI typ
ons. This year's report will compare 2018 SIRs to those from the prior year.
HSN).

spitals (CAHs).

CAH	
National	State
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2018 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:

monia (IVAC-Plus)

)18 from Critical Access Hospitals

Critical Access Hospitals

Hospitals

: Regression, Adults ≥ 18 years of age

: Regression, Pediatrics < 18 years of age

: Complex Admission/Readmission Model, Adults ≥ 18 years of age

Table 1. Characteristics of NHSN Critical Access Hospitals reporting to NHSN by State[1], 2018:
1a. Central line-associated bloodstream infections (CLABSI)[2]

	2018					
				Locations (n)[2]		
State	State NHSN Mandate[3]	Any Validation[4]	No. of Critical Access Hospitals Reporting[5]	Total	ICU	Wards[2]
Alaska	No	No	2	4	1	3
Alabama	M	Yes[a]	4	5	1	4
Arkansas	No	No	14	22	2	20
Arizona	No	No	4	6	2	4
California	Yes	Yes	29	47	15	32
Colorado	Yes	Yes	16	19	4	15
Connecticut	No	No	.	.	.	.
D.C.	No	No	.	.	.	.
Delaware			.	.	.	.
Florida	No	Yes	7	9	1	8
Georgia	No	Yes	14	15	2	13
Guam			.	.	.	.
Hawaii	No	No	2	3	1	2
Iowa	No	No	44	47	2	45
Idaho	No	No	7	9	2	7
Illinois	Yes	Yes	36	46	13	33
Indiana	Yes	Yes	35	55	16	39
Kansas	No	Yes	45	54	5	49
Kentucky	No	No	18	21	3	18
Louisiana	No	Yes	5	6	1	5
Massachusetts	No	Yes	3	4	2	2
Maryland	No	No	.	.	.	.
Maine	Yes	No	15	21	2	19
Michigan	No	No	25	35	7	28
Minnesota	No	No	35	39	4	35
Missouri			21	27	6	21
Mississippi	No	No	7	7	1	6
Montana	No	No	9	14	3	11
North Carolina	No	Yes	12	18	5	13
North Dakota	No	No	10	13	3	10
Nebraska			19	21	3	18
New Hampshire	Yes	No	12	19	6	13
New Jersey			.	.	.	.
New Mexico	M	No	9	14	5	9
Nevada	M	No	2	4	2	2
New York	No	No	4	6	2	4
Ohio	No	Yes	21	34	9	25
Oklahoma	No	Yes	12	14	2	12
Oregon	Yes	Yes	20	34	11	23
Pennsylvania	Yes	Yes	14	25	5	20
Puerto Rico			.	.	.	.
Rhode Island	No	No	.	.	.	.
South Carolina	Yes	Yes	3	4	1	3
South Dakota	No	Yes	14	14		14
Tennessee	No	No	6	8	1	7
Texas	No	No	26	32	7	25
Utah			7	8		8
Virginia	No	Yes	5	10	3	7
Virgin Islands			.	.	.	.
Vermont	M	Yes	8	12	4	8
Washington	Yes	Yes	36	54	9	45
Wisconsin	No	Yes	53	69	12	57
West Virginia	No	No	16	23	7	16
Wyoming	No	No	9	10	2	8
All US			**715**	**961**	**195**	**766**

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

	2018					
				Total	ICU	
State						
Alaska	No	Yes	4	7	1	6
Alabama	Yes	No	5	6	1	5
Arkansas	No	No	15	23	2	21
Arizona	No	No	4	6	2	4
California	No	No	30	53	15	38
Colorado	No	No	21	26	4	22
Connecticut	No	Yes	1	.	.	
D.C.	No	No	1	.	.	
Delaware			1	.	.	
Florida	No	Yes	7	9	1	8
Georgia	No	Yes	15	18	2	16
Guam			1	.	.	
Hawaii	No	No	2	3	1	2
Iowa	No	No	63	69	3	66
Idaho	No	No	8	10	2	8
Illinois	Yes	No	40	52	15	37
Indiana	Yes		35	61	16	45
Kansas	No	Yes	59	72	4	68
Kentucky	No	No	18	22	3	19
Louisiana	No	Yes	5	7	1	6
Massachusetts	No	No	3	5	2	3
Maryland	No	No	1	.	.	
Maine	No	No	15	26	2	24
Michigan	No	No	30	46	8	38
Minnesota	Yes	Yes	75	99	10	89
Missouri			24	33	6	27

Mississippi	No	No	12	13	1	12
Montana	No	No	11	21	3	18
North Carolina	No	Yes	12	20	5	15
North Dakota	No	No	11	18	3	15
Nebraska			28	36	4	32
New Hampshire	M	No	13	23	6	17
New Jersey			1	.	.	
New Mexico	No	No	9	18	5	13
Nevada	No	No	2	5	2	3
New York	No	No	6	9	2	7
Ohio	No	No	22	39	10	29
Oklahoma	No	Yes	17	21	2	19
Oregon	Yes	Yes	25	44	11	33
Pennsylvania	Yes	Yes	15	30	6	24
Puerto Rico			1	.	.	
Rhode Island	No	No	1	.	.	
South Carolina	No	No	3	4	1	3
South Dakota	No	Yes	38	39		39
Tennessee	No	No	7	10	1	9
Texas	No	No	33	41	8	33
Utah			7	8		8
Virginia	No	Yes	5	10	3	7
Virgin Islands			1	.	.	
Vermont	No	No	4	6	2	4
Washington	No	No	38	65	9	56
Wisconsin	No	Yes	58	88	13	75
West Virginia	Yes	No	20	30	8	22
Wyoming	No	No	13	14	2	12
All US			**896**	**1,265**	**208**	**1,057**

1c. Ventilator-associated events (VAE)

	2018					
State				Total	ICU	
Alaska	No	No	1	1	0	1
Alabama	No	No	0	0	0	0
Arkansas	No	No	1	5	1	4
Arizona	No	No	2	2	2	0
California	No	No	10	15	11	4
Colorado	No	No	2	4	2	2
Connecticut	No	No	0	0	0	0
D.C.	No	No	0	0	0	0
Delaware			0	0	0	0
Florida	No	No	2	3	1	2
Georgia	No	No	1	1	1	0
Guam			0	0	0	0
Hawaii	No	No	0	0	0	0
Iowa	No	No	0	2	1	1
Idaho	No	No	2	2	1	1
Illinois	No	No	3	8	5	3
Indiana	No	No	14	20	16	4
Kansas	No	No	2	4	2	2
Kentucky	No	No	2	6	4	2
Louisiana	No	Yes	1	1	1	0
Massachusetts	No	No	1	1	1	0
Maryland	No	No	0	0	0	0
Maine	No	No	2	5	2	3
Michigan	No	No	4	14	7	7
Minnesota	No	No	1	2	1	1
Missouri			2	5	4	1

Mississippi	No	No	0	0	0	0
Montana	No	No	2	3	1	2
North Carolina	No	No	4	5	3	2
North Dakota	No	No	2	2	2	0
Nebraska			0	0	0	0
New Hampshire	No	No	5	9	6	3
New Jersey			0	0	0	0
New Mexico	No	No	2	4	2	2
Nevada	No	No	2	2	2	0
New York	No	No	2	2	2	0
Ohio	No	No	7	18	9	9
Oklahoma	No	No	1	2	1	1
Oregon	No	No	5	11	6	5
Pennsylvania	Yes	Yes	8	9	5	4
Puerto Rico			0	0	0	0
Rhode Island	No	No	0	0	0	0
South Carolina	Yes	Yes	0	2	1	1
South Dakota	No	No	0	0	0	0
Tennessee	No		0	2	1	1
Texas	No	No	5	11	6	5
Utah			0	0	0	0
Virginia	No	No	2	2	2	0
Virgin Islands			0	0	0	0
Vermont	No	No	0	0	0	0
Washington	No	No	8	11	8	3
Wisconsin	No	Yes	6	20	9	11
West Virginia	No	No	4	9	5	4
Wyoming	No	No	2	3	2	1
All US			**120**	**228**	**136**	**92**

Table 1. Characteristics of NHSN Critical Access Hospitals reporting to NHSN by State[1], 2018: 1d. Surgical site infections[6]

	2018			
State		Any Validation[4]	No. of Critical Access Hospitals Reporting colon surgeries in adults[5]	No. of Procedures[6] colon surgeries in adults
Alaska	No	No	2	.
Alabama	Yes	Yes	0	.
Arkansas	No	No	2	.
Arizona	No	No	2	.
California	Yes	Yes	16	197
Colorado	Yes	Yes	8	52
Connecticut	No	No	0	.
D.C.	No	No	0	.
Delaware			0	.
Florida	No	Yes	3	.
Georgia	Yes	Yes	1	.
Guam			0	.
Hawaii	No	No	1	.
Iowa	No	No	10	36
Idaho	No	No	5	49
Illinois	Yes	No	15	145
Indiana	Yes	Yes	23	164
Kansas	No	Yes	10	44
Kentucky	No	No	6	19
Louisiana	No	No	2	.
Massachusetts	No	Yes	1	.
Maryland	No	No	0	.
Maine	No	Yes	9	84
Michigan	No	No	13	120
Minnesota	No	No	13	82
Missouri			7	36
Mississippi	No	No	0	.
Montana	No	No	6	50
North Carolina	No	No	8	91
North Dakota	No	No	2	.
Nebraska			4	.
New Hampshire	Yes	No	10	61
New Jersey			0	.
New Mexico	No	No	4	.
Nevada	No	No	2	.
New York	No	No	2	.
Ohio	No	Yes	10	90
Oklahoma	No	No	0	.
Oregon	Yes	Yes	12	134
Pennsylvania	Yes	Yes	7	52
Puerto Rico			0	.

Rhode Island	No	No	0	.
South Carolina	Yes	Yes	1	.
South Dakota	No	Yes	0	.
Tennessee	No	No	0	.
Texas	No	No	10	32
Utah			2	.
Virginia	No	Yes	3	.
Virgin Islands			0	.
Vermont	No	No	1	.
Washington	Yes	Yes[a]	18	148
Wisconsin	No	Yes	35	300
West Virginia	No	No	8	98
Wyoming	No	No	4	.
All US			**298**	**2,383**

	2018			
State			No. of Critical Access Hospitals Reporting hysterectomy surgeries in adults[5]	No. of Procedures[6] abdominal hysterectomy surgeries in adults
Alaska	No	No	1	.
Alabama	Yes	Yes	0	.
Arkansas	No	No	0	.
Arizona	No	No	2	.
California	Yes	Yes	14	98
Colorado	Yes	Yes	8	41
Connecticut	No	No	0	.
D.C.	No	No	0	.
Delaware			0	.
Florida	No	Yes	0	.
Georgia	Yes	Yes	2	.
Guam			0	.
Hawaii	No	No	1	.
Iowa	No	No	8	101
Idaho	No	No	3	.
Illinois	Yes	No	5	37
Indiana	Yes	Yes	19	136
Kansas	No	Yes	5	77
Kentucky	No	No	1	.
Louisiana	No	No	2	.
Massachusetts	No	Yes	2	.
Maryland	No	No	0	.
Maine	No	No	9	61
Michigan	No	No	7	76
Minnesota	No	No	10	73
Missouri			7	26
Mississippi	No	No	0	.
Montana	No	No	4	.
North Carolina	No	No	7	78
North Dakota	No	No	3	.
Nebraska			3	.
New Hampshire	Yes	No	7	39
New Jersey			0	.
New Mexico	No	No	3	.
Nevada	No	No	2	.
New York	No	No	2	.
Ohio	No	Yes	12	105
Oklahoma	No	No	1	.
Oregon	Yes	Yes	10	52
Pennsylvania	Yes	Yes	5	139
Puerto Rico			0	.

Rhode Island	No	No	0	.
South Carolina	Yes	Yes	0	.
South Dakota	No	Yes	0	.
Tennessee	No	No	0	.
Texas	No	No	7	24
Utah			1	.
Virginia	No	Yes	2	.
Virgin Islands			0	.
Vermont	Yes	Yes	5	74
Washington	Yes	Yes	10	92
Wisconsin	No	Yes	24	236
West Virginia	No	No	3	.
Wyoming	No	No	2	.
All US			**219**	**1,904**

Table 1. Characteristics of NHSN Critical Access Hospitals reporting to NHSN by State1, 2018:

1e. Hospital-onset methicillin-resistant *Staphylococcus aureus* bacteremia[7]

	2018		
State			
Alaska	No	No	2
Alabama	No	Yes	4
Arkansas		No	11
Arizona	No	No	5
California	Yes	Yes	33
Colorado	M	No	23
Connecticut	No	No	0
D.C.	No	No	0
Delaware			0
Florida	No	Yes	7
Georgia	No	Yes	12
Guam			0
Hawaii	No	No	2
Iowa	No	No	32
Idaho	No	No	8
Illinois	Yes	Yes	49
Indiana	No	No	35
Kansas	No	Yes	47
Kentucky	No	No	16
Louisiana	No	No	4
Massachusetts	No	Yes	3
Maryland	No	No	0
Maine	Yes	Yes	16
Michigan	No	Yes	29
Minnesota	No	No	25
Missouri			19
Mississippi	No	No	7
Montana	No	No	8
North Carolina	No	Yes	11
North Dakota	No	No	9
Nebraska			19
New Hampshire	No	No	11
New Jersey			0
New Mexico	Yes	No	9
Nevada	Yes	No	2
New York	No	No	6
Ohio	No	Yes	23
Oklahoma	No	Yes	17
Oregon	Yes	Yes	25
Pennsylvania	Yes	Yes	11
Puerto Rico			0
Rhode Island	No	No	0
South Carolina	Yes	Yes	2
South Dakota	No	Yes	1
Tennessee	No	No	6
Texas	No	No	23
Utah			7
Virginia	No	Yes	4
Virgin Islands			0
Vermont	No	Yes	8

Washington	No	No	24
Wisconsin	No	Yes	58
West Virginia	No	No	15
Wyoming	No	No	6
All US			**694**

Table 1. Characteristics of NHSN Critical Access Hospitals reporting to NHSN by State1, 2018:

1f. Hospital-onset *Clostridioides difficile*[7]

	2018		
State		Any Validation[4]	
Alaska	No	No	3
Alabama	No	Yes	4
Arkansas		No	12
Arizona	No	No	5
California	Yes	Yes	33
Colorado	No	No	24
Connecticut	No	No	0
D.C	No	No	0
Delaware			0
Florida	No	Yes	7
Georgia	No	Yes	12
Guam			0
Hawaii	No	No	1
Iowa	No	No	47
Idaho	No	No	9
Illinois	Yes	Yes	49
Indiana	No	No	35
Kansas	No	Yes	53
Kentucky	No	No	16
Louisiana	No	Yes	4
Massachusetts	No	Yes	3
Maryland	No	No	0
Maine	Yes	Yes	16
Michigan	No	Yes	28
Minnesota	No	No	51
Missouri			20
Mississippi	No	No	8
Montana	No	No	8
North Carolina	No	Yes	11
North Dakota	No	No	9
Nebraska			20
New Hampshire	No	No	12
New Jersey			0
New Mexico	Yes	No	9
Nevada	No	No	2
New York	No	No	5
Ohio	No	Yes	23
Oklahoma	No	Yes	17
Oregon	Yes	Yes	25
Pennsylvania	Yes	Yes	11
Puerto Rico			0
Rhode Island	No	No	0

South Carolina	Yes	Yes	3
South Dakota	No	Yes	37
Tennessee	No	No	6
Texas	No	No	26
Utah			7
Virginia	No	Yes	5
Virgin Islands			0
Vermont	Yes	Yes	8
Washington	Yes	Yes	37
Wisconsin	No	Yes	58
West Virginia	No	No	16
Wyoming	No	No	13
All US			**808**

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 2018 from acute care facility 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]). 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, 2019 for 2018 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, 2019 for 2018 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 procedures 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.

