2018 Nationa

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

This workbook includes national and state-specific SIR data for acute care hospital

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

*The Surgical Care Improvement Project (SCIP) procedures plus 5 of the most reported pro

l and State HAI Progress Report

ute Care Hospitals

eline and risk adjustment calculations. Standardized infection ratios (SIRs) are used to describe different HAI typ
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Characteristics of Acute Care Hospitals Reporting to Na

Table 1. Characteristics of acute care hospitals reporting to NHSN, 2018	
Characteristics	**2018 Statistics**
Number of facilities reporting to NHSN[1]	3,883.00
Total Number of hospital admissions	38,313,758.00
Median number of beds	136.00
Mean number of beds	188.88
Median number of ICU beds	14.00
Mean number of ICU beds	28.55
Mean number of full time epidemiologists	0.41

Table 1a. Number of reporting facilities by type, NHSN 2018	
Type of hospital	**No. (%)**
Children's Hospital	95 (2.45)
General Hospital	3408 (87.77)
Military Hospital	31 (0.80)
Oncology Hospital	18 (0.46)
Orthopedic hospitals	31 (0.80)
Psychiatric Hospital	63 (1.62)
Surgical Hospital	119 (3.06)
Veteran Administration hospitals	87 (2.24)
Women's hospitals	15 (0.39)
Women and Child Hospitals	16 (0.41)

Table 1b. Median and Mean Number of beds by type of hospital, NHSN	
Type of hospital	**Median No. of beds**
Children's hospitals	179
General hospitals	147
Military hospitals	64
Oncology hospitals	78.5
Orthopeadic hospitals	30
Psychiatric hospitals	80
Surgical hospitals	23
Veteran Administration hospitals	96
Women and Child hospitals	197

Table 2. Total No. (%) of facilities affiliated with medical school, NHSN 2018	
Medical School Affiliation	
Total number of reporting facilities	3,883
Yes	2,341
No	1,542

Table 2a. Total No. (%) of facilities affiliated with medical by type, NHSN 2018	
Type of medical school affiliation	**No. (%)**
Graduate Medical School	630 (27%)
Major Teaching School	1120 (48%)
Undergraduate Medical School	591 (25%)

ational Healthcare Safety Network (NHSN), 2018

2018
Mean No. of beds
189.39
199.49
100.13
152.56
43.68
108.03
38.51
129.07
209.50

2018 Annual National and State HAI Progress Report
Acute Care Hospitals: Full series of tables for all national and state-specific data

Tables included in this report:

Additional Resources

SIR Guide
Technical Appendix
HAI Progress Report Home Page

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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 Acute Care Hospitals reporting to NHSN by State[1], 2018:
1a. Central line-associated bloodstream infections (CLABSI)[2]

	2018						
				Inpatient Locations			
State	State NHSN Mandate[3]	Any Validation[4]	No. of Acute Care Hospitals Reporting[5]	Total	ICU	Wards[2]	NICU[6]
Alaska	Yes	Yes	10	50	10	38	2
Alabama	Yes	Yes[a]	82	493	136	342	15
Arkansas	Yes	No	50	258	61	185	12
Arizona	No	No	65	392	82	292	18
California	Yes	Yes	341	2,432	534	1,763	135
Colorado	Yes	Yes	54	348	63	265	20
Connecticut	Yes	Yes	31	249	46	189	14
D.C.	Yes	No	8	103	25	72	6
Delaware			8	92	14	76	2
Florida	No	Yes	208	1,771	419	1,290	62
Georgia	Yes	Yes	105	744	168	539	37
Guam			2	7	2	4	1
Hawaii	Yes	Yes	16	88	22	64	2
Iowa	No	No	38	218	44	161	13
Idaho	No	No	15	90	19	61	10
Illinois	Yes	Yes	135	959	201	715	43
Indiana	Yes	Yes	87	568	117	421	30
Kansas	No	Yes	52	231	53	169	9
Kentucky	Yes	No	70	464	118	330	16
Louisiana	No		94	479	114	336	29
Massachusetts	Yes	Yes	68	530	125	394	11
Maryland	Yes	Yes	49	436	73	346	17
Maine	Yes	No	17	88	20	65	3
Michigan	No	No	96	680	170	490	20
Minnesota	Yes	Yes	53	312	70	231	11
Missouri			78	611	128	460	23
Mississippi	Yes	Yes	52	332	69	249	14
Montana	No	No	13	63	12	46	5
North Carolina	Yes	Yes	96	680	163	492	25
North Dakota	No	No	8	59	9	44	6
Nebraska			26	138	25	107	6
New Hampshire	Yes	No	13	90	17	70	3
New Jersey			71	601	137	441	23
New Mexico	Yes	No	28	143	32	107	4
Nevada	Yes	No	27	209	47	154	8
New York	Yes	Yes[a]	171	1,575	344	1,175	56
Ohio	No	Yes	140	1,041	256	756	29
Oklahoma	Yes	Yes	78	329	76	246	7
Oregon	Yes	Yes	35	232	47	176	9
Pennsylvania	Yes	Yes	165	1,313	277	991	45
Puerto Rico			13	80	23	54	3
Rhode Island	No	Yes	10	82	15	66	1
South Carolina	Yes	Yes	60	435	106	318	11
South Dakota	No	Yes	16	75	18	54	3
Tennessee	Yes		105	671	165	481	25
Texas	No	No	337	1,939	438	1,360	141
Utah			33	148	42	93	13
Virginia	Yes	Yes	81	621	140	454	27
Virgin Islands			2	12	2	8	2
Vermont	Yes	Yes	6	30	6	23	1
Washington	Yes	Yes	58	422	74	331	17
Wisconsin	No	Yes	71	418	93	307	18
West Virginia	Yes	No	28	203	50	147	6
Wyoming	No	No	11	32	10	22	-
All US			**3,586**	**24,666**	**5,527**	**18,070**	**1,069**

Table 1. Characteristics of NHSN Acute Care Hospitals reporting to NHSN by State[1], 2018:
1b. Catheter-associated urinary tract infections (CAUTI)[2]

State	2018					
				Locations (n)[2]		
				Total	ICU	
Alaska	Yes	Yes	10	50	10	40
Alabama	Yes		89	494	139	355
Arkansas	Yes	No	50	263	61	202
Arizona	No	No	65	386	82	304
California	No	No	337	2,356	535	1,821
Colorado	M	Yes	52	337	64	273
Connecticut	Yes	Yes	31	244	46	198
D.C.	Yes	No	8	97	25	72
Delaware			8	92	14	78
Florida	No	Yes	209	1,744	415	1,329
Georgia	Yes	Yes	109	722	168	554
Guam			2	7	2	5
Hawaii	Yes	Yes	17	90	22	68
Iowa	No	No	40	215	46	169
Idaho	No	No	17	85	18	67
Illinois	Yes	No	134	939	201	738
Indiana	Yes	Yes	88	549	117	432
Kansas	No	Yes	57	235	53	182
Kentucky	Yes	No	70	458	118	340
Louisiana	No		100	471	114	357
Massachusetts	Yes	Yes	68	531	125	406
Maryland	Yes	Yes	49	429	73	356
Maine	No	No	17	90	20	70
Michigan	No	No	98	671	171	500
Minnesota	Yes	Yes	53	302	70	232
Missouri			78	592	128	464
Mississippi	Yes	No	58	344	70	274

Montana	No	No	14	64	12	52
North Carolina	Yes	Yes	96	671	163	508
North Dakota	No	No	9	54	9	45
Nebraska			25	135	24	111
New Hampshire	M	No	13	91	17	74
New Jersey			71	595	137	458
New Mexico	No	No	30	148	32	116
Nevada	No	No	27	206	47	159
New York	No	No	171	1,576	344	1,232
Ohio	No	Yes	144	1,052	256	796
Oklahoma	Yes	Yes	80	344	77	267
Oregon	Yes	Yes	35	232	47	185
Pennsylvania	Yes	Yes	181	1,377	276	1,101
Puerto Rico			13	78	25	53
Rhode Island	No	Yes	10	81	15	66
South Carolina	No	No	61	436	106	330
South Dakota	No	Yes	21	80	18	62
Tennessee	Yes	Yes	105	673	165	508
Texas	No	No	353	1,894	438	1,456
Utah			33	138	42	96
Virginia	Yes	Yes	81	619	140	479
Virgin Islands			2	10	2	8
Vermont	No	No	6	31	6	25
Washington	No	No	60	406	74	332
Wisconsin	No	Yes	72	414	93	321
West Virginia	Yes	No	28	204	50	154
Wyoming	No	No	13	36	10	26
All US			**3,668**	**24,438**	**5,532**	**18,906**

1c. Ventilator-associated events (VAE)

State	2018					
				Total	ICU	
Alaska	No	No	6	7	3	4
Alabama	No	No	49	106	89	17
Arkansas	No	No	19	34	29	5
Arizona	No	No	28	41	37	4
California	No	No	188	410	318	92
Colorado	No	No	41	69	56	13
Connecticut	No	No	13	29	19	10
D.C.	No	No	4	10	9	1
Delaware			3	9	6	3
Florida	No	No	124	262	231	31
Georgia	No	No	74	163	132	31
Guam			2	2	2	.
Hawaii	No	No	6	7	6	1
Iowa	No	No	14	19	17	2
Idaho	No	No	7	10	10	.
Illinois	No	No	67	132	92	40
Indiana	No	No	68	107	94	13
Kansas	No	No	33	46	39	7
Kentucky	No	No	43	87	80	7
Louisiana	No	No	42	88	63	25
Massachusetts	No	No	22	44	36	8
Maryland	M	No	23	41	29	12
Maine	No	No	15	22	17	5
Michigan	No	No	77	156	134	22
Minnesota	No	No	12	21	14	7
Missouri			43	92	79	13
Mississippi	No	No	28	46	42	4

Montana	No	No	5	5	5	.
North Carolina	No	No	45	80	68	12
North Dakota	No	No	2	3	3	.
Nebraska			14	23	17	6
New Hampshire	No	No	11	11	11	.
New Jersey			52	113	85	28
New Mexico	No	No	19	22	18	4
Nevada	No	No	22	76	41	35
New York	No	No	130	431	245	186
Ohio	No	Yes	98	246	161	85
Oklahoma	No	No	30	39	37	2
Oregon	No	No	27	35	32	3
Pennsylvania	Yes	Yes	144	366	264	102
Puerto Rico			9	28	14	14
Rhode Island	No	No	8	17	13	4
South Carolina	Yes	Yes	54	117	98	19
South Dakota	No	No	6	11	9	2
Tennessee	No	No	57	152	101	51
Texas	No	No	160	274	230	44
Utah			7	12	12	.
Virginia	No	No	67	141	115	26
Virgin Islands			1	1	1	.
Vermont	No	No	1	1	1	.
Washington	No	No	26	38	33	5
Wisconsin	No	Yes	56	81	72	9
West Virginia	No	No	17	31	23	8
Wyoming	No	No	6	6	6	.
All US			**2,125**	**4,420**	**3,398**	**1,022**

Table 1. Characteristics of NHSN Acute Care Hospitals reporting to NHSN by State[1], 2018: 1d. Surgical site infections[7]

State	2018			
		Any Validation[4]	No. of Acute Care Hospitals Reporting colon surgeries in adults[5]	No. of Procedures[7] colon surgeries in adults
Alabama	Yes	Yes	66	6,111
Alaska	No	Yes	7	670
Arizona	No	No	54	6,571
Arkansas	No	No	41	3,153
California	Yes	Yes	312	29,543
Colorado	Yes	Yes	47	5,278
Connecticut	Yes	Yes	28	3,852
D.C.	No	No	8	1,104
Delaware			7	1,138
Florida	No	Yes	193	26,502
Georgia	Yes	Yes	87	10,775
Guam			1	.
Hawaii	No	Yes	13	1,041
Idaho	No	No	14	1,445
Illinois	Yes	No	127	11,864
Indiana	No	No	76	7,162
Iowa	No	Yes	37	3,103
Kansas	No	Yes	39	3,176
Kentucky	Yes	No	65	5,725
Louisiana	No	Yes	73	5,181
Maine	No	Yes	17	1,498
Maryland	No	Yes	45	5,645
Massachusetts	No	Yes	59	7,388
Michigan	No	No	91	10,942
Minnesota	Yes	Yes	48	5,577
Mississippi	Yes	No	40	3,425
Missouri	No	Yes	69	7,702
Montana	No	No	12	883
Nebraska			22	2,098
Nevada	No	No	20	2,737
New Hampshire	Yes	No	13	1,428
New Jersey			70	8,039
New Mexico	No	No	25	1,357
New York	Yes	Yes	161	19,335
North Carolina	Yes	Yes	85	11,175
North Dakota	No	Yes	7	963
Ohio	No	Yes	125	14,412
Oklahoma	No	No	53	4,254
Oregon	Yes	Yes	33	4,240
Pennsylvania	Yes	Yes	149	15,699
Puerto Rico			2	.
Rhode Island	No	No	10	1,123
South Carolina	Yes	Yes	54	5,066
South Dakota	No	Yes	15	1,091
Tennessee	Yes	Yes	88	8,868
Texas	No	No	261	25,805

Utah			31	2,295
Vermont	No	Yes	6	524
Virgin Islands			2	.
Virginia	Yes	Yes	72	8,002
Washington	Yes		48	6,349
West Virginia	Yes	No	25	2,124
Wisconsin	No	Yes	69	5,915
Wyoming	No	No	12	285
All US			**3,134**	**329,729**

State	2018		No. of Acute Care Hospitals Reporting hysterectomy surgeries in adults[5]	No. of Procedures[7] abdominal hysterectomy surgeries in adults
Alabama	Yes	Yes	53	6,951
Alaska	No	Yes	7	622
Arizona	No	No	50	7,521
Arkansas	No	No	38	3,331
California	Yes	Yes	292	23,518
Colorado	Yes	Yes	48	7,289
Connecticut	Yes	Yes	26	3,500
D.C.	No	No	7	737
Delaware			7	1,200
Florida	No	Yes	178	23,863
Georgia	Yes	Yes	82	13,084
Guam			1	.
Hawaii	No	Yes	11	598
Idaho	No	No	14	1,440
Illinois	Yes	No	124	11,895
Indiana	No	No	75	7,183
Iowa	No	Yes	34	3,684
Kansas	No	Yes	39	3,924
Kentucky	Yes	No	56	5,567
Louisiana	No	Yes	69	6,579
Maine	No	Yes	17	1,371
Maryland	No	Yes	39	5,340
Massachusetts	No	Yes	51	5,301
Michigan	No	No	85	10,908
Minnesota	Yes	Yes	49	5,359
Mississippi	Yes	No	42	4,464
Missouri			63	7,509
Montana	No	No	12	1,010
Nebraska	No	Yes	22	2,220
Nevada	No	No	17	2,049
New Hampshire	Yes	No	13	998
New Jersey			62	6,601
New Mexico	No	No	23	1,710
New York	Yes	Yes	149	17,645
North Carolina	Yes	Yes	83	10,868
North Dakota	No	Yes	7	677
Ohio	No	Yes	120	12,594
Oklahoma	No	No	60	5,081
Oregon	Yes	Yes	33	4,148
Pennsylvania	Yes	Yes	133	12,955
Puerto Rico			3	.

Rhode Island	No	No	9	1,242
South Carolina	Yes	Yes	49	6,201
South Dakota	No	Yes	14	1,091
Tennessee	Yes	Yes	77	10,008
Texas	No	No	270	36,901
Utah			30	3,198
Vermont	Yes	Yes	6	538
Virgin Islands			2	.
Virginia	Yes	Yes	66	9,656
Washington	Yes	Yes	53	7,100
West Virginia	Yes	No	23	2,240
Wisconsin	No	Yes	66	6,551
Wyoming	No	No	10	311
All US			**2,969**	**336,585**

Table 1. Characteristics of NHSN Acute Care Hospitals reporting to NHSN by State[1], 2018:

1e. Hospital-onset methicillin-resistant *Staphylococcus aureus* bacteremia[8]

State	2018		
Alaska	Yes	Yes	8
Alabama	No	Yes	90
Arkansas	No	No	50
Arizona	No	No	66
California	Yes	Yes	345
Colorado	M	Yes	56
Connecticut	Yes	Yes	31
D.C.	Yes	No	8
Delaware			8
Florida	No	Yes	208
Georgia	Yes	Yes	107
Guam			2
Hawaii	Yes	Yes	17
Iowa	No	No	37
Idaho	No	No	17
Illinois	Yes	Yes	136
Indiana	No	No	93
Kansas	No	Yes	58
Kentucky	Yes	No	70
Louisiana	No		100
Massachusetts	Yes	Yes	68
Maryland	Yes	Yes	48
Maine	Yes	No	17
Michigan	No	Yes	100
Minnesota	Yes	Yes	51
Missouri			79
Mississippi	Yes	No	63
Montana	No	No	14
North Carolina	Yes	Yes	98
North Dakota	No	No	10
Nebraska			25
New Hampshire	No	No	13
New Jersey			71
New Mexico	Yes	No	33
Nevada	Yes	No	24
New York	No	No	179
Ohio	No	Yes	144
Oklahoma	Yes	Yes	84
Oregon	Yes	Yes	35
Pennsylvania	Yes	Yes	173
Puerto Rico			2
Rhode Island	No	No	10
South Carolina	Yes	Yes	62
South Dakota	No	Yes	22
Tennessee	Yes	Yes	111
Texas	No	No	369

Utah			34
Virginia	Yes	Yes	80
Virgin Islands			2
Vermont	No	Yes	6
Washington	No	No	57
Wisconsin	No	Yes	73
West Virginia	Yes	No	29
Wyoming	No	No	13
All US			**3,706**

1f. Hospital-onset *Clostridioides difficile*[8]

State	2018		
		Any Validation[4]	
Alaska	Yes	Yes	8
Alabama	No	Yes	90
Arkansas	No	No	50
Arizona	No	No	66
California	Yes	Yes	339
Colorado	Yes	Yes	57
Connecticut	Yes	Yes	31
D.C	Yes	No	8
Delaware			8
Florida	No	Yes	208
Georgia	Yes	Yes	107
Guam			1
Hawaii	Yes	Yes	17
Iowa	No	No	38
Idaho	No	No	17
Illinois	Yes	Yes	137
Indiana	No	No	93
Kansas	No	Yes	58
Kentucky	Yes	No	70
Louisiana	No	Yesa	101
Massachusetts	Yes	Yes	68
Maryland	Yes	Yes	49
Maine	Yes	Yes	17
Michigan	No	Yes	100
Minnesota	Yes	Yes	52
Missouri			79
Mississippi	Yes	No	63
Montana	No	No	14
North Carolina	Yes	Yesa	98
North Dakota	No	No	10
Nebraska			25
New Hampshire	No	No	13
New Jersey			71
New Mexico	Yes	No	33
Nevada	No	No	25
New York	Yes	Yes	180
Ohio	No	Yes	145
Oklahoma	Yes	Yes	84
Oregon	Yes	Yes	35
Pennsylvania	Yes	Yes	175
Puerto Rico			4
Rhode Island	No	No	10
South Carolina	Yes	Yes	62
South Dakota	No	Yes	22
Tennessee	Yes	Yes	111
Texas	No	No	372
Utah			35
Virginia	Yes	Yes	80

Virgin Islands			2
Vermont	Yes	Yes	6
Washington	Yes	Yes	57
Wisconsin	No	Yes	73
West Virginia	Yes	No	29
Wyoming	No	No	13
All US			**3,716**

Footnotes for Tables 1a-1f:

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

2. Data included in this table are from 2018 from acute care facility ICUs (critical care units), NICUs (CLABSI only, see footnote 7), and ward plus (for this report wards also include step-down, mixed acuity and specialty care areas [hematology/oncology, bone marrow transplant]). Long-term acute care facilities and locations, inpatient rehabilitation facilities and locations, dialysis facilities and locations, and long term care facilities (skilled nursing facilities) are not included in Table 1.

3. Yes indicates that a legislative or regulatory requirement ("state mandate") for acute care 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, a blank field indicates data not available.

4. Yes indicates that the state health department reported the completion of all of the following validation activities for NHSN data during that year: state health department had access to NHSN data, state health department performed an assessment of missing or implausible values on at least six months of the year's data prior to the freeze date of June 1, 2019 for 2018 data, and state health department contacted identified facilities. YesA indicates that the state also conducted an audit of facility medical or laboratory records prior to June 1, 2019 for 2018 data to confirm proper case ascertainment (although intensity of auditing activities varies by state). 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

6. NICU locations included are those classified by NHSN CDC location codes as Level II/III and Level III neonatal critical care areas. A Level II/III neonatal critical care area is defined by NHSN as a combined nursery housing both Level II and III newborns and infants. A Level III neonatal critical care area is defined by NHSN as a hospital NICU organized with personnel and equipment to provide continuous life support and comprehensive care for extremely high-risk newborn infants and those with complex and critical illness.

7. SSIs included are those classified as deep incisional or organ/space infections following inpatient procedures within colon and abdominal hysterectomy surgeries, detected during the same admission as the surgical procedure or upon readmission to the same facility. This is the crude number of procedures with no considerations to the universal exclusion criteria.

8. 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 Acute Care Hospitals Reporting[1]	Total Patient Days
CLABSI, all[4]	3,586	131,213,954
ICUs[5]	3,093	18,804,934
Wards[6]	3,547	106,246,046
NICUs[7]	1,009	6,162,974
CAUTI, all[8]	3,668	129,728,446
	3,101	18,838,520
	3,635	110,889,926
VAE, all[8]	2,050	13,793,598
	2,005	10,821,936
	355	2,971,662

1. The number of reporting facilities included in the SIR calculation. Due to SIR exclusion criteria, this may be differ
2. Percent of facilities with at least one predicted infection (event) that had an SIR significantly greater than or less
3. Facility-specific percentiles are only calculated if at least 20 facilities had ≥1.0 predicted HAI in 2018. If a facility's
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 VAE, pediatric locatior
6. Data from all wards (for this table wards also include step-down and specialty care areas [including hematology/
7. Data from all NICU locations, including Level II/III and Level III nurseries. Both umbilical line and central line-ass
8. Data from all ICUs and wards (and other non-critical care locations). This excludes NICUs. For VAE, pediatric lo
   IVAC-plus includes those events identified as infection-related ventilator-associated condition (IVAC) and possib

NOTE: Risk factors used in the calculation of the number of predicted device-associated infections are listed in App

Total Device Days	No. of Infections (Events)			95% CI for SIR	
	Observed	Predicted	SIR	Lower	Upper
25,969,931	19,188	25,955.010	0.739	0.729	0.750
8,651,829	7,194	9,347.110	0.770	0.752	0.788
15,991,301	10,707	14,769.020	0.725	0.711	0.739
1,326,801	1,287	1,838.870	0.700	0.662	0.739
24,334,827	22,015	27,216.774	0.809	0.798	0.820
9,700,864	9,957	13,055.898	0.763	0.748	0.778
14,633,963	12,058	14,160.876	0.852	0.836	0.867
3,697,978	24,223	25,583.728	0.947	0.935	0.959
3,487,104	23,456	24,717.377	0.949	0.937	0.961
210,874	767	866.351	0.885	0.824	0.950

ent from the numbers shown in Table 1. These tables contain data from acute care ho
than the nominal value of the national SIR for the given HAI type. This is only calculat
s predicted number of HAIs was <1.0, a facility-specific SIR was neither calculated nor

ns are excluded from SIR since pediatric and neonatal locations are excluded from VAI
oncology, bone marrow transplant]). For VAE, pediatric locations are excluded from SI
ociated bloodstream infections are considered CLABSIs.
ocations are excluded from SIR since pediatric and neonatal locations are excluded fro
le ventilator-associated pneumonia (pVAP). IVAC-plus events are a subset of the total

pendix A.

Table 2a. National standardized infection ratios (SIRs) and facility-specific summary SIRs using HA
Central line-associated bloodstream infections (CLABSIs), catheter-associated urinary tract infecti

	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**		
2,330	196	8%	196	8%	0.000
1,670	101	6%	71	4%	0.000
1,979	146	7%	107	5%	0.000
443	18	4%	12	3%	0.000
2,538	223	9%	225	9%	0.000
1,916	140	7%	94	5%	0.000
2,191	148	7%	136	6%	0.000
1,556	312	20%	368	24%	0.000
1,537	307	20%	360	23%	0.000
170	27	16%	26	15%	0.000

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

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

m VAE surveillance. Total VAE includes IVAC-plus events.
VAE, meaning the IVAC-plus events are included in the total VAE SIR as well.

ıl data reported to NHSN during 2018 by facility type, HAI, and patient population:
ons (CAUTIs) and ventilator-associated events (VAE)

						Percentile Distribution of Facility-speci			
								Median	
10%	15%	20%	25%	30%	35%	40%	45%	50%	55%
0.000	0.095	0.243	0.316	0.390	0.450	0.521	0.581	0.642	0.701
0.000	0.000	0.000	0.245	0.339	0.438	0.512	0.581	0.644	0.721
0.000	0.000	0.158	0.265	0.341	0.405	0.475	0.543	0.609	0.667
0.000	0.000	0.000	0.000	0.226	0.311	0.421	0.501	0.571	0.657
0.000	0.218	0.307	0.401	0.478	0.548	0.608	0.670	0.730	0.794
0.000	0.000	0.164	0.318	0.412	0.479	0.541	0.608	0.669	0.734
0.000	0.149	0.283	0.364	0.454	0.535	0.602	0.665	0.735	0.810
0.000	0.000	0.000	0.134	0.265	0.431	0.542	0.688	0.801	0.926
0.000	0.000	0.000	0.139	0.266	0.432	0.547	0.695	0.799	0.928
0.000	0.000	0.000	0.000	0.000	0.152	0.283	0.375	0.508	0.651

fic SIRs[3]

60%	65%	70%	75%	80%	85%	90%	95%
0.767	0.839	0.910	1.005	1.130	1.262	1.504	1.864
0.807	0.893	0.968	1.065	1.239	1.430	1.669	2.107
0.744	0.812	0.880	0.986	1.117	1.265	1.474	1.907
0.725	0.804	0.890	0.992	1.139	1.267	1.480	1.699
0.863	0.933	1.008	1.098	1.216	1.368	1.574	1.941
0.811	0.901	0.995	1.093	1.228	1.392	1.630	2.050
0.891	0.972	1.067	1.199	1.327	1.473	1.691	2.025
1.027	1.172	1.314	1.452	1.628	1.880	2.136	2.709
1.027	1.182	1.300	1.445	1.632	1.871	2.152	2.699
0.750	0.934	1.191	1.373	1.644	1.838	2.221	2.905

HAI and Patient Population	Reporting	
	No. of Acute Care Hospitals Reporting[1]	Total Admissions[2]
Laboratory-identified MRSA bacteremia, facility-wide	3,670	36,801,464
Laboratory-identified *C. difficile,* facility-wide	3,669	33,496,433

1. The number of reporting facilities included in the SIR calculation. Due to SIR exclusion criteria, this ma
2. Total inpatient admissions reported from all inpatient locations, excluding counts from CMS-certified re
3. Total patient days reported from all inpatient units, excluding counts from CMS-certified rehabilitation a
4. Community-onset events are defined as those that were identified in an inpatient location on the first, s
5. Hospital-onset events are defined as those that were identified in an inpatient location on the 4th day (
6. Calculated from a negative binomial regression model. Risk factors used in the calculation of the numl
7. Percent of facilities with at least one predicted event that had an SIR significantly greater than or less t
8. Percentile distribution of facility-specific SIRs. This is only calculated if at least 20 facilities had ≥1.0 pr

Table 2b. National standardized infection ratios (SIR
Laboratory-identified methicillin-resistant *Staphylococcu*

Hospitals		Standardized Infection Ratio Data			95% CI
Total Patient Days[3]	Inpatient Community-onset events[4]	Hospital-onset events[5]	Predicted Hospital-onset events[6]	SIR	Lower
157,277,965	21,233	8,222	9,783.465	0.840	0.822
144,370,561	96,623	69,648	97,962.238	0.711	0.706

ay be different from the numbers shown in Table 1.
ehabilitation and psychiatric locations. Admissions for *C.difficile* further excludes counts from NICUs and w
and psychiatric locations. Patient days for *C.difficile* further excludes counts from NICUs and well-baby uni
second, or third day of a patient's admission to the facility. For *C.difficile*, this excluded events in which the
(or later) after admission to the facility.
ber of predicted events are listed in Appendix B.
than the nominal value of the national SIR for the given HAI type. This is only calculated if at least 10 facil
edicted HAI in 2018. If a facility's predicted number of events was <1.0, a facility-specific SIR was neither

Rs) and facility-specific SIR distributions using HAI data reported to NHSN during 2018:
***us aureus* (MRSA) bacteremia and *Clostridioides difficile* (*C.difficile*) in Acute Care Hospitals**

for SIR	Facility SIRs Compared to National SIR					
	No. Facilities with ≥1 Predicted Event	No. Facilities with SIR Significantly > National SIR		No. Facilities with SIR Significantly < National SIR		5%
Upper		N	%[7]	N		
0.859	1,905	115	6%	62	3%	0.000
0.716	3,205	372	12%	475	15%	0.000

ell-baby units.
its.
patient was recently discharged from the reporting facility in the previous 4 weeks.

ities had ≥ 1.0 predicted HAI in 2018.
calculated nor included in the distribution of facility-specific SIRs.

