2017 Nationa

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Introduction:

Welcome to the 2017 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 2017 SIRs to those from the prior year.
HSN).

spitals (CAHs).

CAH	
National	State
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☑	☑
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	☑
☑	☑
☑	☑

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2017 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)

17 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], 2017:
1a. Central line-associated bloodstream infections (CLABSI)[2]

	2017					
				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	3	6	1	5
Alabama	Yes	Yes[a]	2	3	1	2
Arkansas			12	16	1	15
Arizona	No	No	3	5	1	4
California	Yes	Yes	29	46	15	31
Colorado	Yes	No	14	17	4	13
Connecticut	No	No	0	0	0	0
D.C.	No	No	0	0	0	0
Delaware			0	0	0	0
Florida	No	No	8	11	2	9
Georgia	No	Yes	14	16	2	14
Guam	No	No	0	0	0	0
Hawaii	No	Yes	2	11	1	10
Iowa	No	Yes	44	17	3	14
Idaho	No	No	6	4	2	2
Illinois	M	No	37	58	14	44
Indiana	Yes		34	21	15	6
Kansas	No	No	44	40	5	35
Kentucky	No	No	15	40	3	37
Louisiana	No	Yes	5	48	1	47
Massachusetts	No	No	3	16	2	14
Maryland	No	No	0	5	0	5
Maine	Yes	Yes	15	5	3	2
Michigan	No	No	24	34	8	26
Minnesota	No	No	26	34	5	29
Missouri			18	23	5	18
Mississippi	No	No	5	5	1	4
Montana	No	No	9	13	2	11
North Carolina	No	No	10	16	4	12
North Dakota	No	No	10	12	2	10
Nebraska	No	No	17	19	3	16
New Hampshire	Yes	Yes	13	19	6	13
New Jersey	No	No	0	0	0	0
New Mexico	No	No	9	14	5	9
Nevada	Yes	No	2	4	2	2
New York			4	6	2	4
Ohio	No	Yes	19	32	10	22
Oklahoma			11	12	1	11
Oregon	Yes	Yes	20	35	12	23
Pennsylvania	Yes	Yes	14	27	6	21
Puerto Rico			0	0	0	0
Rhode Island	No	No	0	0	0	0
South Carolina	Yes		5	7	2	5
South Dakota	No	Yes	9	9	0	9
Tennessee	No	No	6	7	1	6
Texas	No	No	23	30	8	22
Utah	Yes	Yes	5	5	0	5
Virginia	No	Yes	5	10	5	5
Virgin Islands	No	No	0	0	0	0
Vermont	Yes	No	8	12	4	8
Washington	Yes	Yes	35	53	9	44
Wisconsin	No	Yes	50	67	12	55
West Virginia	No	Yes	14	19	5	14
Wyoming	No	No	9	10	2	8
All US			**670**	**919**	**198**	**721**

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

	2017					
State				**Total**	**ICU**	
Alaska	No	No	5	8	1	7
Alabama	Yes		4	5	1	4
Arkansas			13	17	1	16
Arizona	No	No	4	6	1	5
California	No	No	29	49	14	35
Colorado	No	No	20	25	3	22
Connecticut	No	No	1	0	0	0
D.C.	No	No	1	0	0	0
Delaware			1	0	0	0
Florida	No	No	8	12	2	10
Georgia	No	Yes	15	18	2	16
Guam	No	No	1	0	0	0
Hawaii	No	No	2	3	1	2
Iowa	No		63	71	3	68
Idaho	No	No	7	9	2	7
Illinois	Yes	No	40	53	15	38
Indiana	Yes	No	35	60	16	44
Kansas	No	Yes	58	70	4	66
Kentucky	No	No	15	17	3	14
Louisiana	No	Yes	6	8	1	7
Massachusetts	No	No	3	5	2	3
Maryland	No	No	1	0	0	0
Maine	No	Yes	15	26	3	23
Michigan	No	No	29	43	8	35
Minnesota	Yes	No	75	97	10	87
Missouri			22	32	6	26

Mississippi	Yes	No	8	10	1	9
Montana	No	No	10	18	3	15
North Carolina	No	No	10	19	4	15
North Dakota	No	No	11	18	3	15
Nebraska	No	No	24	30	4	26
New Hampshire	Yes	Yes	13	22	6	16
New Jersey	No	No	1	0	0	0
New Mexico	No		9	17	5	12
Nevada	No	Yes	2	5	2	3
New York			6	9	2	7
Ohio	No	Yes	20	39	10	29
Oklahoma			13	16	1	15
Oregon	No	Yes	25	47	13	34
Pennsylvania	Yes	Yes	15	31	7	24
Puerto Rico			1	0	0	0
Rhode Island	No	No	1	0	0	0
South Carolina	No	No	5	7	2	5
South Dakota	No	Yes	36	36	0	36
Tennessee	No	No	6	7	1	6
Texas	No	No	30	38	9	29
Utah	Yes		7	8	0	8
Virginia	No	Yes	5	10	5	5
Virgin Islands	No	No	1	0	0	0
Vermont	No	No	3	4	2	2
Washington	No	No	37	62	9	53
Wisconsin	No	Yes	58	87	12	75
West Virginia	Yes	Yes	19	28	7	21
Wyoming	No	No	15	16	2	14
All US			**864**	**1,218**	**209**	**1,009**

1c. Ventilator-associated events (VAE)

	2017					
State				Total	ICU	
Alaska	No	No	2	2	0	2
Alabama	No	No	0	0	0	0
Arkansas			3	3	0	3
Arizona	No	No	1	1	1	0
California	No	No	14	15	10	5
Colorado	No	No	3	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	4	4	2	2
Georgia	No	No	1	1	1	0
Guam	No	No	0	0	0	0
Hawaii	No	Yes	0	0	0	0
Iowa	No	No	3	3	1	2
Idaho	No	No	2	2	1	1
Illinois	No	No	6	6	4	2
Indiana	No	No	20	24	16	8
Kansas	No	No	4	4	2	2
Kentucky	No	No	2	3	2	1
Louisiana	No	No	1	1	1	0
Massachusetts	No	No	1	1	1	0
Maryland	No	No	0	0	0	0
Maine	No	No	5	5	3	2
Michigan	No	No	13	14	6	8
Minnesota	No	No	4	6	3	3
Missouri			4	4	4	0

Mississippi	No	No	0	0	0	0
Montana	No	No	4	4	2	2
North Carolina	No	No	5	5	3	2
North Dakota	No	No	2	2	2	0
Nebraska	No	No	0	0	0	0
New Hampshire	No	No	6	8	5	3
New Jersey	No	No	0	0	0	0
New Mexico	No	No	4	5	3	2
Nevada	No	No	2	2	2	0
New York			3	3	3	0
Ohio	No	No	12	18	9	9
Oklahoma			2	2	0	2
Oregon	No	No	10	13	8	5
Pennsylvania	Yes	No	9	9	5	4
Puerto Rico			0	0	0	0
Rhode Island	No	No	0	0	0	0
South Carolina	Yes	No	3	4	2	2
South Dakota	No	No	0	0	0	0
Tennessee	No	No	2	2	1	1
Texas	No	No	8	8	6	2
Utah	No	No	0	0	0	0
Virginia	No	No	3	4	4	0
Virgin Islands	No	No	0	0	0	0
Vermont	No	No	0	0	0	0
Washington	No	No	8	9	7	2
Wisconsin	No	Yes	14	19	9	10
West Virginia	No	No	5	7	4	3
Wyoming	No	No	3	3	2	1
All US			**198**	**230**	**137**	**93**

Table 1. Characteristics of NHSN Critical Access Hospitals reporting to NHSN by State[1], 2017: 1d. Surgical site infections[6]

	2017			
State		Any Validation[4]	No. of Critical Access Hospitals Reporting colon and hysterectomy surgeries in adults[5]	No. of Procedures[6] colon and abdominal hysterectomy surgeries in adults
Alaska	No	No	3	26
Alabama	Yes	Yes	0	0
Arkansas			1	6
Arizona	No	No	3	15
California	Yes	Yes	17	278
Colorado	No	No	10	103
Connecticut	No	No	0	0
D.C.	No	No	0	0
Delaware			0	0
Florida	No	No	3	18
Georgia	No	No	1	17
Guam	No	No	0	0
Hawaii	No	No	1	5
Iowa	No	No	12	171
Idaho	No	No	6	108
Illinois	No	No	16	184
Indiana	Yes	No	25	313
Kansas	No	Yes	12	145
Kentucky	No	No	4	25
Louisiana	No	No	3	76
Massachusetts	Yes	No	2	12
Maryland	No	No	0	0
Maine	No	Yes	11	175
Michigan	No	Yes	13	180
Minnesota	No	No	8	96
Missouri			9	77
Mississippi	No	No	0	0
Montana	No	No	7	91
North Carolina	No	No	8	156
North Dakota	No	No	3	30
Nebraska	No	No	7	20
New Hampshire	Yes	Yes	11	121
New Jersey	No	No	0	0
New Mexico	No	No	6	98
Nevada	No	No	2	21
New York			2	54
Ohio	No	Yes	13	145
Oklahoma			0	0
Oregon	Yes	Yes	12	239
Pennsylvania	Yes	Yes	10	205
Puerto Rico			0	0

Rhode Island	No	No	0	0
South Carolina	Yes		1	14
South Dakota	No	Yes	0	0
Tennessee	No	No	0	0
Texas	No	No	13	65
Utah	Yes	No	2	12
Virginia	No	Yes	3	25
Virgin Islands	No	No	0	0
Vermont	Yes	Yes	5	34
Washington	Yes	Yes	19	293
Wisconsin	No	Yes	38	538
West Virginia	No	No	7	106
Wyoming	No	No	4	19
All US			**333**	**4,316**

Table 1. Characteristics of NHSN Critical Access Hospitals reporting to NHSN by State[1], 2017:

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

	2017		
State			
Alaska	No	No	3
Alabama	No	No	3
Arkansas			10
Arizona	No	No	4
California	Yes	Yes	32
Colorado	No	No	19
Connecticut	No	No	0
D.C.	No	No	0
Delaware			0
Florida	No	No	8
Georgia	No	Yes	12
Guam	No	No	0
Hawaii	No	No	1
Iowa	No	Yes	26
Idaho	No	No	7
Illinois	Yes	Yes	49
Indiana	No	No	34
Kansas	No	Yes	47
Kentucky	No	No	12
Louisiana	No	Yes	5
Massachusetts	No	No	2
Maryland	No	No	0
Maine	Yes	Yes	16
Michigan	No	Yes	27
Minnesota	No	No	16
Missouri			17
Mississippi	No	No	3
Montana	No	No	9
North Carolina	No	No	10
North Dakota	No	No	9
Nebraska	No	No	18
New Hampshire	No	No	11
New Jersey	No	No	0
New Mexico	No		9
Nevada	Yes	No	2
New York			4
Ohio	No	Yes	22
Oklahoma			11
Oregon	Yes	Yes	25
Pennsylvania	No	Yes	11
Puerto Rico			0
Rhode Island	No	No	0
South Carolina	Yes		3
South Dakota	No	Yes	1
Tennessee	No	No	5
Texas	No	No	23
Utah	Yes	No	7
Virginia	No	Yes	5
Virgin Islands	No	No	0
Vermont	No	Yes	8

Washington	No	Yes	21
Wisconsin	No	Yes	57
West Virginia	No	No	14
Wyoming	No	No	6
All US			**644**

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

State	2017		
		Any Validation[4]	
Alaska	No	No	5
Alabama	No	No	3
Arkansas			9
Arizona	No	No	4
California	Yes	Yes	33
Colorado	No	No	20
Connecticut	No	No	0
D.C	No	No	0
Delaware			0
Florida	No	No	8
Georgia	No	Yes	12
Guam	No	No	0
Hawaii	No	No	1
Iowa	No		43
Idaho	No	No	8
Illinois	Yes	Yes	49
Indiana	No	No	35
Kansas	No	Yes	51
Kentucky	No	No	12
Louisiana	No	Yes	5
Massachusetts	No	No	2
Maryland	No	No	0
Maine	Yes	Yes	16
Michigan	No	Yes	27
Minnesota	No	No	29
Missouri			19
Mississippi	No	No	6
Montana	No	No	10
North Carolina	No	No	10
North Dakota	No	No	9
Nebraska	No	No	19
New Hampshire	No	No	12
New Jersey	No	No	0
New Mexico	No	Yes[1]	9
Nevada	No	No	2
New York			4
Ohio	No	Yes	23
Oklahoma			12
Oregon	Yes	Yes	25
Pennsylvania	No	Yes	11
Puerto Rico			0
Rhode Island	No	No	0

South Carolina	Yes		4
South Dakota	No	Yes	37
Tennessee	No	No	5
Texas	No	No	26
Utah	Yes		7
Virginia	No	Yes	5
Virgin Islands	No	No	0
Vermont	Yes	Yes	8
Washington	Yes	Yes	36
Wisconsin	No	Yes	58
West Virginia	No	No	14
Wyoming	No	No	14
All US			**757**

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 2017 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 October 6, 2017 for 2017 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 July 2, 2018 for 2017 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]	670
ICUs[5]	196
Wards[6]	650
CAUTI, all[8]	864
	207
	835
VAE, all[8]	120
	101
	19

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), ca

Total Patient Days	Total Device Days	No. of Infections (Events)			95% CI for SIR	
		Observed	Predicted	SIR	Lower	Upper
1,585,444	154,656	30	42.206	0.711	0.488	1.002
111,752	14,127	4	3.855	1.038	0.330	2.503
1,473,692	140,529	26	38.343	0.678	0.452	0.979
2,135,390	294,943	229	293.959	0.779	0.683	0.885
134,452	37,237	13	39.041	0.333	0.185	0.555
2,000,938	257,706	216	254.913	0.847	0.740	0.966
66,265	4,128	7	5.891	1.188	0.520	2.351
45,369	3,359	5	4.793	1.043	0.382	2.312
20,896	769	2	1.097	1.823	0.306	6.022

ia, this may be different from the numbers shown in Table 1. These tables contain data from Critical Access
greater than or less than the nominal value of the national SIR for the given HAI type. This is only calculated
in 2017. If a facility's predicted number of HAIs was <1.0, a facility-specific SIR was neither calculated nor in

AE, pediatric locations are excluded from SIR since pediatric and neonatal locations are excluded from VAE
cluding hematology/oncology, bone marrow transplant]). For VAE, pediatric locations are excluded from 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
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 HA
theter-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%
	N	%[2]	N		.
0	.	.	.	.	.
0	.	.	.	.	.
0	.	.	.	.	.
59	0	0%	2	3%	0.000
8	.	.	.	.	.
45	0	0%	0	0%	0.000
0	.	.	.	.	.
0	.	.	.	.	.
0	.	.	.	.	.