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, all[4]	715
ICUs[5]	195
Wards[6]	695
CAUTI, all[8]	896
	208
	869
VAE, all[8]	120
	106
	15

1. The number of reporting facilities included in the SIR calculation. Due to SIR exclusion criter
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, wards (and other non-critical care locations), and NICUs.
5. Data from all ICUs; excludes wards (and other non-critical care locations) and NICUs. For V.
6. Data from all wards (for this table wards also include step-down and specialty care areas [in
7. Data from all NICU locations, including Level II/III and Level III nurseries. Both umbilical line
8. Data from all ICUs and wards (and other non-critical care locations). This excludes NICUs.
   IVAC-plus includes those events identified as infection-related ventilator-associated conditio

NOTE: Risk factors used in the calculation of the number of predicted device-associated infect
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
1,694,285	165,143	42	45.058	0.932	0.680	1.248
118,662	14,398	4	3.928	1.018	0.324	2.456
1,575,623	150,745	38	41.130	0.924	0.663	1.255
2,222,832	299,628	245	312.042	0.785	0.691	0.888
134,205	34,648	21	34.147	0.615	0.391	0.924
2,088,627	264,980	224	277.897	0.806	0.706	0.917
51,939	3,432	3	4.897	0.613	0.156	1.667
39,920	3,042	2	4.341	0.461	0.077	1.522
12,019	390	1	0.557	.	.	.

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 2018. If a facility's predicted number of HAIs was <1.0, a facility-specific SIR was neither calculated nor inclu

AE, pediatric locations are excluded from SIR since pediatric and neonatal locations are excluded from VAE sur
cluding hematology/oncology, bone marrow transplant]). For VAE, pediatric locations are excluded from SIR sir
and central line-associated bloodstream infections are considered CLABSIs.
For VAE, pediatric locations are excluded from SIR since pediatric and neonatal locations are excluded from VA
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 dat
ɛter-associated urinary tract infections (CAUTIs) and ventilator-associated events (VAE)

	Facility-specific SIRs						
No. Facilities with ≥1 Predicted Infection (Event)	No. Facilities with SIR Significantly > National SIR		No. Facilities with SIR Significantly < National SIR		5%	10%	15%
	N	%[2]	N				
0	.	.	.	.	.	.	.
0	.	.	.	.	.	.	.
0	.	.	.	.	.	.	.
73	0	0%	0	0%	0.000	0.000	0.000
2					.	.	.
60	0	0%	0	0%	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 2018.
ded in the distribution of facility-specific SIRs.

rveillance.
ıce pediatric and neonatal locations are excluded from VAE surveillance.

AE surveillance. This includes IVAC-plus events.

a reported to NHSN during 2018 by facility type, HAI, and patient population:

				Percentile Distribution of Facility-specific SIRs[3]					
						Median			
20%	25%	30%	35%	40%	45%	50%	55%	60%	65%
.	.	.	.	.	.	.	.	.	.
.	.	.	.	.	.	.	.	.	.
.	.	.	.	.	.	.	.	.	.
0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.419
.	.	.	.	.	.	.	.	.	.
0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
.	.	.	.	.	.	.	.	.	.
.	.	.	.	.	.	.	.	.	.
.	.	.	.	.	.	.	.	.	.

70%	75%	80%	85%	90%	95%
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
0.601	0.678	0.755	0.802	0.959	1.615
.	.	.	.	.	.
0.519	0.666	0.758	0.799	0.875	1.625
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.

HAI and Patient Population	Reporting	
	No. of Critical Access Hospitals Reporting[1]	Total Admissions
MRSA bacteremia, facility-wide[4]	694	551,899
Hospital-onset *C. difficile,* facility-wide[4]	790	566,995

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 gr
3. Facility-specific percentiles are only calculated if at least 20 facilities had ≥1.0 predicted HAI in
4. Hospital-onset is defined as event detected on the 4th day (or later) after admission to an inpat

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
2,005,833	223	23	41.739	0.551	0.358
2,136,771	1,733	533	674.994	0.790	0.725

this may be different from the numbers shown in Table 1. These tables contain data from Critical Acce
eater than or less than the nominal value of the national SIR for the given HAI type. This is only calcula
2018. If a facility's predicted number of HAIs was <1.0, a facility-specific SIR was neither calculated no
tient location within the facility.
are listed in Appendix B.

Table 2b. National standardized infection ratios (SIRs) and facility-specific summa
hospital-onset methicillin-resistant *Staphylococcus aureus* (

for SIR		Facility SIRs Compared to National SIR			
Upper	No. Facilities with ≥1 Predicted Event	No. Facilities with SIR Significantly > National SIR N		No. Facilities with SIR Significantly < National SIR N	
0.814	0	.	.	.	.
0.859	263	7	3%	1	0%

ss Hospitals; as such, they exclude data from LTACHs, IRFs, and ACHs.
ated if at least 10 facilities had ≥ 1.0 predicted HAI in 2018.
r included in the distribution of facility-specific SIRs.

ıry SIRs using HAI data reported to NHSN during 2018 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	0.390	0.509	0.593

50%	55%	60%	65%	70%	75%	80%	85%	90%	95%
.	.	.	.	.	.	.	.	.	.
0.698	0.789	0.849	0.934	1.040	1.243	1.394	1.690	2.125	2.593

Surgical Procedure	No. of Critical Access Hospitals Reporting [2]	No. of Procedures
US, all NHSN procedures	419	31,339
US, SCIP procedures only[5]	405	25,127
AAA Abdominal aortic aneurysm repair[5]	1	.
AMP Limb amputation	15	49
APPY Appendix surgery	40	528
AVSD Shunt for dialysis	0	.
BILI Bile duct, liver or pancreatic surgery	10	27
BRST Breast surgery	17	79
CARD Cardiac surgery[5]	0	.
CABG- Coronary artery bypass graft[5,6]	0	.
CEA Carotid endarterectomy	1	.
CHOL Gallbladder surgery	43	698
COLO Colon surgery[5]	298	2,383
CRAN Craniotomy	0	.
CSEC Cesarean section	52	2,371
FUSN Spinal fusion	5	521
FX Open reduction of fracture	19	698
GAST Gastric surgery	15	185
HER Herniorrhaphy	29	246
HPRO Hip arthroplasty[5]	254	7,178
HTP Heart transplant	0	.
HYST Abdominal hysterectomy[5]	219	1,904
KPRO Knee arthroplasty[5]	278	13,469
KTP Kidney transplant	0	.
LAM Laminectomy	6	67
LTP Liver transplant	0	.
NECK surgery	1	.
NEPH Kidney surgery	3	.
OVRY Ovarian surgery	16	135
PACE Pacemaker surgery	4	.
PRST Prostate surgery	3	.
PVBY Peripheral vascular bypass surgery[5]	2	.
REC Rectal surgery[5]	9	30
SB Small bowel surgery	24	143
SPLE Spleen surgery	5	6
THOR Thoracic surgery	5	24
THYR Thyroid and/or parathyroid surgery	6	9
VHYS Vaginal hysterectomy[5]	26	148
VSHN Ventricular shunt	0	.
XLAP Abdominal surgery	31	355

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
5. These procedures were presented in previous versions of the HAI Progress Report and follow sel
   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 in
7. Facility-specific percentiles are only calculated if at least 20 facilities had ≥ 1.0 predicted SSI in 20

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

No. of Infections			95% CI for SIR			Facility-
Observed	Predicted[3]	SIR	Lower	Upper	No. Hosp with ≥1 Predicted Infection	No. Hosp Significantly > N
128	145.643	0.879	0.736	1.041	30	2
112	124.900	0.897	0.742	1.075	21	1
.	.	.	.	.	.	.
0	0.028	.	.	.	0	.
2	1.517	1.318	0.221	4.354	0	.
.	.	.	.	.	.	.
1	0.369	.	.	.	0	.
1	0.673	.	.	.	0	.
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.	.	.	.	.	.	.
1	1.809	0.553	0.028	2.726	0	.
40	44.281	0.903	0.654	1.218	0	.
.	.	.	.	.	.	.
1	3.618	0.276	0.014	1.363	0	.
2	0.876	.	.	.	0	.
3	4.068	0.737	0.188	2.007	1	.
1	1.309	0.764	0.038	3.768	0	.
3	1.245	2.410	0.613	6.558	0	.
33	34.671	0.952	0.666	1.321	2	.
.	.	.	.	.	.	.
9	10.618	0.848	0.413	1.555	0	.
29	33.812	0.858	0.585	1.216	2	.
.	.	.	.	.	.	.
0	0.180	.	.	.	0	.
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0	0.590	.	.	.	0	.
1	2.704	0.370	0.019	1.824	0	.
0	0.022	.	.	.	0	.
0	0.092	.	.	.	0	.
0	0.007	.	.	.	0	.
1	0.737	.	.	.	0	.
.	.	.	.	.	.	.
0	1.962	0.000	.	1.527	0	.

procedures that occurred in 2018 with a primary or other than primary skin closure technique, detected durir
s may be different from the numbers shown in Table 1. Refer to the Technical Appendix for information abou

or less than the nominal value of the national SIR for the given procedure type. This is only calculated if at le
ect inpatient surgical procedures approximating procedures covered by the Surgical Care Improvement Proje

cisions.
)18. If a facility's predicted number of SSIs was < 1.0, a facility-specific SIR was neither calculated nor includ

Rs using adult surgical site infection (SSI) data[1] reported to NHSN from NHSN Critical Access Hos

specific SIRs							
with SIR > National SIR	No. Hosp with SIR Significantly < National SIR		5%	10%	15%	20%	25%
%[4]	N						
7%	.	.	0.000	0.000	0.000	0.000	0.489
5%	.	.	0.000	0.000	0.000	0.000	0.394
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ng the same admission as the surgical procedure or upon readmission to the same facility.
ut exclusion criteria.

ast 10 facilities had ≥ 1.0 predicted SSI in 2018.
ect (SCIP). Specific NHSN procedures

ed in the distribution of facility-specific SIRs.

pitals during 2018 by surgical procedure.

Percentile Distribution of Facility-specific SIRs[7]									
				Median					
30%	35%	40%	45%	50%	55%	60%	65%	70%	75%
0.542	0.606	0.644	0.767	0.814	0.844	0.906	0.927	0.971	1.030
0.581	0.606	0.767	0.818	0.844	0.892	0.927	0.991	0.993	1.459

80%	85%	90%	95%
1.446	2.092	2.237	3.326
1.568	2.092	2.253	2.514
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Surgical Procedure	No. of Acute Care Hospitals Reporting[2]	No. of Procedures
US, all NHSN procedures	72	251
	30	32
	0	.
AMP Limb amputation	0	.
APPY Appendix surgery	33	135
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	6	6
	11	11
CRAN Craniotomy (ALL AGE)	0	.
CRAN Craniotomy (AGE >=2)	0	.
CRAN Craniotomy (AGE <2)	0	.
CSEC Cesarean section	14	27
FUSN Spinal fusion (AGE >=2)	1	.
FX Open reduction of fracture	8	31
GAST Gastric surgery	0	.
HER Herniorrhaphy	1	.
	9	10
HTP Heart transplant	0	.
	3	.
	9	9
KTP Kidney transplant	0	.
LAM Laminectomy	0	.
LTP Liver transplant	0	.
NECK surgery	0	.
NEPH Kidney surgery	0	.
OVRY Ovarian surgery	0	.
PACE Pacemaker surgery	0	.
PRST Prostate surgery	0	.
	0	.
	0	.
RFUSN Refusion of spine	0	.
SB Small bowel surgery	2	.
SPLE Spleen surgery	0	.
THOR Thoracic surgery	0	.
THYR Thyroid and/or parathyroid surgery	0	.
	0	.
VSHN Ventricular shunt	0	.
XLAP Abdominal surgery	2	.

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
   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
5. These procedures were presented in previous versions of the HAI Progress Report and follow sel
   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 in
7. Facility-specific percentiles are only calculated if at least 20 facilities had ≥ 1.0 predicted SSI in 20

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

No. of Infections			95% CI for SIR		Facility-	
Observed		SIR	Lower	Upper	No. Hosp with ≥1 Predicted Infection	No. Hosp Significantly > N
0	0.839	.	.	.	.	.
0	0.434	.	.	.	.	.
.	.	.	.	.	.	.
.	.	.	.	.	.	.
0	0.158	.	.	.	0	.
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0	0.004	.	.	.	0	.
0	0.238	.	.	.	0	.
.	.	.	.	.	.	.
.	.	.	.	.	.	.
.	.	.	.	.	.	.
0	0.067	.	.	.	0	.
.	.	.	.	.	.	.
0	0.091	.	.	.	0	.
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.	.	.	.	.	0	.
0	0.041	.	.	.	0	.
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0	0.098	.	.	.	0	.
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t procedures in pediatric patients less than 18 years that occurred in 2018 with a primary or other than primai
s may be different from the numbers shown in Table 1. Refer to the Technical Appendix for information abou
n 2018.

or less than the nominal value of the national SIR for the given procedure type. This is only calculated if at le
ect inpatient surgical procedures approximating procedures covered by the Surgical Care Improvement Proje

cisions.
)18. If a facility's predicted number of SSIs was < 1.0, a facility-specific SIR was neither calculated nor includ

s using pediatric surgical site infection (SSI) data[1] reported to NHSN from NHSN Critical Access H

specific SIRs							
with SIR > National SIR	N	No. Hosp with SIR Significantly < National SIR	5%	10%	15%	20%	25%
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ry skin closure technique, detected during the same admission as the surgical procedure or upon readmis
ut exclusion criteria. SIRs and accompanying

ast 10 facilities had ≥ 1.0 predicted SSI in 2018.
ect (SCIP). Specific NHSN procedures

ed in the distribution of facility-specific SIRs.

ospitals during 2018 by surgical procedure.

				Median					
30%	35%	40%	45%	50%	55%	60%	65%	70%	75%
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ssion to the same facility.

80%	85%	90%	95%
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Table 3. State-specific standardized infection ratios (SIRs) and facility-specific SIR summary measures, NHSN Critical Access Hospitals reporting during 2018

3a. Central line-associated bloodstream infections (CLABSI), all locations[1]