Percentile Distribution of Facility-spe

10%	15%	20%	25%	30%	35%	40%	45%	50%	55%
0.000	0.000	0.238	0.362	0.438	0.529	0.607	0.682	0.741	0.811
0.162	0.265	0.340	0.401	0.458	0.512	0.557	0.602	0.641	0.684

ecific SIRs[8]

60%	65%	70%	75%	80%	85%	90%	95%
0.883	0.962	1.063	1.189	1.304	1.474	1.696	2.160
0.731	0.787	0.837	0.894	0.967	1.051	1.170	1.379

Surgical Procedure	No. of Acute Care Hospitals Reporting [2]	No. of Procedures
US, all NHSN procedures	3,345	2,808,659
US, SCIP procedures only[5]	3,322	1,786,276
AAA Abdominal aortic aneurysm repair[5]	240	1,289
AMP Limb amputation	171	10,495
APPY Appendix surgery	431	38,641
AVSD Shunt for dialysis	103	1,745
BILI Bile duct, liver or pancreatic surgery	325	12,304
BRST Breast surgery	257	19,656
CARD Cardiac surgery[5]	405	45,766
CABG- Coronary artery bypass graft[5,6]	749	125,865
CEA Carotid endarterectomy	275	9,909
CHOL Gallbladder surgery	444	66,062
COLO Colon surgery[5]	3,129	322,125
CRAN Craniotomy	200	37,699
CSEC Cesarean section	514	257,188
FUSN Spinal fusion	714	181,795
FX Open reduction of fracture	433	54,929
GAST Gastric surgery	410	34,597
HER Herniorrhaphy	246	19,257
HPRO Hip arthroplasty[5]	2,186	403,624
HTP Heart transplant	33	915
HYST Abdominal hysterectomy[5]	2,943	293,503
KPRO Knee arthroplasty[5]	2,111	553,112
KTP Kidney transplant	49	5,001
LAM Laminectomy	614	70,031
LTP Liver transplant	30	1,877
NECK Neck surgery	78	2,234
NEPH Kidney surgery	275	10,773
OVRY Ovarian surgery	367	26,042
PACE Pacemaker surgery	320	24,463
PRST Prostate surgery	102	4,199
PVBY Peripheral vascular bypass surgery[5]	305	9,392
REC Rectal surgery[5]	341	7,890
SB Small bowel surgery	424	37,455
SPLE Spleen surgery	244	2,576
THOR Thoracic surgery	343	27,440
THYR Thyroid and/or parathyroid surgery	127	4,253
VHYS Vaginal hysterectomy[5]	708	23,710
VSHN Ventricular shunt	123	5,698
XLAP Abdominal surgery	429	55,149

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

No. of Infections			95% CI for SIR			Facility-
Observed	Predicted[3]	SIR	Lower	Upper	No. Hosp with ≥1 Predicted Infection	No. Hosp Significantly > N
21,265	22,294.571	0.954	0.941	0.967	2,443	197
15,291	16,395.033	0.933	0.918	0.948	2,379	181
8	8.765	0.913	0.424	1.733	0	.
76	55.159	1.378	1.093	1.715	23	2
128	150.162	0.852	0.714	1.010	31	.
3	4.537	0.661	0.168	1.800	0	.
416	367.045	1.133	1.028	1.246	67	6
195	203.961	0.956	0.829	1.098	67	5
143	183.048	0.781	0.661	0.917	56	2
860	964.518	0.892	0.834	0.953	335	12
17	8.754	1.942	1.169	3.046	0	.
261	253.390	1.030	0.911	1.161	87	1
7,323	8,255.389	0.887	0.867	0.908	1,800	120
449	410.974	1.093	0.995	1.197	97	8
511	457.689	1.116	1.023	1.216	137	15
1,416	1,366.836	1.036	0.983	1.091	342	27
447	401.422	1.114	1.014	1.220	115	8
153	232.415	0.658	0.560	0.769	71	3
149	155.220	0.960	0.815	1.124	44	2
2,630	2,587.894	1.016	0.978	1.056	806	47
16	9.269	1.726	1.022	2.744	3	.
1,829	1,950.352	0.938	0.896	0.982	596	32
2,090	1,980.484	1.055	1.011	1.101	673	48
50	30.641	1.632	1.224	2.134	13	2
281	254.177	1.106	0.982	1.241	59	2
66	91.282	0.723	0.564	0.914	21	1
59	53.522	1.102	0.847	1.412	12	2
32	35.551	0.900	0.626	1.255	3	.
22	18.425	1.194	0.767	1.778	0	.
65	43.306	1.501	1.168	1.901	3	.
24	10.917	2.198	1.441	3.221	0	.
226	191.178	1.182	1.035	1.344	65	5
62	142.345	0.436	0.337	0.555	34	1
603	760.577	0.793	0.731	0.858	185	12
14	15.502	0.903	0.514	1.479	0	.
77	103.561	0.744	0.591	0.924	24	1
4	3.402	1.176	0.374	2.836	0	.
120	131.060	0.916	0.762	1.091	17	.
81	81.614	0.992	0.793	1.227	20	2
359	320.227	1.121	1.010	1.242	103	10

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

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

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

SIRs using adult surgical site infection (SSI) data[1] reported to NHSN from NHSN Acute Care Hospi

-specific SIRs) with SIR > National SIR %[4]	No. Hosp with SIR Significantly < National SIR N		5%	10%	15%	20%	25%
8%	190	8%	0.000	0.000	0.203	0.364	0.473
8%	139	6%	0.000	0.000	0.205	0.352	0.459
.	.	.	.	.	.	.	.
9%	.	.	0.000	0.000	0.000	0.000	0.000
.	.	.	0.000	0.000	0.000	0.000	0.000
.	.	.	.	.	.	.	.
9%	3	4%	0.000	0.000	0.000	0.365	0.427
7%	2	3%	0.000	0.000	0.000	0.000	0.000
4%			0.000	0.000	0.000	0.000	0.000
4%	5	1%	0.000	0.000	0.000	0.000	0.207
.	.	.	.	.	.	.	.
1%			0.000	0.000	0.000	0.000	0.000
7%	64	4%	0.000	0.000	0.000	0.246	0.361
8%	6	6%	0.000	0.000	0.000	0.220	0.527
11%	6	4%	0.000	0.000	0.000	0.000	0.310
8%	14	4%	0.000	0.000	0.000	0.181	0.391
7%	.	.	0.000	0.000	0.000	0.320	0.410
4%	.	.	0.000	0.000	0.000	0.000	0.000
5%	.	.	0.000	0.000	0.000	0.000	0.000
6%	21	3%	0.000	0.000	0.000	0.000	0.352
.	.	.	.	.	.	.	.
5%	9	2%	0.000	0.000	0.000	0.000	0.067
7%	15	2%	0.000	0.000	0.000	0.000	0.280
15%	1	8%	.	.	.	.	.
3%	1	2%	0.000	0.000	0.000	0.000	0.000
5%	.	.	0.000	0.000	0.000	0.170	0.197
17%	.	.	.	.	.	.	.
.	.	.	.	.	.	.	.
.	.	.	.	.	.	.	.
.	.	.	.	.	.	.	.
.	.	.	.	.	.	.	.
8%	2	3%	0.000	0.000	0.000	0.000	0.000
3%			0.000	0.000	0.000	0.000	0.000
6%	14	8%	0.000	0.000	0.000	0.000	0.000
.	.	.	.	.	.	.	.
4%	.	.	0.000	0.000	0.000	0.000	0.000
.	.	.	.	.	.	.	.
.	.	.	.	.	.	.	.
10%	1	5%	0.000	0.000	0.000	0.000	0.082
10%	2	2%	0.000	0.000	0.000	0.000	0.000

ıg the same admission as the surgical procedure or upon readmission to the same facility.
ıt exclusion criteria.

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

ed in the distribution of facility-specific SIRs.

tals during 2018 by surgical procedure.

Percentile Distribution of Facility-specific SIRs[7]									
				Median					
30%	35%	40%	45%	50%	55%	60%	65%	70%	75%
0.553	0.633	0.713	0.784	0.861	0.931	1.005	1.077	1.171	1.273
0.536	0.611	0.690	0.769	0.839	0.918	0.992	1.072	1.161	1.275
.	.	.	.	.	.	.	.	.	.
0.000	0.000	0.000	0.446	0.524	0.829	0.858	0.990	1.357	1.497
0.000	0.000	0.000	0.000	0.547	0.615	0.641	0.827	0.933	1.110
.	.	.	.	.	.	.	.	.	.
0.548	0.596	0.787	0.898	0.987	1.053	1.118	1.225	1.274	1.476
0.380	0.456	0.556	0.675	0.725	0.921	0.974	1.048	1.295	1.373
0.000	0.000	0.447	0.566	0.655	0.719	0.798	0.885	0.929	1.107
0.387	0.490	0.568	0.662	0.739	0.796	0.866	0.955	1.070	1.222
.	.	.	.	.	.	.	.	.	.
0.448	0.500	0.569	0.662	0.710	0.745	0.860	0.921	0.962	1.327
0.454	0.540	0.616	0.690	0.774	0.858	0.953	1.045	1.152	1.262
0.605	0.720	0.770	0.910	0.999	1.170	1.347	1.570	1.652	1.803
0.428	0.517	0.609	0.695	0.773	0.907	0.981	1.088	1.231	1.589
0.522	0.598	0.704	0.802	0.907	0.977	1.087	1.200	1.332	1.473
0.514	0.617	0.659	0.725	0.754	0.875	0.973	1.144	1.344	1.660
0.000	0.000	0.420	0.483	0.577	0.646	0.664	0.727	0.827	0.950
0.378	0.461	0.525	0.595	0.630	0.697	0.725	0.753	0.766	0.938
0.497	0.585	0.667	0.742	0.833	0.929	1.009	1.162	1.358	1.515
.	.	.	.	.	.	.	.	.	.
0.412	0.513	0.608	0.689	0.773	0.844	0.950	1.050	1.193	1.391
0.437	0.547	0.654	0.738	0.834	0.920	1.014	1.226	1.375	1.526
.	.	.	.	.	.	.	.	.	.
0.361	0.425	0.483	0.544	0.652	0.825	0.916	0.931	1.098	1.247
0.347	0.399	0.510	0.534	0.534	0.652	0.846	0.898	0.936	0.967
.	.	.	.	.	.	.	.	.	.
.	.	.	.	.	.	.	.	.	.
.	.	.	.	.	.	.	.	.	.
.	.	.	.	.	.	.	.	.	.
.	.	.	.	.	.	.	.	.	.
0.000	0.525	0.697	0.853	0.968	1.242	1.448	1.605	1.718	1.910
0.000	0.000	0.000	0.000	0.000	0.000	0.294	0.579	0.618	0.724
0.296	0.383	0.484	0.552	0.700	0.749	0.853	0.963	1.025	1.227
.	.	.	.	.	.	.	.	.	.
0.000	0.000	0.000	0.362	0.426	0.494	0.525	0.560	0.632	0.962
.	.	.	.	.	.	.	.	.	.
.	.	.	.	.	.	.	.	.	.
0.254	0.353	0.387	0.556	0.720	0.750	0.811	0.927	1.059	1.395
0.000	0.000	0.472	0.507	0.625	0.813	0.948	1.021	1.418	1.660

80%	85%	90%	95%
1.395	1.549	1.781	2.245
1.406	1.582	1.837	2.280
.	.	.	.
1.941	2.326	2.609	3.894
1.174	1.547	1.632	1.808
.	.	.	.
1.540	1.920	2.131	2.903
1.478	1.550	2.065	2.522
1.153	1.582	2.011	2.411
1.383	1.591	1.906	2.326
.	.	.	.
1.469	1.631	2.057	2.426
1.405	1.574	1.793	2.222
1.935	2.108	2.656	2.872
1.912	2.149	2.665	3.755
1.685	1.864	2.182	2.866
1.851	1.966	2.213	2.711
1.135	1.332	1.762	2.001
1.355	1.527	1.800	2.521
1.703	1.892	2.258	2.826
.	.	.	.
1.616	1.825	2.068	2.794
1.794	2.071	2.512	3.061
.	.	.	.
1.478	1.770	1.885	2.800
1.176	1.248	1.544	1.652
.	.	.	.
.	.	.	.
.	.	.	.
.	.	.	.
.	.	.	.
2.073	2.347	2.917	3.384
0.789	0.803	0.940	1.866
1.382	1.707	1.862	2.317
.	.	.	.
1.528	1.662	1.870	2.224
.	.	.	.
.	.	.	.
1.710	1.921	2.229	3.180
1.833	2.304	2.832	3.389

Surgical Procedure	No. of Acute Care Hospitals Reporting[2]	No. of Procedures
US, all NHSN procedures	1,245	56,373
	825	13,971
	0	.
AMP Limb amputation	0	.
APPY Appendix surgery	345	13,089
AVSD Shunt for dialysis	0	.
BILI Bile duct, liver or pancreatic surgery	60	357
BRST Breast surgery	0	.
	86	6,729
	0	.
CEA Carotid endarterectomy	0	.
CHOL Gallbladder surgery	196	1,220
COLO Colon surgery[5]	673	6,434
CRAN Craniotomy (**ALL AGE**)	95	2,816
CSEC Cesarean section	361	1,559
FUSN Spinal fusion (**AGE >=2**)	231	6,045
FX Open reduction of fracture	246	3,703
GAST Gastric surgery	0	.
HER Herniorrhaphy	59	1,095
	135	263
HTP Heart transplant	0	.
	92	101
	90	127
KTP Kidney transplant	19	143
LAM Laminectomy	129	1,779
LTP Liver transplant	11	138
NECK Neck surgery	0	.
NEPH Kidney surgery	0	.
OVRY Ovarian surgery	0	.
PACE Pacemaker surgery	0	.
PRST Prostate surgery	0	.
	0	.
	52	317
SB Small bowel surgery	107	1,594
SPLE Spleen surgery	0	.
THOR Thoracic surgery	107	1,428
THYR Thyroid and/or parathyroid surgery	0	.
	0	.
VSHN Ventricular shunt	68	4,865
XLAP Abdominal surgery	176	2,571

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 2

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

No. of Infections			95% CI for SIR			Facility-
Observed		SIR	Lower	Upper	No. Hosp with ≥1 Predicted Infection	No. Hosp Significantly > N
511	558.631	0.915	0.838	0.997	102	8
188	215.942	0.871	0.753	1.002	51	1
.	.	.	.	.	.	.
.	.	.	.	.	.	.
39	45.224	0.862	0.622	1.167	8	.
.	.	.	.	.	.	.
3	5.972	0.502	0.128	1.367	0	.
.	.	.	.	.	.	.
57	64.881	0.879	0.672	1.130	21	1
.	.	.	.	.	.	.
.	.	.	.	.	.	.
0	0.854				0	.
127	145.740	0.871	0.729	1.033	33	1
28	42.155	0.664	0.450	0.947	13	2
12	3.499	3.430	1.858	5.831	0	.
74	66.469	1.113	0.880	1.390	18	3
9	12.722	0.707	0.345	1.298	0	.
.	.	.	.	.	.	.
0	1.533	0.000	.	1.954	0	.
0	1.078	0.000	.	2.778	0	.
.	.	.	.	.	.	.
0	1.939	0.000	.	1.545	0	.
3	1.384	2.167	0.551	5.898	0	.
0	1.158	0.000		2.586	0	.
5	11.386	0.439	0.161	0.973	1	.
7	9.522	0.735	0.322	1.454	4	.
.	.	.	.	.	.	.
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.	.	.	.	.	.	.
.	.	.	.	.	.	.
.	.	.	.	.	.	.
.	.	.	.	.	.	.
1	0.919				0	.
19	17.395	1.092	0.677	1.674	3	.
.	.	.	.	.	.	.
5	1.949	2.566	0.940	5.687	0	.
.	.	.	.	.	.	.
.	.	.	.	.	.	.
109	110.897	0.983	0.811	1.181	41	3
13	11.955	1.087	0.605	1.813	0	.

t procedures in pediatric patients less than 18 years that occurred in 2018 with a primary or other than prima
s may be different from the numbers shown in Table 1. Refer to the Technical Appendix for information abou
n 2018.

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

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

Rs using pediatric surgical site infection (SSI) data[1] reported to NHSN from NHSN Acute Care Hos

specific SIRs with SIR > National SIR	No. Hosp with SIR Significantly < National SIR N		5%	10%	15%	20%	25%
8%	4	4%	0.000	0.000	0.000	0.342	0.484
2%	0	0%	0.000	0.000	0.000	0.000	0.000
.	.	.	.	.	.	.	.
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.	.	.	.	.	.	.	.
.	.	.	.	.	.	.	.
.	.	.	.	.	.	.	.
.	.	.	.	.	.	.	.
5%			0.000	0.000	0.000	0.000	0.321
.	.	.	.	.	.	.	.
.	.	.	.	.	.	.	.
.	.	.	.	.	.	.	.
3%	0	0%	0.000	0.000	0.000	0.000	0.000
15%	1	8%	.	.	.	.	.
.	.	.	.	.	.	.	.
17%	0	0%	.	.	.	.	.
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7%	1	2%	0.000	0.000	0.000	0.000	0.261
.	.	.	.	.	.	.	.

ry skin closure technique, detected during the same admission as the surgical procedure or upon readmis
ut exclusion criteria. SIRs and accompanying

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

ed in the distribution of facility-specific SIRs.

pitals during 2018 by surgical procedure.

				Median					
30%	35%	40%	45%	50%	55%	60%	65%	70%	75%
0.563	0.633	0.688	0.763	0.852	0.924	0.998	1.133	1.242	1.342
0.481	0.494	0.619	0.652	0.772	0.887	1.051	1.137	1.194	1.308
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0.338	0.596	0.745	0.759	0.783	0.869	0.894	1.012	1.119	1.391
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.	.	.	.	.	.	.	.	.	.
.	.	.	.	.	.	.	.	.	.
0.000	0.491	0.696	0.733	0.816	0.887	0.900	0.998	1.051	1.116
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0.534	0.545	0.637	0.828	0.886	0.955	1.009	1.047	1.236	1.463
.	.	.	.	.	.	.	.	.	.

ssion to the same facility.

80%	85%	90%	95%
1.479	1.605	2.278	2.888
1.440	1.585	1.900	2.772
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1.440	1.604	1.834	1.930
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1.243	1.405	1.514	1.717
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1.603	1.837	2.383	3.042
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Table 3. State-specific standardized infection ratios (SIRs) and facility-specific SIR summary measures,
NHSN Acute Care Hospitals reporting during 2018
3a. Central line-associated bloodstream infections (CLABSI), all locations[1]

				No. of Infections			95% CI for SIR		Facility-specific SIRs			Facility-specific SIRs at Key Percentiles[6]				
State	State NHSN Mandate[2]	Any Validation[3]	No. of Acute Care Hospitals Reporting[4]	Observed	Predicted	SIR	Lower	Upper	No. of hosp with at least 1 predicted CLABSI	% of hosp with SIR sig higher than national SIR[5]	% of hosp with SIR sig lower than national SIR[5]	10%	25%	Median (50%)	75%	90%
Alaska	Yes	Yes	10	23	33.120	0.694	0.451	1.025	4	.	.	.	.	.	.	.
Alabama	Yes		82	366	469.520	0.780	0.703	0.863	37	14%	5%	0.000	0.295	0.702	1.096	1.531
Arkansas	Yes	No	50	162	255.380	0.634	0.542	0.738	23	13%	17%	0.000	0.237	0.548	1.241	1.460
Arizona	No	No	65	335	515.370	0.650	0.583	0.722	44	2%	14%	0.000	0.086	0.488	0.799	1.074
California	Yes	Yes	341	2,091	2,636.740	0.793	0.760	0.828	269	13%	7%	0.000	0.349	0.712	1.132	1.630
Colorado	Yes	Yes	54	207	347.050	0.596	0.519	0.682	31	0%	10%	0.114	0.305	0.649	0.991	1.467
Connecticut	Yes	Yes	31	208	245.780	0.846	0.737	0.967	22	14%	5%	0.049	0.286	0.614	0.889	1.289
D.C.	Yes	No	8	117	162.670	0.719	0.598	0.859	8	.	.	.	.	.	.	.
Delaware			8	62	95.530	0.649	0.502	0.827	8	.	.	.	.	.	.	.
Florida	No	Yes	208	1,437	1,919.540	0.749	0.711	0.788	180	9%	9%	0.000	0.306	0.688	1.079	1.520
Georgia	Yes	Yes	105	640	828.980	0.772	0.714	0.834	63	6%	5%	0.126	0.395	0.757	1.088	1.537
Guam			2	.	.	.	.	.	.	.	.	.	.	.	.	.
Hawaii	Yes	Yes	16	40	118.830	0.337	0.244	0.454	14	0%	29%	.	.	.	.	.
Iowa	No	No	38	170	202.840	0.838	0.719	0.971	21	5%	0%	0.000	0.342	0.618	0.897	1.042
Idaho	No	No	15	34	70.430	0.483	0.340	0.667	9	.	.	.	.	.	.	.
Illinois	Yes	Yes	135	621	966.360	0.643	0.594	0.695	99	4%	10%	0.000	0.204	0.555	0.791	1.185
Indiana	Yes	Yes	87	380	559.670	0.679	0.613	0.750	59	2%	2%	0.000	0.209	0.586	0.904	1.287
Kansas	No	Yes	52	150	203.190	0.738	0.627	0.864	24	4%	0%	0.000	0.000	0.627	0.954	1.140
Kentucky	Yes	No	70	285	440.900	0.646	0.575	0.725	41	7%	15%	0.008	0.373	0.602	0.831	1.514
Louisiana	No	Yesa	94	315	430.420	0.732	0.654	0.816	45	9%	11%	0.000	0.291	0.582	0.966	1.628
Massachusetts	Yes	Yes	68	518	598.270	0.866	0.794	0.943	46	13%	2%	0.000	0.411	0.742	1.169	1.325
Maryland	Yes	Yes	49	367	461.240	0.796	0.717	0.880	42	14%	10%	0.000	0.326	0.681	0.960	2.183
Maine	Yes	No	17	51	69.980	0.729	0.548	0.951	8	.	.	.	.	.	.	.
Michigan	No	No	96	480	708.010	0.678	0.619	0.741	60	7%	10%	0.085	0.410	0.669	1.056	1.345
Minnesota	Yes	Yes	53	289	377.200	0.766	0.682	0.858	22	9%	9%	0.021	0.322	0.576	0.824	0.985
Missouri			78	562	680.810	0.825	0.759	0.896	47	13%	9%	0.000	0.365	0.720	1.118	1.578
Mississippi	Yes	Yes	52	212	245.500	0.864	0.753	0.986	26	15%	4%	0.000	0.467	0.879	1.378	2.269
Montana	No	No	13	23	33.830	0.680	0.441	1.004	9	.	.	.	.	.	.	.
North Carolina	Yes	Yes	96	699	777.630	0.899	0.834	0.967	57	14%	5%	0.000	0.362	0.698	1.174	1.847
North Dakota	No	No	8	46	70.750	0.650	0.482	0.860	7	.	.	.	.	.	.	.
Nebraska			26	100	162.250	0.616	0.504	0.746	17	6%	0%	.	.	.	.	.
New Hampshire	Yes	No	13	44	75.180	0.585	0.430	0.779	12	0%	0%	.	.	.	.	.
New Jersey			71	444	613.650	0.724	0.659	0.793	61	8%	13%	0.000	0.334	0.621	1.013	1.420
New Mexico	Yes	No	28	41	102.890	0.398	0.290	0.535	13	0%	15%	.	.	.	.	.
Nevada	Yes	No	27	255	276.340	0.923	0.815	1.041	20	25%	5%	0.000	0.417	0.768	1.445	1.646
New York	Yes	Yesa	171	1,386	1,719.360	0.806	0.765	0.849	133	11%	8%	0.094	0.404	0.704	1.146	1.788
Ohio	No	Yes	140	819	1,150.280	0.712	0.664	0.762	100	3%	12%	0.000	0.185	0.541	0.906	1.296
Oklahoma	Yes	Yes	78	269	378.270	0.711	0.630	0.800	32	6%	6%	0.000	0.000	0.519	0.871	1.144
Oregon	Yes	Yes	35	113	216.080	0.523	0.433	0.626	22	0%	18%	0.000	0.047	0.511	0.707	0.897
Pennsylvania	Yes	Yes	165	979	1,331.470	0.735	0.690	0.782	113	5%	11%	0.000	0.225	0.542	0.862	1.200
Puerto Rico			13	97	55.470	1.749	1.426	2.124	10	30%	0%	.	.	.	.	.
Rhode Island	No	Yes	10	62	80.860	0.767	0.593	0.976	9	.	.	.	.	.	.	.
South Carolina	Yes	Yes	60	305	377.960	0.807	0.720	0.901	29	10%	3%	0.384	0.587	0.755	1.004	1.691
South Dakota	No	Yes	16	39	56.780	0.687	0.495	0.930	4	.	.	.	.	.	.	.
Tennessee	Yes	Yesa	105	498	736.110	0.677	0.619	0.738	54	4%	11%	0.000	0.336	0.644	1.032	1.279
Texas	No	No	337	1,672	2,168.060	0.771	0.735	0.809	198	10%	6%	0.000	0.353	0.721	1.039	1.558
Utah			33	90	145.050	0.620	0.502	0.759	13	0%	8%	.	.	.	.	.
Virginia	Yes	Yes	81	355	572.490	0.620	0.558	0.687	51	8%	14%	0.000	0.263	0.638	0.884	1.396
Virgin Islands			2	.	.	.	.	.	.	.	.	.	.	.	.	.
Vermont	Yes	Yes	6	19	25.220	0.753	0.467	1.155	2	.	.	.	.	.	.	.
Washington	Yes	Yes	58	285	532.830	0.535	0.475	0.600	45	4%	18%	0.000	0.091	0.467	0.847	0.948
Wisconsin	No	Yes	71	247	409.310	0.603	0.532	0.682	45	0%	4%	0.000	0.296	0.522	0.733	0.995
West Virginia	Yes	No	28	164	226.530	0.724	0.619	0.841	18	6%	11%	.	.	.	.	.
Wyoming	No	No	11	1	11.550	0.087	0.004	0.427	2	.	.	.	.	.	.	.
All US			**3,586**	**19,188**	**25,955.010**	**0.739**	**0.729**	**0.750**	**2,328**	**8%**	**8%**	**0.000**	**0.316**	**0.642**	**1.005**	**1.504**

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 acute care hospitals; as such, they exclude data from LTACHs, IRFs, and CAHs.
2. Yes indicates the presence of a state mandate to report CLABSI data from any location to NHSN at the beginning of 2018. M indicates midyear implementation of a mandate.
   No indicates that a state mandate did not exist during 2018. A blank field indicates data not available.
3. Yes indicates that the state health department reported the completion of all of the following validation activities: state health department had access to 2018 NHSN data, state health department performed an assessment of missing or implausible values on at least six months of 2018 NHSN data prior to June 1, 2019, and state health department contacted identified facilities.
   YesA indicates that the state also conducted an audit of facility medical or laboratory records prior to June 1, 2019 to confirm proper case ascertainment (although intensity of auditing activities varies by state). Information on validation efforts was requested from all states, regardless of the presence of a legislative mandate for the particular HAI type. Some states without mandatory reporting of a given HAI to the state health department have performed validation on NHSN data that is voluntarily shared with them by facilities in their jurisdiction.
4. The number of reporting facilities included in the SIR calculation. SIRs and accompanying statistics are only calculated for states in which at least 5 facilities reported CLABSI data in 2018.
5. Percent of facilities with at least one predicted CLABSI that had an SIR significantly greater or less than the nominal value of the 2018 national overall CLABSI SIR of 0.739. This is only calculated if at least 10 facilities had ≥ 1.0 predicted CLABSI in 2018.
6. Facility-specific key percentiles were only calculated if at least 20 facilities had ≥1.0 predicted CLABSI in 2018. If a facility's predicted number of CLABSI was <1.0, a facility-specific SIR was neither calculated nor included in the distribution of facility-specific SIRs.

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

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

State		No. of Acute Care 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	Yes	7	6	8.162	0.735	0.298	1.529	3	.	.	.	.	.	.	.
Alabama	Yes	67	114	178.995	0.637	0.528	0.762	29	0%	10%	0.000	0.347	0.577	0.946	1.373
Arkansas	Yes	42	78	92.559	0.843	0.671	1.046	18	11%	0%	.	.	.	.	.
Arizona	No	50	125	189.100	0.661	0.553	0.785	37	8%	8%	0.000	0.000	0.437	0.824	1.653
California	Yes	315	838	932.362	0.899	0.839	0.961	193	10%	2%	0.000	0.370	0.754	1.361	2.037
Colorado	Yes	42	73	105.790	0.690	0.545	0.863	24	0%	4%	0.000	0.000	0.547	0.826	1.445
Connecticut	Yes	27	63	85.020	0.741	0.574	0.942	18	0%	6%	.	.	.	.	.
D.C.	Yes	8	36	53.850	0.669	0.475	0.916	7	.	.	.	.	.	.	.
Delaware		8	17	30.269	0.562	0.338	0.881	5	.	.	.	.	.	.	.
Florida	No	198	549	717.698	0.765	0.703	0.831	137	8%	7%	0.000	0.218	0.630	1.168	1.678
Georgia	Yes	92	245	323.129	0.758	0.668	0.858	52	4%	2%	0.000	0.309	0.720	1.124	1.557
Guam		2	.	.	.	.	.	.	.	.	.	.	.	.	.
Hawaii	Yes	15	13	35.919	0.362	0.201	0.603	9	.	.	.	.	.	.	.
Iowa	No	34	43	65.732	0.654	0.479	0.873	9	.	.	.	.	.	.	.
Idaho	No	12	14	25.323	0.553	0.315	0.906	8	.	.	.	.	.	.	.
Illinois	Yes	125	236	335.953	0.702	0.617	0.797	71	3%	0%	0.000	0.000	0.527	1.009	1.663
Indiana	Yes	71	144	206.825	0.696	0.589	0.817	41	5%	7%	0.000	0.000	0.413	1.059	1.579
Kansas	No	36	48	69.370	0.692	0.516	0.910	12	0%	8%	.	.	.	.	.
Kentucky	Yes	63	115	168.915	0.681	0.565	0.814	27	4%	4%	0.111	0.410	0.588	0.904	1.397
Louisiana	No	71	116	161.081	0.720	0.598	0.861	31	10%	3%	0.000	0.000	0.506	1.055	1.517
Massachusetts	Yes	63	192	212.524	0.903	0.782	1.038	27	11%	0%	0.000	0.186	0.610	1.063	1.445
Maryland	Yes	43	99	141.273	0.701	0.573	0.849	29	3%	0%	0.000	0.000	0.608	0.988	1.443
Maine	Yes	13	20	20.818	0.961	0.603	1.457	4	.	.	.	.	.	.	.
Michigan	No	87	223	300.734	0.742	0.649	0.844	53	2%	6%	0.000	0.434	0.713	1.051	1.454
Minnesota	Yes	39	111	127.607	0.870	0.719	1.043	16	13%	0%	.	.	.	.	.
Missouri		72	206	230.516	0.894	0.778	1.022	36	8%	6%	0.000	0.376	0.886	1.430	2.025
Mississippi	Yes	42	82	83.577	0.981	0.785	1.212	16	13%	0%	.	.	.	.	.
Montana	No	10	9	11.680	0.771	0.376	1.414	5	.	.	.	.	.	.	.
North Carolina	Yes	82	290	282.261	1.027	0.914	1.151	33	12%	0%	0.000	0.686	0.894	1.104	1.532
North Dakota	No	6	22	21.353	1.030	0.662	1.534	6	.	.	.	.	.	.	.
Nebraska		18	32	50.933	0.628	0.437	0.876	9	.	.	.	.	.	.	.
New Hampshire	Yes	13	20	23.201	0.862	0.541	1.308	6	.	.	.	.	.	.	.
New Jersey		71	151	212.542	0.710	0.604	0.831	52	6%	2%	0.000	0.000	0.395	0.946	1.477
New Mexico	Yes	26	16	44.075	0.363	0.215	0.577	9	.	.	.	.	.	.	.
Nevada	Yes	21	110	118.000	0.932	0.770	1.119	17	18%	0%	.	.	.	.	.
New York	Yes	159	405	558.461	0.725	0.657	0.798	95	8%	8%	0.000	0.274	0.619	1.040	2.032
Ohio	No	127	333	449.857	0.740	0.664	0.823	72	3%	7%	0.000	0.155	0.580	1.168	1.556
Oklahoma	Yes	50	96	143.786	0.668	0.544	0.812	21	5%	10%	0.000	0.148	0.579	1.055	1.787
Oregon	Yes	32	30	64.770	0.463	0.318	0.653	13	0%	15%	.	.	.	.	.
Pennsylvania	Yes	144	358	499.007	0.717	0.646	0.795	78	6%	5%	0.000	0.288	0.635	0.942	1.380
Puerto Rico		12	35	17.434	2.008	1.420	2.761	5	.	.	.	.	.	.	.
Rhode Island	No	9	25	26.198	0.954	0.631	1.388	5	.	.	.	.	.	.	.
South Carolina	Yes	54	101	134.596	0.750	0.614	0.908	19	0%	0%	.	.	.	.	.
South Dakota	No	11	11	12.862	0.855	0.450	1.486	3	.	.	.	.	.	.	.
Tennessee	Yes	89	199	268.854	0.740	0.643	0.849	40	3%	5%	0.000	0.300	0.737	0.986	1.251
Texas	No	254	704	837.454	0.841	0.780	0.904	151	7%	2%	0.000	0.316	0.722	1.132	1.581

Utah		28	32	63.744	0.502	0.349	0.700	11	0%	9%	.	.	.	.	.
Virginia	Yes	76	129	193.102	0.668	0.560	0.791	34	3%	6%	0.000	0.236	0.540	0.896	1.257
Virgin Islands		2	.	.	.	.	.	.	.	.	.	.	.	.	.
Vermont	Yes	4	.	.	.	.	.	.	.	.	.	.	.	.	.
Washington	Yes	48	94	167.432	0.561	0.456	0.684	31	0%	16%	0.000	0.000	0.507	0.823	1.050
Wisconsin	No	65	99	141.497	0.700	0.572	0.848	29	0%	0%	0.000	0.096	0.592	0.960	1.371
West Virginia	Yes	28	78	88.906	0.877	0.698	1.089	11	9%	0%	.	.	.	.	.
Wyoming	No	10	1	3.126	0.320	0.016	1.578	1	.	.	.	.	.	.	.
All US		**3,093**	**7,194**	**9,347.110**	**0.770**	**0.752**	**0.788**	**1,668**	**6%**	**4%**	**0.000**	**0.245**	**0.644**	**1.065**	**1.669**

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 acute care hospitals; as such, they exclude data from LTACHs, IRFs, and CAHs.
2. Yes indicates the presence of a state mandate to report CLABSI data from critical care units to NHSN at the beginning of 2018. M indicates midyear implementation of a mandate. No indicates that a state mandate did not exist during 2018. A blank field indicates data not available. Note that almost all acute care hospitals are required to report CLABSI data from ICUs to NHSN for participation in the Centers for Medicare and Medicaid Services' Hospital Inpatient Quality Reporting Program.
3. The number of reporting facilities included in the SIR calculation. SIRs and accompanying statistics are only calculated for states in which at least 5 facilities reported CLABSI data from at least one critical care location in 2018.
4. Percent of facilities with at least one predicted ICU CLABSI that had an SIR significantly greater or less than the nominal value of the 2018 national ICU CLABSI SIR of 0.770 This is only calculated if at least 10 facilities had at least one predicted ICU CLABSI in 2018.
5. Facility-specific key percentiles were only calculated if at least 20 facilities had ≥1.0 predicted ICU CLABSI in 2018. If a facility's predicted number of ICU CLABSI was <1.0, a facility-specific SIR was neither calculated nor included in the distribution of facility-specific SIRs.