Hospitals; as such, they exclude data from LTACHs, IRFs, and ACHs.
l if at least 10 facilities had ≥ 1.0 predicted HAI in 2017.
cluded in the distribution of facility-specific SIRs.

surveillance.
since pediatric and neonatal locations are excluded from VAE surveillance.

VAE surveillance. This includes IVAC-plus events.

ı data reported to NHSN during 2017 by facility type, HAI, and patient population:

								Percentile Distribution of Facility-spe	
								Median	
10%	**15%**	**20%**	**25%**	**30%**	**35%**	**40%**	**45%**	**50%**	**55%**
.	.	.	.	.	.	.	.	.	.
.	.	.	.	.	.	.	.	.	.
.	.	.	.	.	.	.	.	.	.
.	.	.	.	.	.	.	.	.	.
0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
.	.	.	.	.	.	.	.	.	.
0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
.	.	.	.	.	.	.	.	.	.
.	.	.	.	.	.	.	.	.	.
.	.	.	.	.	.	.	.	.	.

ecific SIRs[3]

60%	65%	70%	75%	80%	85%	90%	95%
.	.	.	.	.	.	.	.
.	.	.	.	.	.	.	.
.	.	.	.	.	.	.	.
.	.	.	.	.	.	.	.
0.000	0.000	0.092	0.359	0.573	0.660	0.678	1.003
.	.	.	.	.	.	.	.
0.000	0.110	0.541	0.590	0.659	0.759	0.856	1.058
.	.	.	.	.	.	.	.
.	.	.	.	.	.	.	.
.	.	.	.	.	.	.	.

HAI and Patient Population	Reporting	
	No. of Critical Access Hospitals Reporting[1]	Total Admissions
MRSA bacteremia, facility-wide[4]	644	505,920
Hospital-onset *C. difficile,* facility-wide[4]	722	519,004

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
1,825,147	212	25	37.559	0.666	0.440
1,903,066	1,584	531	606.440	0.876	0.803

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
2017. 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	
0.968	0	.	.	.	.
0.952	238	11	5%	0	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 2017.
r included in the distribution of facility-specific SIRs.

ıry SIRs using HAI data reported to NHSN during 2017 by facility type, HAI, and patient population: MRSA) bacteremia, and hospital-onset *Clostridioides difficile* (CDI)

5%	10%	15%	20%	25%	30%	35%	40%	45%
.	.	.	.	.	.	.	.	.
0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.547	0.656

50%	55%	60%	65%	70%	75%	80%	85%	90%
.	.	.	.	.	.	.	.	.
0.768	0.846	0.920	1.058	1.282	1.560	1.734	1.890	2.104

95%
.
2.783

Surgical Procedure	No. of Critical Access Hospitals Reporting [2]	No. of Procedures
US, all NHSN procedures	406	28753
US, SCIP procedures only[5]	395	23174
AAA Abdominal aortic aneurysm repair[5]	0	.
AMP Limb amputation	10	37
APPY Appendix surgery	35	414
AVSD Shunt for dialysis	0	.
BILI Bile duct, liver or pancreatic surgery	9	26
BRST Breast surgery	20	89
CARD Cardiac surgery[5]	0	.
CABG- Coronary artery bypass graft[5,6]	0	.
CEA Carotid endarterectomy	1	.
CHOL Gallbladder surgery	44	672
COLO Colon surgery[5]	296	2343
CRAN Craniotomy	0	.
CSEC Cesarean section	48	1949
FUSN Spinal fusion	8	449
FX Open reduction of fracture	27	731
GAST Gastric surgery	17	144
HER Herniorrhaphy	28	212
HPRO Hip arthroplasty[5]	230	6294
HTP Heart transplant	0	.
HYST Abdominal hysterectomy[5]	225	1930
KPRO Knee arthroplasty[5]	264	12395
KTP Kidney transplant	0	.
LAM Laminectomy	7	124
LTP Liver transplant	0	.
NECK surgery	0	.
NEPH Kidney surgery	3	.
OVRY Ovarian surgery	21	139
PACE Pacemaker surgery	5	39
PRST Prostate surgery	2	.
PVBY Peripheral vascular bypass surgery[5]	1	.
REC Rectal surgery[5]	8	20
SB Small bowel surgery	27	155
SPLE Spleen surgery	7	14
THOR Thoracic surgery	5	22
THYR Thyroid and/or parathyroid surgery	4	.
VHYS Vaginal hysterectomy[5]	28	191
VSHN Ventricular shunt	0	.
XLAP Abdominal surgery	29	328

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 SII

No. of Infections			95% CI for SIR			Facility-
Observed	Predicted[3]	SIR	Lower	Upper	No. Hosp with ≥1 Predicted Infection	No. Hosp Significantly > N
117	137.160	0.853	0.709	1.019	27	2
101	117.361	0.861	0.705	1.041	18	1
.	.	.	.	.	.	.
1	0.015				0	.
3	1.277	2.350	0.598	6.395	0	.
.	.	.	.	.	.	.
0	0.404	.	.	.	0	.
0	0.620	.	.	.	0	.
.	.	.	.	.	.	.
.	.	.	.	.	.	.
.	.	.	.	.	.	.
0	1.887	0.000		1.587	0	.
43	43.684	0.984	0.721	1.314	.	.
.	.	.	.	.	.	.
2	2.807	0.713	0.119	2.354	0	.
0	0.979				0	.
3	4.197	0.715	0.182	1.945	0	.
0	0.959				0	.
2	1.352	1.479	0.248	4.887	0	.
22	31.009	0.709	0.456	1.057	1	.
.	.	.	.	.	.	.
7	10.628	0.659	0.288	1.303	0	.
27	30.717	0.879	0.591	1.261	2	.
.	.	.	.	.	.	.
0	0.356				0	.
.	.	.	.	.	.	.
.	.	.	.	.	.	.
.	.	.	.	.	.	.
0	0.098	.	.	.	0	.
0	0.068	.	.	.	0	.
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.	.	.	.	.	.	.
0	0.398	.	.	.	0	.
5	2.872	1.741	0.638	3.859	0	.
0	0.070	.	.	.	0	.
0	0.060	.	.	.	0	.
.	.	.	.	.	.	.
2	0.911				0	.
.	.	.	.	.	.	.
0	1.697	0.000	.	1.765	0	.

procedures that occurred in 2017 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.
)17. 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) data1 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	0%	0.000	0.000	0.000	0.000	0.000
6%	0	0%	.	.	.	.	.
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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 2017.
ect (SCIP). Specific NHSN procedures

ed in the distribution of facility-specific SIRs.

spitals during 2017 by surgical procedure.

Percentile Distribution of Facility-specific SIRs[7]									
				Median					
30%	35%	40%	45%	50%	55%	60%	65%	70%	75%
0.000	0.000	0.350	0.616	0.666	0.691	0.879	0.944	0.950	1.736
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80%	85%	90%	95%
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Surgical Procedure	No. of Acute Care Hospitals Reporting[2]	No. of Procedures
US, all NHSN procedures	61	232
	24	31
	0	.
	0	.
AMP Limb amputation	0	.
APPY Appendix surgery	29	133
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	9	10
	10	13
CRAN Craniotomy (**ALL AGE**)	0	.
CRAN Craniotomy (**AGE >=2**)	0	.
CRAN Craniotomy (**AGE <2**)	0	.
CSEC Cesarean section	10	12
FUSN Spinal fusion (**AGE >=2**)	1	.
FX Open reduction of fracture	10	29
GAST Gastric surgery	0	.
HER Herniorrhaphy	2	.
	4	.
HTP Heart transplant	0	.
	0	.
	11	14
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	3	.
SPLE Spleen surgery	0	.
THOR Thoracic surgery	0	.
THYR Thyroid and/or parathyroid surgery	0	.
	0	.
VSHN Ventricular shunt	0	.
XLAP Abdominal surgery	4	.

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
1	0.750	.	.	.	.	.
1	0.434	.	.	.	.	.
.	.	.	.	.	.	.
.	.	.	.	.	.	.
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0	0.154				0	.
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.	.	.	.	.	.	.
0	0.007	0	.	.	0	.
1	0.265	.	.	.	0	.
.	.	.	.	.	.	.
.	.	.	.	.	.	.
.	.	.	.	.	.	.
0	0.016				0	
.	.	.	.	.	.	.
0	0.073				0	
.	.	.	.	.	.	.
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.	.	.	.	.	.	.
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.	.	.	.	.	.	.
0	0.153				0	.
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t procedures in pediatric patients less than 18 years that occurred in 2017 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 2017.

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.
)17. 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	No. Hosp with SIR Significantly < National SIR N		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 2017.
ect (SCIP). Specific NHSN procedures

ed in the distribution of facility-specific SIRs.

ospitals during 2017 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 2017

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

State	State NHSN Mandate[2]	Any Validation[3]	No. of Critical Access Hospitals Reporting[4]	No. of Infections		95% CI for SIR			Facility-specific SIRs			Facility-specific SIRs at Key Percentiles[6]				
				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	3	.	.	.	.	.	.	.	.	.	.	.	.	.
Alabama	Yes		2	.	.	.	.	.	.	.	.	.	.	.	.	.
Arkansas			12	0	0.580	.	.	.	.	.	.	.	.	.	.	.
Arizona	No	No	3	.	.	.	.	.	.	.	.	.	.	.	.	.
California	Yes	Yes	29	2	2.079	0.962	0.161	3.178	.	.	.	.	.	.	.	.
Colorado	Yes	No	14	0	0.443	.	.	.	.	.	.	.	.	.	.	.
Connecticut	No	No	0	.	.	.	.	.	.	.	.	.	.	.	.	.
D.C.	No	No	0	.	.	.	.	.	.	.	.	.	.	.	.	.
Delaware			0	.	.	.	.	.	.	.	.	.	.	.	.	.
Florida	No	No	8	1	0.417	.	.	.	.	.	.	.	.	.	.	.
Georgia	No	Yes	14	2	1.379	1.450	0.243	4.792	.	.	.	.	.	.	.	.
Guam	No	No	0	.	.	.	.	.	.	.	.	.	.	.	.	.
Hawaii	No	Yes	2	.	.	.	.	.	.	.	.	.	.	.	.	.
Iowa	No	Yes	44	0	2.099	0.000	.	.	.	.	.	.	.	.	.	.
Idaho	No	No	6	1	0.344	.	.	.	.	.	.	.	.	.	.	.
Illinois	M	No	37	3	2.442	1.229	0.312	3.343	.	.	.	.	.	.	.	.
Indiana	Yes		34	4	1.773	2.256	0.717	5.442	.	.	.	.	.	.	.	.
Kansas	No	No	44	0	2.872	0.000			.	.	.	.	.	.	.	.
Kentucky	No	No	15	1	1.180	0.847	0.042	4.180	.	.	.	.	.	.	.	.
Louisiana	No	Yes	5	0	0.646	.	.	.	.	.	.	.	.	.	.	.
Massachusetts	No	No	3	.	.	.	.	.	.	.	.	.	.	.	.	.
Maryland	No	No	0	.	.	.	.	.	.	.	.	.	.	.	.	.
Maine	Yes	Yes	15	0	1.474	0.000			.	.	.	.	.	.	.	.
Michigan	No	No	24	0	0.735	.	.	.	.	.	.	.	.	.	.	.
Minnesota	No	No	26	3	1.328	2.259	0.575	6.148	.	.	.	.	.	.	.	.
Missouri			18	1	1.406	0.711	0.036	3.508	.	.	.	.	.	.	.	.
Mississippi	No	No	5	0	0.134	.	.	.	.	.	.	.	.	.	.	.
Montana	No	No	9	1	0.511	.	.	.	.	.	.	.	.	.	.	.
North Carolina	No	No	10	0	0.629	.	.	.	.	.	.	.	.	.	.	.
North Dakota	No	No	10	0	0.457	.	.	.	.	.	.	.	.	.	.	.
Nebraska	No	No	17	1	0.629	.	.	.	.	.	.	.	.	.	.	.
New Hampshire	Yes	Yes	13	2	0.823	.	.	.	.	.	.	.	.	.	.	.
New Jersey	No	No	0	.	.	.	.	.	.	.	.	.	.	.	.	.
New Mexico	No	No	9	1	0.511	.	.	.	.	.	.	.	.	.	.	.
Nevada	Yes	No	2	.	.	.	.	.	.	.	.	.	.	.	.	.
New York			4	.	.	.	.	.	.	.	.	.	.	.	.	.
Ohio	No	Yes	19	0	1.198	0.000			.	.	.	.	.	.	.	.
Oklahoma			11	0	0.524	.	.	.	.	.	.	.	.	.	.	.
Oregon	Yes	Yes	20	1	1.372	0.729	0.036	3.595	.	.	.	.	.	.	.	.
Pennsylvania	Yes	Yes	14	1	1.463	0.684	0.034	3.371	.	.	.	.	.	.	.	.
Puerto Rico			0	.	.	.	.	.	.	.	.	.	.	.	.	.
Rhode Island	No	No	0	.	.	.	.	.	.	.	.	.	.	.	.	.
South Carolina	Yes		5	1	0.262	.	.	.	.	.	.	.	.	.	.	.
South Dakota	No	Yes	9	0	0.286	.	.	.	.	.	.	.	.	.	.	.
Tennessee	No	No	6	0	0.299	.	.	.	.	.	.	.	.	.	.	.
Texas	No	No	23	0	1.426	0.000			.	.	.	.	.	.	.	.
Utah	Yes	Yes	5	0	0.103	.	.	.	.	.	.	.	.	.	.	.
Virginia	No	No	5	0	0.547	.	.	.	.	.	.	.	.	.	.	.
Virgin Islands	No	Yes	0	.	.	.	.	.	.	.	.	.	.	.	.	.
Vermont	Yes	No	8	0	0.601	.	.	.	.	.	.	.	.	.	.	.
Washington	Yes	Yes	35	2	3.113	0.642	0.108	2.123	.	.	.	.	.	.	.	.
Wisconsin	No	Yes	50	1	3.621	0.276	0.014	1.362	.	.	.	.	.	.	.	.
West Virginia	No	Yes	14	0	0.735	.	.	.	.	.	.	.	.	.	.	.
Wyoming	No	No	9	0	0.182	.	.	.	.	.	.	.	.	.	.	.