				No. of Infections			95% CI for SIR		Facility-specific SIRs			Facility-specific SIRs at Key Percentiles[6]				
State	State NHSN Mandate[2]	Any Validation[3]	No. of Critical Access Hospitals Reporting[4]	Observed	Predicted	SIR	Lower	Upper	No. of hosp with at least 1 predicted CLABSI	% of hosp with SIR sig higher than national SIR[5]	% of hosp with SIR sig lower than national SIR[5]	10%	25%	Median (50%)	75%	90%
Alaska	No	No	2	.	.	.	.	.	.	.	.	.	.	.	.	.
Alabama	M		4	.	.	.	.	.	.	.	.	.	.	.	.	.
Arkansas	No	No	14	2	1.028	1.946	0.326	6.428	0	.	.	.	.	.	.	.
Arizona	No	No	4	.	.	.	.	.	.	.	.	.	.	.	.	.
California	Yes	Yes	29	0	2.405	0.000	.	1.246	0	.	.	.	.	.	.	.
Colorado	Yes	Yes	16	0	0.543	.	.	.	0	.	.	.	.	.	.	.
Connecticut	No	No	.	.	.	.	.	.	.	.	.	.	.	.	.	.
D.C.	No	No	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Delaware			.	.	.	.	.	.	.	.	.	.	.	.	.	.
Florida	No	Yes	7	1	0.323	.	.	.	0	.	.	.	.	.	.	.
Georgia	No	Yes	14	0	1.066	0.000	.	2.810	0	.	.	.	.	.	.	.
Guam			.	.	.	.	.	.	.	.	.	.	.	.	.	.
Hawaii	No	No	2	.	.	.	.	.	.	.	.	.	.	.	.	.
Iowa	No	No	44	2	1.778	1.125	0.189	3.716	0	.	.	.	.	.	.	.
Idaho	No	No	7	0	0.409	.	.	.	0	.	.	.	.	.	.	.
Illinois	Yes	Yes	36	1	2.497	0.400	0.020	1.975	0	.	.	.	.	.	.	.
Indiana	Yes	Yes	35	2	1.903	1.051	0.176	3.472	0	.	.	.	.	.	.	.
Kansas	No	Yes	45	1	2.668	0.375	0.019	1.849	0	.	.	.	.	.	.	.
Kentucky	No	No	18	2	1.653	1.210	0.203	3.997	0	.	.	.	.	.	.	.
Louisiana	No	Yes	5	0	0.542	.	.	.	0	.	.	.	.	.	.	.
Massachusetts	No	Yes	3	.	.	.	.	.	.	.	.	.	.	.	.	.
Maryland	No	No	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Maine	Yes	No	15	5	1.227	4.075	1.493	9.032	0	.	.	.	.	.	.	.
Michigan	No	No	25	1	0.814	.	.	.	0	.	.	.	.	.	.	.
Minnesota	No	No	35	4	1.816	2.203	0.700	5.313	0	.	.	.	.	.	.	.
Missouri			21	3	1.891	1.586	0.404	4.318	0	.	.	.	.	.	.	.
Mississippi	No	No	7	0	0.646	.	.	.	0	.	.	.	.	.	.	.
Montana	No	No	9	1	0.476	.	.	.	0	.	.	.	.	.	.	.
North Carolina	No	Yes	12	1	0.757	.	.	.	0	.	.	.	.	.	.	.
North Dakota	No	No	10	0	0.417	.	.	.	0	.	.	.	.	.	.	.
Nebraska			19	0	0.771	.	.	.	0	.	.	.	.	.	.	.
New Hampshire	Yes	No	12	0	1.056	0.000	.	2.837	0	.	.	.	.	.	.	.
New Jersey			.	.	.	.	.	.	.	.	.	.	.	.	.	.
New Mexico	M	No	9	0	0.485	.	.	.	0	.	.	.	.	.	.	.
Nevada	M	No	2	.	.	.	.	.	.	.	.	.	.	.	.	.
New York	No	No	4	.	.	.	.	.	.	.	.	.	.	.	.	.
Ohio	No	Yes	21	2	1.297	1.542	0.259	5.095	0	.	.	.	.	.	.	.
Oklahoma	No	Yes	12	0	0.511	.	.	.	0	.	.	.	.	.	.	.
Oregon	Yes	Yes	20	1	1.706	0.586	0.029	2.891	0	.	.	.	.	.	.	.
Pennsylvania	Yes	Yes	14	2	1.124	1.779	0.298	5.879	0	.	.	.	.	.	.	.
Puerto Rico			.	.	.	.	.	.	.	.	.	.	.	.	.	.
Rhode Island	No	No	.	.	.	.	.	.	.	.	.	.	.	.	.	.
South Carolina	Yes	Yes	3	.	.	.	.	.	.	.	.	.	.	.	.	.
South Dakota	No	Yes	14	0	0.285	.	.	.	0	.	.	.	.	.	.	.
Tennessee	No	No	6	1	0.415	.	.	.	0	.	.	.	.	.	.	.
Texas	No	No	26	0	1.567	0.000	.	1.912	0	.	.	.	.	.	.	.
Utah			7	0	0.256	.	.	.	0	.	.	.	.	.	.	.
Virginia	No	Yes	5	0	0.517	.	.	.	0	.	.	.	.	.	.	.
Virgin Islands			.	.	.	.	.	.	.	.	.	.	.	.	.	.
Vermont	M	Yes	8	1	0.628	.	.	.	0	.	.	.	.	.	.	.
Washington	Yes	Yes	36	6	2.830	2.120	0.859	4.410	0	.	.	.	.	.	.	.
Wisconsin	No	Yes	53	2	3.798	0.527	0.088	1.740	0	.	.	.	.	.	.	.
West Virginia	No	No	16	0	0.983	.	.	.	0	.	.	.	.	.	.	.
Wyoming	No	No	9	0	0.271	.	.	.	0	.	.	.	.	.	.	.

All US	**715**	**41**	**45.058**	**0.932**	**0.680**	**1.248**	**0**	.	.	.	.	.	.	.	.

1. Data from all ICUs, wards (and other non-critical care locations), and NICUs. 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 ACH
2. Yes indicates the presence of a state mandate to report CLABSI data from any location to NHSN at the beginning of 2018. M indicates midyear implementation of a mandate.
   No indicates that a state mandate did not exist during 2018.
3. Yes indicates that the state health department reported the completion of all of the following validation activities: state health department had access to 2018 NHSN data, state health department performed an assessment of missing or implausible values on at least six months of 2018 NHSN data prior to June 1, 2019, 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, 2019 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 2018.
5. Percent of facilities with at least one predicted CLABSI that had an SIR significantly greater or less than the nominal value of the 2018 national overall CLABSI SIR of 0.932. This is only calculated if at least 10 facilities had ≥ 1.0 predicted CLABSI in 2018.
6. Facility-specific key percentiles were only calculated if at least 20 facilities had ≥1.0 predicted CLABSI in 2018. 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.

Table 3. State-specific standardized infection ratios (SIRs) and facility-specific SIR summary measures, NHSN Critical Access Hospitals reporting during 2018

3b. Central line-associated bloodstream infections (CLABSI), critical care locations[1]

State		No. of Critical Access Hospitals Reporting[3]	No. of Infections			95% CI for SIR		Facility-specific SIRs		Facility-specific SIRs at Key Percentiles[5]				
			Observed	Predicted	SIR	Lower	Upper	% of hosp with SIR sig higher than national SIR[4]	% of hosp with SIR sig lower than national SIR[4]	10%	25%		75%	90%
Alaska	No	1	.	.	.	.	.	.	.	.	.	.	.	.
Alabama	Yes	1	.	.	.	.	.	.	.	.	.	.	.	.
Arkansas	No	2	.	.	.	.	.	.	.	.	.	.	.	.
Arizona	No	2	.	.	.	.	.	.	.	.	.	.	.	.
California	Yes	15	0	0.554	.	.	.	0	.	.	.	.	.	.
Colorado	Yes	4	.	.	.	.	.	.	.	.	.	.	.	.
Connecticut	No	.	.	.	.	.	.	.	.	.	.	.	.	.
D.C.	No	.	.	.	.	.	.	.	.	.	.	.	.	.
Delaware		.	.	.	.	.	.	.	.	.	.	.	.	.
Florida	No	1	.	.	.	.	.	.	.	.	.	.	.	.
Georgia	No	2	.	.	.	.	.	.	.	.	.	.	.	.
Guam		.	.	.	.	.	.	.	.	.	.	.	.	.
Hawaii	No	1	.	.	.	.	.	.	.	.	.	.	.	.
Iowa	No	2	.	.	.	.	.	.	.	.	.	.	.	.
Idaho	No	2	.	.	.	.	.	.	.	.	.	.	.	.
Illinois	Yes	13	0	0.184	.	.	.	0	.	.	.	.	.	.
Indiana	Yes	16	1	0.197	.	.	.	0	.	.	.	.	.	.
Kansas	No	5	0	0.206	.	.	.	0	.	.	.	.	.	.
Kentucky	No	3	.	.	.	.	.	.	.	.	.	.	.	.
Louisiana	No	1	.	.	.	.	.	.	.	.	.	.	.	.
Massachusetts	No	2	.	.	.	.	.	.	.	.	.	.	.	.
Maryland	No	.	.	.	.	.	.	.	.	.	.	.	.	.
Maine	Yes	2	.	.	.	.	.	.	.	.	.	.	.	.
Michigan	No	7	0	0.106	.	.	.	0	.	.	.	.	.	.
Minnesota	No	4	.	.	.	.	.	.	.	.	.	.	.	.
Missouri		6	0	0.120	.	.	.	0	.	.	.	.	.	.
Mississippi	No	1	.	.	.	.	.	.	.	.	.	.	.	.
Montana	No	3	.	.	.	.	.	.	.	.	.	.	.	.
North Carolina	No	5	0	0.161	.	.	.	0	.	.	.	.	.	.
North Dakota	No	3	.	.	.	.	.	.	.	.	.	.	.	.
Nebraska		3	.	.	.	.	.	.	.	.	.	.	.	.
New Hampshire	Yes	6	0	0.102	.	.	.	0	.	.	.	.	.	.
New Jersey		.	.	.	.	.	.	.	.	.	.	.	.	.
New Mexico	Yes	5	0	0.085	.	.	.	0	.	.	.	.	.	.
Nevada	Yes	2	.	.	.	.	.	.	.	.	.	.	.	.
New York	No	2	.	.	.	.	.	.	.	.	.	.	.	.
Ohio	No	9	0	0.140	.	.	.	0	.	.	.	.	.	.
Oklahoma	No	2	.	.	.	.	.	.	.	.	.	.	.	.
Oregon	Yes	11	1	0.375	.	.	.	0	.	.	.	.	.	.
Pennsylvania	Yes	5	1	0.124	.	.	.	0	.	.	.	.	.	.
Puerto Rico		.	.	.	.	.	.	.	.	.	.	.	.	.
Rhode Island	No	.	.	.	.	.	.	.	.	.	.	.	.	.
South Carolina	Yes	1	.	.	.	.	.	.	.	.	.	.	.	.
South Dakota	No	.	.	.	.	.	.	.	.	.	.	.	.	.
Tennessee	No	1	.	.	.	.	.	.	.	.	.	.	.	.

Texas	No	7	0	0.023	.	.	.	0	.	.	.	.	.	.	.
Utah		.	.	.	.	.	.	.	.	.	.	.	.	.	.
Virginia	No	3	.	.	.	.	.	.	.	.	.	.	.	.	.
Virgin Islands		.	.	.	.	.	.	.	.	.	.	.	.	.	.
Vermont	Yes	4	.	.	.	.	.	.	.	.	.	.	.	.	.
Washington	Yes	9	0	0.301	.	.	.	0	.	.	.	.	.	.	.
Wisconsin	No	12	0	0.106	.	.	.	0	.	.	.	.	.	.	.
West Virginia	No	7	0	0.187	.	.	.	0	.	.	.	.	.	.	.
Wyoming	No	2	.	.	.	.	.	.	.	.	.	.	.	.	.
All US		**195**	**3**	**3.928**	**1.018**	**0.324**	**2.456**	**0**	**.**	**.**	**.**	**.**	**.**	**.**	**.**

1. Data from all ICUs; excludes wards (and other non-critical care locations), NICUs. 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 2018. M indicates midyear implementation of a mandate. No indicates that a state mandate did not exist during 2018. 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.
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 2018.
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 2018 national ICU CLABSI SIR of 1.018. This is only calculated if at least 10 facilities had at least one predicted ICU CLABSI in 2018.
5. Facility-specific key percentiles were only calculated if at least 20 facilities had ≥1.0 predicted ICU CLABSI in 2018. 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 2018

3c. Central line-associated bloodstream infections (CLABSI), ward (non-critical care) locations[1]

			No. of Infections			95% CI for SIR		Facility-specific SIRs					
State			Observed	Predicted	SIR	Lower	Upper		10%	25%		75%	90%
Alaska	No	2	.	.	.	.	.	.	.	.	.	.	.
Alabama	No	4	.	.	.	.	.	.	.	.	.	.	.
Arkansas	No	14	2	1.015	1.970	0.330	6.510	0	.	.	.	.	.
Arizona	No	4	.	.	.	.	.	.	.	.	.	.	.
California	Yes	28	0	1.847	0.000	.	1.622	0	.	.	.	.	.
Colorado	No	15	0	0.491	.	.	.	0	.	.	.	.	.
Connecticut	No	.	.	.	.	.	.	.	.	.	.	.	.
D.C.	No	.	.	.	.	.	.	.	.	.	.	.	.
Delaware		.	.	.	.	.	.	.	.	.	.	.	.
Florida	No	7	1	0.321	.	.	.	0	.	.	.	.	.
Georgia	No	13	0	1.004	0.000	.	2.983	0	.	.	.	.	.
Guam		.	.	.	.	.	.	.	.	.	.	.	.
Hawaii	No	2	.	.	.	.	.	.	.	.	.	.	.
Iowa	No	44	2	1.775	1.127	0.189	3.723	0	.	.	.	.	.
Idaho	No	6	0	0.351	.	.	.	0	.	.	.	.	.
Illinois	Yes	32	1	2.315	0.432	0.022	2.131	0	.	.	.	.	.
Indiana	No	34	1	1.703	0.587	0.029	2.896	0	.	.	.	.	.
Kansas	No	44	1	2.466	0.406	0.020	2.000	0	.	.	.	.	.
Kentucky	No	18	2	1.596	1.253	0.210	4.140	0	.	.	.	.	.
Louisiana	No	5	0	0.527	.	.	.	0	.	.	.	.	.
Massachusetts	No	2	.	.	.	.	.	.	.	.	.	.	.
Maryland	No	.	.	.	.	.	.	.	.	.	.	.	.
Maine	Yes	15	5	1.194	4.187	1.534	9.280	0	.	.	.	.	.
Michigan	No	25	1	0.707	.	.	.	0	.	.	.	.	.
Minnesota	No	35	4	1.768	2.262	0.719	5.457	0	.	.	.	.	.
Missouri		21	3	1.769	1.696	0.431	4.615	0	.	.	.	.	.
Mississippi	No	6	0	0.643	.	.	.	0	.	.	.	.	.
Montana	No	9	1	0.454	.	.	.	0	.	.	.	.	.
North Carolina	No	11	1	0.598	.	.	.	0	.	.	.	.	.
North Dakota	No	10	0	0.401	.	.	.	0	.	.	.	.	.
Nebraska		18	0	0.629	.	.	.	0	.	.	.	.	.
New Hampshire	No	12	0	0.956	.	.	.	0	.	.	.	.	.
New Jersey		.	.	.	.	.	.	.	.	.	.	.	.
New Mexico	Yes	9	0	0.399	.	.	.	0	.	.	.	.	.
Nevada	Yes	2	.	.	.	.	.	.	.	.	.	.	.
New York	No	4	.	.	.	.	.	.	.	.	.	.	.
Ohio	No	21	2	1.157	1.728	0.290	5.709	0	.	.	.	.	.
Oklahoma	No	12	0	0.506	.	.	.	0	.	.	.	.	.
Oregon	Yes	20	0	1.333	0.000	.	2.248	0	.	.	.	.	.
Pennsylvania	Yes	14	1	1.001	0.999	0.050	4.928	0	.	.	.	.	.
Puerto Rico		.	.	.	.	.	.	.	.	.	.	.	.
Rhode Island	No	.	.	.	.	.	.	.	.	.	.	.	.
South Carolina	Yes	3	.	.	.	.	.	.	.	.	.	.	.
South Dakota	No	14	0	0.286	.	.	.	0	.	.	.	.	.
Tennessee	No	6	1	0.411	.	.	.	0	.	.	.	.	.
Texas	No	23	0	1.543	0.000	.	1.942	0	.	.	.	.	.
Utah		7	0	0.255	.	.	.	0	.	.	.	.	.
Virginia	No	5	0	0.477	.	.	.	0	.	.	.	.	.

Virgin Islands		.	.	.	.	.	.	.	.	.	.	.	.	.	.
Vermont	Yes	6	0	0.521	.	.	.	0	.	.	.	.	.	.	.
Washington	Yes	36	6	2.529	2.372	0.962	4.935	0	.	.	.	.	.	.	.
Wisconsin	No	53	2	3.696	0.541	0.091	1.788	0	.	.	.	.	.	.	.
West Virginia	No	16	0	0.795	.	.	.	0	.	.	.	.	.	.	.
Wyoming	No	8	0	0.250	.	.	.	0	.	.	.	.	.	.	.
All US		**695**	**37**	**41.130**	**0.924**	**0.663**	**1.255**	**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 2018. M indicates midyear implementation of a mandate. No indicates that a state mandate did not exist during 2018.
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 2018.
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 2018 national ward CLABSI SIR of 0.924. This is only calculated if at least 10 facilities had at least one predicted ward CLABSI in 2018.
5. Facility-specific key percentiles were only calculated if at least 20 facilities had ≥1.0 predicted ward CLABSI in 2018. 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.