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

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

			No. of Infections			95% CI for SIR		Facility-specific SIRs							
State			Observed	Predicted	SIR	Lower	Upper				10%	25%		75%	90%
Alaska	Yes	10	16	21.720	0.737	0.436	1.171	4	.	.	.	.	.	.	.
Alabama	No	80	212	244.900	0.866	0.755	0.988	31	10%	0%	0.025	0.523	0.824	1.168	1.911
Arkansas	Yes	49	67	137.310	0.488	0.381	0.616	19	5%	11%	.	.	.	.	.
Arizona	No	65	185	293.820	0.630	0.544	0.725	37	3%	11%	0.000	0.000	0.546	0.754	0.861
California	Yes	338	1,136	1,513.350	0.751	0.708	0.795	222	11%	5%	0.000	0.304	0.627	1.111	1.787
Colorado	Yes	53	108	215.620	0.501	0.413	0.602	27	0%	11%	0.000	0.191	0.492	0.741	1.038
Connecticut	Yes	31	139	147.880	0.940	0.793	1.106	21	14%	0%	0.000	0.336	0.639	1.151	1.583
D.C.	Yes	8	77	93.490	0.824	0.654	1.024	7	.	.	.	.	.	.	.
Delaware		8	40	58.330	0.686	0.497	0.925	8	.	.	.	.	.	.	.
Florida	No	205	811	1,069.040	0.759	0.708	0.812	159	10%	4%	0.000	0.239	0.639	1.000	1.510
Georgia	Yes	104	326	427.300	0.763	0.683	0.849	61	8%	5%	0.000	0.339	0.696	1.027	1.698
Guam		1	.	.	.	.	.	.	.	.	.	.	.	.	.
Hawaii	Yes	16	21	68.920	0.305	0.194	0.458	12	0%	17%	.	.	.	.	.
Iowa	No	38	116	116.740	0.994	0.825	1.187	17	18%	0%	.	.	.	.	.
Idaho	No	15	13	39.480	0.329	0.183	0.549	9	.	.	.	.	.	.	.
Illinois	Yes	133	348	562.330	0.619	0.556	0.687	79	4%	8%	0.000	0.133	0.493	0.823	1.218
Indiana	No	85	205	320.960	0.639	0.556	0.731	44	0%	7%	0.000	0.000	0.638	0.789	1.215
Kansas	No	52	93	121.790	0.764	0.620	0.931	17	6%	0%	.	.	.	.	.
Kentucky	Yes	69	158	247.370	0.639	0.545	0.744	33	3%	6%	0.000	0.298	0.526	0.790	0.991
Louisiana	No	94	163	226.060	0.721	0.617	0.838	37	5%	5%	0.000	0.127	0.454	0.752	1.379
Massachusetts	No	68	306	366.760	0.834	0.745	0.932	37	11%	3%	0.000	0.405	0.704	1.042	1.324
Maryland	Yes	49	248	285.470	0.869	0.766	0.982	39	13%	3%	0.000	0.289	0.748	1.181	2.471
Maine	Yes	16	30	45.910	0.653	0.449	0.921	8	.	.	.	.	.	.	.
Michigan	No	96	226	359.330	0.629	0.551	0.715	54	4%	6%	0.036	0.415	0.757	1.101	1.648
Minnesota	Yes	53	167	233.720	0.715	0.612	0.829	20	5%	0%	0.173	0.243	0.519	1.003	1.103
Missouri		77	323	402.620	0.802	0.718	0.893	42	10%	2%	0.000	0.260	0.560	0.888	1.438
Mississippi	Yes	52	117	140.690	0.832	0.691	0.993	19	5%	5%	.	.	.	.	.
Montana	No	13	12	19.420	0.618	0.335	1.050	7	.	.	.	.	.	.	.
North Carolina	Yes	96	358	432.220	0.828	0.746	0.917	50	14%	8%	0.000	0.000	0.644	1.167	1.956
North Dakota	No	8	21	43.110	0.487	0.310	0.732	7	.	.	.	.	.	.	.
Nebraska		24	65	104.350	0.623	0.485	0.789	15	0%	0%	.	.	.	.	.
New Hampshire	No	13	24	48.650	0.493	0.323	0.723	10	0%	10%	.	.	.	.	.
New Jersey		71	271	366.450	0.740	0.655	0.832	60	8%	8%	0.000	0.343	0.602	1.028	1.419
New Mexico	Yes	28	21	51.530	0.408	0.259	0.612	9	.	.	.	.	.	.	.
Nevada	Yes	27	132	135.140	0.977	0.820	1.154	19	21%	5%	.	.	.	.	.
New York	Yes	169	921	1,046.110	0.880	0.825	0.939	122	9%	3%	0.018	0.456	0.773	1.189	1.817
Ohio	No	139	434	621.320	0.699	0.635	0.767	82	5%	0%	0.000	0.244	0.507	0.880	1.355
Oklahoma	Yes	77	153	205.000	0.746	0.635	0.872	21	10%	0%	0.000	0.372	0.525	0.908	1.092
Oregon	Yes	35	77	141.600	0.544	0.432	0.676	19	0%	5%	.	.	.	.	.
Pennsylvania	Yes	165	545	766.670	0.711	0.653	0.772	93	4%	8%	0.000	0.237	0.504	0.798	1.173
Puerto Rico		12	61	37.300	1.635	1.262	2.086	6	.	.	.	.	.	.	.
Rhode Island	No	10	34	49.020	0.694	0.488	0.958	7	.	.	.	.	.	.	.
South Carolina	Yes	60	183	217.850	0.840	0.725	0.969	24	17%	0%	0.000	0.347	0.815	1.474	1.659
South Dakota	No	16	21	39.070	0.537	0.342	0.808	3	.	.	.	.	.	.	.
Tennessee	Yes	104	257	414.090	0.621	0.548	0.700	43	7%	7%	0.000	0.251	0.507	0.968	1.194
Texas	No	326	805	1,128.160	0.714	0.666	0.764	165	7%	5%	0.000	0.322	0.666	1.058	1.566
Utah		33	46	64.290	0.715	0.530	0.946	8	.	.	.	.	.	.	.
Virginia	Yes	81	203	337.730	0.601	0.523	0.688	47	4%	13%	0.000	0.000	0.469	1.114	1.495
Virgin Islands		2	.	.	.	.	.	.	.	.	.	.	.	.	.

Vermont	Yes	6	16	17.020	0.940	0.556	1.494	2	.	.	.	.	.	.	.
Washington	Yes	58	172	336.660	0.511	0.439	0.592	41	2%	12%	0.000	0.157	0.509	0.837	1.280
Wisconsin	No	71	135	243.710	0.554	0.466	0.654	36	11%	0%	0.000	0.272	0.517	0.748	1.010
West Virginia	Yes	27	81	130.210	0.622	0.497	0.769	17	6%	6%	.	.	.	.	.
Wyoming	No	11	0	8.420	0.000	.	0.356	2	.	.	.	.	.	.	.
All US		**3,547**	**10,707**	**14,769.020**	**0.725**	**0.711**	**0.739**	**1,979**	**7%**	**5%**	**0.000**	**0.265**	**0.609**	**0.986**	**1.474**

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 acute care hospitals; as such, they exclude data from LTACHs, IRFs, and CAHs
2. Yes indicates the presence of a state mandate to report CLABSI data from ward locations to NHSN at the beginning of 2018. M indicates midyear implementation of a mandate. No indicates that a state mandate did not exist during 2018. A blank field indicates data not available.
3. The number of reporting facilities included in the SIR calculation. SIRs and accompanying statistics are only calculated for states in which at least 5 facilities reported CLABSI data from at least one ward in 2018.
4. Percent of facilities with at least one predicted ward CLABSI that had an SIR significantly greater or less than the nominal value of the 2018 national ward CLABSI SIR of 0.725. This is only calculated if at least 10 facilities had at least one predicted ward CLABSI in 2018.
5. Facility-specific key percentiles were only calculated if at least 20 facilities had ≥1.0 predicted ward CLABSI in 2018. If a facility's predicted number of ward CLABSI was <1.0, a facility-specific SIR was neither calculated nor included in the distribution of facility-specific SIRs.

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

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

State			No. of Infections			95% CI for SIR		Facility-specific SIRs							
			Observed	Predicted	SIR	Lower	Upper				10%	25%		75%	90%
Alaska	Yes	2	.	.	.	.	.	.	.	.	.	.	.	.	.
Alabama	Yes	14	40	45.617	0.877	0.635	1.182	8	.	.	.	.	.	.	.
Arkansas	Yes	9	17	25.516	0.666	0.401	1.045	5	.	.	.	.	.	.	.
Arizona	No	18	25	32.451	0.770	0.510	1.121	7	.	.	.	.	.	.	.
California	Yes	132	117	191.015	0.613	0.509	0.731	47	2%	0%	0.000	0.370	0.754	1.361	2.037
Colorado	Yes	19	26	25.637	1.014	0.677	1.465	7	.	.	.	.	.	.	.
Connecticut	Yes	11	6	12.880	0.466	0.189	0.969	2	.	.	.	.	.	.	.
D.C.	Yes	6	4	15.333	0.261	0.083	0.629	4	.	.	.	.	.	.	.
Delaware		2	.	.	.	.	.	.	.	.	.	.	.	.	.
Florida	No	60	77	132.809	0.580	0.461	0.721	26	4%	12%	0.000	0.218	0.630	1.168	1.678
Georgia	Yes	35	69	78.541	0.879	0.689	1.105	21	0%	0%	0.000	0.309	0.720	1.124	1.557
Guam		1	.	.	.	.	.	.	.	.	.	.	.	.	.
Hawaii	Yes	2	.	.	.	.	.	.	.	.	.	.	.	.	.
Iowa	No	11	11	20.369	0.540	0.284	0.939	3	.	.	.	.	.	.	.
Idaho	No	10	7	5.627	1.244	0.544	2.461	2	.	.	.	.	.	.	.
Illinois	Yes	41	37	68.072	0.544	0.388	0.741	22	0%	0%	0.000	0.000	0.527	1.009	1.663
Indiana	Yes	26	31	31.880	0.972	0.672	1.363	7	.	.	.	.	.	.	.
Kansas	No	9	9	12.027	0.748	0.365	1.373	5	.	.	.	.	.	.	.
Kentucky	Yes	16	12	24.625	0.487	0.264	0.828	4	.	.	.	.	.	.	.
Louisiana	No	28	36	43.273	0.832	0.591	1.139	10	10%	0%	.	.	.	.	.
Massachusetts	Yes	10	20	18.995	1.053	0.661	1.597	8	.	.	.	.	.	.	.
Maryland	Yes	16	20	34.489	0.580	0.364	0.880	7	.	.	.	.	.	.	.
Maine	Yes	3	.	.	.	.	.	.	.	.	.	.	.	.	.
Michigan	No	20	31	47.961	0.646	0.447	0.906	13	0%	0%	.	.	.	.	.
Minnesota	Yes	10	11	15.871	0.693	0.364	1.205	3	.	.	.	.	.	.	.
Missouri		22	33	47.687	0.692	0.484	0.961	9	.	.	.	.	.	.	.
Mississippi	Yes	14	13	21.228	0.612	0.341	1.021	3	.	.	.	.	.	.	.
Montana	No	5	2	2.729	0.733	0.123	2.421	0	.	.	.	.	.	.	.
North Carolina	Yes	25	51	63.160	0.807	0.608	1.053	11	9%	18%	.	.	.	.	.
North Dakota	No	6	3	6.285	0.477	0.121	1.299	1	.	.	.	.	.	.	.
Nebraska		6	3	6.966	0.431	0.110	1.172	3	.	.	.	.	.	.	.
New Hampshire	Yes	3	.	.	.	.	.	.	.	.	.	.	.	.	.
New Jersey		23	22	34.648	0.635	0.408	0.946	14	0%	0%	.	.	.	.	.
New Mexico	Yes	4	.	.	.	.	.	.	.	.	.	.	.	.	.
Nevada	Yes	8	13	23.200	0.560	0.312	0.934	6	.	.	.	.	.	.	.
New York	Yes	53	60	114.779	0.523	0.402	0.668	28	0%	4%	0.000	0.274	0.619	1.040	2.032
Ohio	No	19	52	79.104	0.657	0.496	0.855	16	6%	13%	.	.	.	.	.
Oklahoma	Yes	7	20	29.486	0.678	0.426	1.029	6	.	.	.	.	.	.	.
Oregon	Yes	9	6	9.706	0.618	0.251	1.286	3	.	.	.	.	.	.	.
Pennsylvania	Yes	45	76	65.786	1.155	0.917	1.438	17	18%	0%	.	.	.	.	.
Puerto Rico		3	.	.	.	.	.	.	.	.	.	.	.	.	.
Rhode Island	No	1	.	.	.	.	.	.	.	.	.	.	.	.	.
South Carolina	Yes	9	21	25.519	0.823	0.523	1.236	7	.	.	.	.	.	.	.
South Dakota	No	3	.	.	.	.	.	.	.	.	.	.	.	.	.
Tennessee	Yes	24	42	53.163	0.790	0.577	1.058	12	17%	0%	.	.	.	.	.
Texas	No	126	163	202.445	0.805	0.688	0.936	47	6%	2%	0.000	0.316	0.722	1.132	1.581
Utah		13	12	17.016	0.705	0.382	1.199	4	.	.	.	.	.	.	.
Virginia	Yes	27	23	41.643	0.552	0.359	0.816	10	0%	10%	.	.	.	.	.
Virgin Islands		2	.	.	.	.	.	.	.	.	.	.	.	.	.
Vermont	Yes	1	.	.	.	.	.	.	.	.	.	.	.	.	.
Washington	Yes	16	19	28.729	0.661	0.410	1.014	7	.	.	.	.	.	.	.
Wisconsin	No	18	13	24.101	0.539	0.300	0.899	10	0%	0%	.	.	.	.	.
West Virginia	Yes	6	5	7.410	0.675	0.247	1.496	2	.	.	.	.	.	.	.

Wyoming	No	0	.	.	.	.	.	.	.	.	.	.	.	.	.
All US		**1,009**	**1,287**	**1,838.870**	**0.700**	**0.662**	**0.739**	**427**	**4%**	**3%**	**0.000**	**0.000**	**0.571**	**0.992**	**1.480**

1. Data from all NICUs including Level II/III and Level III nurseries. Both umbilical line and central line-associated bloodstream infections are considered CLABSIs. CLABSIs identified as Mucosal Barrier Injury (MBI) are excluded from the SIRs. These tables contain data from acute care hospitals; as such, they exclude data from LTACHs, IRFs, and CAHs.
2. Yes indicates the presence of a state mandate to report CLABSI data from NICUs to NHSN at the beginning of 2018. M indicates midyear implementation of a mandate. No indicates that a state mandate did not exist during 2018. A blank field indicates data not available. Note that almost all acute care hospitals are required to report CLABSI data from NICUs 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 NICU in 2018.
4. Percent of facilities with at least one predicted NICU CLABSI that had an SIR significantly greater or less than the nominal value of the 2018 national NICU CLABSI SIR of 0.700. This is only calculated if at least 10 facilities had at least one predicted NICU CLABSI in 2018.
5. Facility-specific key percentiles were only calculated if at least 20 facilities had ≥1.0 predicted NICU CLABSI in 2018. If a facility's predicted number of NICU 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 Acute Care Hospitals reporting during 2018

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

State				No. of Infections			95% CI for SIR		Facility-specific SIRs							
				Observed	Predicted	SIR	Lower	Upper	No. of hosp with at least 1 predicted CAUTI			10%	25%		75%	90%
Alaska	Yes	Yes	10	49	30.145	1.625	1.216	2.131	6	.	.	.	.	.	.	.
Alabama	Yes		89	407	584.117	0.697	0.631	0.767	44	2%	7%	0.000	0.278	0.621	1.002	1.287
Arkansas	Yes	No	50	232	275.675	0.842	0.738	0.955	28	4%	7%	0.000	0.475	0.752	1.134	1.335
Arizona	No	No	65	297	525.682	0.565	0.503	0.632	45	0%	20%	0.000	0.348	0.581	0.715	0.948
California	No	No	337	2,493	2,669.439	0.934	0.898	0.971	282	15%	9%	0.000	0.412	0.847	1.313	1.726
Colorado	M	Yes	52	262	379.548	0.690	0.610	0.778	32	9%	16%	0.058	0.434	0.644	0.931	1.831
Connecticut	Yes	Yes	31	242	260.462	0.929	0.817	1.052	24	13%	0%	0.108	0.476	0.835	0.986	1.599
D.C.	Yes	No	8	132	134.176	0.984	0.826	1.163	8	.	.	.	.	.	.	.
Delaware			8	48	70.404	0.682	0.508	0.896	8	.	.	.	.	.	.	.
Florida	No	Yes	209	1,490	1,992.965	0.748	0.710	0.786	182	9%	15%	0.000	0.310	0.626	1.016	1.487
Georgia	Yes	Yes	109	731	841.126	0.869	0.808	0.934	71	11%	7%	0.000	0.402	0.731	1.049	1.522
Guam			2	.	.	.	.	.	.	.	.	.	.	.	.	.
Hawaii	Yes	Yes	17	89	95.078	0.936	0.756	1.146	13	8%	8%	.	.	.	.	.
Iowa	No	No	40	162	221.553	0.731	0.625	0.851	25	0%	8%	0.000	0.342	0.738	0.883	1.501
Idaho	No	No	17	91	93.338	0.975	0.790	1.191	10	20%	0%	.	.	.	.	.
Illinois	Yes	No	134	719	948.679	0.758	0.704	0.815	108	4%	9%	0.000	0.223	0.584	0.929	1.330
Indiana	Yes	Yes	88	440	571.452	0.770	0.701	0.844	59	10%	8%	0.233	0.468	0.743	1.198	1.662
Kansas	No	Yes	57	176	211.950	0.830	0.714	0.960	25	4%	4%	0.000	0.434	0.721	1.117	1.411
Kentucky	Yes	No	70	340	495.531	0.686	0.616	0.762	47	4%	10%	0.000	0.237	0.710	1.030	1.316
Louisiana	No		100	471	526.179	0.895	0.817	0.979	51	19%	6%	0.000	0.458	0.833	1.428	1.695
Massachusetts	Yes	Yes	68	616	619.876	0.994	0.918	1.075	53	11%	2%	0.289	0.556	0.995	1.449	1.850
Maryland	Yes	Yes	49	356	451.293	0.789	0.710	0.874	43	7%	12%	0.064	0.398	0.729	1.057	1.504
Maine	No	No	17	59	66.633	0.885	0.680	1.134	10	0%	0%	.	.	.	.	.
Michigan	No	No	98	610	874.094	0.698	0.644	0.755	68	6%	10%	0.000	0.395	0.626	0.834	1.096
Minnesota	Yes	Yes	53	269	359.482	0.748	0.663	0.842	27	4%	7%	0.248	0.448	0.797	1.125	1.808
Missouri			78	583	684.326	0.852	0.785	0.923	52	4%	6%	0.249	0.532	0.773	1.090	1.237
Mississippi	Yes	No	58	202	326.257	0.619	0.538	0.709	30	0%	10%	0.000	0.206	0.683	0.783	0.910
Montana	No	No	14	39	43.457	0.897	0.647	1.215	9	.	.	.	.	.	.	.
North Carolina	Yes	Yes	96	785	849.255	0.924	0.861	0.991	71	11%	4%	0.205	0.644	0.915	1.442	1.981
North Dakota	No	No	9	50	70.049	0.714	0.535	0.933	7	.	.	.	.	.	.	.
Nebraska			25	114	130.949	0.871	0.721	1.042	16	6%	0%	.	.	.	.	.
New Hampshire	M	No	13	88	92.197	0.954	0.770	1.170	13	8%	0%	.	.	.	.	.
New Jersey			71	561	638.440	0.879	0.808	0.954	69	16%	6%	0.258	0.471	0.718	1.237	1.646
New Mexico	No	No	30	141	142.663	0.988	0.835	1.162	16	13%	6%	.	.	.	.	.
Nevada	No	No	27	248	272.726	0.909	0.801	1.028	20	10%	15%	0.000	0.341	0.640	1.008	1.296
New York	No	No	171	1,600	1,810.959	0.884	0.841	0.928	143	11%	8%	0.270	0.507	0.815	1.171	1.661
Ohio	No	Yes	144	883	1,338.148	0.660	0.617	0.705	104	4%	11%	0.000	0.313	0.605	0.877	1.063
Oklahoma	Yes	Yes	80	275	389.778	0.706	0.626	0.793	35	3%	17%	0.000	0.244	0.673	0.933	1.463
Oregon	Yes	Yes	35	213	234.778	0.907	0.791	1.035	25	16%	4%	0.000	0.567	0.731	1.093	1.544
Pennsylvania	Yes	Yes	181	1,170	1,427.030	0.820	0.774	0.868	121	9%	7%	0.000	0.399	0.687	0.984	1.223
Puerto Rico			13	77	93.192	0.826	0.657	1.027	11	18%	27%	.	.	.	.	.
Rhode Island	No	Yes	10	81	81.848	0.990	0.791	1.224	7	.	.	.	.	.	.	.
South Carolina	No	No	61	370	438.419	0.844	0.761	0.933	39	10%	8%	0.317	0.469	0.824	1.172	2.069
South Dakota	No	Yes	21	39	63.144	0.618	0.445	0.836	6	.	.	.	.	.	.	.
Tennessee	Yes	Yes	105	550	754.596	0.729	0.670	0.792	67	7%	12%	0.000	0.229	0.566	0.955	1.243
Texas	No	No	353	1,522	2,077.416	0.733	0.697	0.770	210	6%	11%	0.000	0.291	0.601	1.034	1.370
Utah			33	114	133.436	0.854	0.708	1.022	17	6%	0%	.	.	.	.	.

Virginia	Yes	Yes	81	504	607.450	0.830	0.760	0.905	59	10%	5%	0.000	0.450	0.718	1.096	1.629
Virgin Islands			2	.	.	.	.	.	.	.	.	.	.	.	.	.
Vermont	No	No	6	42	40.471	1.038	0.758	1.390	4	.	.	.	.	.	.	.
Washington	No	No	60	478	488.103	0.979	0.894	1.070	43	14%	7%	0.224	0.606	0.958	1.342	1.546
Wisconsin	No	Yes	72	305	380.553	0.801	0.715	0.895	48	6%	2%	0.259	0.547	0.897	1.292	1.808
West Virginia	Yes	No	28	167	277.698	0.601	0.515	0.698	21	0%	24%	0.000	0.270	0.583	0.996	1.276
Wyoming	No	No	13	11	23.616	0.466	0.245	0.810	3	.	.	.	.	.	.	.
All US			**3,668**	**22,015**	**27,216.700**	**0.809**	**0.798**	**0.820**	**2,538**	**9%**	**9%**	**0.000**	**0.401**	**0.730**	**1.098**	**1.574**

1. Data from all ICUs and wards (and other non-critical care locations). This excludes NICUs. These tables contain data from acute care 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 any location to NHSN at the beginning of 2018. M indicates midyear implementation of a mandate.
   No indicates that a state mandate did not exist during 2018. A blank field indicates data not available.
3. Yes indicates that the state health department reported the completion of all of the following validation activities: state health department had access to 2018 NHSN data, state health department performed an assessment of missing or implausible values on at least six months of 2018 NHSN data prior to June 1, 2019, and state health department contacted identified facilities.
   YesA indicates that the state also conducted an audit of facility medical or laboratory records prior to June 1, 2019 to confirm proper case ascertainment (although intensity of auditing activities varies by state). Information on validation efforts was requested from all states, regardless of the presence of a legislative mandate for the particular HAI type. Some states without mandatory reporting of a given HAI to the state health department have performed validation on NHSN data that is voluntarily shared with them by facilities in their jurisdiction.
4. The number of reporting facilities included in the SIR calculation. SIRs and accompanying statistics are only calculated for states in which at least 5 facilities reported CAUTI data in 2018.
5. Percent of facilities with at least one predicted CAUTI that had an SIR significantly greater or less than the nominal value of the 2018 national overall CAUTI SIR of 0.809. This is only calculated if at least 10 facilities had at least one predicted CAUTI in 2018.
6. Facility-specific key percentiles were only calculated if at least 20 facilities had ≥1.0 predicted CAUTI in 2018. If a facility's predicted number of CAUTI was <1.0, a facility-specific SIR was neither calculated nor included in the distribution of facility-specific SIRs.

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

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

State			No. of Infections		95% CI for SIR			Facility-specific SIRs							
			Observed	Predicted	SIR	Lower	Upper				10%	25%		75%	90%
Alaska	No	7	14	8.970	1.561	0.888	2.557	3	.	.	.	.	.	.	.
Alabama	No	70	189	337.660	0.560	0.484	0.644	36	3%	8%	0.000	0.148	0.540	1.092	1.323
Arkansas	No	42	121	133.332	0.908	0.756	1.080	23	9%	0%	0.000	0.350	0.721	1.000	1.402
Arizona	No	50	125	253.113	0.494	0.413	0.586	40	3%	10%	0.000	0.291	0.478	0.719	1.080
California	No	315	1165	1,177.870	0.989	0.933	1.047	219	13%	4%	0.000	0.328	0.874	1.370	1.996
Colorado	No	43	108	180.036	0.600	0.494	0.721	26	8%	8%	0.000	0.416	0.625	1.032	1.521
Connecticut	No	27	104	129.654	0.802	0.659	0.968	20	5%	0%	0.000	0.000	0.536	1.046	1.726
D.C.	No	8	64	80.765	0.792	0.615	1.005	8	.	.	.	.	.	.	.
Delaware		8	16	32.650	0.490	0.290	0.779	6	.	.	.	.	.	.	.
Florida	No	197	713	1,003.073	0.711	0.660	0.764	150	8%	6%	0.000	0.230	0.547	1.007	1.534
Georgia	No	92	344	433.323	0.794	0.713	0.881	53	8%	6%	0.046	0.476	0.711	1.184	1.618
Guam		2	.	.	.	.	.	.	.	.	.	.	.	.	.
Hawaii	No	15	27	40.226	0.671	0.451	0.963	9	.	.	.	.	.	.	.
Iowa	No	35	60	92.863	0.646	0.497	0.826	14	0%	7%	.	.	.	.	.
Idaho	No	12	42	38.466	1.092	0.797	1.462	8	.	.	.	.	.	.	.
Illinois	No	125	307	424.922	0.722	0.645	0.807	82	2%	4%	0.000	0.000	0.628	0.895	1.234
Indiana	No	71	213	270.183	0.788	0.688	0.900	43	7%	0%	0.286	0.501	0.757	1.323	1.886
Kansas	No	36	84	103.878	0.809	0.649	0.996	14	0%	0%	.	.	.	.	.
Kentucky	Yes	63	161	252.109	0.639	0.546	0.743	36	3%	3%	0.000	0.337	0.687	0.992	1.192
Louisiana	No	71	232	257.009	0.903	0.792	1.025	38	11%	0%	0.239	0.562	0.869	1.365	1.932
Massachusetts	No	63	291	302.711	0.961	0.856	1.077	35	20%	3%	0.000	0.518	0.876	1.305	1.979
Maryland	No	43	151	196.321	0.769	0.654	0.899	31	3%	3%	0.000	0.385	0.750	1.066	1.280
Maine	No	13	33	28.289	1.167	0.816	1.619	5	.	.	.	.	.	.	.
Michigan	No	88	319	477.516	0.668	0.598	0.744	56	7%	7%	0.000	0.332	0.560	0.967	1.319
Minnesota	Yes	39	116	165.978	0.699	0.580	0.835	16	6%	13%	.	.	.	.	.
Missouri		72	242	321.376	0.753	0.663	0.853	43	5%	5%	0.000	0.487	0.650	0.992	1.266
Mississippi	No	43	88	149.030	0.590	0.476	0.724	22	0%	5%	0.000	0.000	0.647	0.783	1.472
Montana	No	10	10	16.991	0.589	0.299	1.049	5	.	.	.	.	.	.	.
North Carolina	Yes	82	334	427.474	0.781	0.701	0.869	39	10%	10%	0.000	0.480	0.744	1.305	1.450
North Dakota	No	6	21	29.347	0.716	0.455	1.075	6	.	.	.	.	.	.	.
Nebraska		17	44	53.943	0.816	0.600	1.085	10	0%	0%	.	.	.	.	.
New Hampshire	No	13	43	35.589	1.208	0.885	1.612	7	.	.	.	.	.	.	.
New Jersey		71	245	285.576	0.858	0.755	0.971	61	7%	0%	0.000	0.334	0.629	1.224	1.889
New Mexico	No	26	70	66.629	1.051	0.825	1.319	11	18%	9%	.	.	.	.	.
Nevada	No	21	123	149.461	0.823	0.687	0.978	16	6%	13%	.	.	.	.	.
New York	No	159	576	812.002	0.709	0.653	0.769	111	5%	7%	0.000	0.382	0.672	0.932	1.439
Ohio	No	127	413	655.113	0.630	0.572	0.693	83	2%	8%	0.000	0.083	0.511	0.951	1.271
Oklahoma	No	50	120	194.157	0.618	0.515	0.736	23	4%	4%	0.000	0.000	0.453	0.836	1.475
Oregon	No	32	78	92.779	0.841	0.669	1.044	17	12%	6%	.	.	.	.	.
Pennsylvania	No	145	528	691.888	0.763	0.700	0.830	94	7%	4%	0.000	0.300	0.600	0.978	1.498
Puerto Rico		13	25	34.145	0.732	0.484	1.065	7	.	.	.	.	.	.	.
Rhode Island	No	9	32	38.809	0.825	0.574	1.150	5	.	.	.	.	.	.	.
South Carolina	No	54	168	211.047	0.796	0.682	0.923	25	8%	4%	0.040	0.445	0.785	1.038	1.394
South Dakota	No	11	15	18.904	0.793	0.461	1.279	3	.	.	.	.	.	.	.
Tennessee	Yes	89	267	378.714	0.705	0.624	0.793	48	4%	6%	0.000	0.000	0.524	0.951	1.378
Texas	No	255	766	1,077.164	0.711	0.662	0.763	165	6%	5%	0.000	0.000	0.574	1.027	1.444
Utah		28	67	77.958	0.859	0.671	1.085	12	0%	0%	.	.	.	.	.