All US	**670**	**30**	**42.206**	**0.711**	**0.488**	**1.002**	**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 2017. M indicates midyear implementation of a mandate.
   No indicates that a state mandate did not exist during 2017.
3. Yes indicates that the state health department reported the completion of all of the following validation activities: state health department had access to 2017 NHSN data, state health department performed an assessment of missing or implausible values on at least six months of 2017 NHSN data prior to July 2, 2018, and state health department contacted identified facilities.
   YesA indicates that the state also conducted an audit of facility medical or laboratory records prior to July 2, 2018 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 2017.
5. Percent of facilities with at least one predicted CLABSI that had an SIR significantly greater or less than the nominal value of the 2017 national overall CLABSI SIR of 0.711. This is only calculated if at least 10 facilities had ≥ 1.0 predicted CLABSI in 2017.
6. Facility-specific key percentiles were only calculated if at least 20 facilities had ≥1.0 predicted CLABSI in 2017. 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 2017
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		1	.	.	.	.	.	.	.	.	.	.	.	.
Arizona	No	1	.	.	.	.	.	.	.	.	.	.	.	.
California	Yes	15	1	0.606	.	.	.	0	.	.	.	.	.	.
Colorado	Yes	4	.	.	.	.	.	.	.	.	.	.	.	.
Connecticut	No	0	.	.	.	.	.	.	.	.	.	.	.	.
D.C.	No	0	.	.	.	.	.	.	.	.	.	.	.	.
Delaware		0	.	.	.	.	.	.	.	.	.	.	.	.
Florida	No	2	.	.	.	.	.	.	.	.	.	.	.	.
Georgia	No	2	.	.	.	.	.	.	.	.	.	.	.	.
Guam	No	0	.	.	.	.	.	.	.	.	.	.	.	.
Hawaii	No	1	.	.	.	.	.	.	.	.	.	.	.	.
Iowa	No	3	.	.	.	.	.	.	.	.	.	.	.	.
Idaho	No	2	.	.	.	.	.	.	.	.	.	.	.	.
Illinois	Yes	14	0	0.155	.	.	.	0	.	.	.	.	.	.
Indiana	Yes	15	1	0.196	.	.	.	0	.	.	.	.	.	.
Kansas	No	5	0	0.178	.	.	.	0	.	.	.	.	.	.
Kentucky	No	3	.	.	.	.	.	.	.	.	.	.	.	.
Louisiana	No	1	.	.	.	.	.	.	.	.	.	.	.	.
Massachusetts	No	2	.	.	.	.	.	.	.	.	.	.	.	.
Maryland	No	0	.	.	.	.	.	.	.	.	.	.	.	.
Maine	Yes	3	.	.	.	.	.	.	.	.	.	.	.	.
Michigan	No	8	0	0.084	.	.	.	0	.	.	.	.	.	.
Minnesota	No	4	.	.	.	.	.	.	.	.	.	.	.	.
Missouri		5	0	0.105	.	.	.	0	.	.	.	.	.	.
Mississippi	Yes	1	.	.	.	.	.	.	.	.	.	.	.	.
Montana	No	2	.	.	.	.	.	.	.	.	.	.	.	.
North Carolina	No	4	.	.	.	.	.	.	.	.	.	.	.	.
North Dakota	No	2	.	.	.	.	.	.	.	.	.	.	.	.
Nebraska	No	3	.	.	.	.	.	.	.	.	.	.	.	.
New Hampshire	Yes	6	0	0.079	.	.	.	0	.	.	.	.	.	.
New Jersey	No	0	.	.	.	.	.	.	.	.	.	.	.	.
New Mexico	No	5	0	0.097	.	.	.	0	.	.	.	.	.	.
Nevada	Yes	2	.	.	.	.	.	.	.	.	.	.	.	.
New York		2	.	.	.	.	.	.	.	.	.	.	.	.
Ohio	No	10	0	0.156	.	.	.	0	.	.	.	.	.	.
Oklahoma		1	.	.	.	.	.	.	.	.	.	.	.	.
Oregon	Yes	12	0	0.411	.	.	.	0	.	.	.	.	.	.
Pennsylvania	Yes	6	0	0.113	.	.	.	0	.	.	.	.	.	.
Puerto Rico		0	.	.	.	.	.	.	.	.	.	.	.	.
Rhode Island	No	0	.	.	.	.	.	.	.	.	.	.	.	.
South Carolina	Yes	2	.	.	.	.	.	.	.	.	.	.	.	.
South Dakota	No	0	.	.	.	.	.	.	.	.	.	.	.	.
Tennessee	No	1	.	.	.	.	.	.	.	.	.	.	.	.

Texas	No	8	0	0.039	.	.	.	0	.	.	.	.	.	.	.
Utah	Yes	0	.	.	.	.	.	.	.	.	.	.	.	.	.
Virginia	No	4	.	.	.	.	.	.	.	.	.	.	.	.	.
Virgin Islands	No	0	.	.	.	.	.	.	.	.	.	.	.	.	.
Vermont	Yes	4	.	.	.	.	.	.	.	.	.	.	.	.	.
Washington	Yes	9	0	0.350	.	.	.	0	.	.	.	.	.	.	.
Wisconsin	No	12	0	0.102	.	.	.	0	.	.	.	.	.	.	.
West Virginia	No	5	0	0.072	.	.	.	0	.	.	.	.	.	.	.
Wyoming	No	2	.	.	.	.	.	.	.	.	.	.	.	.	.
All US		**196**	**4**	**3.855**	**1.038**	**0.330**	**2.503**	**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 2017. M indicates midyear implementation of a mandate. No indicates that a state mandate did not exist during 2017. 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 2017.
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 2017 national ICU CLABSI SIR of 1.038. This is only calculated if at least 10 facilities had at least one predicted ICU CLABSI in 2017.
5. Facility-specific key percentiles were only calculated if at least 20 facilities had ≥1.0 predicted ICU CLABSI in 2017. 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 2017

3c. Central line-associated bloodstream infections (CLABSI), 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	3	.	.	.	.	.	.	.	.	.	.	.
Alabama	No	2	.	.	.	.	.	.	.	.	.	.	.
Arkansas		12	0	0.571	.	.	.	0	.	.	.	.	.
Arizona	No	3	.	.	.	.	.	.	.	.	.	.	.
California	Yes	28	1	1.470	0.680	0.034	3.355	0	.	.	.	.	.
Colorado	No	12	0	0.401	.	.	.	0	.	.	.	.	.
Connecticut	No	0	.	.	.	.	.	.	.	.	.	.	.
D.C.	No	0	.	.	.	.	.	.	.	.	.	.	.
Delaware		0	.	.	.	.	.	.	.	.	.	.	.
Florida	No	8	0	0.379	.	.	.	0	.	.	.	.	.
Georgia	No	13	2	1.326	1.508	0.253	4.982	0	.	.	.	.	.
Guam	No	0	.	.	.	.	.	.	.	.	.	.	.
Hawaii	No	2	.	.	.	.	.	.	.	.	.	.	.
Iowa	No	44	0	2.095	0.000	.	1.430	0	.	.	.	.	.
Idaho	No	5	1	0.301	.	.	.	0	.	.	.	.	.
Illinois	Yes	33	3	2.287	1.312	0.334	3.570	0	.	.	.	.	.
Indiana	No	34	3	1.575	1.905	0.484	5.183	0	.	.	.	.	.
Kansas	No	42	0	2.690	0.000	.	1.118	0	.	.	.	.	.
Kentucky	No	14	1	1.110	0.901	0.045	4.443	0	.	.	.	.	.
Louisiana	No	5	0	0.635	.	.	.	0	.	.	.	.	.
Massachusetts	No	2	.	.	.	.	.	.	.	.	.	.	.
Maryland	No	0	.	.	.	.	.	.	.	.	.	.	.
Maine	Yes	15	0	1.439	0.000	.	2.082	0	.	.	.	.	.
Michigan	No	24	0	0.652	.	.	.	0	.	.	.	.	.
Minnesota	No	26	3	1.264	2.373	0.604	6.458	0	.	.	.	.	.
Missouri		18	1	1.303	0.767	0.038	3.784	0	.	.	.	.	.
Mississippi	No	4	.	.	.	.	.	.	.	.	.	.	.
Montana	No	9	1	0.476	.	.	.	0	.	.	.	.	.
North Carolina	No	9	0	0.479	.	.	.	0	.	.	.	.	.
North Dakota	No	10	0	0.428	.	.	.	0	.	.	.	.	.
Nebraska	No	16	1	0.562	.	.	.	0	.	.	.	.	.
New Hampshire	No	13	2	0.745	.	.	.	0	.	.	.	.	.
New Jersey	No	0	.	.	.	.	.	.	.	.	.	.	.
New Mexico	No	9	1	0.413	.	.	.	0	.	.	.	.	.
Nevada	Yes	2	.	.	.	.	.	.	.	.	.	.	.
New York		4	.	.	.	.	.	.	.	.	.	.	.
Ohio	No	19	0	1.042	0.000	.	2.927	0	.	.	.	.	.
Oklahoma		11	0	0.520	.	.	.	0	.	.	.	.	.
Oregon	Yes	20	1	0.963	.	.	.	0	.	.	.	.	.
Pennsylvania	Yes	14	1	1.348	0.742	0.037	3.658	0	.	.	.	.	.
Puerto Rico	No	0	.	.	.	.	.	.	.	.	.	.	.
Rhode Island		0	.	.	.	.	.	.	.	.	.	.	.
South Carolina	Yes	5	0	0.244	.	.	.	0	.	.	.	.	.
South Dakota	No	9	0	0.285	.	.	.	0	.	.	.	.	.
Tennessee	No	6	0	0.297	.	.	.	0	.	.	.	.	.
Texas	No	21	0	1.385	0.000	.	2.163	0	.	.	.	.	.
Utah	Yes	5	0	0.105	.	.	.	0	.	.	.	.	.
Virginia	No	5	0	0.487	.	.	.	0	.	.	.	.	.