Table 4. State-specific standardized infection ratios (SIRs) and facility-specific SIR summary measures, NHSN Critical Access Hospitals reporting during 2018

4a. Catheter-associated urinary tract infections (CAUTI), all locations[1]

State				No. of Infections			95% CI for SIR		Facility-specific SIRs				
				Observed	Predicted	SIR	Lower	Upper	No. of hosp with at least 1 predicted CAUTI	10%	25%	75%	90%
Alaska	No	Yes	4	.	.	.	.	.	.	.	.	.	.
Alabama	Yes	No	5	0	2.226	0.000	.	1.346	0	.	.	.	.
Arkansas	No	No	15	2	3.296	0.607	0.102	2.005	0	.	.	.	.
Arizona	No	No	4	.	.	.	.	.	.	.	.	.	.
California	No	No	30	12	11.686	1.027	0.556	1.746	2	.	.	.	.
Colorado	No	No	21	10	7.420	1.348	0.685	2.402	1	.	.	.	.
Connecticut	No	Yes	1	.	.	.	.	.	.	.	.	.	.
D.C.	No	No	1	.	.	.	.	.	.	.	.	.	.
Delaware			1	.	.	.	.	.	.	.	.	.	.
Florida	No	Yes	7	1	4.076	0.245	0.012	1.210	1	.	.	.	.
Georgia	No	Yes	15	3	4.567	0.657	0.167	1.788	1	.	.	.	.
Guam			1	.	.	.	.	.	.	.	.	.	.
Hawaii	No	No	2			.	.	.	.	.	.	.	.
Iowa	No	No	63	13	19.075	0.682	0.379	1.136	6	.	.	.	.
Idaho	No	No	8	4	2.260	1.770	0.562	4.269	0	.	.	.	.
Illinois	Yes	No	40	7	15.353	0.456	0.199	0.902	6	.	.	.	.
Indiana	Yes		35	4	14.297	0.280	0.089	0.675	5	.	.	.	.
Kansas	No	Yes	59	20	16.538	1.209	0.759	1.835	4	.	.	.	.
Kentucky	No		18	3	5.656	0.530	0.135	1.444	0	.	.	.	.
Louisiana	No	Yes	5	1	2.106	0.475	0.024	2.342	0	.	.	.	.
Massachusetts	No	No	3			.	.	.	.	.	.	.	.
Maryland	No	No	1	.	.	.	.	.	.	.	.	.	.
Maine	No	No	15	1	8.904	0.112	0.006	0.554	3	.	.	.	.
Michigan	No	No	30	1	6.393	0.156	0.008	0.771	1	.	.	.	.
Minnesota	Yes	Yes	75	16	18.727	0.854	0.506	1.358	4	.	.	.	.
Missouri			24	11	8.284	1.328	0.698	2.308	2	.	.	.	.
Mississippi	No	No	12	4	3.158	1.267	0.402	3.055	0	.	.	.	.
Montana	No	No	11	6	5.456	1.100	0.446	2.287	2	.	.	.	.
North Carolina	No	Yes	12	5	10.364	0.482	0.177	1.069	3	.	.	.	.
North Dakota	No	No	11	0	5.488	0.000	.	0.546	1	.	.	.	.
Nebraska			28	4	4.302	0.930	0.295	2.243	0	.	.	.	.
New Hampshire	M	No	13	9	9.185	0.980	0.478	1.798	3	.	.	.	.
New Jersey			1	.	.	.	.	.	.	.	.	.	.
New Mexico	No	No	9	4	5.589	0.716	0.227	1.726	2	.	.	.	.
Nevada	No	No	2			.	.	.	.	.	.	.	.
New York	No	No	6	3	1.408	2.131	0.542	5.799	0	.	.	.	.
Ohio	No	No	22	4	10.657	0.375	0.119	0.905	4	.	.	.	.
Oklahoma	No	Yes	17	1	3.865	0.259	0.013	1.276	1	.	.	.	.
Oregon	Yes	Yes	25	11	13.504	0.815	0.428	1.416	3	.	.	.	.
Pennsylvania	Yes	Yes	15	5	7.457	0.671	0.246	1.486	1	.	.	.	.
Puerto Rico			1	.	.	.	.	.	.	.	.	.	.
Rhode Island	No	No	1	.	.	.	.	.	.	.	.	.	.
South Carolina	No	No	3			.	.	.	.	.	.	.	.
South Dakota	No	Yes	38	9	6.937	1.297	0.633	2.381	1	.	.	.	.
Tennessee	No	No	7	0	1.292	0.000	.	2.319	0	.	.	.	.
Texas	No	No	33	10	6.718	1.489	0.756	2.653	1	.	.	.	.

Utah			7	1	0.844	.	.	.	0	.	.	.	.	.	.	.
Virginia	No	Yes	5	5	2.660	1.880	0.689	4.166	1	.	.	.	.	.	.	.
Virgin Islands			1	.	.	.	.	.	.	.	.	.	.	.	.	.
Vermont	No	No	4						.	.	.	.	.	.	.	.
Washington	No	No	38	17	16.043	1.060	0.638	1.662	3	.	.	.	.	.	.	.
Wisconsin	No	Yes	58	20	31.091	0.643	0.404	0.976	10	0%	0%	.	.	.	.	.
West Virginia	Yes	No	20	5	6.358	0.786	0.288	1.743	1	.	.	.	.	.	.	.
Wyoming	No	No	13	5	2.004	2.495	0.914	5.530	0	.	.	.	.	.	.	.
All US			**896**	**245**	**312.042**	**0.785**	**0.691**	**0.888**	**73**	**0%**	**0%**	**0.000**	**0.000**	**0.000**	**0.678**	**0.959**

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 2018. M indicates midyear implementation of a mandate.
   No indicates that a state mandate did not exist during 2018.
3. Yes indicates that the state health department reported the completion of all of the following validation activities: state health department had access to 2018 NHSN data, state health department performed an assessment of missing or implausible values on at least six months of 2018 NHSN data prior to June 1, 2019, 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, 2019 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 2018.
5. Percent of facilities with at least one predicted CAUTI that had an SIR significantly greater or less than the nominal value of the 2018 national overall CAUTI SIR of 0.785. This is only calculated if at least 10 facilities had at least one predicted CAUTI in 2018.
6. Facility-specific key percentiles were only calculated if at least 20 facilities had ≥1.0 predicted CAUTI in 2018. 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.

Table 4. State-specific standardized infection ratios (SIRs) and facility-specific SIR summary measures, NHSN Critical Access Hospitals reporting during 2018

4b. Catheter-associated urinary tract infections (CAUTI), critical care locations[1]

State			No. of Infections			95% CI for SIR		Facility-specific SIRs								
			Observed	Predicted	SIR	Lower	Upper				10%	25%		75%	90%	
Alaska	Yes	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Alabama	Yes	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Arkansas	No	2	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Arizona	No	2	.	.	.	.	.	.	.	.	.	.	.	.	.	.
California	No	15	1	2.917	0.343	0.017	1.691	0	.	.	.	.	.	.	.	.
Colorado	Yes	4	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Connecticut	Yes	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
D.C.	Yes	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Delaware		.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Florida	No	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Georgia	Yes	2	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Guam		.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Hawaii	Yes	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Iowa	No	3	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Idaho	No	2	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Illinois	Yes	15	0	1.690	0.000	.	1.773	0	.	.	.	.	.	.	.	.
Indiana	Yes	16	1	2.646	0.378	0.019	1.864	0	.	.	.	.	.	.	.	.
Kansas	No	4	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Kentucky	No	3	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Louisiana	No	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Massachusetts	Yes	2	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Maryland	Yes	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Maine	No	2	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Michigan	No	8	0	0.622	.	.	.	0	.	.	.	.	.	.	.	.
Minnesota	Yes	10	1	0.923	.	.	.	0	.	.	.	.	.	.	.	.
Missouri		6	0	1.354	0.000	.	2.213	0	.	.	.	.	.	.	.	.
Mississippi	Yes	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Montana	No	3	.	.	.	.	.	.	.	.	.	.	.	.	.	.
North Carolina	Yes	5	2	3.203	0.624	0.105	2.063	1	.	.	.	.	.	.	.	.
North Dakota	Yes	3	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Nebraska		4	.	.	.	.	.	.	.	.	.	.	.	.	.	.
New Hampshire	Yes	6	0	1.359	0.000	.	2.204	0	.	.	.	.	.	.	.	.
New Jersey		.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
New Mexico	No	5	2	1.162	1.721	0.289	5.687	0	.	.	.	.	.	.	.	.
Nevada	No	2	.	.	.	.	.	.	.	.	.	.	.	.	.	.
New York	No	2	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Ohio	No	10	0	1.259	0.000	.	2.379	0	.	.	.	.	.	.	.	.
Oklahoma	Yes	2	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Oregon	Yes	11	1	2.533	0.395	0.020	1.947	0	.	.	.	.	.	.	.	.
Pennsylvania	Yes	6	3	1.543	1.944	0.495	5.291	1	.	.	.	.	.	.	.	.
Puerto Rico		.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Rhode Island	No	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
South Carolina	No	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.
South Dakota	No	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.

Tennessee	No	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Texas	No	8	2	0.551	.	.	.	0	.	.	.	.	.	.	.	.
Utah		.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Virginia	No	3	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Virgin Islands		.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Vermont	Yes	2	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Washington	No	9	1	1.581	0.633	0.032	3.119	0	.	.	.	.	.	.	.	.
Wisconsin	No	13	1	1.615	0.619	0.031	3.054	0	.	.	.	.	.	.	.	.
West Virginia	Yes	8	1	0.814	.	.	.	0	.	.	.	.	.	.	.	.
Wyoming	No	2	.	.	.	.	.	.	.	.	.	.	.	.	.	.
All US		**208**	**21**	**34.147**	**0.615**	**0.391**	**0.924**	**2**	**.**	**.**	**.**	**.**	**.**	**.**	**.**	**.**

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 CAHs.
2. Yes indicates the presence of a state mandate to report CAUTI data from critical care units to NHSN at the beginning of 2018. M indicates midyear implementation of a mandate.
   No indicates that a state mandate did not exist during 2018. 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 2018.
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 2018 national ICU CAUTI SIR of 0.615. This is only calculated if at least 10 facilities had at least one predicted ICU CAUTI in 2018.
5. Facility-specific key percentiles were only calculated if at least 20 facilities had ≥1.0 predicted ICU CAUTI in 2018. 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.

Table 4. State-specific standardized infection ratios (SIRs) and facility-specific SIR summary measures, NHSN Critical Access Hospitals reporting during 2018

4c. Catheter-associated urinary tract infections (CAUTI), ward (non-critical care) locations[1]

State			No. of Infections			95% CI for SIR		Facility-specific SIRs							
			Observed	Predicted	SIR	Lower	Upper				10%	25%		75%	90%
Alaska	No	4	.	.	.	.	.	.	.	.	.	.	.	.	.
Alabama	Yes	5	0	1.961	0.000	.	1.528	0	.	.	.	.	.	.	.
Arkansas	No	15	2	3.214	0.622	0.104	2.056	0	.	.	.	.	.	.	.
Arizona	No	4	.	.	.	.	.	.	.	.	.	.	.	.	.
California	No	29	11	8.770	1.254	0.660	2.180	2	.	.	.	.	.	.	.
Colorado	No	20	10	6.548	1.527	0.776	2.722	1	.	.	.	.	.	.	.
Connecticut	No	.	.	.	.	.	.	.	.	.	.	.	.	.	.
D.C.	No	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Delaware	No	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Florida	No	7	1	4.068	0.246	0.012	1.212	1	.	.	.	.	.	.	.
Georgia	No	14	3	4.368	0.687	0.175	1.869	1	.	.	.	.	.	.	.
Guam		.	.	.	.	.	.	.	.	.	.	.	.	.	.
Hawaii	No	2	.	.	.	.	.	.	.	.	.	.	.	.	.
Iowa	No	63	13	18.986	0.685	0.381	1.141	6	.	.	.	.	.	.	.
Idaho	No	7	4	2.010	1.990	0.632	4.800	0	.	.	.	.	.	.	.
Illinois	Yes	36	7	13.663	0.512	0.224	1.013	5	.	.	.	.	.	.	.
Indiana	No	35	3	11.651	0.257	0.065	0.701	2	.	.	.	.	.	.	.
Kansas	No	59	19	15.884	1.196	0.742	1.833	4	.	.	.	.	.	.	.
Kentucky	No	18	3	4.858	0.618	0.157	1.681	0	.	.	.	.	.	.	.
Louisiana	No	5	1	2.003	0.499	0.025	2.462	0	.	.	.	.	.	.	.
Massachusetts	No	2	.	.	.	.	.	.	.	.	.	.	.	.	.
Maryland	No	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Maine	No	15	1	8.356	0.120	0.006	0.590	3	.	.	.	.	.	.	.
Michigan	No	30	1	5.770	0.173	0.009	0.855	1	.	.	.	.	.	.	.
Minnesota	Yes	74	15	17.804	0.843	0.490	1.358	4	.	.	.	.	.	.	.
Missouri		24	11	6.930	1.587	0.835	2.759	1	.	.	.	.	.	.	.
Mississippi	No	11	3	3.082	0.973	0.248	2.649	0	.	.	.	.	.	.	.
Montana	No	11	6	4.691	1.279	0.518	2.660	0	.	.	.	.	.	.	.
North Carolina	No	11	3	7.161	0.419	0.107	1.140	2	.	.	.	.	.	.	.
North Dakota	No	11	0	5.094	0.000	.	0.588	1	.	.	.	.	.	.	.
Nebraska		27	4	3.740	1.070	0.340	2.580	0	.	.	.	.	.	.	.
New Hampshire	No	13	9	7.825	1.150	0.561	2.111	3	.	.	.	.	.	.	.
New Jersey		.	.	.	.	.	.	.	.	.	.	.	.	.	.
New Mexico	No	9	2	4.428	0.452	0.076	1.492	1	.	.	.	.	.	.	.
Nevada	No	2	.	.	.	.	.	.	.	.	.	.	.	.	.
New York	No	6	2	1.173	1.705	0.286	5.633	0	.	.	.	.	.	.	.
Ohio	No	22	4	9.397	0.426	0.135	1.027	4	.	.	.	.	.	.	.
Oklahoma	No	17	1	3.649	0.274	0.014	1.352	1	.	.	.	.	.	.	.
Oregon	Yes	25	10	10.969	0.912	0.463	1.625	2	.	.	.	.	.	.	.
Pennsylvania	Yes	15	2	5.914	0.338	0.057	1.117	1	.	.	.	.	.	.	.
Puerto Rico		.	.	.	.	.	.	.	.	.	.	.	.	.	.
Rhode Island	No	.	.	.	.	.	.	.	.	.	.	.	.	.	.
South Carolina	No	3	.	.	.	.	.	.	.	.	.	.	.	.	.
South Dakota	No	38	9	6.939	1.297	0.633	2.380	1	.	.	.	.	.	.	.
Tennessee	No	7	0	1.242	0.000	.	2.412	0	.	.	.	.	.	.	.
Texas	No	30	8	6.168	1.297	0.602	2.463	0	.	.	.	.	.	.	.
Utah		7	1	0.843	.	.	.	0	.	.	.	.	.	.	.
Virginia	No	5	4	2.295	1.743	0.554	4.204	1	.	.	.	.	.	.	.

Virgin Islands		.	.	.	.	.	.	.	.	.	.	.	.	.	.
Vermont	Yes	3	.	.	.	.	.	.	.	.	.	.	.	.	.
Washington	No	38	16	14.461	1.106	0.655	1.758	2	.	.	.	.	.	.	.
Wisconsin	No	58	19	29.480	0.645	0.400	0.988	9	.	.	.	.	.	.	.
West Virginia	Yes	20	4	5.545	0.721	0.229	1.740	1	.	.	.	.	.	.	.
Wyoming	No	12	5	1.865	2.681	0.982	5.942	0	.	.	.	.	.	.	.
All US		**869**	**224**	**277.897**	**0.806**	**0.706**	**0.917**	**60**	**0%**	**0%**	**0.000**	**0.000**	**0.000**	**0.666**	**0.875**

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 CAHs.
2. Yes indicates the presence of a state mandate to report CAUTI data from ward locations to NHSN at the beginning of 2018. M indicates midyear implementation of a mandate. No indicates that a state mandate did not exist during 2018.
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 2018.
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 2018 national ward CAUTI SIR of 0.806. This is only calculated if at least 10 facilities had at least one predicted ward CAUTI in 2018.
5. Facility-specific key percentiles were only calculated if at least 20 facilities had ≥1.0 predicted ward CAUTI in 2018. 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.