Virginia	Yes	76	228	273.800	0.833	0.730	0.946	42	19%	2%	0.000	0.465	0.708	1.498	2.169
Virgin Islands		2	.	.	.	.	.	.	.	.	.	.	.	.	.
Vermont	No	4	.	.	.	.	.	.	.	.	.	.	.	.	.
Washington	No	48	197	203.625	0.967	0.839	1.110	35	11%	3%	0.075	0.571	0.945	1.203	1.831
Wisconsin	No	65	158	177.497	0.890	0.759	1.037	33	6%	0%	0.000	0.545	1.030	1.810	3.206
West Virginia	Yes	28	76	138.255	0.550	0.436	0.684	17	0%	12%	.	.	.	.	.
Wyoming	No	10	3	5.394	0.556	0.141	1.514	2	.	.	.	.	.	.	.
All US		**3,101**	**9,957**	**13,055.820**	**0.763**	**0.748**	**0.778**	**1,916**	**7%**	**5%**	**0.000**	**0.318**	**0.669**	**1.093**	**1.630**

1. Data from all ICUs; excludes wards (and other non-critical care locations) and NICUs. These tables contain data from acute care hospitals; as such, they exclude data from LTACHs, IRFs, and CAHs.
2. Yes indicates the presence of a state mandate to report CAUTI data from critical care units to NHSN at the beginning of 2018. M indicates midyear implementation of a mandate.
   No indicates that a state mandate did not exist during 2018. A blank field indicates data not available. Note that almost all acute care hospitals are required to report CAUTI data from ICUs to NHSN for participation in the Centers for Medicare and Medicaid Services' Hospital Inpatient Quality Reporting Program.
3. The number of reporting facilities included in the SIR calculation. SIRs and accompanying statistics are only calculated for states in which at least 5 facilities reported CAUTI data from at least one critical care location in 2018.
4. Percent of facilities with at least one predicted ICU CAUTI that had an SIR significantly greater or less than the nominal value of the 2018 national ICU CAUTI SIR of 0.763. This is only calculated if at least 10 facilities had at least one predicted ICU CAUTI in 2018.
5. Facility-specific key percentiles were only calculated if at least 20 facilities had ≥1.0 predicted ICU CAUTI in 2018. If a facility's predicted number of ICU CAUTI was <1.0, a facility-specific SIR was neither calculated nor included in the distribution of facility-specific SIRs.

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

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	Yes	10	35	21.176	1.653	1.169	2.273	5	.	.	.	.	.	.	.
Alabama	Yes	89	218	246.457	0.885	0.773	1.008	39	5%	3%	0.000	0.279	0.741	1.030	1.567
Arkansas	No	50	111	142.343	0.780	0.645	0.935	24	4%	8%	0.000	0.276	0.711	0.872	1.386
Arizona	No	65	172	272.570	0.631	0.542	0.731	42	0%	7%	0.000	0.000	0.502	0.733	1.214
California	No	332	1,328	1,491.569	0.890	0.843	0.939	246	10%	9%	0.000	0.414	0.834	1.306	1.806
Colorado	M	52	154	199.512	0.772	0.657	0.901	30	7%	7%	0.000	0.422	0.662	0.975	1.460
Connecticut	Yes	31	138	130.808	1.055	0.890	1.242	21	5%	0%	0.034	0.466	0.876	1.296	1.754
D.C.	Yes	8	68	53.410	1.273	0.996	1.604	7	.	.	.	.	.	.	.
Delaware	No	8	32	37.753	0.848	0.590	1.182	7	.	.	.	.	.	.	.
Florida	No	207	777	989.892	0.785	0.731	0.842	161	6%	7%	0.000	0.267	0.659	1.067	1.462
Georgia	Yes	108	387	407.803	0.949	0.858	1.047	62	8%	3%	0.184	0.450	0.738	1.316	1.538
Guam		1	.	.	.	.	.	.	.	.	.	.	.	.	.
Hawaii	Yes	17	62	54.852	1.130	0.874	1.439	9	.	.	.	.	.	.	.
Iowa	No	40	102	128.691	0.793	0.650	0.958	21	0%	0%	0.000	0.116	0.841	1.127	1.315
Idaho	No	17	49	54.872	0.893	0.668	1.171	9	.	.	.	.	.	.	.
Illinois	Yes	132	412	523.756	0.787	0.713	0.865	92	2%	3%	0.000	0.336	0.631	1.084	1.494
Indiana	No	87	227	301.269	0.753	0.660	0.856	47	11%	9%	0.000	0.289	0.587	0.984	1.767
Kansas	No	57	92	108.072	0.851	0.690	1.039	22	0%	5%	0.000	0.217	0.752	1.171	1.894
Kentucky	Yes	69	179	243.422	0.735	0.633	0.849	40	3%	10%	0.000	0.389	0.653	1.040	1.427
Louisiana	No	100	239	269.170	0.888	0.781	1.006	42	14%	5%	0.000	0.478	0.779	1.598	2.258
Massachusetts	No	68	325	317.165	1.025	0.918	1.141	47	11%	2%	0.000	0.574	0.783	1.330	1.650
Maryland	Yes	49	205	254.972	0.804	0.699	0.920	40	8%	10%	0.000	0.400	0.688	1.061	1.539
Maine	No	16	26	38.344	0.678	0.452	0.979	9	.	.	.	.	.	.	.
Michigan	No	98	291	396.578	0.734	0.653	0.822	60	7%	12%	0.000	0.376	0.649	0.972	1.696
Minnesota	Yes	53	153	193.504	0.791	0.673	0.924	24	0%	4%	0.261	0.508	0.879	0.957	1.339
Missouri		76	341	362.950	0.940	0.844	1.043	47	4%	4%	0.000	0.370	0.687	1.250	1.316
Mississippi	Yes	58	114	177.227	0.643	0.533	0.770	24	0%	13%	0.000	0.080	0.621	1.099	1.509
Montana	No	14	29	26.466	1.096	0.748	1.553	8	.	.	.	.	.	.	.
North Carolina	Yes	96	451	421.781	1.069	0.974	1.171	58	12%	5%	0.000	0.547	1.054	1.564	2.166
North Dakota	No	9	29	40.702	0.712	0.486	1.010	7	.	.	.	.	.	.	.
Nebraska		24	70	77.005	0.909	0.714	1.142	15	0%	0%	.	.	.	.	.
New Hampshire	No	13	45	56.608	0.795	0.587	1.054	11	0%	9%	.	.	.	.	.
New Jersey		71	316	352.863	0.896	0.801	0.998	61	8%	3%	0.242	0.401	0.695	1.322	1.961
New Mexico	No	30	71	76.034	0.934	0.735	1.171	12	8%	8%	.	.	.	.	.
Nevada	No	27	125	123.265	1.014	0.848	1.204	19	21%	5%	.	.	.	.	.
New York	No	169	1,024	998.957	1.025	0.964	1.089	130	12%	4%	0.244	0.529	0.946	1.384	1.872
Ohio	No	142	470	683.036	0.688	0.628	0.752	91	1%	8%	0.000	0.327	0.566	0.841	1.195
Oklahoma	Yes	79	155	195.621	0.792	0.675	0.925	29	3%	7%	0.000	0.382	0.837	1.013	1.808
Oregon	Yes	35	135	141.999	0.951	0.800	1.122	21	14%	0%	0.570	0.753	0.890	1.196	1.748
Pennsylvania	Yes	181	642	735.143	0.873	0.808	0.943	107	9%	4%	0.000	0.356	0.749	1.153	1.578
Puerto Rico		12	52	59.048	0.881	0.664	1.146	9	.	.	.	.	.	.	.
Rhode Island	No	10	49	43.039	1.139	0.852	1.493	6	.	.	.	.	.	.	.
South Carolina	No	61	202	227.372	0.888	0.772	1.017	31	6%	10%	0.000	0.370	0.588	1.023	1.600
South Dakota	No	21	24	44.240	0.542	0.356	0.795	3	.	.	.	.	.	.	.
Tennessee	Yes	104	283	375.882	0.753	0.669	0.845	50	6%	10%	0.000	0.201	0.517	0.979	1.657
Texas	No	345	756	1,000.252	0.756	0.703	0.811	182	3%	7%	0.000	0.193	0.613	1.099	1.587
Utah		33	47	55.478	0.847	0.630	1.117	9	.	.	.	.	.	.	.
Virginia	Yes	81	276	333.650	0.827	0.734	0.929	51	4%	4%	0.000	0.377	0.672	1.307	1.627
Virgin Islands		2	.	.	.	.	.	.	.	.	.	.	.	.	.

Vermont	Yes	6	25	25.335	0.987	0.653	1.435	2	.	.	.	.	.	.	.
Washington	No	60	281	284.478	0.988	0.877	1.108	43	12%	9%	0.000	0.510	0.980	1.501	1.784
Wisconsin	No	72	147	203.055	0.724	0.614	0.848	38	3%	5%	0.243	0.342	0.748	1.225	1.683
West Virginia	Yes	27	91	139.443	0.653	0.528	0.797	18	0%	17%	.	.	.	.	.
Wyoming	No	13	8	18.222	0.439	0.204	0.834	2	.	.	.	.	.	.	.
All US		**3,635**	**12,058**	**14,160.876**	**0.852**	**0.836**	**0.867**	**2,191**	**7%**	**6%**	**0.000**	**0.364**	**0.735**	**1.199**	**1.691**

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 acute care hospitals; as such, they exclude data from LTACHs, IRFs, and CAHs.
2. Yes indicates the presence of a state mandate to report CAUTI data from ward locations to NHSN at the beginning of 2018. M indicates midyear implementation of a mandate. No indicates that a state mandate did not exist during 2018. A blank field indicates data not available.
3. The number of reporting facilities included in the SIR calculation. SIRs and accompanying statistics are only calculated for states in which at least 5 facilities reported CAUTI data from at least one ward in 2018.
4. Percent of facilities with at least one predicted ward CAUTI that had an SIR significantly greater or less than the nominal value of the 2018 national ward CAUTI SIR of 0.852. This is only calculated if at least 10 facilities had at least one predicted ward CAUTI in 2018.
5. Facility-specific key percentiles were only calculated if at least 20 facilities had ≥1.0 predicted ward CAUTI in 2018. If a facility's predicted number of ward CAUTI was <1.0, a facility-specific SIR was neither calculated nor included in the distribution of facility-specific SIRs.

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

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

				No. of Events			95% CI for SIR		Facility-specific SIRs							
State				Observed	Predicted	SIR	Lower	Upper	No. of hosp with at least 1 predicted VAE			10%	25%		75%	90%
Alaska	No	No	5	33	24.867	1.327	0.929	1.842	2	.	.	.	.	.	.	.
Alabama	No	No	43	364	428.573	0.849	0.765	0.940	29	28%	28%	0.000	0.119	0.795	1.352	2.226
Arkansas	No	No	19	195	156.312	1.248	1.081	1.432	12	17%	25%	.	.	.	.	.
Arizona	No	No	26	303	312.662	0.969	0.865	1.083	18	28%	28%	.	.	.	.	.
California	No	No	182	2,192	2,431.658	0.901	0.864	0.940	159	18%	26%	0.000	0.042	0.618	1.296	1.938
Colorado	No	No	40	370	374.790	0.987	0.890	1.092	27	26%	30%	0.000	0.000	1.153	1.933	2.579
Connecticut	No	No	13	301	233.448	1.289	1.150	1.441	12	58%	8%	.	.	.	.	.
D.C.	No	No	4	.	.	.	.	.	.	.	.	.	.	.	.	.
Delaware			3	.	.	.	.	.	.	.	.	.	.	.	.	.
Florida	No	No	124	1,550	1,794.829	0.864	0.821	0.907	112	20%	29%	0.000	0.000	0.482	1.294	2.118
Georgia	No	No	70	1,124	1,265.755	0.888	0.837	0.941	53	32%	15%	0.126	0.468	1.033	1.802	2.122
Guam			2	.	.	.	.	.	.	.	.	.	.	.	.	.
Hawaii	No	No	6	8	34.056	0.235	0.109	0.446	6	.	.	.	.	.	.	.
Iowa	No	No	14	116	95.317	1.217	1.010	1.454	9	.	.	.	.	.	.	.
Idaho	No	No	7	55	60.727	0.906	0.689	1.170	6	.	.	.	.	.	.	.
Illinois	No	No	64	559	543.551	1.028	0.946	1.116	51	12%	10%	0.000	0.431	0.984	1.440	1.832
Indiana	No	No	68	552	619.326	0.891	0.819	0.968	50	12%	20%	0.000	0.284	0.817	1.344	1.920
Kansas	No	No	29	186	164.952	1.128	0.974	1.299	16	13%	25%	.	.	.	.	.
Kentucky	M	No	43	360	364.787	0.987	0.889	1.093	25	20%	24%	0.000	0.343	1.038	1.420	2.308
Louisiana	No	No	37	386	361.731	1.067	0.965	1.178	25	16%	36%	0.000	0.038	0.601	1.168	1.883
Massachusetts	No	No	22	303	219.080	1.383	1.234	1.546	16	19%	6%	.	.	.	.	.
Maryland	M	No	23	199	266.172	0.748	0.649	0.857	22	14%	50%	0.000	0.000	0.658	1.184	1.865
Maine	No	No	15	172	93.362	1.842	1.582	2.134	8	.	.	.	.	.	.	.
Michigan	No	No	76	1,477	1,156.699	1.277	1.213	1.343	52	44%	13%	0.204	0.636	1.318	1.993	2.647
Minnesota	No	No	12	257	209.945	1.224	1.081	1.381	7	.	.	.	.	.	.	.
Missouri			43	754	697.966	1.080	1.005	1.160	31	32%	19%	0.000	0.214	1.172	1.892	2.442
Mississippi	No	No	26	100	145.678	0.686	0.561	0.831	20	5%	35%	0.000	0.000	0.000	0.946	1.589
Montana	No	No	5	38	36.770	1.033	0.742	1.404	4	.	.	.	.	.	.	.
North Carolina	No	No	44	701	555.659	1.262	1.171	1.358	30	37%	10%	0.000	0.417	1.325	1.947	2.302
North Dakota	No	No	2	.	.	.	.	.	.	.	.	.	.	.	.	.
Nebraska			14	262	145.410	1.802	1.593	2.030	10	40%	20%	.	.	.	.	.
New Hampshire	No	No	11	47	56.487	0.832	0.618	1.097	11	18%	27%	.	.	.	.	.
New Jersey			52	749	791.685	0.946	0.880	1.016	51	18%	24%	0.000	0.116	0.769	1.450	2.250
New Mexico	No	No	17	100	78.645	1.272	1.040	1.540	10	30%	10%	.	.	.	.	.
Nevada	No	No	22	493	539.592	0.914	0.836	0.997	20	20%	15%	0.000	0.360	0.716	1.326	2.026
New York	No	No	129	1,496	2,332.353	0.641	0.610	0.675	112	12%	33%	0.000	0.075	0.668	1.118	1.688
Ohio	No	Yes	93	1,284	1,209.036	1.062	1.005	1.121	73	25%	23%	0.000	0.324	0.960	1.623	2.048
Oklahoma	No	No	28	143	210.904	0.678	0.574	0.796	16	6%	25%	.	.	.	.	.
Oregon	No	No	27	139	158.586	0.876	0.740	1.032	18	6%	22%	.	.	.	.	.
Pennsylvania	Yes	Yes	135	2,160	2,242.348	0.963	0.923	1.005	107	21%	16%	0.000	0.259	0.847	1.501	2.100
Puerto Rico			8	42	51.822	0.810	0.592	1.085	7	.	.	.	.	.	.	.
Rhode Island	No	No	8	121	101.016	1.198	0.998	1.426	7	.	.	.	.	.	.	.
South Carolina	Yes	Yes	53	757	723.452	1.046	0.974	1.123	33	21%	24%	0.000	0.440	0.867	1.388	1.807
South Dakota	No	No	6	16	15.583	1.027	0.608	1.632	2	.	.	.	.	.	.	.
Tennessee	No	No	55	602	766.551	0.785	0.724	0.850	35	20%	29%	0.000	0.000	1.008	1.481	1.988
Texas	No	No	144	1,396	1,782.969	0.783	0.743	0.825	115	10%	36%	0.000	0.026	0.531	1.120	1.666
Utah			7	37	25.795	1.434	1.025	1.956	4	.	.	.	.	.	.	.

Virginia	No	No	67	881	792.511	1.112	1.040	1.187	45	29%	16%	0.000	0.540	0.789	1.646	2.440
Virgin Islands			1	.	.	.	.	.	.	.	.	.	.	.	.	.
Vermont	No	No	1	.	.	.	.	.	.	.	.	.	.	.	.	.
Washington	No	No	26	172	206.317	0.834	0.716	0.965	21	19%	19%	0.000	0.268	0.929	1.538	1.905
Wisconsin	No	Yes	56	439	336.063	1.306	1.188	1.433	34	24%	15%	0.000	0.530	1.093	2.123	3.227
West Virginia	No	No	17	30	150.770	0.199	0.137	0.280	10	10%	30%	.	.	.	.	.
Wyoming	No	No	6	3	11.378	0.264	0.067	0.718	1	.	.	.	.	.	.	.
All US			**2,050**	**24,223**	**25,583.728**	**0.947**	**0.935**	**0.959**	**1,556**	**20%**	**24%**	**0.000**	**0.134**	**0.801**	**1.452**	**2.136**

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 acute care hospitals; as such, they exclude data from LTACHs, IRFs, and CAHs.
2. Yes indicates the presence of a state mandate to report VAE data from any location to NHSN at the beginning of 2018. M indicates midyear implementation of a mandate. No indicates that a state mandate did not exist during 2018. A blank field indicates data not available.
3. Yes indicates that the state health department reported the completion of all of the following validation activities: state health department had access to 2018 NHSN data, state health department performed an assessment of missing or implausible values on at least six months of 2018 NHSN data prior to June 1, 2019, and state health department contacted identified facilities. YesA indicates that the state also conducted an audit of facility medical or laboratory records prior to June 1, 2019 to confirm proper case ascertainment (although intensity of auditing activities varies by state). Information on validation efforts was requested from all states, regardless of the presence of a legislative mandate for the particular HAI type. Some states without mandatory reporting of a given HAI to the state health department have performed validation on NHSN data that is voluntarily shared with them by facilities in their jurisdiction.
4. The number of reporting facilities included in the SIR calculation. SIRs and accompanying statistics are only calculated for states in which at least 5 facilities reported VAE data in 2018.
5. Percent of facilities with at least one predicted VAE that had an SIR significantly greater or less than the nominal value of the 2018 national overall VAE SIR of 0.947. This is only calculated if at least 10 facilities had at least one predicted VAE in 2018.
6. Facility-specific key percentiles were only calculated if at least 20 facilities had ≥1.0 predicted VAE in 2018. If a facility's predicted number of VAE was <1.0, a facility-specific SIR was neither calculated nor included in the distribution of facility-specific SIRs.

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

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

			No. of Events			95% CI for SIR		Facility-specific SIRs							
State			Observed	Predicted	SIR	Lower	Upper				10%	25%		75%	90%
Alaska	No	3	.	.	.	.	.	.	.	.	.	.	.	.	.
Alabama	No	43	362	425.983	0.850	0.766	0.941	29	28%	28%	0.000	0.119	0.795	1.352	2.226
Arkansas	No	19	195	156.170	1.249	1.082	1.433	12	17%	25%	.	.	.	.	.
Arizona	No	25	303	312.577	0.969	0.865	1.083	18	28%	28%	.	.	.	.	.
California	No	180	2,164	2,373.530	0.912	0.874	0.951	158	18%	26%	0.000	0.000	0.619	1.296	1.938
Colorado	No	38	351	358.405	0.979	0.881	1.086	26	27%	31%	0.000	0.043	1.192	1.933	2.581
Connecticut	No	13	301	232.676	1.294	1.154	1.446	12	58%	8%	.	.	.	.	.
D.C.	No	4	.	.	.	.	.	.	.	.	.	.	.	.	.
Delaware		3	.	.	.	.	.	.	.	.	.	.	.	.	.
Florida	No	124	1,542	1,750.801	0.881	0.838	0.926	112	20%	29%	0.000	0.000	0.485	1.294	2.118
Georgia	No	70	1,108	1,237.942	0.895	0.843	0.949	53	32%	17%	0.126	0.468	1.033	1.799	2.122
Guam		2	.	.	.	.	.	.	.	.	.	.	.	.	.
Hawaii	No	6	8	33.605	0.238	0.111	0.452	6	.	.	.	.	.	.	.
Iowa	No	14	116	95.316	1.217	1.010	1.454	9	.	.	.	.	.	.	.
Idaho	No	7	55	60.727	0.906	0.689	1.170	6	.	.	.	.	.	.	.
Illinois	No	64	550	529.608	1.039	0.954	1.128	51	14%	10%	0.000	0.431	0.964	1.440	1.898
Indiana	No	64	524	599.989	0.873	0.801	0.951	48	10%	21%	0.000	0.282	0.817	1.316	1.899
Kansas	No	28	186	164.583	1.130	0.976	1.302	16	13%	25%	.	.	.	.	.
Kentucky	No	42	359	364.492	0.985	0.887	1.091	25	20%	24%	0.000	0.343	1.038	1.420	2.308
Louisiana	No	36	353	339.914	1.038	0.934	1.151	24	13%	38%	0.000	0.019	0.581	1.192	1.793
Massachusetts	No	21	303	218.186	1.389	1.239	1.552	16	19%	6%	.	.	.	.	.
Maryland	No	22	164	227.113	0.722	0.618	0.839	21	14%	43%	0.000	0.000	0.769	1.222	2.055
Maine	No	12	168	88.699	1.894	1.623	2.197	7	.	.	.	.	.	.	.
Michigan	No	74	1,429	1,121.983	1.274	1.209	1.341	51	43%	14%	0.204	0.605	1.305	2.006	2.647
Minnesota	No	8	232	191.596	1.211	1.062	1.374	5	.	.	.	.	.	.	.
Missouri		43	737	688.003	1.071	0.996	1.151	31	32%	19%	0.000	0.214	1.150	1.892	2.442
Mississippi	No	26	100	144.850	0.690	0.565	0.836	20	5%	35%	0.000	0.000	0.000	0.956	1.589
Montana	No	5	38	36.770	1.033	0.742	1.404	4	.	.	.	.	.	.	.
North Carolina	No	42	646	529.693	1.220	1.128	1.316	29	38%	10%	0.000	0.417	1.329	1.947	2.307
North Dakota	No	2	.	.	.	.	.	.	.	.	.	.	.	.	.
Nebraska		12	242	133.015	1.819	1.601	2.060	8	.	.	.	.	.	.	.
New Hampshire	No	11	47	56.487	0.832	0.618	1.097	11	18%	27%	.	.	.	.	.
New Jersey		52	712	751.299	0.948	0.880	1.019	51	18%	24%	0.000	0.116	0.784	1.450	2.250
New Mexico	No	17	100	78.645	1.272	1.040	1.540	10	30%	10%	.	.	.	.	.
Nevada	No	21	471	504.406	0.934	0.852	1.021	19	21%	16%	.	.	.	.	.
New York	No	127	1,404	2,171.924	0.646	0.613	0.681	112	11%	32%	0.000	0.060	0.633	1.168	1.662
Ohio	No	91	1,253	1,160.926	1.079	1.021	1.140	73	25%	21%	0.000	0.322	0.960	1.632	2.038
Oklahoma	No	28	142	206.752	0.687	0.581	0.807	16	6%	25%	.	.	.	.	.
Oregon	No	26	138	150.540	0.917	0.773	1.080	17	6%	18%	.	.	.	.	.
Pennsylvania	Yes	132	2,096	2,190.219	0.957	0.917	0.999	106	23%	15%	0.000	0.285	0.876	1.501	2.110
Puerto Rico	No	8	41	49.446	0.829	0.603	1.114	7	.	.	.	.	.	.	.
Rhode Island	No	8	118	97.803	1.207	1.003	1.440	7	.	.	.	.	.	.	.
South Carolina	Yes	53	754	719.109	1.049	0.976	1.125	33	21%	24%	0.000	0.440	0.867	1.409	1.807
South Dakota	No	6	13	14.757	0.881	0.490	1.469	2	.	.	.	.	.	.	.
Tennessee	No	55	578	738.687	0.782	0.721	0.848	35	20%	29%	0.000	0.000	1.008	1.481	1.988
Texas	No	140	1,335	1,731.907	0.771	0.730	0.813	113	9%	36%	0.000	0.000	0.518	1.079	1.569
Utah		7	37	25.795	1.434	1.025	1.956	4	.	.	.	.	.	.	.
Virginia	No	65	853	770.177	1.108	1.035	1.184	45	29%	16%	0.000	0.544	0.798	1.619	2.440
Virgin Islands		1	.	.	.	.	.	.	.	.	.	.	.	.	.

Vermont	No	1	.	.	.	.	.	.	.	.	.	.	.	.	.
Washington	No	25	172	205.629	0.836	0.718	0.969	21	19%	19%	0.000	0.268	0.929	1.538	1.905
Wisconsin	No	56	429	316.873	1.354	1.230	1.487	34	24%	15%	0.000	0.530	1.134	2.123	3.227
West Virginia	No	17	30	150.770	0.199	0.137	0.280	10	10%	30%	.	.	.	.	.
Wyoming	No	6	3	11.378	0.264	0.067	0.718	1	.	.	.	.	.	.	.
All US		**2,005**	**23,456**	**24,717.377**	**0.949**	**0.937**	**0.961**	**1,537**	**20%**	**23%**	**0.000**	**0.139**	**0.799**	**1.445**	**2.152**

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 acute care hospitals; as such, they exclude data from LTACHs, IRFs, and CAHs.
2. Yes indicates the presence of a state mandate to report VAE data from critical care units to NHSN at the beginning of 2018. M indicates midyear implementation of a mandate. No indicates that a state mandate did not exist during 2018.
   A blank field indicates data not available.
3. The number of reporting facilities included in the SIR calculation. SIRs and accompanying statistics are only calculated for states in which at least 5 facilities reported VAE data from at least one critical care location in 2018.
4. Percent of facilities with at least one predicted ICU VAE that had an SIR significantly greater or less than the nominal value of the 2018 national ICU VAE SIR of 0.949. This is only calculated
   if at least 10 facilities had at least one predicted ICU VAE in 2018.
5. Facility-specific key percentiles were only calculated if at least 20 facilities had ≥1.0 predicted ICU VAE in 2018. If a facility's predicted number of ICU VAE was <1.0, a facility-specific SIR was neither
   calculated nor included in the distribution of facility-specific SIRs.