Virgin Islands	No	0	.	.	.	.	.	.	.	.	.	.	.	.	.
Vermont	Yes	7	0	0.526	.	.	.	0	.	.	.	.	.	.	.
Washington	Yes	35	2	2.762	0.724	0.121	2.392	0	.	.	.	.	.	.	.
Wisconsin	No	50	1	3.520	0.284	0.014	1.401	0	.	.	.	.	.	.	.
West Virginia	No	14	0	0.663	.	.	.	0	.	.	.	.	.	.	.
Wyoming	No	8	0	0.167	.	.	.	0	.	.	.	.	.	.	.
All US		**650**	**26**	**38.343**	**0.678**	**0.452**	**0.979**	**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 2017. M indicates midyear implementation of a mandate. No indicates that a state mandate did not exist during 2017.
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 2017.
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 2017 national ward CLABSI SIR of 0.678. This is only calculated if at least 10 facilities had at least one predicted ward CLABSI in 2017.
5. Facility-specific key percentiles were only calculated if at least 20 facilities had ≥1.0 predicted ward CLABSI in 2017. 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 2017

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	No	5	1	1.350	0.741	0.037	3.653	0	.	.	.	.	.	.
Alabama	Yes		4	.	.	.	.	.	.	.	.	.	.	.	.
Arkansas			13	1	4.591	0.218	0.011	1.074	1	.	.	.	.	.	.
Arizona	No	No	4	.	.	.	.	.	.	.	.	.	.	.	.
California	No	No	29	12	16.361	0.733	0.397	1.247	4	.	.	.	.	.	.
Colorado	No	No	20	8	4.731	1.691	0.785	3.211	1	.	.	.	.	.	.
Connecticut	No	No	1	.	.	.	.	.	.	.	.	.	.	.	.
D.C.	No	No	1	.	.	.	.	.	.	.	.	.	.	.	.
Delaware			1	.	.	.	.	.	.	.	.	.	.	.	.
Florida	No	No	8	2	3.096	0.646	0.108	2.134	0	.	.	.	.	.	.
Georgia	No	Yes	15	6	3.424	1.752	0.710	3.645	0	.	.	.	.	.	.
Guam	No	No	1	.	.	.	.	.	.	.	.	.	.	.	.
Hawaii	No	No	2	.	.	.	.	.	.	.	.	.	.	.	.
Iowa	No		63	9	13.783	0.653	0.318	1.198	0	.	.	.	.	.	.
Idaho	No	No	7	2	2.768	0.723	0.121	2.387	0	.	.	.	.	.	.
Illinois	Yes	No	40	7	13.925	0.503	0.220	0.994	5	.	.	.	.	.	.
Indiana	Yes	No	35	8	14.354	0.557	0.259	1.058	4	.	.	.	.	.	.
Kansas	No	Yes	58	15	14.029	1.069	0.621	1.724	1	.	.	.	.	.	.
Kentucky	No	No	15	5	5.440	0.919	0.337	2.037	0	.	.	.	.	.	.
Louisiana	No	Yes	6	0	1.382	0.000	.	2.168	0	.	.	.	.	.	.
Massachusetts	No	No	3	.	.	.	.	.	.	.	.	.	.	.	.
Maryland	No	No	1	.	.	.	.	.	.	.	.	.	.	.	.
Maine	No	Yes	15	10	10.769	0.929	0.472	1.655	4	.	.	.	.	.	.
Michigan	No	No	29	2	5.235	0.382	0.064	1.262	0	.	.	.	.	.	.
Minnesota	Yes	No	75	17	17.948	0.947	0.570	1.486	4	.	.	.	.	.	.
Missouri			22	8	6.760	1.183	0.550	2.247	1	.	.	.	.	.	.
Mississippi	Yes	No	8	4	1.467	2.727	0.866	6.577	0	.	.	.	.	.	.
Montana	No	No	10	3	3.791	0.791	0.201	2.154	0	.	.	.	.	.	.
North Carolina	No	No	10	2	11.284	0.177	0.030	0.586	3	.	.	.	.	.	.
North Dakota	No	No	11	2	3.190	0.627	0.105	2.071	1	.	.	.	.	.	.
Nebraska	No	No	24	8	4.502	1.777	0.825	3.374	1	.	.	.	.	.	.
New Hampshire	Yes	Yes	13	4	6.851	0.584	0.186	1.408	2	.	.	.	.	.	.
New Jersey	No	No	1	.	.	.	.	.	.	.	.	.	.	.	.
New Mexico	No		9	2	5.181	0.386	0.065	1.275	1	.	.	.	.	.	.
Nevada	No	Yes	2	.	.	.	.	.	.	.	.	.	.	.	.
New York			6	1	1.335	0.749	0.037	3.694	0	.	.	.	.	.	.
Ohio	No	Yes	20	4	9.577	0.418	0.133	1.007	4	.	.	.	.	.	.
Oklahoma			13	1	6.760	0.148	0.007	0.730	1	.	.	.	.	.	.
Oregon	No	Yes	25	7	17.965	0.390	0.170	0.771	6	.	.	.	.	.	.
Pennsylvania	Yes	Yes	15	8	8.448	0.947	0.440	1.798	1	.	.	.	.	.	.
Puerto Rico			1	.	.	.	.	.	.	.	.	.	.	.	.
Rhode Island	No	No	1	.	.	.	.	.	.	.	.	.	.	.	.
South Carolina	No	No	5	0	1.028	0.000	.	2.914	0	.	.	.	.	.	.
South Dakota	No	Yes	36	8	5.235	1.528	0.710	2.902	1	.	.	.	.	.	.
Tennessee	No	No	6	2	0.863	.	.	.	0	.	.	.	.	.	.
Texas	No	No	30	8	8.979	0.891	0.414	1.692	1	.	.	.	.	.	.
Utah	Yes		7	1	0.602	.	.	.	0	.	.	.	.	.	.

Virginia	No	Yes	5	4	3.075	1.301	0.413	3.138	1	.	.	.	.	.	.	.
Virgin Islands	No	No	1	.	.	.	.	.	.	.	.	.	.	.	.	.
Vermont	No	No	3	.	.	.	.	.	.	.	.	.	.	.	.	.
Washington	No	No	37	26	14.674	1.772	1.182	2.559	2	.	.	.	.	.	.	.
Wisconsin	No	Yes	58	14	25.674	0.545	0.310	0.893	7	.	.	.	.	.	.	.
West Virginia	Yes	Yes	19	2	3.639	0.550	0.092	1.816	0	.	.	.	.	.	.	.
Wyoming	No	No	15	0	1.752	0.000	.	1.710	0	.	.	.	.	.	.	.
All US			**864**	**229**	**293.959**	**0.779**	**0.683**	**0.885**	**59**	**0%**	**3%**	**0.000**	**0.000**	**0.000**	**0.359**	**0.678**

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 2017. M indicates midyear implementation of a mandate.
   No indicates that a state mandate did not exist during 2017.
3. Yes indicates that the state health department reported the completion of all of the following validation activities: state health department had access to 2017 NHSN data, state health department performed an assessment of missing or implausible values on at least six months of 2017 NHSN data prior to July 2, 2018, and state health department contacted identified facilities.
   YesA indicates that the state also conducted an audit of facility medical or laboratory records prior to July 2, 2018 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 2017.
5. Percent of facilities with at least one predicted CAUTI that had an SIR significantly greater or less than the nominal value of the 2017 national overall CAUTI SIR of 0.779. This is only calculated if at least 10 facilities had at least one predicted CAUTI in 2017.
6. Facility-specific key percentiles were only calculated if at least 20 facilities had ≥1.0 predicted CAUTI in 2017. 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 2017

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	No	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Alabama	Yes	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Arkansas		1	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Arizona	No	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.
California	No	14	1	5.375	0.186	0.009	0.918	2	.	.	.	.	.	.	.	.
Colorado	No	3	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Connecticut	No	0	.	.	.	.	.	.	.	.	.	.	.	.	.	.
D.C.	No	0	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Delaware		0	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Florida	No	2	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Georgia	No	2	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Guam	No	0	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Hawaii	No	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Iowa	No	3	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Idaho	No	2	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Illinois	Yes	15	1	1.284	0.779	0.039	3.841	0	.	.	.	.	.	.	.	.
Indiana	Yes	16	1	2.613	0.383	0.019	1.887	0	.	.	.	.	.	.	.	.
Kansas	No	4	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Kentucky	No	3	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Louisiana	No	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Massachusetts	No	2	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Maryland	No	0	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Maine	No	3	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Michigan	No	8	0	0.627	.	.	.	0	.	.	.	.	.	.	.	.
Minnesota	Yes	9	2	1.033	1.936	0.325	6.397	0	.	.	.	.	.	.	.	.
Missouri		6	0	1.503	0.000	.	1.993	1	.	.	.	.	.	.	.	.
Mississippi	No	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Montana	No	3	.	.	.	.	.	.	.	.	.	.	.	.	.	.
North Carolina	No	4	.	.	.	.	.	.	.	.	.	.	.	.	.	.
North Dakota	No	3	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Nebraska	No	4	.	.	.	.	.	.	.	.	.	.	.	.	.	.
New Hampshire	Yes	6	0	0.607	.	.	.	0	.	.	.	.	.	.	.	.
New Jersey	No	0	.	.	.	.	.	.	.	.	.	.	.	.	.	.
New Mexico	No	5	0	1.545	0.000	.	1.939	1	.	.	.	.	.	.	.	.
Nevada	No	2	.	.	.	.	.	.	.	.	.	.	.	.	.	.
New York		2	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Ohio	No	10	0	1.545	0.000	.	1.939	0	.	.	.	.	.	.	.	.
Oklahoma		1	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Oregon	No	13	1	4.200	0.238	0.012	1.174	2	.	.	.	.	.	.	.	.
Pennsylvania	Yes	7	1	1.554	0.644	0.032	3.174	1	.	.	.	.	.	.	.	.
Puerto Rico		0	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Rhode Island	No	0	.	.	.	.	.	.	.	.	.	.	.	.	.	.
South Carolina	No	2	.	.	.	.	.	.	.	.	.	.	.	.	.	.
South Dakota	No	0	.	.	.	.	.	.	.	.	.	.	.	.	.	.

Tennessee	No	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Texas	No	9	0	0.604	.	.	.	0	.	.	.	.	.	.	.	.
Utah	Yes	0	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Virginia	No	4	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Virgin Islands	No	0	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Vermont	No	2	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Washington	No	9	1	1.838	0.544	0.027	2.683	0	.	.	.	.	.	.	.	.
Wisconsin	No	12	0	2.021	0.000	.	1.482	0	.	.	.	.	.	.	.	.
West Virginia	Yes	7	0	0.573	.	.	.	0	.	.	.	.	.	.	.	.
Wyoming	No	2	.	.	.	.	.	.	.	.	.	.	.	.	.	.
All US		**207**	**13**	**39.041**	**0.333**	**0.185**	**0.555**	**8**	.	.	.	.	.	.	.	.

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 2017. M indicates midyear implementation of a mandate.
   No indicates that a state mandate did not exist during 2017. 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 2017.
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 2017 national ICU CAUTI SIR of 0.333. This is only calculated if at least 10 facilities had at least one predicted ICU CAUTI in 2017.
5. Facility-specific key percentiles were only calculated if at least 20 facilities had ≥1.0 predicted ICU CAUTI in 2017. 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 2017

4c. Catheter-associated urinary tract infections (CAUTI), 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	5	1	1.274	0.785	0.039	3.871	0	.	.	.	.	.
Alabama	Yes	4	.	.	.	.	.	.	.	.	.	.	.
Arkansas		13	1	4.486	0.223	0.011	1.099	1	.	.	.	.	.
Arizona	No	4	.	.	.	.	.	.	.	.	.	.	.
California	No	27	11	10.986	1.001	0.527	1.740	3	.	.	.	.	.
Colorado	No	19	8	4.397	1.819	0.845	3.455	1	.	.	.	.	.
Connecticut	No	0	.	.	.	.	.	.	.	.	.	.	.
D.C.	No	0	.	.	.	.	.	.	.	.	.	.	.
Delaware		0	.	.	.	.	.	.	.	.	.	.	.
Florida	No	8	2	2.612	0.766	0.128	2.530	0	.	.	.	.	.
Georgia	No	14	6	3.059	1.961	0.795	4.080	0	.	.	.	.	.
Guam	No	0	.	.	.	.	.	.	.	.	.	.	.
Hawaii	No	2	.	.	.	.	.	.	.	.	.	.	.
Iowa	No	63	9	13.730	0.655	0.320	1.203	0	.	.	.	.	.
Idaho	No	6	2	2.539	0.788	0.132	2.602	0	.	.	.	.	.
Illinois	Yes	36	6	12.639	0.475	0.192	0.987	3	.	.	.	.	.
Indiana	No	35	7	11.740	0.596	0.261	1.179	3	.	.	.	.	.
Kansas	No	58	15	13.299	1.128	0.655	1.819	1	.	.	.	.	.
Kentucky	No	14	3	4.622	0.649	0.165	1.766	0	.	.	.	.	.
Louisiana	No	6	0	1.288	0.000	.	2.326	0	.	.	.	.	.
Massachusetts	No	2	.	.	.	.	.	.	.	.	.	.	.
Maryland	No	0	.	.	.	.	.	.	.	.	.	.	.
Maine	No	15	10	10.535	0.949	0.482	1.692	4	.	.	.	.	.
Michigan	No	29	2	4.609	0.434	0.073	1.434	0	.	.	.	.	.
Minnesota	Yes	74	15	16.919	0.887	0.515	1.429	4	.	.	.	.	.
Missouri		22	8	5.255	1.522	0.707	2.891	1	.	.	.	.	.
Mississippi	No	7	4	1.404	2.849	0.905	6.872	0	.	.	.	.	.
Montana	No	10	3	3.635	0.825	0.210	2.246	0	.	.	.	.	.
North Carolina	No	9	1	7.595	0.132	0.007	0.649	2	.	.	.	.	.
North Dakota	No	11	2	2.961	0.675	0.113	2.232	0	.	.	.	.	.
Nebraska	No	23	7	3.825	1.830	0.800	3.620	1	.	.	.	.	.
New Hampshire	No	13	4	6.244	0.641	0.204	1.545	2	.	.	.	.	.
New Jersey	No	0	.	.	.	.	.	.	.	.	.	.	.
New Mexico	No	9	2	3.637	0.550	0.092	1.817	1	.	.	.	.	.
Nevada	No	2	.	.	.	.	.	.	.	.	.	.	.
New York		6	1	1.067	0.937	0.047	4.622	0	.	.	.	.	.
Ohio	No	20	4	8.035	0.498	0.158	1.201	1	.	.	.	.	.
Oklahoma		13	1	6.253	0.160	0.008	0.789	1	.	.	.	.	.
Oregon	No	25	6	13.764	0.436	0.177	0.907	4	.	.	.	.	.
Pennsylvania	Yes	15	7	6.895	1.015	0.444	2.008	1	.	.	.	.	.
Puerto Rico		0	.	.	.	.	.	.	.	.	.	.	.
Rhode Island	No	0	.	.	.	.	.	.	.	.	.	.	.
South Carolina	No	5	0	0.880	.	.	.	0	.	.	.	.	.
South Dakota	No	36	8	5.233	1.529	0.710	2.903	1	.	.	.	.	.
Tennessee	No	6	2	0.817	.	.	.	0	.	.	.	.	.
Texas	No	27	8	8.373	0.955	0.444	1.814	1	.	.	.	.	.
Utah	Yes	7	1	0.603	.	.	.	0	.	.	.	.	.
Virginia	No	5	3	2.129	1.409	0.358	3.835	0	.	.	.	.	.