Table 5. State-specific standardized infection ratios (SIRs) and facility-specific SIR summary measures, NHSN Critical Access Hospitals reporting during 2018

5a. Ventilator-associated events (VAE), all locations[1]

State				No. of Events			95% CI for SIR		Facility-specific SIRs				
				Observed	Predicted	SIR	Lower	Upper	No. of hosp with at least 1 predicted VAE	10%	25%	75%	90%
Alaska	No	No	1	.	.	.	.	.	.	.	.	.	.
Alabama	No	No	0	.	.	.	.	.	.	.	.	.	.
Arkansas	No	No	1	.	.	.	.	.	.	.	.	.	.
Arizona	No	No	2	.	.	.	.	.	.	.	.	.	.
California	No	No	10	0	1.326	0.000	.	2.260	0	.	.	.	.
Colorado	No	No	2	.	.	.	.	.	.	.	.	.	.
Connecticut	No	No	0	.	.	.	.	.	.	.	.	.	.
D.C.	No	No	0	.	.	.	.	.	.	.	.	.	.
Delaware			0	.	.	.	.	.	.	.	.	.	.
Florida	No	No	2	.	.	.	.	.	.	.	.	.	.
Georgia	No	No	1	.	.	.	.	.	.	.	.	.	.
Guam			0	.	.	.	.	.	.	.	.	.	.
Hawaii	No	No	0	.	.	.	.	.	.	.	.	.	.
Iowa	No	No	0	.	.	.	.	.	.	.	.	.	.
Idaho	No	No	2	.	.	.	.	.	.	.	.	.	.
Illinois	No	No	3	.	.	.	.	.	.	.	.	.	.
Indiana	No	No	14	0	0.265	.	.	.	0	.	.	.	.
Kansas	No	No	2	.	.	.	.	.	.	.	.	.	.
Kentucky	No	No	2	.	.	.	.	.	.	.	.	.	.
Louisiana	No	Yes	1	.	.	.	.	.	.	.	.	.	.
Massachusetts	No	No	1	.	.	.	.	.	.	.	.	.	.
Maryland	No	No	0	.	.	.	.	.	.	.	.	.	.
Maine	No	No	2	.	.	.	.	.	.	.	.	.	.
Michigan	No	No	4	.	.	.	.	.	.	.	.	.	.
Minnesota	No	No	1	.	.	.	.	.	.	.	.	.	.
Missouri			2	.	.	.	.	.	.	.	.	.	.
Mississippi	No	No	0	.	.	.	.	.	.	.	.	.	.
Montana	No	No	2	.	.	.	.	.	.	.	.	.	.
North Carolina	No	No	4	.	.	.	.	.	.	.	.	.	.
North Dakota	No	No	2	.	.	.	.	.	.	.	.	.	.
Nebraska			0	.	.	.	.	.	.	.	.	.	.
New Hampshire	No	No	5	0	0.194	.	.	.	0	.	.	.	.
New Jersey			0	.	.	.	.	.	.	.	.	.	.
New Mexico	No	No	2	.	.	.	.	.	.	.	.	.	.
Nevada	No	No	2	.	.	.	.	.	.	.	.	.	.
New York	No	No	2	.	.	.	.	.	.	.	.	.	.
Ohio	No	No	7	0	0.404	.	.	.	0	.	.	.	.
Oklahoma	No	No	1	.	.	.	.	.	.	.	.	.	.
Oregon	No	No	5	0	0.235	.	.	.	0	.	.	.	.
Pennsylvania	Yes	Yes	8	0	0.475	.	.	.	0	.	.	.	.
Puerto Rico			0	.	.	.	.	.	.	.	.	.	.
Rhode Island	No	No	0	.	.	.	.	.	.	.	.	.	.
South Carolina	Yes	Yes	0	.	.	.	.	.	.	.	.	.	.
South Dakota	No	No	0	.	.	.	.	.	.	.	.	.	.
Tennessee	No		0	.	.	.	.	.	.	.	.	.	.
Texas	No	No	5	0	0.080	.	.	.	0	.	.	.	.

Utah			0	.	.	.	.	.	.	.	.	.	.	.	.	.
Virginia	No	No	2	.	.	.	.	.	.	.	.	.	.	.	.	.
Virgin Islands			0	.	.	.	.	.	.	.	.	.	.	.	.	.
Vermont	No	No	0	.	.	.	.	.	.	.	.	.	.	.	.	.
Washington	No	No	8	0	0.564	.	.	.	0	.	.	.	.	.	.	.
Wisconsin	No	Yes	6	0	0.106	.	.	.	0	.	.	.	.	.	.	.
West Virginia	No	No	4	.	.	.	.	.	.	.	.	.	.	.	.	.
Wyoming	No	No	2	.	.	.	.	.	.	.	.	.	.	.	.	.
All US			**120**	**3**	**4.897**	**0.613**	**0.156**	**1.667**	**0**	**.**	**.**	**.**	**.**	**.**	**.**	**.**

1. 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.
2. Yes indicates the presence of a state mandate to report VAE data from any location to NHSN at the beginning of 2018. M indicates midyear implementation of a mandate. No indicates that a state mandate did not exist during 2018.
3. Yes indicates that the state health department reported the completion of all of the following validation activities: state health department had access to 2018 NHSN data, state health department performed an assessment of missing or implausible values on at least six months of 2018 NHSN data prior to June 1, 2019, 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, 2019 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 VAE data in 2018.
5. Percent of facilities with at least one predicted VAE that had an SIR significantly greater or less than the nominal value of the 2018 national overall VAE SIR of 0.613. This is only calculated if at least 10 facilities had at least one predicted VAE in 2018.
6. Facility-specific key percentiles were only calculated if at least 20 facilities had ≥1.0 predicted VAE in 2018. 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 5. State-specific standardized infection ratios (SIRs) and facility-specific SIR summary measures, NHSN Critical Access Hospitals reporting during 2018

5b. Ventilator-associated events (VAE), critical care locations[1]

State			No. of Events			95% CI for SIR		Facility-specific SIRs					
			Observed	Predicted	SIR	Lower	Upper		10%	25%		75%	90%
Alaska	No	0	.	.	.	.	.	.	.	.	.	.	.
Alabama	No	0	.	.	.	.	.	.	.	.	.	.	.
Arkansas	No	1	.	.	.	.	.	.	.	.	.	.	.
Arizona	No	2	.	.	.	.	.	.	.	.	.	.	.
California	No	10	0	1.284	0.000	.	2.333	0	.	.	.	.	.
Colorado	No	2	.	.	.	.	.	.	.	.	.	.	.
Connecticut	No	0	.	.	.	.	.	.	.	.	.	.	.
D.C.	No	0	.	.	.	.	.	.	.	.	.	.	.
Delaware		0	.	.	.	.	.	.	.	.	.	.	.
Florida	No	1	.	.	.	.	.	.	.	.	.	.	.
Georgia	No	1	.	.	.	.	.	.	.	.	.	.	.
Guam		0	.	.	.	.	.	.	.	.	.	.	.
Hawaii	No	0	.	.	.	.	.	.	.	.	.	.	.
Iowa	No	0	.	.	.	.	.	.	.	.	.	.	.
Idaho	No	1	.	.	.	.	.	.	.	.	.	.	.
Illinois	No	3	.	.	.	.	.	.	.	.	.	.	.
Indiana	No	14	0	0.265	.	.	.	0	.	.	.	.	.
Kansas	No	2	.	.	.	.	.	.	.	.	.	.	.
Kentucky	No	2	.	.	.	.	.	.	.	.	.	.	.
Louisiana	No	1	.	.	.	.	.	.	.	.	.	.	.
Massachusetts	No	1	.	.	.	.	.	.	.	.	.	.	.
Maryland	No	0	.	.	.	.	.	.	.	.	.	.	.
Maine	No	1	.	.	.	.	.	.	.	.	.	.	.
Michigan	No	3	.	.	.	.	.	.	.	.	.	.	.
Minnesota	No	1	.	.	.	.	.	.	.	.	.	.	.
Missouri		2	.	.	.	.	.	.	.	.	.	.	.
Mississippi	No	0	.	.	.	.	.	.	.	.	.	.	.
Montana	No	1	.	.	.	.	.	.	.	.	.	.	.
North Carolina	No	3	.	.	.	.	.	.	.	.	.	.	.
North Dakota	No	2	.	.	.	.	.	.	.	.	.	.	.
Nebraska		0	.	.	.	.	.	.	.	.	.	.	.
New Hampshire	No	5	0	0.194	.	.	.	0	.	.	.	.	.
New Jersey		0	.	.	.	.	.	.	.	.	.	.	.
New Mexico	No	2	.	.	.	.	.	.	.	.	.	.	.
Nevada	No	2	.	.	.	.	.	.	.	.	.	.	.
New York	No	2	.	.	.	.	.	.	.	.	.	.	.
Ohio	No	5	0	0.208	.	.	.	0	.	.	.	.	.
Oklahoma	No	1	.	.	.	.	.	.	.	.	.	.	.
Oregon	No	5	0	0.235	.	.	.	0	.	.	.	.	.
Pennsylvania	Yes	5	0	0.265	.	.	.	0	.	.	.	.	.
Puerto Rico	No	0	.	.	.	.	.	.	.	.	.	.	.
Rhode Island	No	0	.	.	.	.	.	.	.	.	.	.	.
South Carolina	Yes	0	.	.	.	.	.	.	.	.	.	.	.
South Dakota	No	0	.	.	.	.	.	.	.	.	.	.	.
Tennessee	No	0	.	.	.	.	.	.	.	.	.	.	.
Texas	No	4	.	.	.	.	.	.	.	.	.	.	.
Utah		0	.	.	.	.	.	.	.	.	.	.	.
Virginia	No	2	.	.	.	.	.	.	.	.	.	.	.

Virgin Islands		0	.	.	.	.	.	.	.	.	.	.	.	.	.
Vermont	No	0	.	.	.	.	.	.	.	.	.	.	.	.	.
Washington	No	8	0	0.564	.	.	.	0	.	.	.	.	.	.	.
Wisconsin	No	6	0	0.106	.	.	.	0	.	.	.	.	.	.	.
West Virginia	No	3	.	.	.	.	.	.	.	.	.	.	.	.	.
Wyoming	No	2	.	.	.	.	.	.	.	.	.	.	.	.	.
All US		**106**	**2**	**4.341**	**0.461**	**0.077**	**1.522**	**0**	**.**	**.**	**.**	**.**	**.**	**.**	**.**

1. Data from all ICUs; excludes wards (and other non-critical care locations) and NICUs. Pediatric location (ICUs) are excluded from SIR 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.
2. Yes indicates the presence of a state mandate to report VAE data from critical care units to NHSN at the beginning of 2018. M indicates midyear implementation of a mandate. No indicates that a state mandate did not exist during 2018.
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 VAE data from at least one critical care location in 2018.
4. Percent of facilities with at least one predicted ICU VAE that had an SIR significantly greater or less than the nominal value of the 2018 national ICU VAE SIR of 0.461. This is only calculated if at least 10 facilities had at least one predicted ICU VAE in 2018.
5. Facility-specific key percentiles were only calculated if at least 20 facilities had ≥1.0 predicted ICU VAE in 2018. If a facility's predicted number of ICU VAE was <1.0, a facility-specific SIR was neither calculated nor included in the distribution of facility-specific SIRs.

Table 5. State-specific standardized infection ratios (SIRs) and facility-specific SIR summary measures, NHSN Critical Access Hospitals reporting during 2018

5c. Ventilator-associated events (VAE), ward (non-critical care) locations[1]

State			No. of Events			95% CI for SIR		Facility-specific SIRs				
			Observed	Predicted	SIR	Lower	Upper		10%	25%	75%	90%
Alaska	No	1	.	.	.	.	.	.	.	.	.	.
Alabama	No	0	.	.	.	.	.	.	.	.	.	.
Arkansas	No	0	.	.	.	.	.	.	.	.	.	.
Arizona	No	0	.	.	.	.	.	.	.	.	.	.
California	No	1	.	.	.	.	.	.	.	.	.	.
Colorado	No	0	.	.	.	.	.	.	.	.	.	.
Connecticut	No	0	.	.	.	.	.	.	.	.	.	.
D.C.	No	0	.	.	.	.	.	.	.	.	.	.
Delaware		0	.	.	.	.	.	.	.	.	.	.
Florida	No	1	.	.	.	.	.	.	.	.	.	.
Georgia	No	0	.	.	.	.	.	.	.	.	.	.
Guam		0	.	.	.	.	.	.	.	.	.	.
Hawaii	No	0	.	.	.	.	.	.	.	.	.	.
Iowa	No	0	.	.	.	.	.	.	.	.	.	.
Idaho	No	1	.	.	.	.	.	.	.	.	.	.
Illinois	No	0	.	.	.	.	.	.	.	.	.	.
Indiana	No	0	.	.	.	.	.	.	.	.	.	.
Kansas	No	0	.	.	.	.	.	.	.	.	.	.
Kentucky	No	0	.	.	.	.	.	.	.	.	.	.
Louisiana	No	0	.	.	.	.	.	.	.	.	.	.
Massachusetts	No	0	.	.	.	.	.	.	.	.	.	.
Maryland	No	0	.	.	.	.	.	.	.	.	.	.
Maine	No	1	.	.	.	.	.	.	.	.	.	.
Michigan	No	1	.	.	.	.	.	.	.	.	.	.
Minnesota	No	0	.	.	.	.	.	.	.	.	.	.
Missouri		0	.	.	.	.	.	.	.	.	.	.
Mississippi	No	0	.	.	.	.	.	.	.	.	.	.
Montana	No	1	.	.	.	.	.	.	.	.	.	.
North Carolina	No	1	.	.	.	.	.	.	.	.	.	.
North Dakota	No	0	.	.	.	.	.	.	.	.	.	.
Nebraska		0	.	.	.	.	.	.	.	.	.	.
New Hampshire	No	0	.	.	.	.	.	.	.	.	.	.
New Jersey		0	.	.	.	.	.	.	.	.	.	.
New Mexico	No	0	.	.	.	.	.	.	.	.	.	.
Nevada	No	0	.	.	.	.	.	.	.	.	.	.
New York	No	0	.	.	.	.	.	.	.	.	.	.
Ohio	No	2	.	.	.	.	.	.	.	.	.	.
Oklahoma	No	0	.	.	.	.	.	.	.	.	.	.
Oregon	No	0	.	.	.	.	.	.	.	.	.	.
Pennsylvania	Yes	3	.	.	.	.	.	.	.	.	.	.
Puerto Rico		0	.	.	.	.	.	.	.	.	.	.
Rhode Island	No	0	.	.	.	.	.	.	.	.	.	.
South Carolina	No	0	.	.	.	.	.	.	.	.	.	.
South Dakota	No	0	.	.	.	.	.	.	.	.	.	.
Tennessee	No	0	.	.	.	.	.	.	.	.	.	.
Texas	No	1	.	.	.	.	.	.	.	.	.	.