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

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

State			No. of Events			95% CI for SIR		Facility-specific SIRs							
			Observed	Predicted	SIR	Lower	Upper				10%	25%		75%	90%
Alaska	No	2	.	.	.	.	.	.	.	.	.	.	.	.	.
Alabama	No	2	.	.	.	.	.	.	.	.	.	.	.	.	.
Arkansas	No	1	.	.	.	.	.	.	.	.	.	.	.	.	.
Arizona	No	2	.	.	.	.	.	.	.	.	.	.	.	.	.
California	No	42	28	58.128	0.482	0.326	0.687	15	7%	7%	.	.	.	.	.
Colorado	No	9	19	16.384	1.160	0.719	1.777	4	.	.	.	.	.	.	.
Connecticut	No	2	.	.	.	.	.	.	.	.	.	.	.	.	.
D.C.	No	1	.	.	.	.	.	.	.	.	.	.	.	.	.
Delaware		1	.	.	.	.	.	.	.	.	.	.	.	.	.
Florida	No	15	8	44.028	0.182	0.084	0.345	9	.	.	.	.	.	.	.
Georgia	No	8	16	27.813	0.575	0.341	0.914	2	.	.	.	.	.	.	.
Guam		0	.	.	.	.	.	.	.	.	.	.	.	.	.
Hawaii	No	1	.	.	.	.	.	.	.	.	.	.	.	.	.
Iowa	No	1	.	.	.	.	.	.	.	.	.	.	.	.	.
Idaho	No	0	.	.	.	.	.	.	.	.	.	.	.	.	.
Illinois	No	11	9	13.943	0.645	0.315	1.185	4	.	.	.	.	.	.	.
Indiana	No	9	28	19.337	1.448	0.981	2.065	4	.	.	.	.	.	.	.
Kansas	No	2	.	.	.	.	.	.	.	.	.	.	.	.	.
Kentucky	No	2	.	.	.	.	.	.	.	.	.	.	.	.	.
Louisiana	No	4	.	.	.	.	.	.	.	.	.	.	.	.	.
Massachusetts	No	3	.	.	.	.	.	.	.	.	.	.	.	.	.
Maryland	No	9	35	39.059	0.896	0.634	1.232	6	.	.	.	.	.	.	.
Maine	No	4	.	.	.	.	.	.	.	.	.	.	.	.	.
Michigan	No	8	48	34.716	1.383	1.031	1.818	3	.	.	.	.	.	.	.
Minnesota	No	6	25	18.349	1.362	0.901	1.982	2	.	.	.	.	.	.	.
Missouri		7	17	9.963	1.706	1.027	2.677	4	.	.	.	.	.	.	.
Mississippi	No	1	.	.	.	.	.	.	.	.	.	.	.	.	.
Montana	No	0	.	.	.	.	.	.	.	.	.	.	.	.	.
North Carolina	No	6	55	25.967	2.118	1.611	2.737	5	.	.	.	.	.	.	.
North Dakota	No	0	.	.	.	.	.	.	.	.	.	.	.	.	.
Nebraska		4	.	.	.	.	.	.	.	.	.	.	.	.	.
New Hampshire	No	0	.	.	.	.	.	.	.	.	.	.	.	.	.
New Jersey		13	37	40.386	0.916	0.655	1.250	9	.	.	.	.	.	.	.
New Mexico	No	0	.	.	.	.	.	.	.	.	.	.	.	.	.
Nevada	No	10	22	35.186	0.625	0.402	0.931	7	.	.	.	.	.	.	.
New York	No	45	92	160.429	0.573	0.465	0.700	31	13%	29%	0.000	0.000	0.104	0.705	1.932
Ohio	No	24	31	48.110	0.644	0.446	0.903	10	10%	30%					
Oklahoma	No	1	.	.	.	.	.	.	.	.	.	.	.	.	.
Oregon	No	3	.	.	.	.	.	.	.	.	.	.	.	.	.
Pennsylvania	Yes	34	64	52.129	1.228	0.953	1.558	11	27%	18%	.	.	.	.	.
Puerto Rico		4	.	.	.	.	.	.	.	.	.	.	.	.	.
Rhode Island	No	1	.	.	.	.	.	.	.	.	.	.	.	.	.
South Carolina	No	8	3	4.344	0.691	0.176	1.880	2	.	.	.	.	.	.	.
South Dakota	No	1	.	.	.	.	.	.	.	.	.	.	.	.	.
Tennessee	No	10	24	27.864	0.861	0.565	1.262	9	.	.	.	.	.	.	.
Texas	No	18	61	51.063	1.195	0.922	1.524	10	30%	10%					
Utah		0	.	.	.	.	.	.	.	.	.	.	.	.	.

Virginia	No	11	28	22.334	1.254	0.849	1.788	4	.	.	.	.	.	.	.
Virgin Islands		0	.	.	.	.	.	.	.	.	.	.	.	.	.
Vermont	No	0	.	.	.	.	.	.	.	.	.	.	.	.	.
Washington	No	4	.	.	.	.	.	.	.	.	.	.	.	.	.
Wisconsin	No	5	10	19.190	0.521	0.265	0.929	3	.	.	.	.	.	.	.
West Virginia	No	0	.	.	.	.	.	.	.	.	.	.	.	.	.
Wyoming	No	0	.	.	.	.	.	.	.	.	.	.	.	.	.
All US		**355**	**767**	**866.351**	**0.885**	**0.824**	**0.950**	**170**	**16%**	**15%**	**0.000**	**0.000**	**0.508**	**1.373**	**2.221**

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 acute care hospitals; as such, they exclude data from LTACHs, IRFs, and CAHs.
2. Yes indicates the presence of a state mandate to report VAE data from ward locations to NHSN at the beginning of 2018. M indicates midyear implementation of a mandate. No indicates that a state mandate did not exist during 2018. A blank field indicates data not available.
3. The number of reporting facilities included in the SIR calculation. SIRs and accompanying statistics are only calculated for states in which at least 5 facilities reported VAE data from at least one ward in 2018.
4. Percent of facilities with at least one predicted ward VAE that had an SIR significantly greater or less than the nominal value of the 2018 national ward VAE SIR of 0.885. This is only calculated if at least 10 facilities had at least one predicted ward VAE in 2018.
5. Facility-specific key percentiles were only calculated if at least 20 facilities had ≥1.0 predicted ward VAE in 2018. If a facility's predicted number of ward VAE was <1.0, a facility-specific SIR was neither calculated nor included in the distribution of facility-specific SIRs.

Table 6. State-specific standardized infection ratios (SIRs) and facility-specific SIR summary measures, NHSN Acute Care Hospitals reporting during 2018

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

State			No. of Acute Care 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%
Alabama	Yes	Yes	66	6,002	80	143.461	0.558	0.445	0.690	29	3%	10%	0.000	0.245	0.502		0.703	0.866
Alaska	No	Yes	7	657	25	17.369	1.439	0.952	2.094	5	.	.	.	.	.		.	.
Arizona	No	No	54	6,430	157	158.532	0.990	0.844	1.155	35	11%	6%	0.000	0.000	0.745		1.299	1.732
Arkansas	No	No	41	3,076	59	70.426	0.838	0.644	1.073	21	0%	0%	0.000	0.558	0.900		1.125	1.463
California	Yes	Yes	311	28,891	694	723.134	0.960	0.890	1.033	194	7%	2%	0.000	0.363	0.839		1.387	1.859
Colorado	Yes	Yes	47	5,120	128	128.633	0.995	0.834	1.179	29	10%	7%	0.000	0.500	0.759		1.327	1.906
Connecticut	Yes	Yes	28	3,745	89	96.223	0.925	0.747	1.133	21	10%	5%	0.000	0.356	0.671		1.276	1.526
D.C.	No	No	8	1,075	34	37.913	0.897	0.631	1.239	5	.	.	.	.	.		.	.
Delaware			7	1,105	14	29.272	0.478	0.272	0.783	4	.	.	.	.	.		.	.
Florida	No	Yes	193	25,983	525	612.719	0.857	0.786	0.933	142	8%	6%	0.000	0.361	0.733		1.215	1.815
Georgia	Yes	Yes	87	10,505	255	280.248	0.910	0.803	1.027	47	9%	4%	0.275	0.409	0.962		1.210	1.658
Guam			1	.	.	.	.	.	.	.	.	.	.	.	.		.	.
Hawaii	No	Yes	13	1,015	14	26.319	0.532	0.303	0.871	7	.	.	.	.	.		.	.
Idaho	No	No	14	1,417	43	34.074	1.262	0.925	1.684	8	.	.	.	.	.		.	.
Illinois	Yes	No	127	11,612	285	309.007	0.922	0.820	1.034	78	6%	1%	0.000	0.317	0.801		1.300	1.888
Indiana	No	No	76	7,024	176	176.744	0.996	0.857	1.151	37	14%	3%	0.000	0.417	1.000		1.520	2.757
Iowa	No	Yes	37	3,040	67	76.672	0.874	0.683	1.103	16	6%	0%	.	.	.		.	.
Kansas	No	Yes	39	3,108	81	77.963	1.039	0.830	1.285	17	12%	0%	.	.	.		.	.
Kentucky	Yes	No	65	5,591	168	138.738	1.211	1.038	1.405	32	22%	6%	0.000	0.000	0.955		1.580	1.927
Louisiana	No	Yes	72	5,090	139	125.185	1.110	0.937	1.307	34	12%	3%	0.000	0.472	0.998		1.685	2.194
Maine	No	Yes	17	1,454	35	34.888	1.003	0.710	1.380	8			.	.	.		.	.
Maryland	No	Yes	45	5,503	131	153.515	0.853	0.716	1.009	31	6%	0%	0.000	0.306	0.535		1.068	1.795
Massachusetts	No	Yes	59	7,255	164	184.717	0.888	0.760	1.032	41	7%	0%	0.254	0.618	0.869		1.133	1.584
Michigan	No	No	91	10,690	281	277.039	1.014	0.901	1.138	56	13%	5%	0.000	0.533	0.947		1.457	2.223
Minnesota	Yes	Yes	48	5,420	127	148.236	0.857	0.717	1.016	21	5%	10%	0.325	0.691	0.935		1.242	1.712
Mississippi	Yes	No	40	3,341	87	79.001	1.101	0.887	1.352	20	10%	0%	0.000	0.530	0.785		1.530	2.235
Missouri	No	Yes	69	7,545	160	186.636	0.857	0.732	0.998	39	8%	3%	0.000	0.378	0.758		1.202	1.649
Montana	No	No	12	860	19	19.238	0.988	0.612	1.514	6	.	.	.	.	.		.	.
Nebraska			22	2,052	58	52.402	1.107	0.848	1.421	10	10%	0%	.	.	.		.	.
Nevada	No	No	20	2,689	67	60.038	1.116	0.872	1.408	15	7%	0%	.	.	.		.	.
New Hampshire	Yes	No	13	1,390	31	35.113	0.883	0.610	1.238	11	0%	0%	.	.	.		.	.
New Jersey			70	7,907	149	203.277	0.733	0.622	0.858	48	6%	2%	0.000	0.393	0.647		1.078	1.789
New Mexico	No	No	25	1,315	31	31.182	0.994	0.687	1.394	10	10%	0%	.	.	.		.	.
New York	No	No	161	18,887	489	526.935	0.928	0.848	1.013	99	7%	4%	0.000	0.456	0.919		1.384	1.901
North Carolina	Yes	Yes	85	10,950	236	285.531	0.827	0.726	0.937	49	4%	6%	0.000	0.303	0.707		1.188	1.684
North Dakota	No	Yes	7	945	35	21.428	1.633	1.155	2.247	7	.		.	.	.		.	.
Ohio	No	Yes	125	14,114	293	397.434	0.737	0.656	0.825	79	3%	6%	0.000	0.274	0.652		1.089	1.662
Oklahoma	No	No	53	4,141	104	100.652	1.033	0.849	1.247	22	9%	0%	0.000	0.412	0.826		1.272	1.922
Oregon	Yes	Yes	33	4,123	78	108.621	0.718	0.571	0.891	26	0%	8%	0.000	0.000	0.560		1.005	1.515
Pennsylvania	Yes	Yes	148	15,354	332	405.270	0.819	0.735	0.911	85	1%	1%	0.000	0.390	0.714		1.124	1.759
Puerto Rico			2	.	.	.	.	.	.	.	.	.	.	.	.		.	.
Rhode Island	No	No	10	1,105	29	24.855	1.167	0.796	1.654	5	.	.	.	.	.		.	.
South Carolina	Yes	Yes	54	4,963	100	113.157	0.884	0.723	1.070	26	8%	0%	0.000	0.396	0.751		1.355	1.767
South Dakota	No	Yes	15	1,071	38	24.780	1.534	1.101	2.083	4	.		.	.	.		.	.
Tennessee	Yes	Yes	87	8,554	182	230.441	0.790	0.681	0.911	40	3%	5%	0.000	0.290	0.674		1.176	1.776
Texas	No	No	260	24,965	522	655.237	0.797	0.730	0.867	143	4%	4%	0.000	0.326	0.697		1.281	1.754
Utah			31	2,244	55	56.367	0.976	0.742	1.261	9	.	.	.	.	.		.	.
Vermont	No	Yes	6	514	16	12.914	1.239	0.733	1.969	2	.	.	.	.	.		.	.
Virgin Islands			2	.	.	.	.	.	.	.	.	.	.	.	.		.	.
Virginia	Yes	Yes	72	7,837	159	199.068	0.799	0.682	0.930	42	0%	5%	0.000	0.333	0.834		1.170	1.444
Washington	Yes		48	6,212	95	159.364	0.596	0.485	0.725	35	3%	9%	0.000	0.202	0.459		1.029	1.530
West Virginia	Yes	No	25	2,084	69	53.587	1.288	1.010	1.620	13	15%	0%	.	.	.		.	.
Wisconsin	No	Yes	69	5,793	113	144.096	0.784	0.649	0.939	35	0%	3%	0.000	0.388	0.749		1.151	1.392
Wyoming	No	No	12	277	3	5.819	0.516	0.131	1.403	2	.	.	.	.	.		.	.

All US		**3,129**	**322,125**	**7,323**	**8,255.389**	**0.887**	**0.867**	**0.908**	**1,800**	**7%**	**4%**	**0.000**	**0.361**	**0.774**	**1.262**	**1.793**

1. Note that almost all acute care hospitals are required to report SSIs following inpatient colon procedures in adults 18 years and older to NHSN for participation in the Centers for Medicare and Medicaid Services' (CMS) Hospital Inpatient Quality Reporting Program. SSIs included in this table are those classified as deep incisional or organ/space infections following NHSN-defined inpatient colon procedures that occurred in 2018 with a primary or other than primary skin closure technique, detected during the same admission as the surgical procedure or upon readmission to the same facility. The colon surgery SSI data published in this report use different risk adjustment methodology and a different subset of data than that which are used for public reporting by CMS.
2. Yes indicates the presence of a state mandate to report SSIs following colon surgery to NHSN at the beginning of 2018. M indicates midyear implementation of a mandate. No indicates that a state mandate did not exist during 2018. A blank field indicates data not available.
3. Yes indicates that the state health department reported the completion of all of the following validation activities: state health department had access to 2018 NHSN data, state health department performed an assessment of missing or implausible values on at least six months of 2018 NHSN data prior to June 1, 2019, and state health department contacted identified facilities. YesA indicates that the state also conducted an audit of facility medical or laboratory records prior to June 1, 2019 to confirm proper case ascertainment (although intensity of auditing activities varies by state). Information on validation efforts was requested from all states, regardless of the presence of a legislative mandate for the particular HAI type. Some states without mandatory reporting of a given HAI to the state health department have performed validation on NHSN data that is voluntarily shared with them by facilities in their jurisdiction.
4. The number of reporting facilities included in the SIR calculation. Due to SIR exclusion criteria, this may be different from the numbers shown in Table 1. Refer to the Technical Appendix for information about exclusion criteria. SIRs and accompanying statistics are only calculated for states in which at least 5 facilities reported SSI data following colon surgery in 2018.
5. Percent of facilities with at least one predicted colon surgery SSI that had an SIR significantly greater or less than the nominal value of the 2018 national colon surgery SIR of 0.887. This is only calculated if at least 10 facilities had at least one predicted colon surgery SSI in 2018.
6. Facility-specific key percentiles were only calculated if at least 20 facilities had ≥1.0 predicted colon surgery SSI in 2018. If a facility's predicted number of colon surgery SSI was <1.0, a facility-specific SIR was neither calculated nor included in the distribution of facility-specific SIRs.

Table 6. State-specific standardized infection ratios (SIRs) and facility-specific SIR summary measures, NHSN Acute Care Hospitals reporting during 2018

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

State			No. of Acute Care Hospitals Reporting[4]	No. of Procedures	No. of Infections Observed	Predicted	SIR	95% CI for SIR Lower	Upper	Facility-specific SIRs			10%	25%		75%	90%
Alabama	Yes	Yes	53	6,825	40	41.377	0.967	0.700	1.303	12	0%	0%	.	.	.	.	.
Alaska	No	Yes	7	527	2	3.171	0.631	0.106	2.084	1	.	.	.	.	.	.	.
Arizona	No	No	50	6,857	37	39.899	0.927	0.663	1.265	12	0%	0%	.	.	.	.	.
Arkansas	No	No	38	3,193	17	18.364	0.926	0.557	1.452	6	.	.	.	.	.	.	.
California	Yes	Yes	291	21,360	135	153.701	0.878	0.739	1.036	55	4%	0%	0.000	0.000	0.691	1.511	2.076
Colorado	Yes	Yes	45	5,386	31	32.255	0.961	0.665	1.347	13	0%	0%	.	.	.	.	.
Connecticut	Yes	Yes	26	3,360	29	23.879	1.214	0.829	1.721	7	.	.	.	.	.	.	.
D.C.	No	No	7	693	9	5.937	1.516	0.739	2.782	3	.	.	.	.	.	.	.
Delaware			7	775	8	5.681	1.408	0.654	2.674	1	.	.	.	.	.	.	.
Florida	No	Yes	177	21,072	117	130.304	0.898	0.746	1.072	46	7%	4%	0.000	0.000	0.792	1.461	2.069
Georgia	Yes	Yes	82	12,112	84	79.648	1.055	0.847	1.299	26	4%	0%	0.000	0.467	0.769	1.185	1.617
Guam			1	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Hawaii	No	Yes	11	591	3	4.015	0.747	0.190	2.033	2	.	.	.	.	.	.	.
Idaho	No	No	14	836	4	5.050	0.792	0.252	1.911	2	.	.	.	.	.	.	.
Illinois	Yes	No	123	10,299	83	77.178	1.075	0.862	1.326	26	8%	0%	0.000	0.451	0.997	1.893	2.945
Indiana	No	No	75	6,707	42	43.224	0.972	0.709	1.301	12	17%	8%	.	.	.	.	.
Iowa	No	Yes	34	3,340	16	19.003	0.842	0.498	1.338	3	.	.	.	.	.	.	.
Kansas	No	Yes	39	3,071	17	18.947	0.897	0.540	1.407	4	.	.	.	.	.	.	.
Kentucky	Yes	No	56	5,366	39	35.295	1.105	0.797	1.495	9	.	.	.	.	.	.	.
Louisiana	No	Yes	69	5,247	26	32.081	0.810	0.541	1.171	8	.	.	.	.	.	.	.
Maine	No	Yes	17	838	3	5.961	0.503	0.128	1.370	1	.	.	.	.	.	.	.
Maryland	No	Yes	39	4,847	55	34.127	1.612	1.226	2.082	9	.	.	.	.	.	.	.
Massachusetts	No	Yes	51	4,618	23	34.630	0.664	0.431	0.981	9	.	.	.	.	.	.	.
Michigan	No	No	84	9,370	80	67.167	1.191	0.951	1.475	25	12%	0%	0.000	0.605	1.081	1.711	3.114
Minnesota	Yes	Yes	48	4,130	30	29.230	1.026	0.705	1.447	10	0%	0%	.	.	.	.	.
Mississippi	Yes	No	42	3,450	32	19.784	1.617	1.125	2.256	6	.	.	.	.	.	.	.
Missouri			63	6,427	35	43.235	0.810	0.573	1.113	12	0%	8%	.	.	.	.	.
Montana	No	No	12	833	6	4.359	1.376	0.558	2.863	1	.	.	.	.	.	.	.
Nebraska			22	1,931	12	11.988	1.001	0.542	1.702	5	.	.	.	.	.	.	.
Nevada	No	No	17	1,772	17	10.496	1.620	0.975	2.541	4	.	.	.	.	.	.	.
New Hampshire	Yes	No	13	897	5	5.782	0.865	0.317	1.917	1	.	.	.	.	.	.	.
New Jersey			62	6,256	50	45.271	1.104	0.829	1.444	14	7%	0%	.	.	.	.	.
New Mexico	No	No	23	1,625	12	10.732	1.118	0.606	1.901	3	.	.	.	.	.	.	.
New York	No	No	149	16,598	110	119.277	0.922	0.762	1.107	41	7%	0%	0.000	0.000	0.726	1.374	2.794
North Carolina	Yes	Yes	83	10,153	47	69.896	0.672	0.500	0.887	18	0%	11%	.	.	.	.	.
North Dakota	No	Yes	7	382	4	2.134	1.875	0.596	4.522	0	.	.	.	.	.	.	.
Ohio	No	Yes	120	11,312	61	83.210	0.733	0.566	0.935	26	4%	0%	0.000	0.000	0.736	1.058	1.951
Oklahoma	No	No	59	4,394	21	29.303	0.717	0.455	1.077	8	.	.	.	.	.	.	.
Oregon	Yes	Yes	33	2,773	14	18.589	0.753	0.429	1.234	8	.	.	.	.	.	.	.
Pennsylvania	Yes	Yes	131	10,855	61	80.291	0.760	0.586	0.969	20	0%	0%	0.000	0.323	0.683	1.218	1.327
Puerto Rico			3	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Rhode Island	No	No	9	1,212	7	7.342	0.953	0.417	1.886	2	.	.	.	.	.	.	.
South Carolina	Yes	Yes	49	5,530	35	34.421	1.017	0.719	1.399	12	0%	0%	.	.	.	.	.
South Dakota	No	Yes	14	1,042	3	6.610	0.454	0.115	1.235	2	.	.	.	.	.	.	.
Tennessee	Yes	Yes	76	8,708	42	53.516	0.785	0.573	1.051	14	0%	0%	.	.	.	.	.
Texas	No	No	259	30,625	188	197.031	0.954	0.825	1.098	52	8%	4%	0.000	0.000	0.675	1.747	2.263
Utah			30	3,004	8	17.115	0.467	0.217	0.888	5	.	.	.	.	.	.	.
Vermont	Yes	Yes	6	438	1	3.026	0.330	0.017	1.630	1	.	.	.	.	.	.	.
Virgin Islands			2	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Virginia	Yes	Yes	66	8,727	58	54.373	1.067	0.817	1.369	12	8%	0%	.	.	.	.	.
Washington	Yes	Yes	50	5,221	16	33.483	0.478	0.283	0.759	10	0%	0%	.	.	.	.	.
West Virginia	Yes	No	23	1,979	10	12.896	0.775	0.394	1.382	5	.	.	.	.	.	.	.
Wisconsin	No	Yes	66	5,384	41	32.831	1.249	0.908	1.678	12	17%	0%	.	.	.	.	.
Wyoming	No	No	10	307	.	1.661	0.000	.	1.803	0	.	.	.	.	.	.	.
All US			**2,943**	**293,503**	**1,829**	**1,950.352**	**0.938**	**0.896**	**0.982**	**596**	**5%**	**2%**	**0.000**	**0.067**	**0.773**	**1.391**	**2.068**

1. Note that almost all acute care hospitals are required to report SSIs following inpatient abdominal hysterectomy procedures in adults 18 years and older to NHSN for participation in the Centers for Medicare and Medicaid Services' (CMS) Hospital Inpatient Quality Reporting Program.

SSIs included are those classified as deep incisional or organ/space infections following NHSN-defined inpatient abdominal hysterectomy procedures that occurred in 2018 with a primary or other than primary skin closure technique, detected during the same admission as the surgical procedure or upon readmission to the same facility. The abdominal hysterectomy SSI data published in this report use different risk adjustment methodology and a different subset of data than that which are used for public reporting by CMS.

2. Yes indicates the presence of a state mandate to report SSIs following abdominal hysterectomy surgery to NHSN at the beginning of 2018. M indicates midyear implementation of a mandate. No indicates that a state mandate did not exist during 2018. A blank field indicates data not available.
3. Yes indicates that the state health department reported the completion of all of the following validation activities: state health department had access to 2018 NHSN data, state health department performed an assessment of missing or implausible values on at least six months of 2018 NHSN data prior to June 1, 2019, and state health department contacted identified facilities.
   YesA indicates that the state also conducted an audit of facility medical or laboratory records prior to June 1, 2019 to confirm proper case ascertainment (although intensity of auditing activities varies by state). Information on validation efforts was requested from all states, regardless of the presence of a legislative mandate for the particular HAI type. Some states without mandatory reporting of a given HAI to the state health department have performed validation on NHSN data that is voluntarily shared with them by facilities in their jurisdiction.
4. The number of reporting facilities included in the SIR calculation. Due to SIR exclusion criteria, this may be different from the numbers shown in Table 1. Refer to the Technical Appendix for information about exclusion criteria. SIRs and accompanying statistics are only calculated for states in which at least 5 facilities reported SSI data following abdominal hysterectomy surgery in 2018.
5. Percent of facilities with at least one predicted abdominal hysterectomy SSI that had an SIR significantly greater or less than the nominal value of the 2018 national abdominal hysterectomy SIR of 0.938. This is only calculated if at least 10 facilities had at least one predicted abdominal hysterectomy SSI in 2018.
6. Facility-specific key percentiles were only calculated if at least 20 facilities had ≥1.0 predicted abdominal hysterectomy SSI in 2018. If a facility's predicted number of abdominal hysterectomy SSI was <1.0, a facility-specific SIR was neither calculated nor included in the distribution of facility-specific SIRs.

Table 6. State-specific standardized infection ratios (SIRs) and facility-specific SIR summary measures, NHSN Acute Care Hospitals reporting during 2018

6c. Surgical site infections (SSI) following hip arthroplasty[1] in adults, ≥ 18years

State		No. of Acute Care Hospitals Reporting[3]	No. of Procedures	No. of Infections		95% CI for SIR			Facility-specific SIRs								
				Observed	Predicted	SIR	Lower	Upper				10%	25%		75%	90%	
Alabama	No	17	3,206	24	21.903	1.096	0.718	1.606	8	.	.	.	.	.	.	.	.
Alaska	No	3	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Arizona	No	43	8,872	73	63.531	1.149	0.907	1.436	20	10%	0%	0.000	0.318	0.895	1.531	2.509	
Arkansas	No	20	2,858	22	18.285	1.203	0.773	1.792	9	.	.	.	.	.	.	.	.
California	Yes	300	47,200	292	287.429	1.016	0.904	1.138	94	6%	3%	0.000	0.347	0.742	1.543	2.266	
Colorado	Yes	51	11,756	72	65.849	1.093	0.862	1.369	24	4%	4%	0.000	0.594	0.968	1.266	2.149	
Connecticut	No	14	3,907	23	23.618	0.974	0.632	1.438	8	.	.	.	.	.	.	.	.
D.C.	No	4	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Delaware		3	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Florida	No	63	13,937	84	89.759	0.936	0.751	1.153	30	3%	3%	0.000	0.185	0.671	1.278	2.016	
Georgia	No	65	10,979	93	74.705	1.245	1.011	1.518	29	14%	3%	0.000	0.614	1.000	1.896	2.991	
Guam		1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Hawaii	No	5	929	5	6.265	0.798	0.292	1.769	2	.	.	.	.	.	.	.	.
Idaho	No	6	1,401	7	7.689	0.910	0.398	1.801	2	.	.	.	.	.	.	.	.
Illinois	No	65	8,846	59	55.606	1.061	0.815	1.359	20	0%	0%	0.000	0.000	0.648	1.179	1.831	
Indiana	No	52	7,959	57	50.358	1.132	0.865	1.456	18	11%	6%	.	.	.	.	.	
Iowa	No	17	3,235	11	20.852	0.528	0.277	0.917	7	.	.	.	.	.	.	.	.
Kansas	No	29	4,190	16	24.529	0.652	0.386	1.037	8	.	.	.	.	.	.	.	.
Kentucky	No	21	2,272	25	17.231	1.451	0.960	2.110	5	.	.	.	.	.	.	.	.
Louisiana	No	37	3,618	41	29.182	1.405	1.022	1.888	8	.	.	.	.	.	.	.	.
Maine	No	12	2,551	18	14.086	1.278	0.781	1.980	4	.	.	.	.	.	.	.	.
Maryland	No	44	9,465	57	60.092	0.949	0.725	1.220	20	0%	0%	0.000	0.197	0.737	1.570	2.050	
Massachusetts	No	56	15,273	89	93.965	0.947	0.765	1.160	23	9%	13%	0.000	0.203	0.771	1.512	2.223	
Michigan	No	67	14,921	99	95.540	1.036	0.847	1.256	31	6%	3%	0.000	0.572	0.903	1.429	1.978	
Minnesota	No	28	7,465	59	48.844	1.208	0.928	1.547	12	8%	0%	.	.	.	.	.	.
Mississippi	No	22	2,877	17	21.705	0.783	0.471	1.229	5	.	.	.	.	.	.	.	.
Missouri		63	12,399	86	87.999	0.977	0.787	1.201	24	4%	8%	0.000	0.100	0.932	1.353	1.724	
Montana	No	5	1,299	3	6.133	0.489	0.124	1.331	3	.	.	.	.	.	.	.	.
Nebraska		2	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Nevada	Yes	19	4,229	21	24.936	0.842	0.535	1.265	9	.	.	.	.	.	.	.	.
New Hampshire	No	7	1,522	5	10.354	0.483	0.177	1.070	1	.	.	.	.	.	.	.	.
New Jersey		33	6,331	37	38.113	0.971	0.694	1.324	12	8%	8%	.	.	.	.	.	.
New Mexico	No	8	639	3	3.483	0.861	0.219	2.344	1	.	.	.	.	.	.	.	.
New York	Yes	155	35,030	224	215.839	1.038	0.908	1.181	60	3%	0%	0.000	0.446	0.874	1.480	2.229	
North Carolina	No	29	8,953	62	54.198	1.144	0.885	1.457	14	14%	14%	.	.	.	.	.	.
North Dakota	No	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Ohio	No	52	10,606	54	70.983	0.761	0.577	0.985	23	0%	0%	0.000	0.000	0.558	1.330	1.525	
Oklahoma	No	29	3,911	52	29.085	1.788	1.349	2.326	8	.	.	.	.	.	.	.	.
Oregon	Yes	31	8,261	50	47.776	1.047	0.785	1.369	16	13%	6%	.	.	.	.	.	.
Pennsylvania	Yes	151	29,452	185	187.704	0.986	0.851	1.136	55	5%	0%	0.000	0.303	0.842	1.641	2.584	
Puerto Rico		2	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Rhode Island	No	6	1,232	2	7.541	0.265	0.044	0.876	2	.	.	.	.	.	.	.	.
South Carolina	Yes	51	8,700	61	54.183	1.126	0.869	1.436	17	6%	0%	.	.	.	.	.	.
South Dakota	No	8	667	3	3.918	0.766	0.195	2.084	1	.	.	.	.	.	.	.	.
Tennessee	No	59	12,378	88	88.409	0.995	0.803	1.220	26	8%	0%	0.000	0.548	0.708	1.234	1.718	
Texas	No	279	34,098	242	248.081	0.975	0.858	1.104	74	4%	1%	0.000	0.341	0.828	1.697	2.387	
Utah		1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Vermont	Yes	6	915	4	5.743	0.697	0.221	1.680	1	.	.	.	.	.	.	.	.
Virgin Islands		0	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.