Virgin Islands	No	0	.	.	.	.	.	.	.	.	.	.	.	.	.
Vermont	No	2	.	.	.	.	.	.	.	.	.	.	.	.	.
Washington	No	37	25	12.837	1.947	1.288	2.833	1	.	.	.	.	.	.	.
Wisconsin	No	58	14	23.653	0.592	0.337	0.970	7	.	.	.	.	.	.	.
West Virginia	Yes	19	2	3.065	0.653	0.109	2.156	0	.	.	.	.	.	.	.
Wyoming	No	14	0	1.637	0.000	.	1.830	0	.	.	.	.	.	.	.
All US		**835**	**216**	**254.913**	**0.847**	**0.740**	**0.966**	**45**	**0%**	**0%**	**0.000**	**0.000**	**0.000**	**0.590**	**0.856**

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 2017. M indicates midyear implementation of a mandate. No indicates that a state mandate did not exist during 2017.
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 2017.
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 2017 national ward CAUTI SIR of 0.847. This is only calculated if at least 10 facilities had at least one predicted ward CAUTI in 2017.
5. Facility-specific key percentiles were only calculated if at least 20 facilities had ≥1.0 predicted ward CAUTI in 2017. 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 2017

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	2	.	.	.	.	.	.	.	.	.	.
Alabama	No	No	0	.	.	.	.	.	.	.	.	.	.
Arkansas			0	.	.	.	.	.	.	.	.	.	.
Arizona	No	No	1	.	.	.	.	.	.	.	.	.	.
California	No	No	10	1	1.291	0.774	0.039	3.819	0	.	.	.	.
Colorado	No	No	2	.	.	.	.	.	.	.	.	.	.
Connecticut	No	No	0	.	.	.	.	.	.	.	.	.	.
D.C.	No	No	0	.	.	.	.	.	.	.	.	.	.
Delaware			0	.	.	.	.	.	.	.	.	.	.
Florida	No	No	3	.	.	.	.	.	.	.	.	.	.
Georgia	No	No	1	.	.	.	.	.	.	.	.	.	.
Guam	No	No	0	.	.	.	.	.	.	.	.	.	.
Hawaii	No	Yes	0	.	.	.	.	.	.	.	.	.	.
Iowa	No	No	0	.	.	.	.	.	.	.	.	.	.
Idaho	No	No	2	.	.	.	.	.	.	.	.	.	.
Illinois	No	No	2	.	.	.	.	.	.	.	.	.	.
Indiana	No	No	12	0	0.146	.	.	.	0	.	.	.	.
Kansas	No	No	2	.	.	.	.	.	.	.	.	.	.
Kentucky	No	No	2	.	.	.	.	.	.	.	.	.	.
Louisiana	No	No	1	.	.	.	.	.	.	.	.	.	.
Massachusetts	No	No	1	.	.	.	.	.	.	.	.	.	.
Maryland	No	No	0	.	.	.	.	.	.	.	.	.	.
Maine	No	No	3	.	.	.	.	.	.	.	.	.	.
Michigan	No	No	5	0	0.076	.	.	.	0	.	.	.	.
Minnesota	No	No	1	.	.	.	.	.	.	.	.	.	.
Missouri			1	.	.	.	.	.	.	.	.	.	.
Mississippi	No	No	0	.	.	.	.	.	.	.	.	.	.
Montana	No	No	2	.	.	.	.	.	.	.	.	.	.
North Carolina	No	No	5	2	0.151	.	.	.	0	.	.	.	.
North Dakota	No	No	1	.	.	.	.	.	.	.	.	.	.
Nebraska	No	No	0	.	.	.	.	.	.	.	.	.	.
New Hampshire	No	No	5	0	0.171	.	.	.	0	.	.	.	.
New Jersey	No	No	0	.	.	.	.	.	.	.	.	.	.
New Mexico	No	No	3	.	.	.	.	.	.	.	.	.	.
Nevada	No	No	2	.	.	.	.	.	.	.	.	.	.
New York			2	.	.	.	.	.	.	.	.	.	.
Ohio	No	No	7	0	0.348	.	.	.	0	.	.	.	.
Oklahoma			0	.	.	.	.	.	.	.	.	.	.
Oregon	No	No	6	0	0.243	.	.	.	0	.	.	.	.
Pennsylvania	Yes	No	8	1	0.930	.	.	.	0	.	.	.	.
Puerto Rico			0	.	.	.	.	.	.	.	.	.	.
Rhode Island	No	No	0	.	.	.	.	.	.	.	.	.	.
South Carolina	Yes	No	2	.	.	.	.	.	.	.	.	.	.
South Dakota	No	No	0	.	.	.	.	.	.	.	.	.	.
Tennessee	No	No	0	.	.	.	.	.	.	.	.	.	.
Texas	No	No	4	.	.	.	.	.	.	.	.	.	.

Utah	No	No	0	.	.	.	.	.	.	.	.	.	.	.	.	.
Virginia	No	No	3	.	.	.	.	.	.	.	.	.	.	.	.	.
Virgin Islands	No	No	0	.	.	.	.	.	.	.	.	.	.	.	.	.
Vermont	No	No	0	.	.	.	.	.	.	.	.	.	.	.	.	.
Washington	No	No	7	1	0.558	.	.	.	0	.	.	.	.	.	.	.
Wisconsin	No	Yes	6	0	0.103	.	.	.	0	.	.	.	.	.	.	.
West Virginia	No	No	4	.	.	.	.	.	.	.	.	.	.	.	.	.
Wyoming	No	No	2	.	.	.	.	.	.	.	.	.	.	.	.	.
All US			**120**	**7**	**5.891**	**1.188**	**0.520**	**2.351**	**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 2017. M indicates midyear implementation of a mandate. No indicates that a state mandate did not exist during 2017.
3. Yes indicates that the state health department reported the completion of all of the following validation activities: state health department had access to 2017 NHSN data, state health department performed an assessment of missing or implausible values on at least six months of 2017 NHSN data prior to July 2, 2018, and state health department contacted identified facilities. YesA indicates that the state also conducted an audit of facility medical or laboratory records prior to July 2, 2018 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 2017.
5. Percent of facilities with at least one predicted VAE that had an SIR significantly greater or less than the nominal value of the 2017 national overall VAE SIR of 1.188. This is only calculated if at least 10 facilities had at least one predicted VAE in 2017.
6. Facility-specific key percentiles were only calculated if at least 20 facilities had ≥1.0 predicted VAE in 2017. 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 2017

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

State		No. of Critical Access Hospitals Reporting3	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		0	.	.	.	.	.	.	.	.	.	.	.
Arizona	No	1	.	.	.	.	.	.	.	.	.	.	.
California	No	10	1	1.291	0.774	0.039	3.819	0	.	.	.	.	.
Colorado	No	2	.	.	.	.	.	.	.	.	.	.	.
Connecticut	No	0	.	.	.	.	.	.	.	.	.	.	.
D.C.	No	0	.	.	.	.	.	.	.	.	.	.	.
Delaware		0	.	.	.	.	.	.	.	.	.	.	.
Florida	No	2	.	.	.	.	.	.	.	.	.	.	.
Georgia	No	1	.	.	.	.	.	.	.	.	.	.	.
Guam	No	0	.	.	.	.	.	.	.	.	.	.	.
Hawaii	No	0	.	.	.	.	.	.	.	.	.	.	.
Iowa	No	0	.	.	.	.	.	.	.	.	.	.	.
Idaho	No	1	.	.	.	.	.	.	.	.	.	.	.
Illinois	No	2	.	.	.	.	.	.	.	.	.	.	.
Indiana	No	10	0	0.141				0	.	.	.	.	.
Kansas	No	2	.	.	.	.	.	.	.	.	.	.	.
Kentucky	No	2	.	.	.	.	.	.	.	.	.	.	.
Louisiana	No	1	.	.	.	.	.	.	.	.	.	.	.
Massachusetts	No	1	.	.	.	.	.	.	.	.	.	.	.
Maryland	No	0	.	.	.	.	.	.	.	.	.	.	.
Maine	No	2	.	.	.	.	.	.	.	.	.	.	.
Michigan	No	4	.	.	.	.	.	.	.	.	.	.	.
Minnesota	No	1	.	.	.	.	.	.	.	.	.	.	.
Missouri		1	.	.	.	.	.	.	.	.	.	.	.
Mississippi	No	0	.	.	.	.	.	.	.	.	.	.	.
Montana	No	1	.	.	.	.	.	.	.	.	.	.	.
North Carolina	No	3	.	.	.	.	.	.	.	.	.	.	.
North Dakota	No	1	.	.	.	.	.	.	.	.	.	.	.
Nebraska	No	0	.	.	.	.	.	.	.	.	.	.	.
New Hampshire	No	5	0	0.171				0	.	.	.	.	.
New Jersey	No	0	.	.	.	.	.	.	.	.	.	.	.
New Mexico	No	3	.	.	.	.	.	.	.	.	.	.	.
Nevada	No	2	.	.	.	.	.	.	.	.	.	.	.
New York		2	.	.	.	.	.	.	.	.	.	.	.
Ohio	No	5	0	0.188				0	.	.	.	.	.
Oklahoma		0	.	.	.	.	.	.	.	.	.	.	.
Oregon	No	5	0	0.240				0	.	.	.	.	.
Pennsylvania	Yes	5	1	0.184				0	.	.	.	.	.
Puerto Rico		0	.	.	.	.	.	.	.	.	.	.	.
Rhode Island	No	0	.	.	.	.	.	.	.	.	.	.	.
South Carolina	Yes	2	.	.	.	.	.	.	.	.	.	.	.
South Dakota	No	0	.	.	.	.	.	.	.	.	.	.	.
Tennessee	No	0	.	.	.	.	.	.	.	.	.	.	.
Texas	No	3	.	.	.	.	.	.	.	.	.	.	.
Utah	No	0	.	.	.	.	.	.	.	.	.	.	.
Virginia	No	3	.	.	.	.	.	.	.	.	.	.	.

Virgin Islands	No	0	.	.	.	.	.	.	.	.	.	.	.	.	.
Vermont	No	0	.	.	.	.	.	.	.	.	.	.	.	.	.
Washington	No	7	1	0.558				0	.	.	.	.	.	.	.
Wisconsin	No	5	0	0.094				0	.	.	.	.	.	.	.
West Virginia	No	4	.	.	.	.	.	.	.	.	.	.	.	.	.
Wyoming	No	2	.	.	.	.	.	.	.	.	.	.	.	.	.
All US		**101**	**5**	**4.793**	**1.043**	**0.382**	**2.312**	**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 2017. M indicates midyear implementation of a mandate. No indicates that a state mandate did not exist during 2017.
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 2017.
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 2017 national ICU VAE SIR of 1.043. This is only calculated if at least 10 facilities had at least one predicted ICU VAE in 2017.
5. Facility-specific key percentiles were only calculated if at least 20 facilities had ≥1.0 predicted ICU VAE in 2017. 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 2017

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	2	.	.	.	.	.	.	.	.	.	.
Alabama	No	0	.	.	.	.	.	.	.	.	.	.
Arkansas		0	.	.	.	.	.	.	.	.	.	.
Arizona	No	0	.	.	.	.	.	.	.	.	.	.
California	No	0	.	.	.	.	.	.	.	.	.	.
Colorado	No	0	.	.	.	.	.	.	.	.	.	.
Connecticut	No	0	.	.	.	.	.	.	.	.	.	.
D.C.	No	0	.	.	.	.	.	.	.	.	.	.
Delaware		0	.	.	.	.	.	.	.	.	.	.
Florida	No	1	.	.	.	.	.	.	.	.	.	.
Georgia	No	0	.	.	.	.	.	.	.	.	.	.
Guam	No	0	.	.	.	.	.	.	.	.	.	.
Hawaii	No	0	.	.	.	.	.	.	.	.	.	.
Iowa	No	0	.	.	.	.	.	.	.	.	.	.
Idaho	No	1	.	.	.	.	.	.	.	.	.	.
Illinois	No	0	.	.	.	.	.	.	.	.	.	.
Indiana	No	2	.	.	.	.	.	.	.	.	.	.
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	2	.	.	.	.	.	.	.	.	.	.
North Dakota	No	0	.	.	.	.	.	.	.	.	.	.
Nebraska	No	0	.	.	.	.	.	.	.	.	.	.
New Hampshire	No	0	.	.	.	.	.	.	.	.	.	.
New Jersey	No	0	.	.	.	.	.	.	.	.	.	.
New Mexico	No	0	.	.	.	.	.	.	.	.	.	.
Nevada	No	0	.	.	.	.	.	.	.	.	.	.
New York		0	.	.	.	.	.	.	.	.	.	.
Ohio	No	2	.	.	.	.	.	.	.	.	.	.
Oklahoma		0	.	.	.	.	.	.	.	.	.	.
Oregon	No	1	.	.	.	.	.	.	.	.	.	.
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	No	0	.	.	.	.	.	.	.	.	.	.	.	.	.
Virginia	No	0	.	.	.	.	.	.	.	.	.	.	.	.	.
Virgin Islands	No	0	.	.	.	.	.	.	.	.	.	.	.	.	.
Vermont	No	0	.	.	.	.	.	.	.	.	.	.	.	.	.
Washington	No	0	.	.	.	.	.	.	.	.	.	.	.	.	.
Wisconsin	No	1	.	.	.	.	.	.	.	.	.	.	.	.	.
West Virginia	No	0	.	.	.	.	.	.	.	.	.	.	.	.	.
Wyoming	No	0	.	.	.	.	.	.	.	.	.	.	.	.	.
All US		**19**	**2**	**1.097**	**1.823**	**0.306**	**6.022**	**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 2017. M indicates midyear implementation of a mandate. No indicates that a state mandate did not exist during 2017.
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 2017.
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 2017 national ward VAE SIR of 1.823. This is only calculated if at least 10 facilities had at least one predicted ward VAE in 2017.
5. Facility-specific key percentiles were only calculated if at least 20 facilities had ≥1.0 predicted ward VAE in 2017. 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 2017