Utah		0	.	.	.	.	.	.	.	.	.	.	.	.	.
Virginia	No	0	.	.	.	.	.	.	.	.	.	.	.	.	.
Virgin Islands		0	.	.	.	.	.	.	.	.	.	.	.	.	.
Vermont	No	0	.	.	.	.	.	.	.	.	.	.	.	.	.
Washington	No	0	.	.	.	.	.	.	.	.	.	.	.	.	.
Wisconsin	No	0	.	.	.	.	.	.	.	.	.	.	.	.	.
West Virginia	No	1	.	.	.	.	.	.	.	.	.	.	.	.	.
Wyoming	No	0	.	.	.	.	.	.	.	.	.	.	.	.	.
All US		**15**	**1**	**0.557**	**.**	**.**	**.**	**0**	**.**	**.**	**.**	**.**	**.**	**.**	**.**

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. Pediatric location (wards) are excluded from SIR 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.
2. Yes indicates the presence of a state mandate to report VAE data from ward locations to NHSN at the beginning of 2018. M indicates midyear implementation of a mandate. No indicates that a state mandate did not exist during 2018.
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 VAE data from at least one ward in 2018.
4. Percent of facilities with at least one predicted ward VAE that had an SIR significantly greater or less than the nominal value of the 2018 national ward VAE SIR of (missing). This is only calculated if at least 10 facilities had at least one predicted ward VAE in 2018.
5. Facility-specific key percentiles were only calculated if at least 20 facilities had ≥1.0 predicted ward VAE in 2018. If a facility's predicted number of ward 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 2018

6a. Surgical site infections (SSI) following colon surgery[1] in adults, ≥ 18years

State			No. of Critical Access Hospitals Reporting[4]	No. of Procedures	No. of Infections			95% CI for SIR		Facility-specific SIRs					
					Observed	Predicted	SIR	Lower	Upper	No. of hosp with at least 1 predicted SSI	10%	25%		75%	90%
Alaska	No	No	2	.	.	.	.	.	.	.	.	.	.	.	.
Alabama	Yes	Yes	0	.	.	.	.	.	.	.	.	.	.	.	.
Arkansas	No	No	2	.	.	.	.	.	.	.	.	.	.	.	.
Arizona	No	No	2	.	.	.	.	.	.	.	.	.	.	.	.
California	Yes	Yes	16	197	5	3.874	1.291	0.473	2.861	0	.	.	.	.	.
Colorado	Yes	Yes	8	52	1	0.877	.	.	.	0	.	.	.	.	.
Connecticut	No	No	0	.	.	.	.	.	.	.	.	.	.	.	.
D.C.	No	No	0	.	.	.	.	.	.	.	.	.	.	.	.
Delaware			0	.	.	.	.	.	.	.	.	.	.	.	.
Florida	No	Yes	3	.	.	.	.	.	.	.	.	.	.	.	.
Georgia	Yes	Yes	1	.	.	.	.	.	.	.	.	.	.	.	.
Guam			0	.	.	.	.	.	.	.	.	.	.	.	.
Hawaii	No	No	1	.	.	.	.	.	.	.	.	.	.	.	.
Iowa	No	No	10	36	2	0.693	.	.	.	0	.	.	.	.	.
Idaho	No	No	5	49	1	0.790	.	.	.	0	.	.	.	.	.
Illinois	Yes	No	15	145	0	3.200	0.000	.	0.936	0	.	.	.	.	.
Indiana	Yes	Yes	23	164	5	3.203	1.561	0.572	3.460	0	.	.	.	.	.
Kansas	No	Yes	10	44	2	0.730	.	.	.	0	.	.	.	.	.
Kentucky	No	No	6	19	0	0.402	.	.	.	0	.	.	.	.	.
Louisiana	No	No	2	.	.	.	.	.	.	.	.	.	.	.	.
Massachusetts	No	Yes	1	.	.	.	.	.	.	.	.	.	.	.	.
Maryland	No	No	0	.	.	.	.	.	.	.	.	.	.	.	.
Maine	No	Yes	9	84	0	1.603	0.000	.	1.869	0	.	.	.	.	.
Michigan	No	No	13	120	5	2.441	2.049	0.751	4.541	0	.	.	.	.	.
Minnesota	No	No	13	82	3	1.334	2.248	0.572	6.119	0	.	.	.	.	.
Missouri			7	36	0	0.564	.	.	.	0	.	.	.	.	.
Mississippi	No	No	0	.	.	.	.	.	.	.	.	.	.	.	.
Montana	No	No	6	50	2	0.956	.	.	.	0	.	.	.	.	.
North Carolina	No	No	8	91	1	1.635	0.612	0.031	3.016	0	.	.	.	.	.
North Dakota	No	No	2	.	.	.	.	.	.	.	.	.	.	.	.
Nebraska			4	.	.	.	.	.	.	.	.	.	.	.	.
New Hampshire	Yes	No	10	61	2	1.140	1.754	0.294	5.796	0	.	.	.	.	.
New Jersey			0	.	.	.	.	.	.	.	.	.	.	.	.
New Mexico	No	No	4	.	.	.	.	.	.	.	.	.	.	.	.
Nevada	No	No	2	.	.	.	.	.	.	.	.	.	.	.	.
New York	No	No	2	.	.	.	.	.	.	.	.	.	.	.	.
Ohio	No	Yes	10	90	0	1.739	0.000	.	1.723	0	.	.	.	.	.
Oklahoma	No	No	0	.	.	.	.	.	.	.	.	.	.	.	.
Oregon	Yes	Yes	12	134	2	2.613	0.765	0.128	2.528	0	.	.	.	.	.
Pennsylvania	Yes	Yes	7	52	0	0.947	.	.	.	0	.	.	.	.	.
Puerto Rico			0	.	.	.	.	.	.	.	.	.	.	.	.
Rhode Island	No	No	0	.	.	.	.	.	.	.	.	.	.	.	.
South Carolina	Yes	Yes	1	.	.	.	.	.	.	.	.	.	.	.	.
South Dakota	No	Yes	0	.	.	.	.	.	.	.	.	.	.	.	.
Tennessee	No	No	0	.	.	.	.	.	.	.	.	.	.	.	.
Texas	No	No	10	32	0	0.524	.	.	.	0	.	.	.	.	.
Utah			2	.	.	.	.	.	.	.	.	.	.	.	.
Virginia	No	Yes	3	.	.	.	.	.	.	.	.	.	.	.	.
Virgin Islands			0	.	.	.	.	.	.	.	.	.	.	.	.
Vermont	No	No	1	.	.	.	.	.	.	.	.	.	.	.	.
Washington	Yes		18	148	3	2.589	1.159	0.295	3.153	0	.	.	.	.	.
Wisconsin	No	Yes	35	300	2	5.251	0.381	0.064	1.258	0	.	.	.	.	.
West Virginia	No	No	8	98	1	1.772	0.564	0.028	2.784	0	.	.	.	.	.

Wyoming	No	No	4	.	.	.	.	.	.	.	.	.	.	.	.	.	.
All US			**298**	**2,383**	**40**	**44.281**	**0.903**	**0.654**	**1.218**	**0**	**.**	**.**	**.**	**.**	**.**	**.**	**.**

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 2018 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 2018. M indicates midyear implementation of a mandate.
   No indicates that a state mandate did not exist during 2018.
3. Yes indicates that the state health department reported the completion of all of the following validation activities: state health department had access to 2018 NHSN data, state health department performed an assessment of missing or implausible values on at least six months of 2018 NHSN data prior to June 1, 2019, 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, 2019 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 2018.
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 2018 national colon surgery SIR of 0.903. This is only calculated if at least 10 facilities had at least one predicted colon surgery SSI in 2018.
6. Facility-specific key percentiles were only calculated if at least 20 facilities had ≥1.0 predicted colon surgery SSI in 2018. 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 2018

6b. Surgical site infections (SSI) following abdominal hysterectomy surgery[1] in adults, ≥ 18years

State			No. of Critical Access Hospitals Reporting[4]	No. of Procedures	No. of Infections			95% CI for SIR		Facility-specific SIRs					
					Observed	Predicted	SIR	Lower	Upper		10%	25%		75%	90%
Alaska	No	No	1	.	.	.	.	.	.	.	.	.	.	.	.
Alabama	Yes	Yes	0	.	.	.	.	.	.	.	.	.	.	.	.
Arkansas	No	No	0	.	.	.	.	.	.	.	.	.	.	.	.
Arizona	No	No	2	.	.	.	.	.	.	.	.	.	.	.	.
California	Yes	Yes	14	98	1	0.576	.	.	.	0	.	.	.	.	.
Colorado	Yes	Yes	8	41	1	0.240	.	.	.	0	.	.	.	.	.
Connecticut	No	No	0	.	.	.	.	.	.	.	.	.	.	.	.
D.C.	No	No	0	.	.	.	.	.	.	.	.	.	.	.	.
Delaware			0	.	.	.	.	.	.	.	.	.	.	.	.
Florida	No	Yes	0	.	.	.	.	.	.	.	.	.	.	.	.
Georgia	Yes	Yes	2	.	.	.	.	.	.	.	.	.	.	.	.
Guam			0	.	.	.	.	.	.	.	.	.	.	.	.
Hawaii	No	No	1	.	.	.	.	.	.	.	.	.	.	.	.
Iowa	No	No	8	101	0	0.476	.	.	.	0	.	.	.	.	.
Idaho	No	No	3	.	.	.	.	.	.	.	.	.	.	.	.
Illinois	Yes	No	5	37	0	0.260	.	.	.	0	.	.	.	.	.
Indiana	Yes	Yes	19	136	1	0.757	.	.	.	0	.	.	.	.	.
Kansas	No	Yes	5	77	0	0.413	.	.	.	0	.	.	.	.	.
Kentucky	No	No	1	.	.	.	.	.	.	.	.	.	.	.	.
Louisiana	No	No	2	.	.	.	.	.	.	.	.	.	.	.	.
Massachusetts	No	Yes	2	.	.	.	.	.	.	.	.	.	.	.	.
Maryland	No	No	0	.	.	.	.	.	.	.	.	.	.	.	.
Maine	No	No	9	61	0	0.315	.	.	.	0	.	.	.	.	.
Michigan	No	No	7	76	0	0.395	.	.	.	0	.	.	.	.	.
Minnesota	No	No	10	73	0	0.367	.	.	.	0	.	.	.	.	.
Missouri			7	26	0	0.150	.	.	.	0	.	.	.	.	.
Mississippi	No	No	0	.	.	.	.	.	.	.	.	.	.	.	.
Montana	No	No	4	.	.	.	.	.	.	.	.	.	.	.	.
North Carolina	No	No	7	78	0	0.458	.	.	.	0	.	.	.	.	.
North Dakota	No	No	3	.	.	.	.	.	.	.	.	.	.	.	.
Nebraska			3	.	.	.	.	.	.	.	.	.	.	.	.
New Hampshire	Yes	No	7	39	1	0.244	.	.	.	0	.	.	.	.	.
New Jersey			0	.	.	.	.	.	.	.	.	.	.	.	.
New Mexico	No	No	3	.	.	.	.	.	.	.	.	.	.	.	.
Nevada	No	No	2	.	.	.	.	.	.	.	.	.	.	.	.
New York	No	No	2	.	.	.	.	.	.	.	.	.	.	.	.
Ohio	No	Yes	12	105	0	0.652	.	.	.	0	.	.	.	.	.
Oklahoma	No	No	1	.	.	.	.	.	.	.	.	.	.	.	.
Oregon	Yes	Yes	10	52	0	0.342	.	.	.	0	.	.	.	.	.
Pennsylvania	Yes	Yes	5	139	1	0.823	.	.	.	0	.	.	.	.	.
Puerto Rico			0	.	.	.	.	.	.	.	.	.	.	.	.
Rhode Island	No	No	0	.	.	.	.	.	.	.	.	.	.	.	.
South Carolina	Yes	Yes	0	.	.	.	.	.	.	.	.	.	.	.	.
South Dakota	No	Yes	0	.	.	.	.	.	.	.	.	.	.	.	.
Tennessee	No	No	0	.	.	.	.	.	.	.	.	.	.	.	.
Texas	No	No	7	24	0	0.146	.	.	.	0	.	.	.	.	.
Utah			1	.	.	.	.	.	.	.	.	.	.	.	.
Virginia	No	Yes	2	.	.	.	.	.	.	.	.	.	.	.	.
Virgin Islands			0	.	.	.	.	.	.	.	.	.	.	.	.
Vermont	Yes	Yes	5	74	0	0.468	.	.	.	0	.	.	.	.	.
Washington	Yes	Yes	10	92	1	0.547	.	.	.	0	.	.	.	.	.
Wisconsin	No	Yes	24	236	1	1.088	0.919	0.046	4.533	0	.	.	.	.	.
West Virginia	No	No	3	.	.	.	.	.	.	.	.	.	.	.	.
Wyoming	No	No	2	.	.	.	.	.	.	.	.	.	.	.	.
All US			**219**	**1,904**	**9**	**10.618**	**0.848**	**0.413**	**1.555**	**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 2018 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 2018. M indicates midyear implementation of a mandate. No indicates that a state mandate did not exist during 2018.
3. Yes indicates that the state health department reported the completion of all of the following validation activities: state health department had access to 2018 NHSN data, state health department performed an assessment of missing or implausible values on at least six months of 2018 NHSN data prior to June 1, 2019, 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, 2019 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 2018.
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 2018 national abdominal hysterectomy SIR of 0.848. This is only calculated if at least 10 facilities had at least one predicted abdominal hysterectomy SSI in 2018.
6. Facility-specific key percentiles were only calculated if at least 20 facilities had ≥1.0 predicted abdominal hysterectomy SSI in 2018. 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 2018

Hospital-onset methicillin-resistant *Staphylococcus aureus* (MRSA) bacteremia, facility-wide[1]

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%	
Alaska	No	No	2	.	.	.	.	.	.	.	.	.	.	.
Alabama	No	Yes	4	.	.	.	.	.	.	.	.	.	.	.
Arkansas		No	11	0	0.488	.	.	.	0	.	.	.	.	.
Arizona	No	No	5	0	0.300	.	.	.	.	.	.	.	.	.
California	Yes	Yes	33	0	1.959	0.000	.	1.529	0	.	.	.	.	.
Colorado	M	No	23	0	1.136	0.000	.	2.637	0	.	.	.	.	.
Connecticut	No	No	0	.	.	.	.	.	.	.	.	.	.	.
D.C.	No	No	0	.	.	.	.	.	.	.	.	.	.	.
Delaware			0	.	.	.	.	.	.	.	.	.	.	.
Florida	No	Yes	7	2	0.576	.	.	.	.	.	.	.	.	.
Georgia	No	Yes	12	1	1.055	0.948	0.047	4.675	0	.	.	.	.	.
Guam			0	.	.	.	.	.	.	.	.	.	.	.
Hawaii	No	No	2	.	.	.	.	.	.	.	.	.	.	.
Iowa	No	No	32	3	1.047	2.865	0.729	7.798	0	.	.	.	.	.
Idaho	No	No	8	0	0.510	.	.	.	.	.	.	.	.	.
Illinois	Yes	Yes	49	2	2.613	0.765	0.128	2.529	0	.	.	.	.	.
Indiana	No	No	35	0	2.000	0.000	.	1.498	0	.	.	.	.	.
Kansas	No	Yes	47	3	2.025	1.481	0.377	4.032	0	.	.	.	.	.
Kentucky	No	No	16	0	0.954	.	.	.	0	.	.	.	.	.
Louisiana	No	No	4	.	.	.	.	.	.	.	.	.	.	.
Massachusetts	No	Yes	3	.	.	.	.	.	.	.	.	.	.	.
Maryland	No	No	0	.	.	.	.	.	.	.	.	.	.	.
Maine	Yes	Yes	16	1	1.526	0.655	0.033	3.232	0	.	.	.	.	.
Michigan	No	No	29	1	1.415	0.707	0.035	3.485	0	.	.	.	.	.
Minnesota	No	No	25	0	0.931	.	.	.	0	.	.	.	.	.
Missouri			19	1	1.677	0.596	0.030	2.941	0	.	.	.	.	.
Mississippi	No	No	7	0	0.464	.	.	.	.	.	.	.	.	.
Montana	No	No	8	0	0.657	.	.	.	.	.	.	.	.	.
North Carolina	No	Yes	11	0	1.059	0.000	.	2.829	0	.	.	.	.	.
North Dakota	No	No	9	0	0.531	.	.	.	.	.	.	.	.	.
Nebraska			19	0	0.652	.	.	.	0	.	.	.	.	.
New Hampshire	No	No	11	2	1.169	1.711	0.287	5.652	0	.	.	.	.	.
New Jersey			0	.	.	.	.	.	.	.	.	.	.	.
New Mexico	Yes	No	9	0	0.573	.	.	.	.	.	.	.	.	.
Nevada	Yes	No	2	.	.	.	.	.	.	.	.	.	.	.
New York	No	No	6	0	0.434	.	.	.	.	.	.	.	.	.
Ohio	No	Yes	23	1	1.566	0.639	0.032	3.149	0	.	.	.	.	.
Oklahoma	No	Yes	17	1	0.555	.	.	.	0	.	.	.	.	.
Oregon	Yes	Yes	25	2	1.761	1.136	0.190	3.752	0	.	.	.	.	.
Pennsylvania	Yes	Yes	11	0	0.872	.	.	.	0	.	.	.	.	.
Puerto Rico			0	.	.	.	.	.	.	.	.	.	.	.
Rhode Island	No	No	0	.	.	.	.	.	.	.	.	.	.	.
South Carolina	Yes	Yes	2	.	.	.	.	.	.	.	.	.	.	.
South Dakota	No	Yes	1	.	.	.	.	.	.	.	.	.	.	.
Tennessee	No	No	6	0	0.199	.	.	.	.	.	.	.	.	.
Texas	No	No	23	1	1.132	0.883	0.044	4.357	0	.	.	.	.	.
Utah			7	0	0.173	.	.	.	.	.	.	.	.	.