Virginia	No	20	5,739	27	36.534	0.739	0.497	1.060	11	0%	0%	.	.	.	.	.
Washington	No	46	13,003	73	70.011	1.043	0.823	1.304	25	0%	4%	0.000	0.683	0.966	1.301	2.361
West Virginia	No	10	1,503	12	11.953	1.004	0.544	1.707	3	.	.	.	.	.	.	.
Wisconsin	No	63	11,356	62	68.040	0.911	0.705	1.160	25	4%	0%	0.000	0.000	0.615	1.358	2.282
Wyoming	No	5	159	1	0.617	.	.	.	0	.	.	.	.	.	.	.
All US		**2,186**	**403,624**	**2,630**	**2587.894**	**1.016**	**0.978**	**1.056**	**806**	**6%**	**3%**	**0.000**	**0.352**	**0.833**	**1.515**	**2.258**

1. SSIs included are those classified as deep incisional or organ/space infections following NHSN-defined inpatient hip arthroplasty procedures that occurred in 2018 with a primary or other than primary skin closure technique, detected during the same admission as the surgical procedure or upon readmission to the same facility.
2. Yes indicates the presence of a state mandate to report SSIs following hip arthroplasty surgery to NHSN at the beginning of 2018. M indicates midyear implementation of a mandate. No indicates that a state mandate did not exist during 2018. A blank field indicates data not available.
3. The number of reporting facilities included in the SIR calculation. 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 hip arthroplasty in 2018.
4. Percent of facilities with at least one predicted hip arthroplasty SSI that had an SIR significantly greater or less than the nominal value of the 2018 national hip arthroplasty SIR of 1.016. This is only calculated if at least 10 facilities had at least one predicted hip arthroplasty SSI in 2018.
5. Facility-specific key percentiles were only calculated if at least 20 facilities had ≥1.0 predicted hip arthroplasty SSI in 2018. If a facility's predicted number of hip arthroplasty 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 Acute Care Hospitals reporting during 2018

6d. Surgical site infections (SSI) following knee arthroplasty[1] in adults, ≥ 18years

				No. of Infections			95% CI for SIR		Facility-specific SIRs							
State			No. of Procedures	Observed	Predicted	SIR	Lower	Upper				10%	25%		75%	90%
Alabama	No	17	5,044	26	20.342	1.278	0.853	1.846	7	.	.	.	.	.	.	.
Alaska	No	3	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Arizona	No	42	10,762	44	42.701	1.030	0.758	1.371	17	6%	6%	.	.	.	.	.
Arkansas	No	22	4,447	16	16.892	0.947	0.561	1.505	9	.	.	.	.	.	.	.
California	Yes	289	59,263	192	221.064	0.869	0.752	0.998	70	3%	1%	0.000	0.000	0.679	1.271	1.854
Colorado	Yes	51	17,472	82	59.392	1.381	1.105	1.705	21	24%	5%	0.000	0.366	1.231	2.683	4.543
Connecticut	No	14	5,246	21	18.673	1.125	0.715	1.690	8	.	.	.	.	.	.	.
D.C.	No	4	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Delaware		2	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Florida	No	63	17,667	74	66.561	1.112	0.879	1.388	26	19%	0%	0.000	0.463	0.778	2.071	2.906
Georgia	No	61	12,310	62	47.992	1.292	0.999	1.645	19	11%	0%	.	.	.	.	.
Guam		1	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Hawaii	No	5	1,400	5	5.280	0.947	0.347	2.099	2	.	.	.	.	.	.	.
Idaho	No	6	2,513	15	7.989	1.877	1.091	3.027	3	.	.	.	.	.	.	.
Illinois	No	116	31,045	117	115.407	1.014	0.842	1.211	47	2%	2%	0.000	0.324	0.745	1.390	2.190
Indiana	No	50	13,227	56	44.184	1.267	0.967	1.634	14	21%	0%	.	.	.	.	.
Iowa	No	15	4,249	11	13.766	0.799	0.420	1.389	4	.	.	.	.	.	.	.
Kansas	No	28	5,781	13	18.865	0.689	0.383	1.149	6	.	.	.	.	.	.	.
Kentucky	No	22	4,542	17	18.060	0.941	0.567	1.477	4	.	.	.	.	.	.	.
Louisiana	No	36	5,458	19	23.216	0.818	0.507	1.254	6	.	.	.	.	.	.	.
Maine	No	12	3,073	8	8.362	0.957	0.444	1.817	3	.	.	.	.	.	.	.
Maryland	No	44	13,559	46	52.314	0.879	0.651	1.163	18	0%	6%	.	.	.	.	.
Massachusetts	No	56	19,114	91	66.817	1.362	1.103	1.664	22	9%	0%	0.000	0.668	1.231	1.998	2.309
Michigan	No	67	20,445	78	73.100	1.067	0.849	1.325	25	8%	0%	0.000	0.348	0.857	1.206	2.194
Minnesota	No	29	9,705	49	33.400	1.467	1.097	1.924	10	10%	0%	.	.	.	.	.
Mississippi	No	21	4,379	20	16.865	1.186	0.745	1.799	6	.	.	.	.	.	.	.
Missouri		42	13,353	32	49.181	0.651	0.453	0.908	16	6%	6%	.	.	.	.	.
Montana	No	5	1,924	6	5.294	1.133	0.459	2.357	3	.	.	.	.	.	.	.
Nebraska		3	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Nevada	Yes	19	4,961	28	16.844	1.662	1.126	2.370	6	.	.	.	.	.	.	.
New Hampshire	Yes	13	3,226	19	12.125	1.567	0.971	2.402	2	.	.	.	.	.	.	.
New Jersey		68	17,283	64	60.783	1.053	0.818	1.336	22	5%	0%	0.000	0.000	0.696	1.217	2.496
New Mexico	No	8	1,042	4	3.259	1.228	0.390	2.961	1	.	.	.	.	.	.	.
New York	No	43	18,218	80	63.738	1.255	1.002	1.554	21	0%	0%	0.000	0.000	0.919	1.526	1.868
North Carolina	No	29	13,180	27	46.644	0.579	0.389	0.831	13	0%	15%	.	.	.	.	.
North Dakota	No	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Ohio	No	51	15,313	58	54.778	1.059	0.811	1.359	17	6%	6%	.	.	.	.	.
Oklahoma	No	31	5,966	32	20.660	1.549	1.078	2.160	6	.	.	.	.	.	.	.
Oregon	Yes	31	10,227	39	32.159	1.213	0.874	1.641	11	9%	0%	.	.	.	.	.
Pennsylvania	Yes	149	42,584	157	141.683	1.108	0.945	1.292	49	4%	0%	0.000	0.000	0.755	1.207	2.301
Puerto Rico		2	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Rhode Island	No	6	1,350	2	5.562	0.360	0.060	1.188	1	.	.	.	.	.	.	.
South Carolina	Yes	51	12,973	46	42.670	1.078	0.798	1.425	16	6%	0%	.	.	.	.	.
South Dakota	No	7	1,065	5	2.748	1.820	0.667	4.033	0	.	.	.	.	.	.	.
Tennessee	No	51	17,570	70	66.694	1.050	0.824	1.318	21	10%	14%	0.000	0.447	0.847	1.412	2.244
Texas	No	274	55,605	203	207.280	0.979	0.851	1.121	60	7%	2%	0.000	0.000	0.652	1.337	2.251
Utah		1	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Vermont	Yes	6	1,010	9	3.562	2.527	1.232	4.637	1	.	.	.	.	.	.	.
Virgin Islands		0	.	.	.	.	.	.	.	.	.	.	.	.	.	.

Virginia	No	20	7,162	23	27.149	0.847	0.550	1.251	11	9%	9%	.	.	.	.	.
Washington	No	45	15,480	53	47.549	1.115	0.843	1.447	18	17%	0%	.	.	.	.	.
West Virginia	No	10	2,499	12	10.602	1.132	0.613	1.924	5	.	.	.	.	.	.	.
Wisconsin	No	63	15,386	32	48.923	0.654	0.455	0.912	20	0%	0%	0.000	0.000	0.490	0.920	1.661
Wyoming	No	6	265	0	0.602	.	.	.	0	.	.	.	.	.	.	.
All US		**2,111**	**553,112**	**2,090**	**1,980.484**	**1.055**	**1.011**	**1.101**	**673**	**7%**	**2%**	**0.000**	**0.280**	**0.834**	**1.526**	**2.512**

1. SSIs included are those classified as deep incisional or organ/space infections following NHSN-defined inpatient knee arthroplasty procedures that occurred in 2018 with a primary or other than primary skin closure technique, detected during the same admission as the surgical procedure or upon readmission to the same facility.
2. Yes indicates the presence of a state mandate to report SSIs following knee arthroplasty surgery to NHSN at the beginning of 2018. M indicates midyear implementation of a mandate. No indicates that a state mandate did not exist during 2018. A blank field indicates data not available.
3. The number of reporting facilities included in the SIR calculation. 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 knee arthroplasty in 2018.
4. Percent of facilities with at least one predicted knee arthroplasty SSI that had an SIR significantly greater or less than the nominal value of the 2018 national knee arthroplasty SIR of 1.055. This is only calculated if at least 10 facilities had at least one predicted knee arthroplasty SSI in 2018.
5. Facility-specific key percentiles were only calculated if at least 20 facilities had ≥1.0 predicted knee arthroplasty SSI in 2018. If a facility's predicted number of knee arthroplasty SSI was <1.0, a facility-specific SIR was neither calculated nor included in the distribution of facility-specific SIRs.

Table 6. State-specific standardi
NHSN
6e. Surgical site inf

State			No. of Procedures	No. of Infections Observed	No. of Infections Predicted
Alabama	No	1	.	.	.
Alaska	No	0	.	.	.
Arizona	No	2	.	.	.
Arkansas	No	3	.	.	.
California	Yes	261	5,362	40	90.972
Colorado	No	2	.	.	.
Connecticut	No	0	.	.	.
D.C.	No	0	.	.	.
Delaware		0	.	.	.
Florida	No	5	178	0	4.145
Georgia	No	0	.	.	.
Guam		0	.	.	.
Hawaii	No	0	.	.	.
Idaho	No	0	.	.	.
Illinois	No	3	.	.	.
Indiana	No	1	.	.	.
Iowa	No	0	.	.	.
Kansas	No	0	.	.	.
Kentucky	No	0	.	.	.
Louisiana	No	3	.	.	.
Maine	No	1	.	.	.
Maryland	No	0	.	.	.
Massachusetts	No	1	.	.	.
Michigan	No	1	.	.	.
Minnesota	No	1	.	.	.
Mississippi	No	0	.	.	.
Missouri		1	.	.	.
Montana	No	1	.	.	.
Nebraska		1	.	.	.
Nevada	No	2	.	.	.
New Hampshire	No	0	.	.	.
New Jersey		0	.	.	.
New Mexico	No	0	.	.	.
New York	No	2	.	.	.
North Carolina	No	1	.	.	.
North Dakota	No	0	.	.	.
Ohio	No	6	125	2	2.277
Oklahoma	No	0	.	.	.
Oregon	No	1	.	.	.
Pennsylvania	Yes	29	798	5	15.583

Puerto Rico		0	.	.	.
Rhode Island	No	0	.	.	.
South Carolina	No	0	.	.	.
South Dakota	No	1	.	.	.
Tennessee	No	1	.	.	.
Texas	No	0	.	.	.
Utah		0	.	.	.
Vermont	No	0	.	.	.
Virgin Islands		0	.	.	.
Virginia	No	1	.	.	.
Washington	No	4	..	.	
West Virginia	No	2	.	.	.
Wisconsin	No	3	.	.	.
Wyoming	No	0	.	.	.
All US		**341**	**7,890**	**62**	**142.345**

1. SSIs included are those classified as deep incisional or organ/space infections following NHSN-de
   detected during the same admission as the surgical procedure or upon readmission to the same fa
2. Yes indicates the presence of a state mandate to report SSIs following rectal surgery to NHSN at
   No indicates that a state mandate did not exist during 2018. A blank field indicates data not availab
3. The number of reporting facilities included in the SIR calculation. Refer to the Technical Appendix
   statistics are only calculated for states in which at least 5 facilities reported SSI data following recta
4. Percent of facilities with at least one predicted rectal surgery SSI that had an SIR significantly grea
   at least 10 facilities had at least one predicted rectal surgery SSI in 2018.
5. Facility-specific key percentiles were only calculated if at least 20 facilities had ≥1.0 predicted recta
   SIR was neither calculated nor included in the distribution of facility-specific SIRs.

zed infection ratios (SIRs) and facility-specific SIR summary measures,
l Acute Care Hospitals reporting during 2018
fections (SSI) following rectal surgery[1] in adults, ≥ 18years

	95% CI for SIR		Facility-specific SIRs				
SIR	Lower	Upper				10%	25%
.	.	.	.	.	.	.	.
.	.	.	.	.	.	.	.
.	.	.	.	.	.	.	.
.	.	.	.	.	.	.	.
0.440	0.318	0.593	17	6%	0%	.	.
.	.	.	.	.	.	.	.
.	.	.	.	.	.	.	.
.	.	.	.	.	.	.	.
.	.	.	.	.	.	.	.
0.000	.	0.723	1	.	.	.	.
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0.878	0.147	2.901	1	.	.	.	.
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.	.	.	.	.	.	.	.
0.321	0.118	0.711	6	.	.	.	.

0.436	**0.337**	**0.555**	**34**	**3%**	**0%**	**0.000**	**0.000**

fined inpatient rectal surgery procedures that occurred in 2018 with a primary or other than primary skin clos
acility.
the beginning of 2018. M indicates midyear implementation of a mandate.
ole.
for information about exclusion criteria. SIRs and accompanying
al surgery in 2018.
ater or less than the nominal value of the 2018 national rectal surgery SIR of 0.436. This is only calculated if

al surgery SSI in 2018. If a facility's predicted number of rectal surgery SSI was <1.0, a facility-specific

75%	90%
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0.000	**0.724**	**0.940**

sure technique,

Table 6. State-specific standardi
NHSN

6f. Surgical site infecti

				No. of Infections	
State			**No. of Procedures**	**Observed**	**Predicted**
Alabama	No	1	.	.	.
Alaska	No	0	.	.	.
Arizona	No	2	.	.	.
Arkansas	No	3	.	.	.
California	Yes	257	7,145	28	37.174
Colorado	No	19	671	7	4.437
Connecticut	No	0	.	.	.
D.C.	No	0	.	.	.
Delaware		1	.	.	.
Florida	No	8	130	0	0.748
Georgia	No	2	.	.	.
Guam		1	.	.	.
Hawaii	No	0	.	.	.
Idaho	No	1	.	.	.
Illinois	No	3	.	.	.
Indiana	No	9	373	2	2.271
Iowa	No	2	.	.	.
Kansas	No	1	.	.	.
Kentucky	No	1	.	.	.
Louisiana	No	8	151	2	0.996
Maine	No	1	.	.	.
Maryland	No	3	.	.	.
Massachusetts	No	48	1,152	11	7.046
Michigan	No	5	196	0	1.438
Minnesota	No	4	.	.	.
Mississippi	No	6	397	1	1.667
Missouri		2	.	.	.
Montana	No	1	.	.	.
Nebraska		2	.	.	.
Nevada	No	0	.	.	.
New Hampshire	No	1	.	.	.
New Jersey		1	.	.	.
New Mexico	No	4	.	.	.
New York	No	4	.	.	.
North Carolina	No	3	.	.	.
North Dakota	No	0	.	.	.
Ohio	No	11	507	4	2.805
Oklahoma	No	3	.	.	.
Oregon	No	2	.	.	.
Pennsylvania	Yes	26	773	6	5.355

Puerto Rico		0	.	.	.
Rhode Island	No	0	.	.	.
South Carolina	No	2	.	.	.
South Dakota	No	2	.	.	.
Tennessee	No	4	.	.	.
Texas	No	227	8,743	38	46.154
Utah		0	.	.	.
Vermont	No	0	.	.	.
Virgin Islands		0	.	.	.
Virginia	No	2	.	.	.
Washington	No	18	593	1	2.663
West Virginia	No	1	.	.	.
Wisconsin	No	6	299	2	2.120
Wyoming	No	0	.	.	.
All US		**708**	**23,710**	**120**	**131.060**

1. SSIs included are those classified as deep incisional or organ/space infections following NHSN-de
   detected during the same admission as the surgical procedure or upon readmission to the same fa
2. Yes indicates the presence of a state mandate to report SSIs following vaginal hysterectomy surge
   No indicates that a state mandate did not exist during 2018. A blank field indicates data not availab
3. The number of reporting facilities included in the SIR calculation. Refer to the Technical Appendix
   statistics are only calculated for states in which at least 5 facilities reported SSI data following vagi
4. Percent of facilities with at least one predicted vaginal hysterectomy SSI that had an SIR significar
   at least 10 facilities had at least one predicted vaginal hysterectomy SSI in 2018.
5. Facility-specific key percentiles were only calculated if at least 20 facilities had ≥1.0 predicted vagi
   SIR was neither calculated nor included in the distribution of facility-specific SIRs.

zed infection ratios (SIRs) and facility-specific SIR summary measures,
l Acute Care Hospitals reporting during 2018

ons (SSI) following vaginal hysterectomy[1] in adults, ≥ 18years

95% CI for SIR			Facility-specific SIRs				
SIR	Lower	Upper				10%	25%
.	.	.	.	.	.	.	.
.	.	.	.	.	.	.	.
.	.	.	.	.	.	.	.
.	.	.	.	.	.	.	.
0.753	0.510	1.074	1	.	.	.	.
1.578	0.690	3.120	0	.	.	.	.
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.	.	.	.	.	.	.	.
0.881	0.148	2.910	0	.	.	.	.
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.	.	.	0	.	.	.	.
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.	.	.	.	.	.	.	.
1.561	0.821	2.713	1	.	.	.	.
0.000	.	2.084	0	.	.	.	.
.	.	.	.	.	.	.	.
0.600	0.030	2.958	1	.	.	.	.
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1.426	0.453	3.440	2	.	.	.	.
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.	.	.	.	.	.	.	.
1.120	0.454	2.330	1	.	.	.	.

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0.823	0.591	1.118	8	.	.	.	.
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.	.	.	.	.	.	.	.
.	.	.	.	.	.	.	.
.	.	.	.	.	.	.	.
0.375	0.019	1.852	0	.	.	.	.
.	.	.	.	.	.	.	.
0.943	0.158	3.117	0	.	.	.	.
.	.	.	.	.	.	.	.
0.916	**0.762**	**1.091**	**17**	**.**	**.**	**.**	**.**

fined inpatient vaginal hysterectomy procedures that occurred in 2018 with a primary or other than primary s
acility.
ery to NHSN at the beginning of 2018. M indicates midyear implementation of a mandate.
ole.
for information about exclusion criteria. SIRs and accompanying
nal hysterectomy in 2018.
ntly greater or less than the nominal value of the 2018 national vaginal hysterectomy SIR of 0.916. This is on

nal hysterectomy SSI in 2018. If a facility's predicted number of vaginal hysterectomy SSI was <1.0, a facility·

	75%	90%
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Table 6. State-specific standardi
NHSI

6g. Surgical site infection

State			No. of Procedures	No. of Infections Observed	Predicted
Alabama	No	7	1,000	9	6.041
Alaska	No	1	.	.	.
Arizona	No	8	816	7	4.394
Arkansas	No	8	1,462	13	11.229
California	Yes	125	15,472	99	111.317
Colorado	No	15	1,647	11	11.008
Connecticut	No	0	.	.	.
D.C.	No	1	.	.	.
Delaware		1	.	.	.
Florida	No	11	2,782	14	19.661
Georgia	No	10	2,223	13	18.746
Guam		1	.	.	.
Hawaii	No	1	.	.	.
Idaho	No	1	.	.	.
Illinois	No	59	7,319	56	58.139
Indiana	No	12	1,720	15	14.430
Iowa	No	2	.	.	.
Kansas	No	5	510	2	3.214
Kentucky	No	3	.	.	.
Louisiana	No	10	1,479	11	12.341
Maine	No	1	.	.	.
Maryland	No	10	2,597	13	18.459
Massachusetts	No	13	4,123	29	34.555
Michigan	No	8	1,302	8	10.666
Minnesota	No	3	.	.	.
Mississippi	No	11	1,103	13	8.032
Missouri		31	4,734	26	37.255
Montana	No	3	.	.	.
Nebraska		2	.	.	.
Nevada	Yes	12	1,821	11	12.418
New Hampshire	Yes	4	.	.	.
New Jersey		18	4,950	39	35.527
New Mexico	No	0	.	.	.
New York	Yes	37	10,500	92	93.234
North Carolina	No	7	2,093	13	18.805
North Dakota	No	0	.	.	.
Ohio	No	20	2,799	22	21.302
Oklahoma	No	5	736	4	6.023
Oregon	Yes	11	2,364	11	16.059
Pennsylvania	Yes	59	8,960	68	70.583

Puerto Rico		0	.	.	.
Rhode Island	No	1	.	.	.
South Carolina	Yes	17	3,442	20	26.026
South Dakota	No	1	.	.	.
Tennessee	Yes	22	6,598	43	51.157
Texas	No	129	16,245	99	113.642
Utah		1	.	.	.
Vermont	No	1	.	.	.
Virgin Islands		0	.	.	.
Virginia	No	7	2,023	18	17.361
Washington	No	14	3,342	16	25.352
West Virginia	No	2	.	.	.
Wisconsin	No	18	2,917	21	21.371
Wyoming	No	0	.	.	.
All US		**749**	**125,865**	**860**	**964.518**

1. SSIs included are those classified as deep incisional or organ/space infections following NHSN-de
   detected during the same admission as the surgical procedure or upon readmission to the same fa
2. Yes indicates the presence of a state mandate to report SSIs following coronary artery bypass gra
   No indicates that a state mandate did not exist during 2018. A blank field indicates data not availab
3. The number of reporting facilities included in the SIR calculation. Refer to the Technical Appendix
   statistics are only calculated for states in which at least 5 facilities reported SSI data following coro
4. Percent of facilities with at least one predicted coronary artery bypass graft SSI that had an SIR sig
   at least 10 facilities had at least one predicted coronary artery bypass graft SSI in 2018.
5. Facility-specific key percentiles were only calculated if at least 20 facilities had ≥1.0 predicted coro
   SIR was neither calculated nor included in the distribution of facility-specific SIRs.

ized infection ratios (SIRs) and facility-specific SIR summary measures,
N Acute Care Hospitals reporting during 2018

s (SSI) following coronary artery bypass graft[1] in adults, ≥ 18years

	95% CI for SIR		Facility-specific SIRs				
SIR	Lower	Upper				10%	25%
1.490	0.727	2.734	4	.	.	.	.
.	.	.	.	.	.	.	.
1.593	0.697	3.151	0	.	.	.	.
1.158	0.644	1.930	4	.	.	.	.
0.889	0.727	1.078	32	0%	3%	0.000	0.000
0.999	0.525	1.737	4	.	.	.	.
.	.	.	.	.	.	.	.
.	.	.	.	.	.	.	.
.	.	.	.	.	.	.	.
0.712	0.405	1.166	7	.	.	.	.
0.693	0.386	1.156	8	.	.	.	.
.	.	.	.	.	.	.	.
.	.	.	.	.	.	.	.
.	.	.	.	.	.	.	.
0.963	0.735	1.242	20	5%	0%	0.000	0.452
1.040	0.604	1.676	6	.	.	.	.
.	.	.	.	.	.	.	.
0.622	0.104	2.056	2	.	.	.	.
.	.	.	.	.	.	.	.
0.891	0.469	1.549	5	.	.	.	.
.	.	.	.	.	.	.	.
0.704	0.392	1.174	6	.	.	.	.
0.839	0.573	1.190	9	.	.	.	.
0.750	0.348	1.424	4	.	.	.	.
.	.	.	.	.	.	.	.
1.619	0.900	2.698	5	.	.	.	.
0.698	0.466	1.008	15	7%	0%	.	.
.	.	.	.	.	.	.	.
.	.	.	.	.	.	.	.
0.886	0.466	1.540	7	.	.	.	.
.	.	.	.	.	.	.	.
1.098	0.791	1.486	13	0%	0%	.	.
.	.	.	.	.	.	.	.
0.987	0.800	1.205	29	7%	7%	0.000	0.428
0.691	0.384	1.152	6	.	.	.	.
.	.	.	.	.	.	.	.
1.033	0.664	1.538	8	.	.	.	.
0.664	0.211	1.602	3	.	.	.	.
0.685	0.360	1.191	8	.	.	.	.
0.963	0.754	1.214	26	4%	0%	0.000	0.612

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0.768	0.483	1.166	11	0%	0%	.	.
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0.841	0.616	1.122	17	6%	0%	.	.
0.871	0.712	1.056	36	8%	0%	0.000	0.244
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1.037	0.634	1.607	5	.	.	.	.
0.631	0.374	1.003	9	.	.	.	.
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0.983	0.625	1.476	6	.	.	.	.
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0.892	**0.834**	**0.953**	**335**	**4%**	**1%**	**0.000**	**0.207**

fined inpatient coronary artery bypass graft procedures that occurred in 2018 with a primary or other than prir
acility.
ft surgery to NHSN at the beginning of 2018. M indicates midyear implementation of a mandate.
ble.
for information about exclusion criteria. SIRs and accompanying
nary artery bypass graft in 2018.
gnificantly greater or less than the nominal value of the 2018 national coronary artery bypass graft SIR of 0.89

nary artery bypass graft SSI in 2018. If a facility's predicted number of coronary artery bypass graft SSI was <

	75%	90%
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0.523	0.849	1.319
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0.780	1.403	2.477
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0.964	1.588	2.211
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0.890	1.526	1.995

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0.741	1.065	1.903
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0.739	**1.222**	**1.906**

nary skin closure technique,

)2. This is only calculated if

:1.0, a facility-specific

Table 6. State-specific standardi
NHSI

6h. Surgical site infect

State			No. of Procedures	No. of Infections Observed	No. of Infections Predicted
Alabama	No	1	.	.	.
Alaska	No	1	.	.	.
Arizona	No	6	692	2	3.285
Arkansas	No	3	.	.	.
California	Yes	172	13,832	43	52.318
Colorado	No	4	.	.	.
Connecticut	No	0	.	.	.
D.C.	No	0	.	.	.
Delaware		0	.	.	.
Florida	No	7	1,008	0	4.281
Georgia	No	2	.	.	.
Guam		0	.	.	.
Hawaii	No	0	.	.	.
Idaho	No	1	.	.	.
Illinois	No	5	215	0	1.032
Indiana	No	2	.	.	.
Iowa	No	2	.	.	.
Kansas	No	4	.	.	.
Kentucky	No	1	.	.	.
Louisiana	No	7	712	1	2.758
Maine	No	1	.	.	.
Maryland	No	2	.	.	.
Massachusetts	No	2	.	.	.
Michigan	No	4	.	.	.
Minnesota	No	3	.	.	.
Mississippi	No	4	.	.	.
Missouri		8	638	4	2.520
Montana	No	2	.	.	.
Nebraska		2	.	.	.
Nevada	No	1	.	.	.
New Hampshire	No	0	.	.	.
New Jersey		5	1,131	5	4.328
New Mexico	No	0	.	.	.
New York	No	6	1,976	2	8.628
North Carolina	No	1	.	.	.
North Dakota	No	0	.	.	.
Ohio	No	9	579	1	2.347
Oklahoma	No	2	.	.	.
Oregon	No	3	.	.	.
Pennsylvania	Yes	67	7,634	27	30.747

Puerto Rico		0	.	.	.
Rhode Island	No	1	.	.	.
South Carolina	No	2	.	.	.
South Dakota	No	1	.	.	.
Tennessee	No	7	1,391	8	5.848
Texas	No	21	935	4	2.686
Utah		0	.	.	.
Vermont	No	0	.	.	.
Virgin Islands		0	.	.	.
Virginia	No	1	.	.	.
Washington	No	17	2,587	3	10.350
West Virginia	No	1	.	.	.
Wisconsin	No	14	1,974	12	8.695
Wyoming	No	0	.	.	.
All US		**405**	**45,766**	**143**	**183.048**

1. SSIs included are those classified as deep incisional or organ/space infections following NHSN-de
   detected during the same admission as the surgical procedure or upon readmission to the same fa
2. Yes indicates the presence of a state mandate to report SSIs following other cardiac surgery to NI
   No indicates that a state mandate did not exist during 2018. A blank field indicates data not availat
3. The number of reporting facilities included in the SIR calculation. Refer to the Technical Appendix
   statistics are only calculated for states in which at least 5 facilities reported SSI data following othe
4. Percent of facilities with at least one predicted other cardiac surgery SSI that had an SIR significar
   at least 10 facilities had at least one predicted other cardiac surgery SSI in 2018.
5. Facility-specific key percentiles were only calculated if at least 20 facilities had ≥1.0 predicted othe
   SIR was neither calculated nor included in the distribution of facility-specific SIRs.

ized infection ratios (SIRs) and facility-specific SIR summary measures,
N Acute Care Hospitals reporting during 2018

ions (SSI) following other cardiac surgery[1] in adults, ≥ 18years

	95% CI for SIR		Facility-specific SIRs				
SIR	Lower	Upper				10%	25%
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.	.	.	.	.	.	.	.
0.609	0.102	2.012	2	.	.	.	.
.	.	.	.	.	.	.	.
0.822	0.602	1.097	14	7%	0%	.	.
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0.363	0.018	1.788	0	.	.	.	.
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1.587	0.504	3.829	1	.	.	.	.
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1.155	0.423	2.561	2	.	.	.	.
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0.232	0.039	0.766	2	.	.	.	.
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0.426	0.021	2.101	0	.	.	.	.
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0.878	0.591	1.260	12	0%	0%	.	.