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	3	.	.	.	.	.	.	.	.	.	.	.	.
Alabama	Yes	Yes	0	.	.	.	.	.	.	.	.	.	.	.	.
Arkansas			1	.	.	.	.	.	.	.	.	.	.	.	.
Arizona	No	No	1	.	.	.	.	.	.	.	.	.	.	.	.
California	Yes	Yes	16	173	5	3.346	1.494	0.548	3.312	0	.	.	.	.	.
Colorado	No	No	9	57	0	0.987	.	.	.	0	.	.	.	.	.
Connecticut	No	No	0	.	.	.	.	.	.	.	.	.	.	.	.
D.C.	No	No	0	.	.	.	.	.	.	.	.	.	.	.	.
Delaware			0	.	.	.	.	.	.	.	.	.	.	.	.
Florida	No	No	3	.	.	.	.	.	.	.	.	.	.	.	.
Georgia	No	No	1	.	.	.	.	.	.	.	.	.	.	.	.
Guam	No	No	0	.	.	.	.	.	.	.	.	.	.	.	.
Hawaii	No	No	1	.	.	.	.	.	.	.	.	.	.	.	.
Iowa	No	No	9	39	2	0.772				0	.	.	.	.	.
Idaho	No	No	6	57	3	1.094	2.742	0.697	7.461	0	.	.	.	.	.
Illinois		No	15	139	0	2.713	0.000	.	1.104	0	.	.	.	.	.
Indiana	Yes	No	24	187	7	3.490	2.006	0.877	3.968	0	.	.	.	.	.
Kansas	No	Yes	11	51	2	0.889				0	.	.	.	.	.
Kentucky	No	No	4	.	.	.	.	.	.	.	.	.	.	.	.
Louisiana	No	No	2	.	.	.	.	.	.	.	.	.	.	.	.
Massachusetts	Yes	No	2	.	.	.	.	.	.	.	.	.	.	.	.
Maryland	No	No	0	.	.	.	.	.	.	.	.	.	.	.	.
Maine	No	Yes	11	106	0	2.148	0.000	.	1.395	0	.	.	.	.	.
Michigan	No	Yes	11	105	2	1.871	1.069	0.179	3.531	0	.	.	.	.	.
Minnesota	No	No	8	56	0	0.999	.	.	.	0	.	.	.	.	.
Missouri			8	36	0	0.607	.	.	.	0	.	.	.	.	.
Mississippi	No	No	0	.	.	.	.	.	.	.	.	.	.	.	.
Montana	No	No	6	51	1	0.996				0	.	.	.	.	.
North Carolina	No	No	8	79	2	1.415	1.413	0.237	4.670	0	.	.	.	.	.
North Dakota	No	No	2	.	.	.	.	.	.	.	.	.	.	.	.
Nebraska	No	No	6	12	0	0.239	.	.	.	0	.	.	.	.	.
New Hampshire	Yes	Yes	10	72	5	1.356	3.687	1.351	8.172	0	.	.	.	.	.
New Jersey	No	No	0	.	.	.	.	.	.	.	.	.	.	.	.
New Mexico	No	No	5	65	1	1.055	0.948	0.047	4.676	0	.	.	.	.	.
Nevada	No	No	2	.	.	.	.	.	.	.	.	.	.	.	.
New York			2	.	.	.	.	.	.	.	.	.	.	.	.
Ohio	No	Yes	9	59	0	1.235	0.000	.	2.426	0	.	.	.	.	.
Oklahoma			0	.	.	.	.	.	.	.	.	.	.	.	.
Oregon	Yes	Yes	12	177	1	3.517	0.284	0.014	1.402	0	.	.	.	.	.
Pennsylvania	Yes	Yes	8	38	0	0.712	.	.	.	0	.	.	.	.	.
Puerto Rico			0	.	.	.	.	.	.	.	.	.	.	.	.
Rhode Island	No	No	0	.	.	.	.	.	.	.	.	.	.	.	.
South Carolina	Yes		1	.	.	.	.	.	.	.	.	.	.	.	.
South Dakota	No	Yes	0	.	.	.	.	.	.	.	.	.	.	.	.
Tennessee	No	No	0	.	.	.	.	.	.	.	.	.	.	.	.
Texas	No	No	9	40	0	0.711	.	.	.	0	.	.	.	.	.
Utah	Yes	No	1	.	.	.	.	.	.	.	.	.	.	.	.
Virginia	No	Yes	3	.	.	.	.	.	.	.	.	.	.	.	.
Virgin Islands	No	No	0	.	.	.	.	.	.	.	.	.	.	.	.
Vermont	No	Yes	1	.	.	.	.	.	.	.	.	.	.	.	.
Washington	Yes	Yes	18	142	1	2.458	0.407	0.020	2.006	0	.	.	.	.	.
Wisconsin	No	Yes	37	322	4	5.751	0.695	0.221	1.678	0	.	.	.	.	.
West Virginia	No	No	7	78	0	1.420	0.000	.	2.110	0	.	.	.	.	.

Wyoming	No	No	3	.	.	.	.	.	.	.	.	.	.	.	.	.
All US			**296**	**2343**	**43**	**43.684**	**0.984**	**0.721**	**1.314**	**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 2017 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 2017. M indicates midyear implementation of a mandate.
   No indicates that a state mandate did not exist during 2017.
3. Yes indicates that the state health department reported the completion of all of the following validation activities: state health department had access to 2017 NHSN data, state health department performed an assessment of missing or implausible values on at least six months of 2017 NHSN data prior to July 2, 2018, and state health department contacted identified facilities.
   YesA indicates that the state also conducted an audit of facility medical or laboratory records prior to July 2, 2018 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 2017.
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 2017 national colon surgery SIR of 0.984 This is only calculated if at least 10 facilities had at least one predicted colon surgery SSI in 2017.
6. Facility-specific key percentiles were only calculated if at least 20 facilities had ≥1.0 predicted colon surgery SSI in 2017. 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 2017

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 Observed	No. of Infections Predicted	SIR	95% CI for SIR Lower	95% CI for SIR Upper	Facility-specific SIRs							
													10%	25%		75%	90%
Alaska	No	No	3	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Alabama	Yes	Yes	0	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Arkansas			0	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Arizona	No	No	2	.	.	.	.	.	.	.	.	.	.	.	.	.	.
California	Yes	Yes	15	103	0	0.621	.	.	.	0	.	.	.	.	.	.	.
Colorado	No	No	8	43	0	0.246	.	.	.	0	.	.	.	.	.	.	.
Connecticut	No	No	0	.	.	.	.	.	.	.	.	.	.	.	.	.	.
D.C.	No	No	0	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Delaware			0	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Florida	No	No	0	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Georgia	No	No	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Guam	No	No	0	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Hawaii	No	No	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Iowa	No	No	6	132	1	0.540	.	.	.	0	.	.	.	.	.	.	.
Idaho	No	No	4	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Illinois		No	8	43	1	0.288	.	.	.	0	.	.	.	.	.	.	.
Indiana	Yes	No	18	120	0	0.672	.	.	.	0	.	.	.	.	.	.	.
Kansas	No	Yes	7	93	0	0.474	.	.	.	0	.	.	.	.	.	.	.
Kentucky	No	No	0	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Louisiana	No	No	2	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Massachusetts	Yes	No	2	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Maryland	No	No	0	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Maine	No		9	68	1	0.375	.	.	.	0	.	.	.	.	.	.	.
Michigan	No	Yes	5	74	0	0.372	.	.	.	0	.	.	.	.	.	.	.
Minnesota	No	No	8	40	1	0.239	.	.	.	0	.	.	.	.	.	.	.
Missouri			6	40	0	0.268	.	.	.	0	.	.	.	.	.	.	.
Mississippi	No	No	0	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Montana	No	No	6	39	0	0.211	.	.	.	0	.	.	.	.	.	.	.
North Carolina	No	No	5	76	0	0.423	.	.	.	0	.	.	.	.	.	.	.
North Dakota	No	No	3	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Nebraska	No	No	3	.	.	.	.	.	.	.	.	.	.	.	.	.	.
New Hampshire	Yes	Yes	8	47	0	0.240	.	.	.	0	.	.	.	.	.	.	.
New Jersey	No	No	0	.	.	.	.	.	.	.	.	.	.	.	.	.	.
New Mexico	No	No	5	33	0	0.229	.	.	.	0	.	.	.	.	.	.	.
Nevada	No	No	2	.	.	.	.	.	.	.	.	.	.	.	.	.	.
New York			2	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Ohio	No	Yes	12	85	0	0.540	.	.	.	0	.	.	.	.	.	.	.
Oklahoma			0	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Oregon	Yes	Yes	10	58	0	0.399	.	.	.	0	.	.	.	.	.	.	.
Pennsylvania	Yes	Yes	6	167	0	1.035	0.000		2.893	0	.	.	.	.	.	.	.
Puerto Rico			0	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Rhode Island	No	No	0	.	.	.	.	.	.	.	.	.	.	.	.	.	.
South Carolina	Yes		0	.	.	.	.	.	.	.	.	.	.	.	.	.	.
South Dakota	No	Yes	0	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Tennessee	No	No	0	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Texas	No	No	8	25	1	0.147	.	.	.	0	.	.	.	.	.	.	.
Utah	Yes	No	2	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Virginia	No	Yes	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Virgin Islands	No	No	0	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Vermont	Yes	Yes	4	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Washington	Yes	Yes	12	146	1	0.803	.	.	.	0	.	.	.	.	.	.	.
Wisconsin	No	Yes	26	209	0	1.062	0.000		2.820	0	.	.	.	.	.	.	.
West Virginia	No	No	4	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Wyoming	No	No	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.
All US			**225**	**1930**	**7**	**10.628**	**0.659**	**0.288**	**1.303**	**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 2017 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 2017. M indicates midyear implementation of a mandate. No indicates that a state mandate did not exist during 2017.
3. Yes indicates that the state health department reported the completion of all of the following validation activities: state health department had access to 2017 NHSN data, state health department performed an assessment of missing or implausible values on at least six months of 2017 NHSN data prior to July 2, 2018, and state health department contacted identified facilities. YesA indicates that the state also conducted an audit of facility medical or laboratory records prior to July 2, 2018 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 2017.
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 2017 national abdominal hysterectomy SIR of 0.659. This is only calculated if at least 10 facilities had at least one predicted abdominal hysterectomy SSI in 2017.
6. Facility-specific key percentiles were only calculated if at least 20 facilities had ≥1.0 predicted abdominal hysterectomy SSI in 2017. 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 2017
Hospital-onset methicillin-resistant *Staphylococcus aureus* (MRSA) bacteremia, facility-wide[1]

State			No. of Critical Access Hospitals Reporting4	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	3	.	.	.	.	.	.	.	.	.	.	.
Alabama	No	No	3	.	.	.	.	.	.	.	.	.	.	.
Arkansas			10	0	0.461	.	.	.	0	.	.	.	.	.
Arizona	No	No	4	.	.	.	.	.	.	.	.	.	.	.
California	Yes	Yes	32	2	1.950	1.026	0.172	3.389	0	.	.	.	.	.
Colorado	No	No	19	0	0.755	.	.	.	0	.	.	.	.	.
Connecticut	No	No	0	.	.	.	.	.	.	.	.	.	.	.
D.C.	No	No	0	.	.	.	.	.	.	.	.	.	.	.
Delaware			0	.	.	.	.	.	.	.	.	.	.	.
Florida	No	No	8	1	0.771	.	.	.	.	.	.	.	.	.
Georgia	No	Yes	12	1	0.945	.	.	.	0	.	.	.	.	.
Guam	No	No	0	.	.	.	.	.	.	.	.	.	.	.
Hawaii	No	No	1	.	.	.	.	.	.	.	.	.	.	.
Iowa	No	Yes	26	0	0.653	.	.	.	0	.	.	.	.	.
Idaho	No	No	7	0	0.463	.	.	.	.	.	.	.	.	.
Illinois	Yes	Yes	49	2	2.589	0.772	0.130	2.552	0	.	.	.	.	.
Indiana	No	No	34	4	1.787	2.238	0.711	5.399	0	.	.	.	.	.
Kansas	No	Yes	47	0	1.886	0.000	.	1.588	0	.	.	.	.	.
Kentucky	No	No	12	2	0.855	.	.	.	0	.	.	.	.	.
Louisiana	No	Yes	5	0	0.283	.	.	.	.	.	.	.	.	.
Massachusetts	No	No	2	.	.	.	.	.	.	.	.	.	.	.
Maryland	No	No	0	.	.	.	.	.	.	.	.	.	.	.
Maine	Yes	Yes	16	3	1.618	1.854	0.472	5.046	0	.	.	.	.	.
Michigan	No	Yes	27	0	1.244	0.000	.	2.408	0	.	.	.	.	.
Minnesota	No	No	16	0	0.730	.	.	.	0	.	.	.	.	.
Missouri			17	1	0.919	.	.	.	0	.	.	.	.	.
Mississippi	No	No	3	.	.	.	.	.	.	.	.	.	.	.
Montana	No	No	9	0	0.631	.	.	.	.	.	.	.	.	.
North Carolina	No	No	10	0	0.956	.	.	.	0	.	.	.	.	.
North Dakota	No	No	9	0	0.595	.	.	.	.	.	.	.	.	.
Nebraska	No	No	18	2	0.456	.	.	.	0	.	.	.	.	.
New Hampshire	No	No	11	0	0.917	.	.	.	0	.	.	.	.	.
New Jersey	No	No	0	.	.	.	.	.	.	.	.	.	.	.
New Mexico	No		9	0	0.571	.	.	.	.	.	.	.	.	.
Nevada	Yes	No	2	.	.	.	.	.	.	.	.	.	.	.
New York			4	.	.	.	.	.	.	.	.	.	.	.
Ohio	No	Yes	22	0	1.376	0.000	.	2.177	0	.	.	.	.	.
Oklahoma			11	0	0.357	.	.	.	0	.	.	.	.	.
Oregon	Yes	Yes	25	1	1.648	0.607	0.030	2.993	0	.	.	.	.	.
Pennsylvania	No	Yes	11	0	0.951	.	.	.	0	.	.	.	.	.
Puerto Rico			0	.	.	.	.	.	.	.	.	.	.	.
Rhode Island	No	No	0	.	.	.	.	.	.	.	.	.	.	.
South Carolina	Yes		3	.	.	.	.	.	.	.	.	.	.	.
South Dakota	No	Yes	1	.	.	.	.	.	.	.	.	.	.	.
Tennessee	No	No	5	0	0.166	.	.	.	.	.	.	.	.	.
Texas	No	No	23	0	0.949	.	.	.	0	.	.	.	.	.
Utah	Yes	No	7	0	0.172	.	.	.	.	.	.	.	.	.