Virginia	No	Yes	4	.	.	.	.	.	.	.	.	.	.	.	.	.
Virgin Islands			0	.	.	.	.	.	.	.	.	.	.	.	.	.
Vermont	No	Yes	8	0	0.955	.	.	.	.	.	.	.	.	.	.	.
Washington	No	No	24	2	1.998	1.001	0.168	3.307	0	.	.	.	.	.	.	.
Wisconsin	No	Yes	58	0	3.576	0.000	.	0.838	0	.	.	.	.	.	.	.
West Virginia	No	No	15	0	1.118	0.000	.	2.680	0	.	.	.	.	.	.	.
Wyoming	No	No	6	0	0.262	.	.	.	.	.	.	.	.	.	.	.
All US			**694**	**23**	**41.739**	**0.551**	**0.358**	**0.814**	**0**	**.**	**.**	**.**	**.**	**.**	**.**	**.**

1. 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.
2. Yes indicates the presence of a state mandate to report facility-wide MRSA bacteremia data to NHSN at the beginning of 2018. M indicates midyear implementation of a mandate. No indicates that a state mandate did not exist during 2018.
3. Yes indicates that the state health department reported the completion of all of the following validation activities: state health department had access to 2018 NHSN data, state health department performed an assessment of missing or implausible values on at least six months of 2018 NHSN data prior to June 1, 2019, 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, 2019 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 MRSA bacteremia data in 2018.
5. 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 2018 national hospital-onset MRSA bacteremia SIR of 0.551. This is only calculated if at least 10 facilities had at least one predicted hospital-onset MRSA bacteremia in 2018.
6. Facility-specific key percentiles were only calculated if at least 20 facilities had ≥1.0 predicted hospital-onset MRSA bacteremia in 2018. 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 2018
Hospital-onset *Clostridioides difficile* (CDI), facility-wide[1]

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%
Alaska	No	No	3	.	.	.	.	.	.	.	.	.	.	.	.	.
Alabama	No	Yes	4	.	.	.	.	.	.	.	.	.	.	.	.	.
Arkansas		No	12	5	8.146	0.614	0.225	1.360	3	.	.	.	.	.	.	.
Arizona	No	No	5	0	3.716	0.000	.	0.806	1	.	.	.	.	.	.	.
California	Yes	Yes	33	28	29.382	0.953	0.646	1.359	13	15%	0%	.	.	.	.	.
Colorado	No	No	24	18	16.417	1.096	0.670	1.699	7	.	.	.	.	.	.	.
Connecticut	No	No	0	.	.	.	.	.	.	.	.	.	.	.	.	.
D.C	No	No	0	.	.	.	.	.	.	.	.	.	.	.	.	.
Delaware			0	.	.	.	.	.	.	.	.	.	.	.	.	.
Florida	No	Yes	7	3	7.965	0.377	0.096	1.025	3	.	.	.	.	.	.	.
Georgia	No	Yes	12	7	13.885	0.504	0.220	0.997	6	.	.	.	.	.	.	.
Guam			0	.	.	.	.	.	.	.	.	.	.	.	.	.
Hawaii	No	No	1	.	.	.	.	.	.	.	.	.	.	.	.	.
Iowa	No	No	47	16	25.171	0.636	0.376	1.010	5	.	.	.	.	.	.	.
Idaho	No	No	8	9	8.450	1.065	0.519	1.955	3	.	.	.	.	.	.	.
Illinois	Yes	Yes	49	36	37.405	0.962	0.684	1.318	10	0%	0%	.	.	.	.	.
Indiana	No	No	35	30	30.821	0.973	0.669	1.372	10	0%	0%	.	.	.	.	.
Kansas	No	Yes	48	26	26.947	0.965	0.644	1.394	6	.	.	.	.	.	.	.
Kentucky	No	No	16	16	14.133	1.132	0.670	1.799	4	.	.	.	.	.	.	.
Louisiana	No	Yes	4	.	.	.	.	.	.	.	.	.	.	.	.	.
Massachusetts	No	Yes	3	.	.	.	.	.	.	.	.	.	.	.	.	.
Maryland	No	No	0	.	.	.	.	.	.	.	.	.	.	.	.	.
Maine	Yes	Yes	16	19	25.258	0.752	0.466	1.153	14	0%	0%	.	.	.	.	.
Michigan	No	No	28	8	21.399	0.374	0.174	0.710	6	.	.	.	.	.	.	.
Minnesota	No	No	49	28	32.324	0.866	0.587	1.235	13	8%	0%	.	.	.	.	.
Missouri			17	18	23.345	0.771	0.471	1.195	8	.	.	.	.	.	.	.
Mississippi	No	No	8	11	6.201	1.774	0.933	3.083	4	.	.	.	.	.	.	.
Montana	No	No	8	12	9.235	1.299	0.704	2.209	6	.	.	.	.	.	.	.
North Carolina	No	No	11	15	18.628	0.805	0.468	1.298	9	.	.	.	.	.	.	.
North Dakota	No	Yes	9	4	7.314	0.547	0.174	1.319	2	.	.	.	.	.	.	.
Nebraska			18	5	6.745	0.741	0.272	1.643	0	.	.	.	.	.	.	.
New Hampshire	No	No	12	15	18.995	0.790	0.459	1.273	10	0%	0%	.	.	.	.	.
New Jersey			0	.	.	.	.	.	.	.	.	.	.	.	.	.
New Mexico	Yes	No	9	3	8.267	0.363	0.092	0.988	4	.	.	.	.	.	.	.
Nevada	No	No	2	.	.	.	.	.	.	.	.	.	.	.	.	.
New York	No	No	5	6	6.241	0.961	0.390	2.000	3	.	.	.	.	.	.	.
Ohio	No	Yes	23	25	27.600	0.906	0.599	1.317	12	0%	0%	.	.	.	.	.
Oklahoma	No	Yes	17	8	7.334	1.091	0.507	2.071	1	.	.	.	.	.	.	.
Oregon	Yes	Yes	25	14	27.418	0.511	0.291	0.836	13	0%	0%	.	.	.	.	.
Pennsylvania	Yes	Yes	11	6	15.299	0.392	0.159	0.816	7	.	.	.	.	.	.	.
Puerto Rico			0	.	.	.	.	.	.	.	.	.	.	.	.	.
Rhode Island	No	No	0	.	.	.	.	.	.	.	.	.	.	.	.	.
South Carolina	Yes	Yes	2	.	.	.	.	.	.	.	.	.	.	.	.	.
South Dakota	No	Yes	37	8	13.905	0.575	0.267	1.093	3	.	.	.	.	.	.	.
Tennessee	No	No	6	0	2.460	0.000	.	1.218	1	.	.	.	.	.	.	.
Texas	No	No	25	14	16.296	0.859	0.489	1.407	6	.	.	.	.	.	.	.
Utah			7	0	2.140	0.000	.	1.400	0	.	.	.	.	.	.	.
Virginia	No	Yes	4	.	.	.	.	.	.	.	.	.	.	.	.	.
Virgin Islands			0	.	.	.	.	.	.	.	.	.	.	.	.	.
Vermont	Yes	Yes	8	17	15.143	1.123	0.676	1.761	8	.	.	.	.	.	.	.

Washington	Yes	Yes	36	26	36.545	0.711	0.475	1.028	16	6%	0%	.	.	.	.	.
Wisconsin	No	Yes	58	38	54.804	0.693	0.498	0.942	26	4%	0%	0.000	0.000	0.679	1.132	1.498
West Virginia			16	14	18.182	0.770	0.438	1.261	7	.	.	.	.	.	.	.
Wyoming	No	No	12	2	6.443	0.310	0.052	1.026	1	.	.	.	.	.	.	.
All US			**790**	**533**	**674.994**	**0.790**	**0.725**	**0.859**	**263**	**3%**	**0%**	**0.000**	**0.000**	**0.698**	**1.243**	**2.125**

1. 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.
2. Yes indicates the presence of a state mandate to report facility-wide CDI data to NHSN at the beginning of 2018. M indicates midyear implementation of a mandate. No indicates that a state mandate did not exist during 2018.
3. Yes indicates that the state health department reported the completion of all of the following validation activities: state health department had access to 2018 NHSN data, state health department performed an assessment of missing or implausible values on at least six months of 2018 NHSN data prior to June 1, 2019, 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, 2019 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 CDI data in 2018.
5. 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 2018 national hospital-onset CDI SIR of 0.790. This is only calculated if at least 10 facilities had at least one predicted hospital-onset CDI in 2018.
6. Facility-specific key percentiles were only calculated if at least 20 facilities had ≥1.0 predicted hospital-onset CDI in 2018. 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 Crit
Central line-associated bloodstream infections (CLABSIs), catheter-associated urinary tract infections (CAUTIs), ventilator-a
Clostridioides difficile infections, and surgical site infections (SSIs) following Surgical Care Im

	2017 SIR	2018 SIR	Percent Change	Direction of Change, Based on Statistical Significance	p-value
CLABSI, all locations[1]	0.711	0.932	31%	No change	0.2583
CLABSI, ICU[2]	1.038	1.018	2%	No change	0.9795
CLABSI, Ward[3]	0.678	0.924	36%	No change	0.2255
CAUTI, all locations[5]	0.779	0.785	1%	No change	0.9325
CAUTI, ICU[2]	0.333	0.615	85%	No change	0.0816
CAUTI, Ward[3]	0.847	0.806	5%	No change	0.6004
	1.188	0.613	48%	No change	0.3529
ICUs[5]	1.043	0.461	56%	No change	0.3496
Wards[6]	1.823	.	.		.
****Hospital-onset MRSA bacteremia, facility-wide**[6]	0.639	0.551	14%	No change	0.6144
Hospital-onset *C. difficile* infections, facility-wide[6]	0.876	0.790	10%	No change	0.0921
SSI, combined SCIP procedures[7]	0.861	0.897	4%	No change	0.7655
SSI, Hip arthroplasty	0.709	0.952	34%	No change	0.2881
SSI, Knee arthroplasty	0.879	0.858	2%	No change	0.9260
SSI, Coronary artery bypass graft[8]	.	.	.		.
SSI, Cardiac surgery	.	.	.		.
SSI, Peripheral vascular bypass surgery	.	.	.		.
SSI, Abdominal aortic aneurysm repair	.	.	.		.
SSI, Colon surgery	0.984	0.903	8%	No change	0.6975
SSI, Rectal surgery	.	.	.		.
SSI, Abdominal hysterectomy	0.659	0.848	29%	No change	0.6277
SSI, Vaginal hysterectomy	.	.	.		.

* Statistically significant, p < 0.0500

**2017 MRSA SIR updated

1. Data from all ICUs, wards (and other non-critical care locations), and NICUs. This excludes LTAC locations (or facilities) and IRF locations (or fac
2. Data from all ICUs; excludes wards (and other non-critical care locations), NICUs, 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 transplan
4. Data from all NICU locations, including Level II/III and Level III nurseries. Both umbilical line and central line-associated bloodstream infections ar
5. Data from all ICUs and wards (and other non-critical care locations). This excludes NICUs, LTAC locations (or facilities) and IRF locations (or fac
6. Hospital-onset is defined as event detected on the 4th day (or later) after admission to an inpatient location within the facility.
7. These procedures were presented in previous versions of the HAI Progress Report and follow select inpatient surgical procedures with a primary
   using NHSN surgical procedure categorizations. Includes SSIs that were classified as deep incisional or organ/space, and were detected upon ac
8. Coronary artery bypass graft includes procedures with either chest only or chest and donor site incisions.

tical Access Hospitals reporting during 2018 by HAI and patient population:
associated events (VAEs), methicillin-resistant *Staphylococcus aureus* (MRSA) bacteremia,
provement Project (SCIP) procedures, 2017 compared to 2018

cilities) and ACHs.

t]. This excludes LTAC locations [or facilities] and IRF locations [or facilities]).
e considered CLABSIs.
ilities).

and other primary skin closure technique approximating the procedures covered by SCIP,
dmission 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 2017 and 2018 from NHSN Critical Access Hospitals

10a. Central line-associated bloodstream infections (CLABSI), all locations[1]

	All Critical Access Hospitals Reporting to NHSN				
State[2]	2017 SIR	2018 SIR	Percent Change[3]	Direction of Change, Based on Statistical Significance	p-value
Alaska	.	.	.		.
Alabama	.	.	.		.
Arkansas	.	1.946	.		.
Arizona	.	.	.		.
California	0.962	0.000	100%	No change	0.2150
Colorado	.	.	.		.
Connecticut	.	.	.		.
D.C.	.	.	.		.
Delaware	.	.	.		.
Florida	.	.	.		.
Georgia	1.450	0.000	100%	No change	0.3181
Guam	.	.	.		.
Hawaii	.	.	.		.
Iowa	0.000	1.125	.	No change	0.2103
Idaho	.	.	.		.
Illinois	1.229	0.400	67%	No change	0.3640
Indiana	2.256	1.051	53%	No change	0.4049
Kansas	0.000	0.375	.	No change	0.4816
Kentucky	0.847	1.210	43%	No change	0.8227
Louisiana	.	.	.		.
Massachusetts	.	.	.		.
Maryland	.	.	.		.
Maine	0.000	4.075	.	Increase	0.0193
Michigan	.	.	.		.
Minnesota	2.259	2.203	2%	No change	0.9621
Missouri	0.711	1.586	123%	No change	0.5383
Mississippi	.	.	.		.
Montana	.	.	.		.
North Carolina	.	.	.		.
North Dakota	.	.	.		.
Nebraska	.	.	.		.
New Hampshire	.	0.000	.		.
New Jersey	.	.	.		.
New Mexico	.	.	.		.
Nevada	.	.	.		.
New York	.	.	.		.
Ohio	0.000	1.542	.	No change	0.2702
Oklahoma	.	.	.		.
Oregon	0.729	0.586	20%	No change	0.8915
Pennsylvania	0.684	1.779	160%	No change	0.4843
Puerto Rico	.	.	.		.
Rhode Island	.	.	.		.
South Carolina	.	.	.		.
South Dakota	.	.	.		.
Tennessee	.	.	.		.
Texas	0.000	0.000	.		.
Utah	.	.	.		.
Virginia	.	.	.		.
Virgin Islands	.	.	.		.
Vermont	.	.	.		.
Washington	0.642	2.120	230%	No change	0.1414
Wisconsin	0.276	0.527	91%	No change	0.6521
West Virginia	.	.	.		.
Wyoming	.	.	.		.
All US	**0.711**	**0.932**	**31%**	**No change**	**0.2583**

* Statistically significant, p < 0.0500

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 2017 and/or 2018 and therefore subsequent data not calculated

3.For states with <100% or >100% value in the percent change field, the percent change is not calculated due to sparse data reported within the facility typ

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Table 10. Changes in state-specific standardized infection ratios (SIRs) between 2017 and 2018 from NHSN Critical Access Hospitals

10b. Catheter-associated urinary tract infections (CAUTI), all locations[1]

	All Critical Access Hospitals Reporting to NHSN				
	2017 SIR	2018 SIR		Direction of Change, Based on Statistical Significance	p-value
Alaska	0.741	1.460	97%	No change	0.6333
Alabama	0.451	0.000	100%	No change	0.499
Arkansas	0.218	0.607	178%	No change	0.4509
Arizona	.	.	.		.
California	0.733	1.027	40%	No change	0.4157
Colorado	1.691	1.348	20%	No change	0.6331
Connecticut	.	.	.		.
D.C.	.	.	.		.
Delaware	.	.	.		.
Florida	0.646	0.245	62%	No change	0.4786
Georgia	1.752	0.657	63%	No change	0.1721
Guam	.	.	.		.
Hawaii	.	.	.		.
Iowa	0.653	0.682	4%	No change	0.9322
Idaho	0.723	1.770	145%	No change	0.3233
Illinois	0.503	0.456	9%	No change	0.8576
Indiana	0.557	0.280	50%	No change	0.2697
Kansas	1.069	1.209	13%	No change	0.7256
Kentucky	0.919	0.530	42%	No change	0.4743
Louisiana	0.000	0.475	.	No change	0.6038
Massachusetts	.	.	.		.
Maryland	.	.	.		.
Maine	0.929	0.112	88%	Decrease	0.0147
Michigan	0.382	0.156	59%	No change	0.5168
Minnesota	0.947	0.854	10%	No change	0.7701
Missouri	1.183	1.328	12%	No change	0.8153
Mississippi	2.727	1.267	54%	No change	0.2988
Montana	0.791	1.100	39%	No change	0.6712
North Carolina	0.177	0.482	172%	No change	0.2429
North Dakota	0.627	0.000	100%	No change	0.1351
Nebraska	1.777	0.930	48%	No change	0.3012
New Hampshire	0.584	0.980	68%	No change	0.4048
New Jersey	.	.	.		.
New Mexico	0.386	0.716	85%	No change	0.5081
Nevada	.	.	.		.
New York	0.749	2.131	185%	No change	0.4021
Ohio	0.418	0.375	10%	No change	0.8836
Oklahoma	0.148	0.259	75%	No change	0.7275
Oregon	0.390	0.815	109%	No change	0.1304
Pennsylvania	0.947	0.671	29%	No change	0.5618
Puerto Rico	.	.	.		.
Rhode Island	.	.	.		.
South Carolina	.	.	.		.
South Dakota	1.528	1.297	15%	No change	0.7371
Tennessee	.	.	.		.
Texas	0.891	1.489	67%	No change	0.2876
Utah	.	.	.		.
Virginia	1.301	1.880	45%	No change	0.5996
Virgin Islands	.	.	.		.
Vermont	.	.	.	.	.
Washington	1.772	1.060	40%	No change	0.0992
Wisconsin	0.545	0.643	18%	No change	0.6436
West Virginia	0.550	0.786	43%	No change	0.7110
Wyoming	0.000	2.495	.	Increase	0.0432
All US	**0.779**	**0.785**	**1%**	**No change**	**0.9325**