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1.368	0.635	2.598	2	.	.	.	.
1.489	0.473	3.592	0	.	.	.	.
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0.290	0.074	0.789	3	.	.	.	.
.	.	.	.	.	.	.	.
1.380	0.748	2.346	2	.	.	.	.
.	.	.	.	.	.	.	.
0.781	**0.661**	**0.917**	**56**	**4%**	**0%**	**0.000**	**0.000**

fined inpatient other cardiac surgery procedures that occurred in 2018 with a primary or other than primary sk
cility.
HSN at the beginning of 2018. M indicates midyear implementation of a mandate.
ble.
for information about exclusion criteria. SIRs and accompanying
r cardiac surgery in 2018.
ntly greater or less than the nominal value of the 2018 national other cardiac surgery SIR of 0.781. This is onl

r cardiac surgery SSI in 2018. If a facility's predicted number of other cardiac surgery SSI was <1.0, a facility-s

75%	90%

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0.655	**1.107**	**2.011**

‹in closure technique,

y calculated if

ѕpecific

Table 6. State-specific standardi
NHSN

6i. Surgical site infections (SS

State			No. of Procedures	No. of Infections Observed	No. of Infections Predicted
Alabama	No	0	.	.	.
Alaska	No	0	.	.	.
Arizona	No	0	.	.	.
Arkansas	No	2	.	.	.
California	No	44	709	11	13.951
Colorado	No	2	.	.	.
Connecticut	No	0	.	.	.
D.C.	No	0	.	.	.
Delaware		0	.	.	.
Florida	No	4	.	.	.
Georgia	No	2	.	.	.
Guam		0	.	.	.
Hawaii	No	0	.	.	.
Idaho	No	0	.	.	.
Illinois	No	4	.	.	.
Indiana	No	0	.	.	.
Iowa	No	0	.	.	.
Kansas	No	0	.	.	.
Kentucky	No	0	.	.	.
Louisiana	No	4	.	.	.
Maine	No	1	.	.	.
Maryland	No	1	.	.	.
Massachusetts	No	1	.	.	.
Michigan	No	3	.	.	.
Minnesota	No	2	.	.	.
Mississippi	No	1	.	.	.
Missouri		5	394	8	8.299
Montana	No	1	.	.	.
Nebraska		0	.	.	.
Nevada	No	1	.	.	.
New Hampshire	No	1	.	.	.
New Jersey		0	.	.	.
New Mexico	No	0	.	.	.
New York	No	11	412	12	9.217
North Carolina	No	3	.	.	.
North Dakota	No	0	.	.	.
Ohio	No	8	299	7	6.620
Oklahoma	No	0	.	.	.
Oregon	No	4	.	.	.
Pennsylvania	Yes	31	976	38	21.572

Puerto Rico		0	.	.	.
Rhode Island	No	0	.	.	.
South Carolina	No	1	.	.	.
South Dakota	No	1	.	.	.
Tennessee	No	0	.	.	.
Texas	No	153	4,301	82	81.505
Utah		0	.	.	.
Vermont	No	0	.	.	.
Virgin Islands		0	.	.	.
Virginia	No	1	.	.	.
Washington	No	6	251	7	5.235
West Virginia	No	0	.	.	.
Wisconsin	No	7	214	9	4.793
Wyoming	No	0	.	.	.
All US		**305**	**9,392**	**226**	**191.178**

1. SSIs included are those classified as deep incisional or organ/space infections following NHSN-de
   detected during the same admission as the surgical procedure or upon readmission to the same fa
2. Yes indicates the presence of a state mandate to report SSIs following peripheral vascular bypass
   No indicates that a state mandate did not exist during 2018. A blank field indicates data not availab
3. The number of reporting facilities included in the SIR calculation. Refer to the Technical Appendix
   statistics are only calculated for states in which at least 5 facilities reported SSI data following perip
4 Percent of facilities with at least one predicted peripheral vascular bypass surgery SSI that had an
   at least 10 facilities had at least one predicted peripheral vascular bypass surgery SSI in 2018.
5. Facility-specific key percentiles were only calculated if at least 20 facilities had ≥1.0 predicted perip
   SIR was neither calculated nor included in the distribution of facility-specific SIRs.

zed infection ratios (SIRs) and facility-specific SIR summary measures,
l Acute Care Hospitals reporting during 2018

SI) following peripheral vascular bypass surgery[1] in adults, ≥ 18years

	95% CI for SIR		Facility-specific SIRs		
SIR	Lower	Upper		10%	25%
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
0.788	0.415	1.370	4	.	.
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0.964	0.448	1.830	2	.	.
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1.302	0.705	2.213	5	.	.
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1.057	0.462	2.092	3	.	.
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1.762	1.264	2.393	8	.	.

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1.006	0.805	1.242	27	7%	0%	0.000	0.000
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1.337	0.585	2.645	2	.	.	.	.
.	.	.	.	.	.	.	.
1.878	0.916	3.446	1	.	.	.	.
.	.	.	.	.	.	.	.
1.182	**1.035**	**1.344**	**65**	**8%**	**3%**	**0.000**	**0.000**

fined inpatient peripheral vascular bypass surgery procedures that occurred in 2018 with a primary or other t
acility.
surgery to NHSN at the beginning of 2018. M indicates midyear implementation of a mandate.
ble.
for information about exclusion criteria. SIRs and accompanying
pheral vascular bypass surgery in 2018.
SIR significantly greater or less than the nominal value of the 2018 national peripheral vascular bypass surge

pheral vascular bypass surgery SSI in 2018. If a facility's predicted number of peripheral vascular bypass surg

	75%	90%
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0.894	1.886	2.934
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0.968	**1.910**	**2.917**

than primary skin closure technique,

ery SIR of 1.182. This is only calculated if

gery SSI was <1.0, a facility-specific

Table 6. State-specific standardi
NHSN

6j. Surgical site infections (S

State			No. of Procedures	No. of Infections Observed	No. of Infections Predicted
Alabama	No	0	.	.	.
Alaska	No	0	.	.	.
Arizona	No	0	.	.	.
Arkansas	No	2	.	.	.
California	Yes	104	511	3	3.475
Colorado	No	2	.	.	.
Connecticut	No	0	.	.	.
D.C.	No	0	.	.	.
Delaware		0	.	.	.
Florida	No	3	.	.	.
Georgia	No	0	.	.	.
Guam		0	.	.	.
Hawaii	No	0	.	.	.
Idaho	No	0	.	.	.
Illinois	No	1	.	.	.
Indiana	No	0	.	.	.
Iowa	No	0	.	.	.
Kansas	No	0	.	.	.
Kentucky	No	0	.	.	.
Louisiana	No	2	.	.	.
Maine	No	1	.	.	.
Maryland	No	0	.	.	.
Massachusetts	No	1	.	.	.
Michigan	No	1	.	.	.
Minnesota	No	1	.	.	.
Mississippi	No	0	.	.	.
Missouri		0	.	.	.
Montana	No	0	.	.	.
Nebraska		0	.	.	.
Nevada	No	0	.	.	.
New Hampshire	No	0	.	.	.
New Jersey		0	.	.	.
New Mexico	No	0	.	.	.
New York	No	2	.	.	.
North Carolina	No	1	.	.	.
North Dakota	No	0	.	.	.
Ohio	No	4	.	.	.
Oklahoma	No	0	.	.	.
Oregon	No	0	.	.	.
Pennsylvania	Yes	18	79	0	0.537

Puerto Rico		0	.	.	.
Rhode Island	No	0	.	.	.
South Carolina	No	0	.	.	.
South Dakota	No	1	.	.	.
Tennessee	No	0	.	.	.
Texas	No	90	508	3	3.454
Utah		0	.	.	.
Vermont	No	0	.	.	.
Virgin Islands		0	.	.	.
Virginia	No	0	.	.	.
Washington	No	2	.	.	.
West Virginia	No	1	.	.	.
Wisconsin	No	3	.	.	.
Wyoming	No	0	.	.	.
All US		**240**	**1,289**	**8**	**8.765**

1. SSIs included are those classified as deep incisional or organ/space infections following NHSN-de
   detected during the same admission as the surgical procedure or upon readmission to the same fa
2. Yes indicates the presence of a state mandate to report SSIs following abdominal aortic aneurysm
   No indicates that a state mandate did not exist during 2018. A blank field indicates data not availab
3. The number of reporting facilities included in the SIR calculation. Refer to the Technical Appendix
   statistics are only calculated for states in which at least 5 facilities reported SSI data following abdo
4. Percent of facilities with at least one predicted abdominal aortic aneurysm repair SSI that had an S
   at least 10 facilities had at least one predicted abdominal aortic aneurysm repair SSI in 2018.
5. Facility-specific key percentiles were only calculated if at least 20 facilities had ≥1.0 predicted abdo
   SIR was neither calculated nor included in the distribution of facility-specific SIRs.

ized infection ratios (SIRs) and facility-specific SIR summary measures,
N Acute Care Hospitals reporting during 2018

SSI) following abdominal aortic aneurysm repair[1] in adults, ≥ 18years

	95% CI for SIR		Facility-specific SIRs				
SIR	Lower	Upper				10%	25%
.	.	.	.	.	.	.	.
.	.	.	.	.	.	.	.
.	.	.	.	.	.	.	.
.	.	.	.	.	.	.	.
0.863	0.220	2.350	0	.	.	.	.
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0.868	0.221	2.364	0	.	.	.	.
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0.913	**0.424**	**1.733**	**0**	**.**	**.**	**.**	**.**

fined inpatient abdominal aortic aneurysm repair procedures that occurred in 2018 with a primary or other tha
acility.
repair surgery to NHSN at the beginning of 2018. M indicates midyear implementation of a mandate.
ole.
for information about exclusion criteria. SIRs and accompanying
ominal aortic aneurysm repair in 2018.
SIR significantly greater or less than the nominal value of the 2018 national abdominal aortic aneurysm repair

ominal aortic aneurysm repair SSI in 2018. If a facility's predicted number of abdominal aortic aneurysm repai

	75%	90%
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an primary skin closure technique,

SIR of 0.913. This is only calculated if

r SSI was <1.0, a facility-specific

Table 6. State-specific standardi
NHSN

6k. Surgical site infectio

State			No. of Procedures	No. of Infections Observed	No. of Infections Predicted
Alabama	No	4	.	.	.
Alaska	No	2	.	.	.
Arizona	No	2	.	.	.
Arkansas	No	2	.	.	.
California	Yes	237	125,884	186	202.442
Colorado	No	18	7,175	15	12.676
Connecticut	No	1	.	.	.
D.C.	No	1	.	.	.
Delaware		0	.	.	.
Florida	No	5	2,869	6	6.231
Georgia	No	5	4,647	15	7.241
Guam		0	.	.	.
Hawaii	No	0	.	.	.
Idaho	No	1	.	.	.
Illinois	No	7	1,547	1	2.537
Indiana	No	9	3,414	3	5.009
Iowa	No	3	.	.	.
Kansas	No	1	.	.	.
Kentucky	No	1	.	.	.
Louisiana	No	8	4,827	6	9.635
Maine	No	2	.	.	.
Maryland	No	2	.	.	.
Massachusetts	No	1	.	.	.
Michigan	No	9	5,390	17	11.510
Minnesota	No	2	.	.	.
Mississippi	No	6	1,552	3	1.537
Missouri		14	9,250	8	19.476
Montana	No	3	.	.	.
Nebraska		3	.	.	.
Nevada	No	6	4,976	16	5.488
New Hampshire	No	2	.	.	.
New Jersey		4	.	.	.
New Mexico	No	2	.	.	.
New York	No	6	819	4	1.333
North Carolina	No	5	2,159	1	5.283
North Dakota	No	0	.	.	.
Ohio	No	22	9,992	15	17.322
Oklahoma	No	5	1,056	3	1.010
Oregon	No	0	.	.	.
Pennsylvania	Yes	33	13,890	46	38.751

Puerto Rico		0	.	.	.
Rhode Island	No	1	.	.	.
South Carolina	No	4	.	.	.
South Dakota	No	2	.	.	.
Tennessee	No	5	3,714	11	10.943
Texas	No	34	19,161	36	38.108
Utah		1	.	.	.
Vermont	No	0	.	.	.
Virgin Islands		0	.	.	.
Virginia	No	4	.	.	.
Washington	No	9	5,011	5	6.038
West Virginia	No	2	.	.	.
Wisconsin	No	18	6,488	18	11.560
Wyoming	No	0	.	.	.
All US		**514**	**257,188**	**511**	**457.689**

1. SSIs included are those classified as deep incisional or organ/space infections following NHSN-de
   detected during the same admission as the surgical procedure or upon readmission to the same fa
2. Yes indicates the presence of a state mandate to report SSIs following cesarean section surgery
   No indicates that a state mandate did not exist during 2018. A blank field indicates data not availab
3. The number of reporting facilities included in the SIR calculation. Refer to the Technical Appendix
   statistics are only calculated for states in which at least 5 facilities reported SSI data following cesa
4. Percent of facilities with at least one predicted cesarean section surgery SSI that had an SIR signi
   at least 10 facilities had at least one predicted cesarean section surgery SSI in 2018.
5. Facility-specific key percentiles were only calculated if at least 20 facilities had ≥1.0 predicted ces
   SIR was neither calculated nor included in the distribution of facility-specific SIRs.

ized infection ratios (SIRs) and facility-specific SIR summary measures,
N Acute Care Hospitals reporting during 2018

ns (SSI) following cesarean section surgery[1] in adults, ≥ 18years

	95% CI for SIR		Facility-specific SIRs				
SIR	Lower	Upper				10%	25%
.	.	.	.	.	.	.	.
.	.	.	.	.	.	.	.
.	.	.	.	.	.	.	.
.	.	.	.	.	.	.	.
0.919	0.794	1.058	61	11%	5%	0.000	0.000
1.183	0.688	1.908	5	.	.	.	.
.	.	.	.	.	.	.	.
.	.	.	.	.	.	.	.
.	.	.	.	.	.	.	.
0.963	0.390	2.003	2	.	.	.	.
2.072	1.204	3.340	4	.	.	.	.
.	.	.	.	.	.	.	.
.	.	.	.	.	.	.	.
.	.	.	.	.	.	.	.
0.394	0.020	1.944	1	.	.	.	.
0.599	0.152	1.630	1	.	.	.	.
.	.	.	.	.	.	.	.
.	.	.	.	.	.	.	.
.	.	.	.	.	.	.	.
0.623	0.252	1.295	2	.	.	.	.
.	.	.	.	.	.	.	.
.	.	.	.	.	.	.	.
.	.	.	.	.	.	.	.
1.477	0.889	2.317	4	.	.	.	.
.	.	.	.	.	.	.	.
1.952	0.496	5.312	0	.	.	.	.
0.411	0.191	0.780	6	.	.	.	.
.	.	.	.	.	.	.	.
.	.	.	.	.	.	.	.
2.916	1.726	4.634	2	.	.	.	.
.	.	.	.	.	.	.	.
.	.	.	.	.	.	.	.
.	.	.	.	.	.	.	.
3.002	0.954	7.241	0	.	.	.	.
0.189	0.009	0.933	1	.	.	.	.
.	.	.	.	.	.	.	.
0.866	0.503	1.396	5	.	.	.	.
2.971	0.756	8.085	0	.	.	.	.
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1.187	0.879	1.570	8	.	.	.	.

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1.005	0.529	1.747	2	.	.	.	.
0.945	0.672	1.294	11	0%	9%	.	.
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0.828	0.303	1.836	2	.	.	.	.
.	.	.	.	.	.	.	.
1.557	0.952	2.413	6	.	.	.	.
.	.	.	.	.	.	.	.
1.116	**1.023**	**1.216**	**137**	**11%**	**4%**	**0.000**	**0.310**

fined inpatient cesarean section surgery procedures that occurred in 2018 with a primary or other than prima
acility.
to NHSN at the beginning of 2018. M indicates midyear implementation of a mandate.
ble.
for information about exclusion criteria. SIRs and accompanying
arean section surgery in 2018.
ificantly greater or less than the nominal value of the 2018 national cesarean section surgery SIR of 1.116. T

arean section surgery SSI in 2018. If a facility's predicted number of cesarean section surgery SSI was <1.0,

	75%	90%
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0.672	1.444	2.719
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0.773	**1.589**	**2.665**

ary skin closure technique,

This is only calculated if

a facility-specific

Table 6. State-specific standard
NHSI

6I. Surgical site infect

State			No. of Procedures	No. of Infections Observed	Predicted
Alabama	No	4	.	.	.
Alaska	No	1	.	.	.
Arizona	No	5	3,094	38	27.634
Arkansas	No	6	1,249	18	10.331
California	Yes	219	40,194	266	303.184
Colorado	No	27	8,158	82	60.319
Connecticut	No	7	2,308	26	16.518
D.C.	No	1	.	.	.
Delaware		1	.	.	.
Florida	No	18	4,596	32	38.243
Georgia	No	14	4,912	61	34.060
Guam		1	.	.	.
Hawaii	No	0	.	.	.
Idaho	No	3	.	.	.
Illinois	No	7	2,268	18	18.615
Indiana	No	13	5,640	18	32.016
Iowa	No	4	.	.	.
Kansas	No	4	.	.	.
Kentucky	No	0	.	.	.
Louisiana	No	10	2,009	15	13.870
Maine	No	2	.	.	.
Maryland	No	7	2,468	30	15.332
Massachusetts	No	4	.	.	.
Michigan	No	9	3,665	27	20.557
Minnesota	No	9	5,394	61	48.328
Mississippi	No	10	1,850	15	14.050
Missouri		17	4,897	18	33.943
Montana	No	2	.	.	.
Nebraska		2	.	.	.
Nevada	No	15	6,245	38	38.356
New Hampshire	No	3	.	.	.
New Jersey		7	1,486	13	10.988
New Mexico	No	0	.	.	.
New York	No	52	8,949	67	72.371
North Carolina	No	12	5,753	51	48.215
North Dakota	No	0	.	.	.
Ohio	No	24	6,563	41	43.413
Oklahoma	No	4	.	.	.
Oregon	No	10	3,235	24	26.613
Pennsylvania	Yes	45	12,490	123	105.490

Puerto Rico		0	.	.	.
Rhode Island	No	1	.	.	.
South Carolina	No	6	2,106	16	15.870
South Dakota	No	1	.	.	.
Tennessee	No	11	6,077	76	64.074
Texas	No	74	12,391	94	80.859
Utah		2	.	.	.
Vermont	No	2	.	.	.
Virgin Islands		0	.	.	.
Virginia	No	5	3,226	11	26.274
Washington	No	15	4,262	14	25.849
West Virginia	No	0	.	.	.
Wisconsin	No	15	3,196	15	19.590
Wyoming	No	3	.	.	.
All US		**714**	**181,795**	**1,416**	**1366.836**

1. SSIs included are those classified as deep incisional or organ/space infections following NHSN-de detected during the same admission as the surgical procedure or upon readmission to the same fa
2. Yes indicates the presence of a state mandate to report SSIs following fusion surgery to NHSN at No indicates that a state mandate did not exist during 2018. A blank field indicates data not availat
3. The number of reporting facilities included in the SIR calculation. Refer to the Technical Appendix statistics are only calculated for states in which at least 5 facilities reported SSI data following spin
4. Percent of facilities with at least one predicted fusion surgery SSI that had an SIR significantly grea at least 10 facilities had at least one predicted fusion surgery SSI in 2018.
5. Facility-specific key percentiles were only calculated if at least 20 facilities had ≥1.0 predicted fusic SIR was neither calculated nor included in the distribution of facility-specific SIRs.

ized infection ratios (SIRs) and facility-specific SIR summary measures,
N Acute Care Hospitals reporting during 2018

ions (SSI) following spinal fusion surgery[1] in adults, ≥ 18years

95% CI for SIR			Facility-specific SIRs				
SIR	Lower	Upper				10%	25%
.	.	.	.	.	.	.	.
.	.	.	.	.	.	.	.
1.375	0.987	1.868	3	.	.	.	.
1.742	1.065	2.700	2	.	.	.	.
0.877	0.777	0.988	84	2%	1%	0.000	0.000
1.359	1.088	1.679	14	21%	0%	.	.
1.574	1.050	2.273	5	.	.	.	.
.	.	.	.	.	.	.	.
.	.	.	.	.	.	.	.
0.837	0.582	1.167	9	.	.	.	.
1.791	1.382	2.285	12	33%	0%	.	.
.	.	.	.	.	.	.	.
.	.	.	.	.	.	.	.
.	.	.	.	.	.	.	.
0.967	0.591	1.499	3	.	.	.	.
0.562	0.344	0.871	11	0%	18%	.	.
.	.	.	.	.	.	.	.
.	.	.	.	.	.	.	.
.	.	.	.	.	.	.	.
1.081	0.628	1.744	6	.	.	.	.
.	.	.	.	.	.	.	.
1.957	1.344	2.758	5	.	.	.	.
.	.	.	.	.	.	.	.
1.313	0.883	1.885	7	.	.	.	.
1.262	0.974	1.610	6	.	.	.	.
1.068	0.620	1.721	5	.	.	.	.
0.530	0.324	0.822	10	0%	10%	.	.
.	.	.	.	.	.	.	.
.	.	.	.	.	.	.	.
0.991	0.711	1.346	11	9%	0%	.	.
.	.	.	.	.	.	.	.
1.183	0.658	1.972	4	.	.	.	.
.	.	.	.	.	.	.	.
0.926	0.723	1.168	23	4%	4%	0.000	0.000
1.058	0.796	1.380	8	.	.	.	.
.	.	.	.	.	.	.	.
0.944	0.687	1.269	10	0%	0%	.	.
.	.	.	.	.	.	.	.
0.902	0.591	1.321	6	.	.	.	.
1.166	0.973	1.386	23	13%	0%	0.000	0.789

.	.	.	.	.	.	.	.
.	.	.	.	.	.	.	.
1.008	0.597	1.602	4	.	.	.	.
.	.	.	.	.	.	.	.
1.186	0.941	1.476	8	.	.	.	.
1.163	0.945	1.416	24	4%	0%	0.454	0.730
.	.	.	.	.	.	.	.
.	.	.	.	.	.	.	.
.	.	.	.	.	.	.	.
0.419	0.220	0.728	3	.	.	.	.
0.542	0.308	0.887	9	.	.	.	.
.	.	.	.	.	.	.	.
0.766	0.445	1.235	5	.	.	.	.
.	.	.	.	.	.	.	.
1.036	**0.983**	**1.091**	**342**	**8%**	**4%**	**0.000**	**0.391**

fined inpatient fusion surgery procedures that occurred in 2018 with a primary or other than primary skin closu
acility.
the beginning of 2018. M indicates midyear implementation of a mandate.
ole.
for information about exclusion criteria. SIRs and accompanying
al fusion surgery in 2018.
ater or less than the nominal value of the 2018 national fusion surgery SIR of 1.036. This is only calculated if

on surgery SSI in 2018. If a facility's predicted number of fusion surgery SSI was <1.0, a facility-specific

	75%	90%
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0.753	1.231	1.875
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0.608	1.194	1.988
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0.967	1.520	2.956

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1.001	1.387	1.799
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0.907	**1.473**	**2.182**

ure technique,

Table 6. State-specific standardi
NHSN
6m. Surgical site infect

State			No. of Procedures	No. of Infections Observed	Predicted
Alabama	No	5	746	5	2.986
Alaska	No	1	.	.	.
Arizona	No	3	.	.	.
Arkansas	No	4	.	.	.
California	Yes	230	18,773	63	64.387
Colorado	No	21	2,113	6	7.005
Connecticut	No	7	829	7	2.917
D.C.	No	0	.	.	.
Delaware		0	.	.	.
Florida	No	12	1,794	3	7.078
Georgia	No	11	1,611	13	6.352
Guam		0	.	.	.
Hawaii	No	0	.	.	.
Idaho	No	2	.	.	.
Illinois	No	4	.	.	.
Indiana	No	10	1,851	12	6.876
Iowa	No	4	.	.	.
Kansas	No	3	.	.	.
Kentucky	No	0	.	.	.
Louisiana	No	7	828	3	3.366
Maine	No	2	.	.	.
Maryland	No	5	538	3	1.603
Massachusetts	No	3	.	.	.
Michigan	No	7	1,230	4	3.974
Minnesota	No	8	2,593	18	9.775
Mississippi	No	11	1,044	9	4.222
Missouri		13	1,609	6	6.347
Montana	No	2	.	.	.
Nebraska		1	.	.	.
Nevada	Yes	17	2,618	8	9.560
New Hampshire	No	3	.	.	.
New Jersey		9	742	4	2.853
New Mexico	No	0	.	.	.
New York	No	23	1,766	6	6.462
North Carolina	No	6	1,185	5	3.818
North Dakota	No	0	.	.	.
Ohio	No	17	1,471	8	5.613
Oklahoma	No	1	.	.	.
Oregon	Yes	22	3,306	9	11.499
Pennsylvania	Yes	47	5,488	22	20.393

Puerto Rico		0	.	.	.
Rhode Island	No	1	.	.	.
South Carolina	No	3	.	.	.
South Dakota	No	1	.	.	.
Tennessee	No	5	1,374	3	5.926
Texas	No	50	5,150	19	18.272
Utah		0	.	.	.
Vermont	No	1	.	.	.
Virgin Islands		0	.	.	.
Virginia	No	5	1,207	4	4.829
Washington	No	14	1,467	7	4.699
West Virginia	No	0	.	.	.
Wisconsin	No	12	1,165	1	3.863
Wyoming	No	1	.	.	.
All US		**614**	**70,031**	**281**	**254.177**

1. SSIs included are those classified as deep incisional or organ/space infections following NHSN-de detected during the same admission as the surgical procedure or upon readmission to the same fa
2. Yes indicates the presence of a state mandate to report SSIs following laminectomy surgery to NH No indicates that a state mandate did not exist during 2018. A blank field indicates data not availab
3. The number of reporting facilities included in the SIR calculation. Refer to the Technical Appendix statistics are only calculated for states in which at least 5 facilities reported SSI data following lami
4. Percent of facilities with at least one predicted laminectomy surgery SSI that had an SIR significan at least 10 facilities had at least one predicted laminectomy surgery SSI in 2018.
5. Facility-specific key percentiles were only calculated if at least 20 facilities had ≥1.0 predicted lami SIR was neither calculated nor included in the distribution of facility-specific SIRs.

zed infection ratios (SIRs) and facility-specific SIR summary measures,
l Acute Care Hospitals reporting during 2018

ions (SSI) following laminectomy surgery[1] in adults, ≥ 18years

	95% CI for SIR		Facility-specific SIRs				
SIR	Lower	Upper				10%	25%
1.674	0.614	3.712	1	.	.	.	.
.	.	.	.	.	.	.	.
.	.	.	.	.	.	.	.
.	.	.	.	.	.	.	.
0.978	0.758	1.244	14	7%	0%	.	.
0.857	0.347	1.781	1	.	.	.	.
2.400	1.050	4.747	1	.	.	.	.
.	.	.	.	.	.	.	.
.	.	.	.	.	.	.	.
0.424	0.108	1.154	3	.	.	.	.
2.047	1.138	3.412	2	.	.	.	.
.	.	.	.	.	.	.	.
.	.	.	.	.	.	.	.
.	.	.	.	.	.	.	.
.	.	.	.	.	.	.	.
1.745	0.946	2.967	2	.	.	.	.
.	.	.	.	.	.	.	.
.	.	.	.	.	.	.	.
.	.	.	.	.	.	.	.
0.891	0.227	2.426	1	.	.	.	.
.	.	.	.	.	.	.	.
1.871	0.476	5.092	0	.	.	.	.
.	.	.	.	.	.	.	.
1.007	0.320	2.428	1	.	.	.	.
1.841	1.126	2.854	3	.	.	.	.
2.132	1.040	3.912	1	.	.	.	.
0.945	0.383	1.966	2	.	.	.	.
.	.	.	.	.	.	.	.
.	.	.	.	.	.	.	.
0.837	0.389	1.589	1	.	.	.	.
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1.402	0.446	3.382	-	.	.	.	.
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0.928	0.376	1.931	1	.	.	.	.
1.310	0.480	2.903	1	.	.	.	.
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1.425	0.662	2.707	2	.	.	.	.
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0.783	0.382	1.436	3	.	.	.	.
1.079	0.693	1.607	5	.	.	.	.

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0.506	0.129	1.378	1	.	.	.	.
1.040	0.645	1.594	2	.	.	.	.
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0.828	0.263	1.998	2	.	.	.	.
1.490	0.651	2.947	0	.	.	.	.
.	.	.	.	.	.	.	.
0.259	0.013	1.277	.	.	.	.	.
.	.	.	.	.	.	.	.
1.106	**0.982**	**1.241**	**59**	**3%**	**2%**	**0.000**	**0.000**

fined inpatient laminectomy surgery procedures that occurred in 2018 with a primary or other than primary sl
acility.
HSN at the beginning of 2018. M indicates midyear implementation of a mandate.
ble.
for information about exclusion criteria. SIRs and accompanying
nectomy surgery in 2018.
tly greater or less than the nominal value of the 2018 national laminectomy surgery SIR of 1.106. This is onl

nectomy surgery SSI in 2018. If a facility's predicted number of laminectomy surgery SSI was <1.0, a facility-

	75%	90%
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0.652	**1.247**	**1.885**

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Table 6. State-specific standardi
NHSN

6o. Surgical site infec

State			No. of Procedures	No. of Infections Observed	Predicted
Alabama	No	1	.	.	.
Alaska	No	0	.	.	.
Arizona	No	2	.	.	.
Arkansas	No	3	.	.	.
California	Yes	307	49,876	174	181.385
Colorado	No	7	828	10	3.380
Connecticut	No	0	.	.	.
D.C.	No	0	.	.	.
Delaware		0	.	.	.
Florida	No	9	1,082	3	4.283
Georgia	No	3	.	.	.
Guam		1	.	.	.
Hawaii	No	0	.	.	.
Idaho	No	0	.	.	.
Illinois	No	3	.	.	.
Indiana	No	4	.	.	.
Iowa	No	0	.	.	.
Kansas	No	0	.	.	.
Kentucky	No	1	.	.	.
Louisiana	No	7	370	3	1.147
Maine	No	1	.	.	.
Maryland	No	0	.	.	.
Massachusetts	No	1	.	.	.
Michigan	No	3	.	.	.
Minnesota	No	1	.	.	.
Mississippi	No	0	.	.	.
Missouri		1	.	.	.
Montana	No	2	.	.	.
Nebraska		1	.	.	.
Nevada	No	3	.	.	.
New Hampshire	No	1	.	.	.
New Jersey		1	.	.	.
New Mexico	No	2	.	.	.
New York	No	4	.	.	.
North Carolina	No	1	.	.	.
North Dakota	No	0	.	.	.
Ohio	No	4	.	.	.
Oklahoma	No	0	.	.	.
Oregon	No	0	.	.	.
Pennsylvania	Yes	41	4,899	41	26.215

Puerto Rico		0	.	.	.
Rhode Island	No	0	.	.	.
South Carolina	No	2	.	.	.
South Dakota	No	2	.	.	.
Tennessee	No	0	.	.	.
Texas	No	9	506	1	1.727
Utah		0	.	.	.
Vermont	No	0	.	.	.
Virgin Islands		0	.	.	.
Virginia	No	2	.	.	.
Washington	No	7	1,244	4	5.382
West Virginia	No	3	.	.	.
Wisconsin	No	4	.	.	.
Wyoming	No	0	.	.	.
All US		**444**	**66,062**	**261**	**253.390**

1. SSIs included are those classified as deep incisional or organ/space infections following NHSN-de detected during the same admission as the surgical procedure or upon readmission to the same fa
2. Yes indicates the presence of a state mandate to report SSIs following gallbladder surgery to NHS No indicates that a state mandate did not exist during 2018. A blank field indicates data not availab
3. The number of reporting facilities included in the SIR calculation. Refer to the Technical gallbladde statistics are only calculated for states in which at least 5 facilities reported SSI data following gallb
4. Percent of facilities with at least one predicted gallbladder surgery SSI that had an SIR significantly at least 10 facilities had at least one predicted gallbladder surgery SSI in 2018.
5. Facility-specific key percentiles were only calculated if at least 20 facilities had ≥1.0 predicted gallb SIR was neither calculated nor included in the distribution of facility-specific SIRs.

zed infection ratios (SIRs) and facility-specific SIR summary measures,
N Acute Care Hospitals reporting during 2018
tions (SSI) following Gallbladder surgery[1] in adults, ≥ 18years

		95% CI for SIR		Facility-specific SIRs				
	SIR	Lower	Upper				10%	25%
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	0.959	0.824	1.110	59	0%	0%	0.000	0.000
	2.958	1.503	5.273	2	.	.	.	.
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	0.700	0.178	1.906	2	.	.	.	.
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	2.616	0.665	7.118	0	.	.	.	.
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	1.564	1.137	2.101	11	0%	0%	.	.