Virginia	No	Yes	5	0	0.518	.	.	.	.	.	.	.	.	.	.	.
Virgin Islands	No	No	0	.	.	.	.	.	.	.	.	.	.	.	.	.
Vermont	No	Yes	8	2	0.941	.	.	.	.	.	.	.	.	.	.	.
Washington	No	Yes	21	1	1.822	0.549	0.027	2.707	0	.	.	.	.	.	.	.
Wisconsin	No	Yes	57	2	3.572	0.560	0.094	1.850	0	.	.	.	.	.	.	.
West Virginia	No	No	14	0	0.936	.	.	.	0	.	.	.	.	.	.	.
Wyoming	No	No	6	0	0.222	.	.	.	.	.	.	.	.	.	.	.
All US			**644**	**25**	**37.559**	**0.666**	**0.440**	**0.968**	**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 2017. M indicates midyear implementation of a mandate. No indicates that a state mandate did not exist during 2017.
3. Yes indicates that the state health department reported the completion of all of the following validation activities: state health department had access to 2017 NHSN data, state health department performed an assessment of missing or implausible values on at least six months of 2017 NHSN data prior to July 2, 2018, and state health department contacted identified facilities. YesA indicates that the state also conducted an audit of facility medical or laboratory records prior to July 2, 2018 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 2017.
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 2017 national hospital-onset MRSA bacteremia SIR of 0.666. This is only calculated if at least 10 facilities had at least one predicted hospital-onset MRSA bacteremia in 2017.
6. Facility-specific key percentiles were only calculated if at least 20 facilities had ≥1.0 predicted hospital-onset MRSA bacteremia in 2017. 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 2017
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	5	5	6.932	0.721	0.264	1.599	2	.	.	.	.	.	.
Alabama	No	No	3	.	.	.	.	.	.	.	.	.	.	.	.
Arkansas			9	4	7.371	0.543	0.172	1.309	3	.	.	.	.	.	.
Arizona	No	No	4	.	.	.	.	.	.	.	.	.	.	.	.
California	Yes	Yes	31	31	29.017	1.068	0.739	1.498	12	0%	0%	.	.	.	.
Colorado	No	No	19	14	10.456	1.339	0.762	2.193	3	.	.	.	.	.	.
Connecticut	No	No	0	.	.	.	.	.	.	.	.	.	.	.	.
D.C	No	No	0	.	.	.	.	.	.	.	.	.	.	.	.
Delaware			0	.	.	.	.	.	.	.	.	.	.	.	.
Florida	No	No	8	11	10.330	1.065	0.560	1.851	3	.	.	.	.	.	.
Georgia	No	Yes	11	3	12.716	0.236	0.060	0.642	6	.	.	.	.	.	.
Guam	No	No	0	.	.	.	.	.	.	.	.	.	.	.	.
Hawaii	No	No	1	.	.	.	.	.	.	.	.	.	.	.	.
Iowa	No		40	11	22.462	0.490	0.258	0.851	6	.	.	.	.	.	.
Idaho	No	No	7	4	6.515	0.614	0.195	1.481	3	.	.	.	.	.	.
Illinois	Yes	Yes	49	33	38.489	0.857	0.600	1.190	10	10%	0%	.	.	.	.
Indiana	No	No	33	29	27.999	1.036	0.707	1.468	9	.	.	.	.	.	.
Kansas	No	Yes	48	30	24.551	1.222	0.840	1.722	7	.	.	.	.	.	.
Kentucky	No	No	12	12	12.119	0.990	0.537	1.683	4	.	.	.	.	.	.
Louisiana	No	Yes	4	.	.	.	.	.	.	.	.	.	.	.	.
Massachusetts	No	No	2	.	.	.	.	.	.	.	.	.	.	.	.
Maryland	No	No	0	.	.	.	.	.	.	.	.	.	.	.	.
Maine	Yes	Yes	16	18	25.697	0.700	0.428	1.086	14	0%		.	.	.	.
Michigan	No	Yes	27	6	18.538	0.324	0.131	0.673	7	.	.	.	.	.	.
Minnesota	No	No	24	20	14.382	1.391	0.873	2.110	4	.	.	.	.	.	.
Missouri			18	10	13.897	0.720	0.366	1.283	6	.	.	.	.	.	.
Mississippi	No	No	5	2	3.451	0.580	0.097	1.915	2	.	.	.	.	.	.
Montana	No	No	10	4	9.083	0.440	0.140	1.062	4	.	.	.	.	.	.
North Carolina	No	No	10	7	15.859	0.441	0.193	0.873	7	.	.	.	.	.	.
North Dakota	No	No	9	3	7.235	0.415	0.105	1.129	4	.	.	.	.	.	.
Nebraska	No	No	17	4	6.861	0.583	0.185	1.406	2	.	.	.	.	.	.
New Hampshire	No	No	12	14	13.931	1.005	0.572	1.646	7	.	.	.	.	.	.
New Jersey	No	No	0	.	.	.	.	.	.	.	.	.	.	.	.
New Mexico	No		9	14	9.331	1.500	0.854	2.458	4	.	.	.	.	.	.
Nevada	No	No	2	.	.	.	.	.	.	.	.	.	.	.	.
New York			4	.	.	.	.	.	.	.	.	.	.	.	.
Ohio	No	Yes	23	21	22.626	0.928	0.590	1.395	10	0	0	.	.	.	.
Oklahoma			10	1	4.298	0.233	0.012	1.147	1	.	.	.	.	.	.
Oregon	Yes	Yes	25	22	24.266	0.907	0.583	1.350	13	15%	0%	.	.	.	.
Pennsylvania	No	Yes	11	22	17.134	1.284	0.825	1.912	7	.	.	.	.	.	.
Puerto Rico			0	.	.	.	.	.	.	.	.	.	.	.	.
Rhode Island	No	No	0	.	.	.	.	.	.	.	.	.	.	.	.
South Carolina	Yes		3	.	.	.	.	.	.	.	.	.	.	.	.
South Dakota	No	Yes	37	3	11.909	0.252	0.064	0.686	1	.	.	.	.	.	.
Tennessee	No	No	5	3	2.470	1.215	0.309	3.306	1	.	.	.	.	.	.
Texas	No	No	23	9	12.658	0.711	0.347	1.305	5	.	.	.	.	.	.
Utah	Yes		7	3	2.080	1.442	0.367	3.925	0	.	.	.	.	.	.
Virginia	No	Yes	5	8	8.689	0.921	0.428	1.748	5	.	.	.	.	.	.
Virgin Islands	No	No	0	.	.	.	.	.	.	.	.	.	.	.	.
Vermont	Yes	Yes	8	17	14.414	1.179	0.710	1.850	7	.	.	.	.	.	.

Washington	Yes	Yes	34	51	39.561	1.289	0.970	1.682	15	20%	0%	.	.	.	.	.
Wisconsin	No	Yes	57	44	56.564	0.778	0.572	1.035	29	0%	0%	0.000	0.000	0.734	1.061	1.923
West Virginia	No	No	13	15	14.643	1.024	0.595	1.652	6	.	.	.	.	.	.	.
Wyoming	No	No	12	4	5.783	0.692	0.220	1.668	0	.	.	.	.	.	.	.
All US			**722**	**531**	**606.440**	**0.876**	**0.803**	**0.952**	**238**	**5%**		**0.000**	**0.000**	**0.768**	**1.560**	**2.104**

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 2017. M indicates midyear implementation of a mandate. No indicates that a state mandate did not exist during 2017.
3. Yes indicates that the state health department reported the completion of all of the following validation activities: state health department had access to 2017 NHSN data, state health department performed an assessment of missing or implausible values on at least six months of 2017 NHSN data prior to July 2, 2018, and state health department contacted identified facilities. YesA indicates that the state also conducted an audit of facility medical or laboratory records prior to July 2, 2018 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 2017.
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 2017 national hospital-onset CDI SIR of 0.876. This is only calculated if at least 10 facilities had at least one predicted hospital-onset CDI in 2017.
6. Facility-specific key percentiles were only calculated if at least 20 facilities had ≥1.0 predicted hospital-onset CDI in 2017. 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**

	2016 SIR	2017 SIR	Percent Change	Direction of Change, Based on Statistical Significance	p-value
CLABSI, all locations[1]	1.154	0.711	-38%	Decrease	0.0447
CLABSI, ICU[2]	0.281	1.038	269%	No change	0.2521
CLABSI, Ward[3]	1.254	0.678	-46%	Decrease	0.0146
CAUTI, all locations[5]	1.097	0.779	-29%	Decrease	0.0002
CAUTI, ICU[2]	0.643	0.333	48%	No change	0.0720
CAUTI, Ward[3]	1.167	0.847	-27%	Decrease	0.0009
	1.535	1.188	23%	No change	0.6382
ICUs[5]	1.918	1.043	46%	No change	0.3108
Wards[6]	.	1.823	.	.	.
Hospital-onset MRSA bacteremia, facility-wide[6]	0.648	0.666	3%	No change	0.9309
Hospital-onset *C. difficile* infections, facility-wide[6]	1.037	0.876	-16%	Decrease	0.0051
SSI, combined SCIP procedures[7]	0.850	0.861	1%	No change	0.9341
SSI, Hip arthroplasty	0.890	0.709	20%	No change	0.4502
SSI, Knee arthroplasty	0.967	0.879	9%	No change	0.7278
SSI, Coronary artery bypass graft[8]	.	.	.	.	.
SSI, Cardiac surgery	.	.	.	.	.
SSI, Peripheral vascular bypass surgery	.	.	.	.	.
SSI, Abdominal aortic aneurysm repair	.	.	.	.	.
SSI, Colon surgery	0.793	0.984	24%	No change	0.3520
SSI, Rectal surgery	.	.	.	.	.
SSI, Abdominal hysterectomy	0.794	0.659	17%	No change	0.7269
SSI, Vaginal hysterectomy	.	.	.	.	.