* Statistically significant, p < 0.0500

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 2017 and/or 2018 and therefore subsequent data not calculated

3.For states with <100% or >100% value in the percent change field, the percent change is not calculated due to sparse data reported within the facility type

Table 10. Changes in state-specific standardized infection ratios (SIRs) between 2017 and 2018 from NHSN Critical Access Hospitals

10c. Ventilator-associated events (VAE), all locations[1]

	All Critical Access Hospitals Reporting to NHSN				
	2017 SIR	2018 SIR	Percent Change	Direction of Change, Based on Statistical Significance	p-value
Alaska	.	.	.		.
Alabama	.	.	.		.
Arkansas	.	.	.		.
Arizona	.	.	.		.
California	0.774	0.000	100%	No change	0.4935
Colorado	.	.	.		.
Connecticut	.	.	.		.
D.C.	.	.	.		.
Delaware	.	.	.		.
Florida	.	.	.		.
Georgia	.	.	.		.
Guam	.	.	.		.
Hawaii	.	.	.		.
Iowa	.	.	.		.
Idaho	.	.	.		.
Illinois	.	.	.		.
Indiana	.	.	.		.
Kansas	.	.	.		.
Kentucky	.	.	.		.
Louisiana	.	.	.		.
Massachusetts	.	.	.		.
Maryland	.	.	.		.
Maine	.	.	.		.
Michigan	.	.	.		.
Minnesota	.	.	.		.
Missouri	.	.	.		.
Mississippi	.	.	.		.
Montana	.	.	.		.
North Carolina	.	.	.		.
North Dakota	.	.	.		.
Nebraska	.	.	.		.
New Hampshire	.	.	.		.
New Jersey	.	.	.		.
New Mexico	.	.	.		.
Nevada	.	.	.		.
New York	.	.	.		.
Ohio	.	.	.		.
Oklahoma	.	.	.		.
Oregon	.	.	.		.
Pennsylvania	.	.	.		.
Puerto Rico	.	.	.		.
Rhode Island	.	.	.		.
South Carolina	.	.	.		.
South Dakota	.	.	.		.
Tennessee	.	.	.		.
Texas	.	.	.		.
Utah	.	.	.		.
Virginia	.	.	.		.
Virgin Islands	.	.	.		.
Vermont	.	.	.		.
Washington	.	.	.		.
Wisconsin	.	.	.		.
West Virginia	.	.	.		.
Wyoming	.	.	.		.
All US	**1.188**	**0.613**	**48%**	**No change**	**0.3529**

* Statistically significant, p < 0.0500

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 2017 and 2018 and therefore subsequent data not calculated

Table 10. Changes in state-specific standardized infection ratios (SIRs) between 2017 and 2018 from NHSN Critical Access Hospitals

10d. Surgical site infections (SSI) following colon surgery[1]

	All Critical Access Hospitals Reporting to NHSN				
	2017 SIR	2018 SIR		Direction of Change, Based on Statistical Significance	p-value
Alaska	.	.	.		.
Alabama	.	.	.		.
Arkansas	.	.	.		.
Arizona	.	.	.		.
California	1.494	1.291	14%	No change	0.821
Colorado	.	.	.		.
Connecticut	.	.	.		.
D.C.	.	.	.		.
Delaware	.	.	.		.
Florida	.	.	.		.
Georgia	.	.	.		.
Guam	.	.	.		.
Hawaii	.	.	.		.
Iowa	.	.	.		.
Idaho	2.742	.	.		.
Illinois	0.000	0.000	.		.
Indiana	2.006	1.561	22%	No change	0.6842
Kansas	.	.	.		.
Kentucky	.	.	.		.
Louisiana	.	.	.		.
Massachusetts	.	.	.		.
Maryland	.	.	.		.
Maine	0.000	0.000	.		.
Michigan	1.069	2.049	92%	No change	0.4669
Minnesota	.	2.248	.		.
Missouri	.	.	.		.
Mississippi	.	.	.		.
Montana	.	.	.		.
North Carolina	1.413	0.612	57%	No change	0.5458
North Dakota	.	.	.		.
Nebraska	.	.	.		.
New Hampshire	3.687	1.754	52%	No change	0.3997
New Jersey	.	.	.		.
New Mexico	0.948	.	.		.
Nevada	.	.	.		.
New York	.	.	.		.
Ohio	0.000	0.000	.		.
Oklahoma	.	.	.		.
Oregon	0.284	0.765	169%	No change	0.4677
Pennsylvania	.	.	.		.
Puerto Rico	.	.	.		.
Rhode Island	.	.	.		.
South Carolina	.	.	.		.
South Dakota	.	.	.		.
Tennessee	.	.	.		.
Texas	.	.	.		.
Utah	.	.	.		.
Virginia	.	.	.		.
Virgin Islands	.	.	.		.
Vermont	.	.	.		.
Washington	0.407	1.159	185%	No change	0.4015
Wisconsin	0.695	0.381	45%	No change	0.5195
West Virginia	0.000	0.564	.	No change	0.5551
Wyoming	.	.	.		.
All US	**0.984**	**0.903**	**8%**	**No change**	**0.6975**

* Statistically significant, p < 0.0500

1. SSIs included are those classified as deep incisional or organ/space infections following NHSN-defined inpatient colon procedures with both primary and detected during the same admission as the surgical procedure or upon readmission to the same facility.
2. States without SIR either in 2017 and/or 2018 and therefore subsequent data not calculated
3.For states with <100% or >100% value in the percent change field, the percent change is not calculated due to sparse data reported within the facility typ

ɔ other than primary skin closure technique,

ɒe

Table 10. Changes in state-specific standardized infection ratios (SIRs) between 2017 and 2018 from NHSN Critical Access Hospitals

10e. Surgical site infections (SSI) following abdominal hysterectomy surgery[1]

	All Critical Access Hospitals Reporting to NHSN				
	2017 SIR	2018 SIR	Percent Change	Direction of Change, Based on Statistical Significance	p-value
Alaska	.	.	.		.
Alabama	.	.	.		.
Arkansas	.	.	.		.
Arizona	.	.	.		.
California	.	.	.		.
Colorado	.	.	.		.
Connecticut	.	.	.		.
D.C.	.	.	.		.
Delaware	.	.	.		.
Florida	.	.	.		.
Georgia	.	.	.		.
Guam	.	.	.		.
Hawaii	.	.	.		.
Iowa	.	.	.		.
Idaho	.	.	.		.
Illinois	.	.	.		.
Indiana	.	.	.		.
Kansas	.	.	.		.
Kentucky	.	.	.		.
Louisiana	.	.	.		.
Massachusetts	.	.	.		.
Maryland	.	.	.		.
Maine	.	.	.		.
Michigan	.	.	.		.
Minnesota	.	.	.		.
Missouri	.	.	.		.
Mississippi	.	.	.		.
Montana	.	.	.		.
North Carolina	.	.	.		.
North Dakota	.	.	.		.
Nebraska	.	.	.		.
New Hampshire	.	.	.		.
New Jersey	.	.	.		.
New Mexico	.	.	.		.
Nevada	.	.	.		.
New York	.	.	.		.
Ohio	.	.	.		.
Oklahoma	.	.	.		.
Oregon	.	.	.		.
Pennsylvania	0.000	.	.		.
Puerto Rico	.	.	.		.
Rhode Island	.	.	.		.
South Carolina	.	.	.		.
South Dakota	.	.	.		.
Tennessee	.	.	.		.
Texas	.	.	.		.
Utah	.	.	.		.
Virginia	.	.	.		.
Virgin Islands	.	.	.		.
Vermont	.	.	.		.
Washington	.	.	.		.
Wisconsin	0.000	0.919	.	No change	0.506
West Virginia	.	.	.		.
Wyoming	.	.	.		.
All US	**0.659**	**0.848**	**29%**	**No change**	**0.6277**

* Statistically significant, p < 0.0500

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 2017 and 2018 and therefore subsequent data not calculate. For any state with a referent SIR of 0.000, the percent change w

ith a primary or other than primary skin closure technique,

as reflected as greater than 100 percent.

Table 10. Changes in state-specific standardized infection ratios (SIRs) between 2017 and 2018 from NHSN Critical Access Hospitals

10f. Hospital-onset methicillin-resistant Staphylococcus aureus (MRSA) bacteremia, facility-wide[1]

	All Critical Access Hospitals Reporting to NHSN				
	2017 SIR	2018 SIR	Direction of Change, Based on Statistical Significance		p-value
Alaska	.	.	.		.
Alabama	.	.	.		.
Arkansas	.	.	.		.
Arizona	.	.	.		.
California	1.026	0.000	100%	No change	0.2489
Colorado	.	0.000	.		.
Connecticut	.	.	.		.
D.C.	.	.	.		.
Delaware	.	.	.		.
Florida	.	.	.		.
Georgia	.	0.948	.		.
Guam	.	.	.		.
Hawaii	.	.	.		.
Iowa	.	2.865	.		.
Idaho	.	.	.		.
Illinois	0.772	0.765	1%	No change	0.9931
Indiana	1.679	0.000	100%	No change	0.1051
Kansas	0.000	1.481	.	No change	0.1388
Kentucky	.	.	.		.
Louisiana	.	.	.		.
Massachusetts	.	.	.		.
Maryland	.	.	.		.
Maine	1.854	0.655	65%	No change	0.4049
Michigan	0.000	0.707	.	No change	0.5322
Minnesota	.	.	.		.
Missouri	.	0.596	.		.
Mississippi	.	.	.		.
Montana	.	.	.		.
North Carolina	.	0.000	.		.
North Dakota	.	.	.		.
Nebraska	.	.	.		.
New Hampshire	.	1.711	.		.
New Jersey	.	.	.		.
New Mexico	.	.	.		.
Nevada	.	.	.		.
New York	.	.	.		.
Ohio	0.000	0.639	.	No change	0.5323
Oklahoma	.	.	.		.
Oregon	0.607	1.136	87%	No change	0.6627
Pennsylvania	.	.	.		.
Puerto Rico	.	.	.		.
Rhode Island	.	.	.		.
South Carolina	.	.	.		.
South Dakota	.	.	.		.
Tennessee	.	.	.		.
Texas	.	0.883	.		.
Utah	.	.	.		.
Virginia	.	.	.		.
Virgin Islands	.	.	.		.
Vermont	.	.	.		.
Washington	0.549	1.001	82%	No change	0.6776
Wisconsin	0.560	0.000	100%	No change	0.2497
West Virginia	.	0.000	.		.
Wyoming	.	.	.		.
All US	**0.639**	**0.551**	**14%**	**No change**	**0.6144**

* Statistically significant, p < 0.0500

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 2017 and/or 2018 and therefore subsequent data not calculated

3.For states with <100% or >100% value in the percent change field, the percent change is not calculated due to sparse data reported within the facility type

Table 10. Changes in state-specific standardized infection ratios (SIRs) between 2017 and 2018 from NHSN Critical Access Hospitals

10g. Hospital-onset *Clostridioides difficile* infection (CDI), facility-wide[1]

	All Critical Access Hospitals Reporting to NHSN				
	2017 SIR	2018 SIR	Percent Change	Direction of Change, Based on Statistical Significance	p-value
Alaska	0.721	.	.		.
Alabama	.	.	.		.
Arkansas	0.543	0.614	13%	No change	0.8667
Arizona	.	0.000	.		.
California	1.068	0.953	11%	No change	0.6638
Colorado	1.339	1.096	18%	No change	0.5750
Connecticut	.	.	.		.
D.C.	.	.	.		.
Delaware	.	.	.		.
Florida	1.065	0.377	65%	No change	0.1000
Georgia	0.236	0.504	114%	No change	0.2822
Guam	.	.	.		.
Hawaii	.	.	.		.
Iowa	0.490	0.636	30%	No change	0.5141
Idaho	0.614	1.065	73%	No change	0.3734
Illinois	0.857	0.962	12%	No change	0.6338
Indiana	1.036	0.973	6%	No change	0.8117
Kansas	1.222	0.965	21%	No change	0.3810
Kentucky	0.990	1.132	14%	No change	0.7340
Louisiana	.	.	.		.
Massachusetts	.	.	.		.
Maryland	.	.	.		.
Maine	0.700	0.752	7%	No change	0.8306
Michigan	0.324	0.374	15%	No change	0.8018
Minnesota	1.391	0.866	38%	No change	0.1123
Missouri	0.720	0.771	7%	No change	0.8761
Mississippi	0.580	1.774	206%	No change	0.1291
Montana	0.440	1.299	195%	No change	0.0528
North Carolina	0.441	0.805	83%	No change	0.1899
North Dakota	0.415	0.547	32%	No change	0.7370
Nebraska	0.583	0.741	27%	No change	0.7351
New Hampshire	1.005	0.790	21%	No change	0.5199
New Jersey	.	.	.		.
New Mexico	1.500	0.363	-76%	Decrease	0.0149
Nevada	.	.	.		.
New York	.	0.961	.		.
Ohio	0.928	0.906	2%	No change	0.9315
Oklahoma	0.233	1.091	368%	No change	0.1145
Oregon	0.907	0.511	44%	No change	0.0929
Pennsylvania	1.284	0.392	-69%	Decrease	0.0058
Puerto Rico	.	.	.		.
Rhode Island	.	.	.		.
South Carolina	.	.	.		.
South Dakota	0.252	0.575	128%	No change	0.2273
Tennessee	1.215	0.000	100%	No change	0.1258
Texas	0.711	0.859	21%	No change	0.6702
Utah	1.442	0.000	100%	No change	0.1197
Virginia	0.921	.	.		.
Virgin Islands	.	.	.		.
Vermont	1.179	1.123	5%	No change	0.8865
Washington	1.289	0.711	-45%	Decrease	0.0121
Wisconsin	0.778	0.693	11%	No change	0.6061
West Virginia	1.024	0.770	25%	No change	0.4475
Wyoming	0.692	0.310	55%	No change	0.3807
All US	**0.876**	**0.790**	**10%**	**No change**	**0.0921**

* Statistically significant, $p < 0.0500$

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 2017 and/or 2018 and therefore subsequent data not calculated

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* Medical School Type* Location Type Facility Type* Facility Bed size*

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
C. difficile	Intercept Inpatient CO admission prevalence rate* CDI test type+ Medical school affiliation‡ Number of ICU beds‡ Facility type Bed size‡ Reporting from an ED or 24-hour observation unit

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 admissions x 100.

** Average length of stay is taken from the Annual Hospital Survey. It is calculated as: total # of annual pa

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

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

ı/pdfs/ps-analysis-resources/nhsn-sir-guide.pdf
events, divided by total

tient days / total # of annual admissions.
Survey.

Appendix C. List of NHSN procedures included in this repo
Admission/Re-admission SSI Logistic Regression Model[1], A

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
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

1. SSI risk adjustment methodology: SIR Guide: **https://www.c**

* These risk factors originate from the Annual Facility Survey.

‡ None of the variables investigated were statistically significantl
As a result, the overall incidence will be used in the SIR calcu

Exclusion Criteria: SIR Guide: **https://www.cdc.gov/nhsn/pdfs**

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

Validated Parameters for Risk Model
Intercept-only model[‡]
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

ly associated with SSI risk in these procedure categories.
lation (i.e., intercept-only model).
s/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 Model[1], 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

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a result, no SIRs can be calculated for these procedures.

lculation (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 Model[1] 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 (2017 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.