* Statistically significant, p < 0.0500

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 2017 by HAI and patient population:
associated events (VAEs), methicillin-resistant *Staphylococcus aureus* (MRSA) bacteremia,
provement Project (SCIP) procedures, 2016 compared to 2017

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 2016 and 2017 from NHSN Critical Access Hospitals

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

	All Critical Access Hospitals Reporting to NHSN				
State[2]	2016 SIR	2017 SIR	Percent Change[3]	Direction of Change, Based on Statistical Significance	p-value
Alaska	.	.	.	.	.
Alabama	.	.	.	.	.
Arkansas	.	.	.	.	.
Arizona	.	.	.	.	.
California	2.087	0.962	54%	No change	0.3981
Colorado	.	.	.	.	.
Connecticut	.	.	.	.	.
D.C.	.	.	.	.	.
Delaware	.	.	.	.	.
Florida	.	.	.	.	.
Georgia	0.000	1.450	>100%	No change	0.3043
Guam	.	.	.	.	.
Hawaii	.	.	.	.	.
Iowa	0.000	0.000	.	.	.
Idaho	.	.	.	.	.
Illinois	0.518	1.229	137%	No change	0.5018
Indiana	0.537	2.256	320%	No change	0.2002
Kansas	0.401	0.000	<100%	No change	0.4654
Kentucky	.	0.847	.	.	.
Louisiana	.	.	.	.	.
Massachusetts	.	.	.	.	.
Maryland	.	.	.	.	.
Maine	0.000	0.000	.	.	.
Michigan	.	.	.	.	.
Minnesota	.	2.259	.	.	.
Missouri	.	0.711	.	.	.
Mississippi	.	.	.	.	.
Montana	.	.	.	.	.
North Carolina	.	.	.	.	.
North Dakota	.	.	.	.	.
Nebraska	.	.	.	.	.
New Hampshire	1.898	.	.	.	.
New Jersey	.	.	.	.	.
New Mexico	.	.	.	.	.
Nevada	.	.	.	.	.
New York	.	.	.	.	.
Ohio	.	0.000	.	.	.
Oklahoma	.	.	.	.	.
Oregon	0.757	0.729	4%	No change	0.9811
Pennsylvania	2.062	0.684	67%	No change	0.3723
Puerto Rico	.	.	.	.	.
Rhode Island	.	.	.	.	.
South Carolina	.	.	.	.	.
South Dakota	.	.	.	.	.
Tennessee	.	.	.	.	.
Texas	1.641	0.000	<100%	No change	0.2124
Utah	.	.	.	.	.
Virginia	.	.	.	.	.
Virgin Islands	.	.	.	.	.
Vermont	.	.	.	.	.
Washington	1.929	0.642	67%	No change	0.1793
Wisconsin	0.683	0.282	59%	No change	0.5210
West Virginia	.	.	.	.	.
Wyoming	.	.	.	.	.
All US	**0.711**	**1.154**	**38%**	**Decrease**	**0.0447**

* 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 2016 and/or 2017 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 2016 and 2017 from NHSN Critical Access Hospitals

10b. Catheter-associated urinary tract infections (CAUTI), all locations1

	All Critical Access Hospitals Reporting to NHSN				
	2016 SIR	2017 SIR		Direction of Change, Based on Statistical Significance	p-value
Alaska	0.000	0.741	>100%	No change	0.4796
Alabama	.	.	.	.	.
Arkansas	0.887	0.218	75%	No change	0.2120
Arizona	.	.	.	.	.
California	0.376	0.733	95%	No change	0.1833
Colorado	1.696	1.691	0%	No change	0.9714
Connecticut	.	.	.	.	.
D.C.	.	.	.	.	.
Delaware	.	.	.	.	.
Florida	0.000	0.646	>100%	No change	0.5040
Georgia	1.929	1.752	9%	No change	0.8708
Guam	.	.	.	.	.
Hawaii	.	.	.	.	.
Iowa	0.621	0.653	5%	No change	0.9215
Idaho	1.401	0.723	48%	No change	0.4997
Illinois	0.630	0.503	20%	No change	0.6976
Indiana	0.684	0.557	19%	No change	0.6946
Kansas	1.012	1.069	6%	No change	0.8809
Kentucky	1.090	0.919	16%	No change	0.8088
Louisiana	1.431	0.000	<100%	No change	0.2529
Massachusetts	.	.	.	.	.
Maryland	.	.	.	.	.
Maine	0.753	0.929	23%	No change	0.7537
Michigan	1.143	0.382	67%	No change	0.1979
Minnesota	1.229	0.947	23%	No change	0.4518
Missouri	1.468	1.183	19%	No change	0.6795
Mississippi	4.386	2.727	38%	.	.
Montana	1.192	0.791	34%	No change	0.6131
North Carolina	0.802	0.177	78%	No change	0.0879
North Dakota	0.000	0.627	>100%	No change	0.3031
Nebraska	1.950	1.777	9%	No change	0.8584
New Hampshire	1.886	0.584	-69%	Decrease	0.0383
New Jersey	.	.	.	.	.
New Mexico	0.696	0.386	45%	No change	0.6408
Nevada	.	.	.	.	.
New York	1.890	0.749	60%	No change	0.5000
Ohio	0.000	0.418	>100%	No change	0.2721
Oklahoma	6.085	0.148	98%	.	.
Oregon	0.571	0.390	32%	No change	0.4993
Pennsylvania	1.972	0.947	52%	No change	0.1107
Puerto Rico	.	.	.	.	.
Rhode Island	.	.	.	.	.
South Carolina	0.000	0.000	.	.	.
South Dakota	2.519	1.528	39%	.	.
Tennessee	4.926	2.317	53%	.	.
Texas	1.538	0.891	42%	No change	0.2472
Utah	0.000	1.661	>100%	.	.
Virginia	0.000	1.301	>100%	No change	0.1179
Virgin Islands	.	.	.	.	.
Vermont	.	.	.	.	.
Washington	2.934	1.772	-40%	Decrease	0.0325
Wisconsin	0.420	0.545	30%	No change	0.5697
West Virginia	1.136	0.550	52%	No change	0.4115
Wyoming	0.847	0.000	<100%	No change	0.3294
All US	**1.097**	**0.779**	**-29%**	**Decrease**	**0.0002**

* 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 2016 and/or 2017 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 2016 and 2017 from NHSN Critical Access Hospitals

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

	All Critical Access Hospitals Reporting to NHSN				
	2016 SIR	2017 SIR	Percent Change	Direction of Change, Based on Statistical Significance	p-value
Alaska	.	.	.		.
Alabama	.	.	.		.
Arkansas	.	.	.		.
Arizona	.	.	.		.
California	.	0.774	.		.
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	**1.535**	**1.188**	**-23%**	**No change**	**0.638**

* 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 2016 and 2017 and therefore subsequent data not calculated

Table 10. Changes in state-specific standardized infection ratios (SIRs) between 2016 and 2017 from NHSN Critical Access Hospitals

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

	All Critical Access Hospitals Reporting to NHSN				
	2016 SIR	2017 SIR		Direction of Change, Based on Statistical Significance	p-value
Alaska	.	.	.		.
Alabama	.	.	.		.
Arkansas	.	.	.		.
Arizona	.	.	.		.
California	1.114	1.494	34%	No change	0.677
Colorado	0.000	.	.		.
Connecticut	.	.	.		.
D.C.	.	.	.		.
Delaware	.	.	.		.
Florida	.	.	.		.
Georgia	.	.	.		.
Guam	.	.	.		.
Hawaii	.	.	.		.
Iowa	1.626	.	.		.
Idaho	.	2.742	.		.
Illinois	0.000	0.000	.		.
Indiana	0.315	2.006	537%	No change	0.0526
Kansas	.	.	.		.
Kentucky	.	.	.		.
Louisiana	.	.	.		.
Massachusetts	.	.	.		.
Maryland	.	.	.		.
Maine	1.219	0.000	<100%	No change	0.1876
Michigan	0.000	1.069	>100%	No change	0.2867
Minnesota	.	.	.		.
Missouri	.	.	.		.
Mississippi	.	.	.		.
Montana	.	.	.		.
North Carolina	0.501	1.413	182%	No change	0.4452
North Dakota	.	.	.		.
Nebraska	.	.	.		.
New Hampshire	1.338	3.687	176%	No change	0.2368
New Jersey	.	.	.		.
New Mexico	.	0.948	.		.
Nevada	.	.	.		.
New York	.	.	.		.
Ohio	.	0.000	.		.
Oklahoma	.	.	.		.
Oregon	0.518	0.284	45%	No change	0.6787
Pennsylvania	1.682	.	.		.
Puerto Rico	.	.	.		.
Rhode Island	.	.	.		.
South Carolina	.	.	.		.
South Dakota	.	.	.		.
Tennessee	.	.	.		.
Texas	0.802	.	.		.
Utah	.	.	.		.
Virginia	.	.	.		.
Virgin Islands	.	.	.		.
Vermont	.	.	.		.
Washington	0.781	0.407	48%	No change	0.6483
Wisconsin	1.167	0.695	40%	No change	0.4399
West Virginia	0.000	0.000	.		.
Wyoming	.	.	.		.
All US	**0.793**	**0.984**	**24%**	**No change**	**0.3520**

* 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 2016 and/or 2017 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 2016 and 2017 from NHSN Critical Access Hospitals

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

	All Critical Access Hospitals Reporting to NHSN				
	2016 SIR	2017 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	.	.	.
West Virginia	.	.	.	.	.
Wyoming	.	.	.	.	.
All US	**0.794**	**0.659**	**17%**	**No change**	**0.727**

* 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 2016 and 2017 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 2016 and 2017 from NHSN Critical Access Hospitals

10f. Hospital-onset methicillin-resistant Staphylococcus aureus (MRSA) bacteremia, facility-wide1

	All Critical Access Hospitals Reporting to NHSN				
	2016 SIR	2017 SIR		Direction of Change, Based on Statistical Significance	p-value
Alaska	.	.	.	.	.
Alabama	.	.	.	.	.
Arkansas	.	.	.	.	.
Arizona	.	.	.	.	.
California	1.993	1.026	49%	No change	0.47354
Colorado	.	.	.	.	.
Connecticut	.	.	.	.	.
D.C.	.	.	.	.	.
Delaware	.	.	.	.	.
Florida	.	.	.	.	.
Georgia	.	.	.	.	.
Guam	.	.	.	.	.
Hawaii	.	.	.	.	.
Iowa	.	.	.	.	.
Idaho	.	.	.	.	.
Illinois	0.318	0.772	143%	No change	0.51997
Indiana	0.696	2.238	222%	No change	0.31541
Kansas	1.220	0.000	<100%	No change	0.21619
Kentucky	.	.	.	.	.
Louisiana	.	.	.	.	.
Massachusetts	.	.	.	.	.
Maryland	.	.	.	.	.
Maine	0.000	1.854	>100%	No change	0.11722
Michigan	.	0.000	.	.	.
Minnesota	.	.	.	.	.
Missouri	.	.	.	.	.
Mississippi	.	.	.	.	.
Montana	.	.	.	.	.
North Carolina	.	.	.	.	.
North Dakota	.	.	.	.	.
Nebraska	.	.	.	.	.
New Hampshire	0.000	.	.	.	.
New Jersey	.	.	.	.	.
New Mexico	.	.	.	.	.
Nevada	.	.	.	.	.
New York	.	.	.	.	.
Ohio	.	0.000	.	.	.
Oklahoma	.	.	.	.	.
Oregon	0.624	0.607	3%	No change	0.98596
Pennsylvania	.	.	.	.	.
Puerto Rico	.	.	.	.	.
Rhode Island	.	.	.	.	.
South Carolina	.	.	.	.	.
South Dakota	.	.	.	.	.
Tennessee	.	.	.	.	.
Texas	.	.	.	.	.
Utah	.	.	.	.	.
Virginia	.	.	.	.	.
Virgin Islands	.	.	.	.	.
Vermont	.	.	.	.	.
Washington	0.000	0.549	>100%	No change	0.5399
Wisconsin	0.578	0.560	3%	No change	0.9761
West Virginia	.	.	.	.	.
Wyoming	.	.	.	.	.
All US	**0.648**	**0.666**	**3%**	**No change**	**0.93087**

* 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 2016 and/or 2017 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 2016 and 2017 from NHSN Critical Access Hospitals

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

	All Critical Access Hospitals Reporting to NHSN				
	2016 SIR	2017 SIR	Percent Change	Direction of Change, Based on Statistical Significance	p-value
Alaska	.	0.721	.	.	.
Alabama	.	.	.	.	.
Arkansas	0.671	0.543	19%	No change	0.7719
Arizona	.	.	.	.	.
California	1.545	1.068	31%	No change	0.1067
Colorado	0.811	1.339	65%	No change	0.3115
Connecticut	.	.	.	.	.
D.C.	.	.	.	.	.
Delaware	.	.	.	.	.
Florida	0.871	1.065	22%	No change	0.7121
Georgia	0.436	0.236	46%	No change	0.4220
Guam	.	.	.	.	.
Hawaii	.	.	.	.	.
Iowa	1.306	0.490	-62%	Decrease	0.0032
Idaho	0.877	0.614	30%	No change	0.6004
Illinois	1.054	0.857	19%	No change	0.3642
Indiana	1.452	1.036	29%	No change	0.1771
Kansas	1.366	1.222	11%	No change	0.6618
Kentucky	0.592	0.990	67%	No change	0.5390
Louisiana	.	.	.	.	.
Massachusetts	.	.	.	.	.
Maryland	.	.	.	.	.
Maine	0.749	0.700	7%	No change	0.8370
Michigan	1.004	0.324	-68%	Decrease	0.0172
Minnesota	0.661	1.391	110%	No change	0.1651
Missouri	1.121	0.720	36%	No change	0.3763
Mississippi	.	0.580	.	.	.
Montana	0.678	0.440	35%	No change	0.5115
North Carolina	0.681	0.441	35%	No change	0.3804
North Dakota	0.411	0.415	1%	No change	1.0000
Nebraska	0.613	0.583	5%	No change	0.9244
New Hampshire	0.861	1.005	17%	No change	0.6735
New Jersey	.	.	.	.	.
New Mexico	1.515	1.500	1%	No change	0.9722
Nevada	.	.	.	.	.
New York	.	.	.	.	.
Ohio	1.063	0.928	13%	No change	0.6902
Oklahoma	.	0.233	.	.	.
Oregon	1.362	0.907	33%	No change	0.1344
Pennsylvania	1.769	1.284	27%	No change	0.2677
Puerto Rico	.	.	.	.	.
Rhode Island	.	.	.	.	.
South Carolina	.	.	.	.	.
South Dakota	.	0.252	.	.	.
Tennessee	.	1.215	.	.	.
Texas	1.160	0.711	39%	No change	0.2505
Utah	.	1.442	.	.	.
Virginia	.	0.921	.	.	.
Virgin Islands	.	.	.	.	.
Vermont	0.951	1.179	24%	No change	0.5573
Washington	0.893	1.289	44%	No change	0.0940
Wisconsin	0.826	0.778	6%	No change	0.7804
West Virginia	0.618	1.024	66%	No change	0.2521
Wyoming	1.256	0.692	45%	No change	0.3558
All US	**1.037**	**0.876**	**-16%**	**Decrease**	**0.0051**

* 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 2016 and/or 2017 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 (2016 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.