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0.579	0.029	2.855	0	.	.	.	.
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0.743	0.236	1.793	3	.	.	.	.
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1.030	**0.911**	**1.161**	**87**	**1%**	**0%**	**0.000**	**0.000**

fined inpatient gallbladder surgery procedures that occurred in 2018 with a primary or other than primary skir
acility.
SN at the beginning of 2018. M indicates midyear implementation of a mandate.
ole.
er for information about exclusion criteria. SIRs and accompanying
bladder surgery in 2018.
y greater or less than the nominal value of the 2018 national gallbladder surgery SIR of 1.030. This is only ca

bladder surgery SSI in 2018. If a facility's predicted number of gallbladder surgery SSI was <1.0, a facility-spe

	75%	90%
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0.708	1.141	1.963
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0.710	**1.327**	**2.057**

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Table 6. State-specific standardi
NHSN

6n. Surgical site infection

State			No. of Procedures	No. of Infections Observed	Predicted
Alabama	No	1	.	.	.
Alaska	No	0	.	.	.
Arizona	No	4	.	.	.
Arkansas	No	2	.	.	.
California	Yes	307	36,335	269	261.514
Colorado	No	6	953	12	6.767
Connecticut	No	0	.	.	.
D.C.	No	0	.	.	.
Delaware		0	.	.	.
Florida	No	9	2,391	16	19.896
Georgia	No	0	.	.	.
Guam		0	.	.	.
Hawaii	No	0	.	.	.
Idaho	No	0	.	.	.
Illinois	No	4	.	.	.
Indiana	No	2	.	.	.
Iowa	No	1	.	.	.
Kansas	No	0	.	.	.
Kentucky	No	1	.	.	.
Louisiana	No	5	1,125	13	8.339
Maine	No	0	.	.	.
Maryland	No	0	.	.	.
Massachusetts	No	1	.	.	.
Michigan	No	3	.	.	.
Minnesota	No	1	.	.	.
Mississippi	No	2	.	.	.
Missouri		5	408	4	2.293
Montana	No	2	.	.	.
Nebraska		1	.	.	.
Nevada	No	1	.	.	.
New Hampshire	No	2	.	.	.
New Jersey		0	.	.	.
New Mexico	No	2	.	.	.
New York	No	3	.	.	.
North Carolina	No	0	.	.	.
North Dakota	No	0	.	.	.
Ohio	No	6	999	6	7.037
Oklahoma	No	0	.	.	.
Oregon	No	0	.	.	.
Pennsylvania	Yes	39	6,356	73	49.543

Puerto Rico		0	.	.	.
Rhode Island	No	0	.	.	.
South Carolina	No	0	.	.	.
South Dakota	No	2	.	.	.
Tennessee	No	0	.	.	.
Texas	No	6	386	4	2.728
Utah		0	.	.	.
Vermont	No	0	.	.	.
Virgin Islands		0	.	.	.
Virginia	No	1	.	.	.
Washington	No	6	928	14	6.587
West Virginia	No	2	.	.	.
Wisconsin	No	6	1,048	11	8.757
Wyoming	No	0	.	.	.
All US		**433**	**54,929**	**447**	**401.422**

1. SSIs included are those classified as deep incisional or organ/space infections following NHSN-de
   detected during the same admission as the surgical procedure or upon readmission to the same fa
2. Yes indicates the presence of a state mandate to report SSIs following exploratory laparotomy sur
   No indicates that a state mandate did not exist during 2018. A blank field indicates data not availa
3. The number of reporting facilities included in the SIR calculation. Refer to the Technical Appendix
   statistics are only calculated for states in which at least 5 facilities reported SSI data following expl
4. Percent of facilities with at least one predicted exploratory laparotomy surgery SSI that had an SIR
   at least 10 facilities had at least one predicted exploratory laparotomy surgery SSI in 2018.
5. Facility-specific key percentiles were only calculated if at least 20 facilities had ≥1.0 predicted expl
   SIR was neither calculated nor included in the distribution of facility-specific SIRs.

zed infection ratios (SIRs) and facility-specific SIR summary measures,
l Acute Care Hospitals reporting during 2018

ıs (SSI) following open reduction of fracture[1] in adults, ≥ 18years

	95% CI for SIR		Facility-specific SIRs				
SIR	Lower	Upper				10%	25%
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.	.	.	.	.	.	.	.
.	.	.	.	.	.	.	.
.	.	.	.	.	.	.	.
1.029	0.911	1.157	81	6%	0%	0.000	0.410
1.773	0.961	3.015	2	.	.	.	.
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0.804	0.476	1.278	3	.	.	.	.
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1.559	0.867	2.599	2	.	.	.	.
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1.745	0.554	4.208	0	.	.	.	.
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0.853	0.346	1.773	3	.	.	.	.
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1.473	1.163	1.842	12	8%	0%	.	.

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1.466	0.466	3.537	0	.	.	.	.
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2.126	1.210	3.482	2	.	.	.	.
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1.256	0.661	2.183	2	.	.	.	.
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1.114	**1.014**	**1.220**	**115**	**7%**	**0%**	**0.000**	**0.410**

fined inpatient exploratory laparotomy surgery procedures that occurred in 2018 with a primary or other thar
acility.
gery to NHSN at the beginning of 2018. M indicates midyear implementation of a mandate.
ıble.
for information about exclusion criteria. SIRs and accompanying
oratory laparotomy surgery in 2018.
significantly greater or less than the nominal value of the 2018 national exploratory laparotomy surgery SIR

oratory laparotomy surgery SSI in 2018. If a facility's predicted number of exploratory laparotomy surgery SS

	75%	90%
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0.754	1.593	2.028
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0.754	**1.660**	**2.213**

ı primary skin closure technique,

of 1.114. This is only calculated il

l was <1.0, a facility-specific

Table 7. State-specific standardized infection ratios (SIRs) and facility-specific SIR summary measures, NHSN Acute Care Hospitals reporting during 2018

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

State				No. of Events			95% CI for SIR		Facility-specific SIRs								
				Observed	Predicted	SIR	Lower	Upper	No. of hosp with at least 1 predicted HO MRSA bacteremia			10%	25%		75%	90%	
Alaska	Yes	Yes	8	11	15.379	0.715	0.376	1.243	4	.	.	.	.	.	.	.	
Alabama	No	Yes	90	193	199.981	0.965	0.836	1.109	33	6%	6%	0.000	0.526	0.892	1.386	1.681	
Arkansas	No	No	49	101	92.419	1.093	0.895	1.322	20	10%	0%	0.410	0.589	1.128	1.601	2.132	
Arizona	No	No	66	166	196.472	0.845	0.724	0.981	36	6%	3%	0.000	0.355	0.802	1.293	1.679	
California	Yes	Yes	344	626	831.986	0.752	0.695	0.813	205	2%	4%	0.000	0.316	0.679	1.088	1.423	
Colorado	M	Yes	56	61	105.859	0.576	0.445	0.735	24	0%	0%	0.000	0.272	0.601	0.836	1.040	
Connecticut	Yes	Yes	31	72	97.094	0.742	0.584	0.928	22	0%	0%	0.000	0.126	0.505	0.852	1.201	
D.C.	Yes	No	8	41	56.090	0.731	0.532	0.982	7	.	.	.	.	.	.	.	
Delaware			8	42	41.291	1.017	0.743	1.362	7	.	.	.	.	.	.	.	
Florida	No	Yes	208	774	749.471	1.033	0.962	1.107	155	11%	1%	0.000	0.539	0.954	1.350	2.032	
Georgia	Yes	Yes	107	293	311.935	0.939	0.836	1.052	55	15%	4%	0.000	0.552	0.853	1.363	2.003	
Guam			2	.	.	.	.	.	.	.	.	.	.	.	.	.	
Hawaii	Yes	Yes	17	13	34.358	0.378	0.210	0.631	13	0%	0%	.	.	.	.	.	
Iowa	No	No	37	49	83.420	0.587	0.439	0.770	16	0%	6%	.	.	.	.	.	
Idaho	No	No	17	6	23.716	0.253	0.103	0.526	7	.	.	.	.	.	.	.	
Illinois	Yes	Yes	135	202	340.655	0.593	0.515	0.679	79	0%	4%	0.000	0.000	0.414	0.798	1.266	
Indiana	No	No	93	150	203.636	0.737	0.626	0.862	42	2%	0%	0.000	0.238	0.678	1.155	1.366	
Kansas	No	Yes	58	46	65.148	0.706	0.523	0.934	13	8%	8%	.	.	.	.	.	
Kentucky	Yes	No	70	185	184.864	1.001	0.864	1.153	34	9%	0%	0.000	0.467	0.658	1.199	1.775	
Louisiana	No		98	216	171.784	1.257	1.098	1.434	35	17%	3%	0.000	0.650	1.292	1.649	2.149	
Massachusetts	Yes	Yes	68	160	238.492	0.671	0.573	0.781	43	0%	2%	0.000	0.152	0.629	0.848	1.686	
Maryland	Yes	Yes	48	166	185.280	0.896	0.767	1.040	34	3%	3%	0.000	0.465	0.869	1.248	1.732	
Maine	Yes	No	17	19	35.413	0.537	0.333	0.822	6	.	.	.	.	.	.	.	
Michigan	No	No	99	301	340.650	0.884	0.788	0.988	59	10%	3%	0.190	0.549	0.829	1.298	2.297	
Minnesota	Yes	Yes	51	55	125.523	0.438	0.333	0.566	22	0%	9%	0.000	0.095	0.477	0.706	0.828	
Missouri			78	178	218.773	0.814	0.701	0.940	38	11%	8%	0.000	0.188	0.620	1.612	1.990	
Mississippi	Yes	No	58	110	108.579	1.013	0.837	1.216	22	9%	5%	0.000	0.506	0.857	1.251	1.990	
Montana	No	No	14	4	16.906	0.237	0.075	0.571	5	.	.	.	.	.	.	.	
North Carolina	Yes	Yes	98	313	359.392	0.871	0.778	0.972	51	4%	4%	0.000	0.314	0.654	0.972	1.250	
North Dakota	No	No	9	13	22.085	0.589	0.327	0.981	7	.	.	.	.	.	.	.	
Nebraska			25	23	54.492	0.422	0.274	0.623	14	0%	7%	.	.	.	.	.	
New Hampshire	No	No	13	18	32.985	0.546	0.334	0.846	10	0%	0%	.	.	.	.	.	
New Jersey			71	255	270.120	0.944	0.833	1.065	61	7%	3%	0.000	0.360	0.818	1.362	1.948	
New Mexico	Yes	No	31	23	37.169	0.619	0.402	0.914	9	.	.	.	.	.	.	.	
Nevada	Yes	No	24	75	87.022	0.862	0.683	1.074	15	13%	13%	.	.	.	.	.	
New York	No	No	177	659	742.199	0.888	0.822	0.958	120	8%	3%	0.000	0.446	0.845	1.217	1.836	
Ohio	No	Yes	144	394	429.531	0.917	0.830	1.011	81	7%	0%	0.000	0.408	0.785	1.356	1.774	
Oklahoma	Yes	Yes	81	108	128.125	0.843	0.695	1.014	18	11%	11%	.	.	.	.	.	
Oregon	Yes	Yes	35	64	89.337	0.716	0.556	0.909	18	0%	0%	.	.	.	.	.	
Pennsylvania	Yes	Yes	171	312	470.647	0.663	0.592	0.740	94	0%	5%	0.000	0.241	0.676	0.888	1.263	
Puerto Rico			2	.	.	.	.	.	.	.	.	.	.	.	.	.	
Rhode Island	No	No	10	32	26.400	1.212	0.843	1.691	7	.	.	.	.	.	.	.	
South Carolina	Yes	Yes	62	185	172.491	1.073	0.926	1.236	26	15%	0%	0.484	0.698	1.052	1.611	2.376	
South Dakota	No	Yes	21	20	28.697	0.697	0.438	1.057	3	.	.	.	.	.	.	.	
Tennessee	Yes	Yes	110	356	276.474	1.288	1.159	1.427	45	24%	0%	0.000	0.752	0.998	1.526	2.815	
Texas	No	No	358	636	766.599	0.830	0.767	0.896	149	6%	3%	0.000	0.479	0.776	1.173	1.774	
Utah			34	33	55.464	0.595	0.416	0.826	9	.	.	.	.	.	.	.	

Virginia	Yes	Yes	80	187	231.735	0.807	0.697	0.929	44	2%	2%	0.000	0.433	0.651	1.041	1.418
Virgin Islands			2	.	.	.	.	.	.	.	.	.	.	.	.	.
Vermont	No	Yes	6	6	13.184	0.455	0.184	0.947	2	.	.	.	.	.	.	.
Washington	No	No	57	101	181.234	0.557	0.456	0.674	35	3%	11%	0.000	0.247	0.485	0.811	1.017
Wisconsin	No	Yes	73	56	122.545	0.457	0.348	0.589	32	3%	0%	0.000	0.000	0.225	0.672	0.921
West Virginia	Yes	No	29	103	96.104	1.072	0.879	1.294	15	13%	7%	.	.	.	.	.
Wyoming	No	No	12	0	4.752	0.000	.	0.630	2	.	.	.	.	.	.	.
All US			**3,670**	**8,222**	**9,783.465**	**0.840**	**0.822**	**0.859**	**1,905**	**6%**	**3%**	**0.000**	**0.362**	**0.741**	**1.189**	**1.696**

1. Note that almost all acute care hospitals are required to report facility-wide MRSA bacteremia data to NHSN for participation in the Centers for Medicare and Medicaid Services' (CMS) Hospital Inpatient Quality Reporting Program. Hospital-onset is defined as event detected on the 4th day (or later) after admission to an inpatient location within the facility.
2. Yes indicates the presence of a state mandate to report facility-wide MRSA bacteremia data to NHSN at the beginning of 2018. M indicates midyear implementation of a mandate. No indicates that a state mandate did not exist during 2018. A blank field indicates data not available.
3. Yes indicates that the state health department reported the completion of all of the following validation activities: state health department had access to 2018 NHSN data, state health department performed an assessment of missing or implausible values on at least six months of 2018 NHSN data prior to June 1, 2019, and state health department contacted identified facilities. YesA indicates that the state also conducted an audit of facility medical or laboratory records prior to June 1, 2019 to confirm proper case ascertainment (although intensity of auditing activities varies by state). Information on validation efforts was requested from all states, regardless of the presence of a legislative mandate for the particular HAI type. Some states without mandatory reporting of a given HAI to the state health department have performed validation on NHSN data that is voluntarily shared with them by facilities in their jurisdiction.
4. The number of reporting facilities included in the SIR calculation. Due to SIR exclusion criteria, this may be different from the numbers shown in Table 1. Refer to the Technical Appendix for information about exclusion criteria. SIRs and accompanying statistics are only calculated for states in which at least 5 facilities reported MRSA bacteremia data in 2018.
5. Percent of facilities with at least one predicted hospital-onset MRSA bacteremia that had an SIR significantly greater or less than the nominal value of the 2018 national hospital-onset MRSA bacteremia SIR of 0.840. This is only calculated if at least 10 facilities had at least one predicted hospital-onset MRSA bacteremia in 2018.
6. Facility-specific key percentiles were only calculated if at least 20 facilities had ≥1.0 predicted hospital-onset MRSA bacteremia in 2018. If a facility's predicted number of hospital-onset MRSA bacteremia was <1.0, a facility-specific SIR was neither calculated nor included in the distribution of facility-specific SIRs.

Table 8. State-specific standardized infection ratios (SIRs) and facility-specific SIR summary measures, NHSN Acute Care Hospitals reporting during 2018
Hospital-onset *Clostridioides difficile* (CDI), facility-wide[1]

State				No. of Events		95% CI for SIR			Facility-specific SIRs							
				Observed	Predicted	SIR	Lower	Upper	No. of hosp with at least 1 predicted HO CDI			10%	25%		75%	90%
Alaska	Yes	Yes	8	127	142.181	0.893	0.748	1.059	7	.	.	.	.	.	.	.
Alabama	No	Yes	90	993	1,788.501	0.555	0.521	0.591	73	1%	21%	0.000	0.341	0.528	0.769	0.902
Arkansas	No	No	49	700	905.641	0.773	0.717	0.832	40	15%	5%	0.000	0.353	0.623	0.872	1.095
Arizona	No	No	66	1,151	1,734.543	0.664	0.626	0.703	54	11%	19%	0.277	0.430	0.668	0.937	1.304
California	Yes	Yes	338	5,740	8,474.700	0.677	0.660	0.695	316	11%	17%	0.233	0.389	0.600	0.852	1.080
Colorado	Yes	Yes	56	1,043	1,183.239	0.881	0.829	0.936	45	18%	4%	0.243	0.593	0.792	1.048	1.261
Connecticut	Yes	Yes	31	893	1,092.051	0.818	0.765	0.873	29	21%	14%	0.000	0.344	0.712	0.940	1.154
D.C	Yes	No	8	277	419.343	0.661	0.586	0.742	8	.	.	.	.	.	.	.
Delaware			8	232	341.939	0.678	0.595	0.770	8	.	.	.	.	.	.	.
Florida	No	Yes	208	4,795	7,944.884	0.604	0.587	0.621	198	9%	26%	0.220	0.400	0.575	0.802	1.041
Georgia	Yes	Yes	107	2,072	3,073.645	0.674	0.646	0.704	92	11%	26%	0.000	0.250	0.571	0.861	1.060
Guam			1	.	.	.	.	.	.	.	.	.	.	.	.	.
Hawaii	Yes	Yes	17	183	347.783	0.526	0.454	0.607	16	0%	31%	.	.	.	.	.
Iowa	No	No	38	633	870.869	0.727	0.672	0.785	35	6%	9%	0.104	0.468	0.674	1.013	1.162
Idaho	No	No	17	188	286.389	0.656	0.568	0.755	12	0%	8%	.	.	.	.	.
Illinois	Yes	Yes	135	3,509	4,230.275	0.829	0.802	0.857	128	23%	10%	0.346	0.576	0.797	1.061	1.330
Indiana	No	No	93	1,540	2,151.200	0.716	0.681	0.752	82	12%	10%	0.063	0.451	0.647	0.876	1.131
Kansas	No	Yes	58	598	746.352	0.801	0.739	0.867	40	10%	8%	0.000	0.263	0.584	1.050	1.385
Kentucky	Yes	No	70	1,048	1,603.723	0.653	0.615	0.694	63	8%	11%	0.058	0.366	0.651	0.879	1.077
Louisiana	No		99	993	1,345.639	0.738	0.693	0.785	71	8%	8%	0.201	0.443	0.708	0.954	1.215
Massachusetts	Yes	Yes	68	1,893	2,425.469	0.780	0.746	0.816	66	12%	11%	0.275	0.524	0.715	0.964	1.131
Maryland	Yes	Yes	48	1,491	1,864.947	0.799	0.760	0.841	47	15%	11%	0.418	0.601	0.795	1.021	1.188
Maine	Yes	Yes	17	218	335.327	0.650	0.568	0.741	17	0%	0%	.	.	.	.	.
Michigan	No	No	99	2,585	3,435.292	0.752	0.724	0.782	89	12%	10%	0.260	0.472	0.671	0.952	1.222
Minnesota	Yes	Yes	52	1,248	1,586.506	0.787	0.744	0.831	49	12%	6%	0.147	0.491	0.703	1.017	1.189
Missouri			78	1,700	2,216.861	0.767	0.731	0.804	70	16%	9%	0.299	0.515	0.725	0.922	1.126
Mississippi	Yes	No	57	817	1,122.897	0.728	0.679	0.779	48	8%	15%	0.000	0.269	0.539	0.787	1.056
Montana	No	No	14	91	169.629	0.536	0.434	0.656	11	0%	9%	.	.	.	.	.
North Carolina	Yes		98	2,395	3,357.869	0.713	0.685	0.742	94	11%	17%	0.000	0.365	0.653	0.967	1.273
North Dakota	No	No	9	216	225.943	0.956	0.835	1.090	8	.	.	.	.	.	.	.
Nebraska			25	436	523.355	0.833	0.758	0.914	21	5%	14%	0.134	0.417	0.739	0.998	1.215
New Hampshire	No	No	13	319	357.263	0.893	0.799	0.995	13	31%	8%	.	.	.	.	.
New Jersey			71	2,234	2,813.017	0.794	0.762	0.828	71	23%	13%	0.400	0.565	0.700	0.954	1.138
New Mexico	Yes	No	29	414	437.244	0.947	0.859	1.041	25	12%	0%	0.000	0.396	0.675	1.047	1.487
Nevada	No	No	25	619	973.673	0.636	0.587	0.687	21	5%	19%	0.346	0.461	0.641	0.739	0.961
New York	Yes	Yes	178	5,032	7,129.715	0.706	0.686	0.725	169	14%	19%	0.152	0.407	0.645	0.872	1.161
Ohio	No	Yes	145	3,121	4,315.293	0.723	0.698	0.749	130	9%	16%	0.000	0.345	0.638	0.889	1.098
Oklahoma	Yes	Yes	81	759	1,206.214	0.629	0.586	0.675	54	6%	17%	0.000	0.206	0.560	0.813	1.035
Oregon	Yes	Yes	35	633	895.972	0.706	0.653	0.763	34	12%	12%	0.000	0.338	0.610	0.843	1.227
Pennsylvania	Yes	Yes	173	3,705	4,692.718	0.790	0.764	0.815	151	19%	13%	0.215	0.434	0.696	0.990	1.217
Puerto Rico			4	.	.	.	.	.	.	.	.	.	.	.	.	.
Rhode Island	No	No	10	329	355.756	0.925	0.829	1.029	10	30%	0%	.	.	.	.	.
South Carolina	Yes	Yes	62	1,180	1,578.660	0.747	0.706	0.791	58	16%	22%	0.000	0.262	0.555	0.963	1.320
South Dakota	No	Yes	20	186	292.906	0.635	0.549	0.731	11	0%	9%	.	.	.	.	.
Tennessee	Yes	Yes	110	1,635	2,414.996	0.677	0.645	0.710	90	7%	22%	0.000	0.255	0.531	0.772	1.038
Texas	No	No	357	4,893	7,689.848	0.636	0.619	0.654	259	8%	17%	0.069	0.361	0.575	0.807	1.087
Utah			35	328	445.847	0.736	0.659	0.819	27	7%	11%	0.000	0.255	0.508	0.854	1.051
Virginia	Yes	Yes	80	1,450	2,330.512	0.622	0.591	0.655	78	5%	19%	0.068	0.270	0.528	0.691	1.043
Virgin Islands			2	.	.	.	.	.	.	.	.	.	.	.	.	.
Vermont	Yes	Yes	6	92	124.467	0.739	0.599	0.902	6	.	.	.	.	.	.	.
Washington	Yes	Yes	57	1,179	1,571.374	0.750	0.708	0.794	52	15%	12%	0.243	0.419	0.712	0.904	1.147
Wisconsin	No	Yes	73	950	1,387.287	0.685	0.642	0.729	69	7%	4%	0.195	0.410	0.635	0.891	1.153
West Virginia	Yes	No	29	679	807.653	0.841	0.779	0.906	26	12%	4%	0.000	0.448	0.703	0.929	1.002
Wyoming	No	No	12	74	82.275	0.899	0.711	1.123	8	.	.	.	.	.	.	.
All US			**3,669**	**69,648**	**97,962.238**	**0.711**	**0.706**	**0.716**	**3,205**	**12%**	**15%**	**0.162**	**0.401**	**0.641**	**0.894**	**1.170**

1. Note that almost all acute care hospitals are required to report facility-wide CDI data to NHSN for participation in the Centers for Medicare and Medicaid Services' (CMS) Hospital Inpatient Quality Reporting Program. Hospital-onset is defined as event detected on the 4th day (or later) after admission to an inpatient location within the facility.
2. Yes indicates the presence of a state mandate to report facility-wide CDI data to NHSN at the beginning of 2018. M indicates midyear implementation of a mandate. No indicates that a state mandate did not exist during 2018. A blank field indicates data not available.
3. Yes indicates that the state health department reported the completion of all of the following validation activities: state health department had access to 2018 NHSN data, state health department performed an assessment of missing or implausible values on at least six months of 2018 NHSN data prior to June 1, 2019, and state health department contacted identified facilities. YesA indicates that the state also conducted an audit of facility medical or laboratory records prior to June 1, 2019 to confirm proper case ascertainment (although intensity of auditing activities varies by state). Information on validation efforts was requested from all states, regardless of the presence of a legislative mandate for the particular HAI type. Some states without mandatory reporting of a given HAI to the state health department have performed validation on NHSN data that is voluntarily shared with them by facilities in their jurisdiction.
4. The number of reporting facilities included in the SIR calculation. Due to SIR exclusion criteria, this may be different from the numbers shown in Table 1. Refer to the Technical Appendix for information about exclusion criteria. SIRs and accompanying statistics are only calculated for states in which at least 5 facilities reported CDI data in 2018.
5. Percent of facilities with at least one predicted hospital-onset CDI that had an SIR significantly greater or less than the nominal value of the 2018 national hospital-onset CDI SIR of 0.711. This is only calculated if at least 10 facilities had at least one predicted hospital-onset CDI in 2018.
6. Facility-specific key percentiles were only calculated if at least 20 facilities had ≥1.0 predicted hospital-onset CDI in 2018. If a facility's predicted number of hospital-onset CDI was <1.0, a facility-specific SIR was neither calculated nor included in the distribution of facility-specific SIRs.

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

	2017 SIR	2018 SIR	Percent Change	Direction of Change, Based on Statistical Significance	p-value
CLABSI, all locations[1]	0.814	0.739	-9%	Decrease	0.0000
CLABSI, ICU[2]	0.866	0.770	-11%	Decrease	0.0000
CLABSI, Ward[3]	0.788	0.725	-8%	Decrease	0.0000
CLABSI, NICU[4]	0.763	0.700	-8%	Decrease	0.0234
CAUTI, all locations[5]	0.880	0.809	-8%	Decrease	0.0000
CAUTI, ICU[2]	0.850	0.763	-10%	Decrease	0.0000
CAUTI, Ward[3]	0.909	0.852	-6%	Decrease	0.0000
	0.952	0.947	1%	No change	0.5600
ICUs[5]	0.955	0.949	1%	No change	0.5163
Wards[6]	0.860	0.885	3%	No change	0.5831
Hospital-onset MRSA bacteremia, facility-wide[6]	0.862	0.840	3%	No change	0.1035
Hospital-onset *C. difficile* infections, facility-wide[6]	0.804	0.711	-12%	Decrease	0.0000
SSI, combined SCIP procedures[7]	0.926	0.933	1%	No change	0.5590
SSI, Hip arthroplasty	0.997	1.016	2%	No change	0.4933
SSI, Knee arthroplasty	1.017	1.055	4%	No change	0.2398
SSI, Coronary artery bypass graft[8]	0.888	0.892	0%	No change	0.9354
SSI, Cardiac surgery	0.746	0.781	5%	No change	0.7119
SSI, Peripheral vascular bypass surgery	1.013	1.182	17%	No change	0.1209
SSI, Abdominal aortic aneurysm repair	0.721	0.913	27%	No change	0.6584
SSI, Colon surgery	0.906	0.887	2%	No change	0.1981
SSI, Rectal surgery	0.565	0.436	23%	No change	0.1314
SSI, Abdominal hysterectomy	0.890	0.938	5%	No change	0.1182
SSI, Vaginal hysterectomy	0.888	0.916	3%	No change	0.8077

*Statistically significant, p < 0.0500

1. Data from all ICUs, wards (and other non-critical care locations), and NICUs in acute care hospitals. This excludes LTAC locations (or facilities)
2. Data from all ICUs in acute care hospitals; excludes wards (and other non-critical care locations), NICUs, LTAC locations (or facilities), and IRF
3. Data from all wards (for this table wards also include step-down, mixed acuity and specialty care areas [including hematology/oncology, bone m
4. Data from all NICU locations, including Level II/III and Level III nurseries. Both umbilical line and central line-associated bloodstream infections
5. Data from all ICUs and wards (and other non-critical care locations). This excludes NICUs, LTAC locations (or facilities) and IRF locations (or f
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 primar using NHSN surgical procedure categorizations. Includes SSIs that were classified as deep incisional or organ/space, and were detected upon
8. Coronary artery bypass graft includes procedures with either chest only or chest and donor site incisions.

acute care hospitals reporting during 2018 by HAI and patient population:
-associated events (VAEs), methicillin-resistant *Staphylococcus aureus* (MRSA) bacteremia,
nprovement Project (SCIP) procedures, 2017 compared to 2018

and IRF locations (or facilities).
locations (or facilities).
narrow transplant] in acute care hospitals. This excludes LTAC locations (or facilities) and IRF locations (or facilities).
are considered CLABSIs.
acilities).

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

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

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

	All Acute Care Hospitals Reporting to NHSN				
State[2]	2017 SIR[3]	2018 SIR	Percent Change	Direction of Change, Based on Statistical Significance	p-value
Alaska	0.908	0.694	24%	No change	0.3437
Alabama	0.878	0.780	11%	No change	0.0961
Arkansas	1.031	0.634	-39%	Decrease	0.0000
Arizona	0.693	0.650	6%	No change	0.3996
California	0.851	0.793	-7%	Decrease	0.0194
Colorado	0.615	0.596	3%	No change	0.7541
Connecticut	0.894	0.846	5%	No change	0.5743
D.C.	0.859	0.719	16%	No change	0.1531
Delaware	1.088	0.649	-40%	Decrease	0.0012
Florida	0.813	0.749	-8%	Decrease	0.0224
Georgia	0.970	0.772	-20%	Decrease	0.0000
Guam	.	.	.		.
Hawaii	0.362	0.337	7%	No change	0.7352
Iowa	0.664	0.838	26%	Increase	0.0412
Idaho	0.399	0.483	21%	No change	0.4638
Illinois	0.638	0.643	1%	No change	0.8915
Indiana	0.920	0.679	-26%	Decrease	0.0000
Kansas	0.789	0.738	6%	No change	0.5545
Kentucky	0.710	0.646	9%	No change	0.2616
Louisiana	0.855	0.732	-14%	Decrease	0.0411
Massachusetts	0.750	0.866	15%	Increase	0.0261
Maryland	0.900	0.796	12%	No change	0.0870
Maine	0.840	0.729	13%	No change	0.4616
Michigan	0.741	0.678	9%	No change	0.1597
Minnesota	0.861	0.766	11%	No change	0.1512
Missouri	0.868	0.825	5%	No change	0.3959
Mississippi	0.873	0.864	1%	No change	0.9116
Montana	0.442	0.680	54%	No change	0.1881
North Carolina	0.977	0.899	8%	No change	0.1143
North Dakota	0.811	0.650	20%	No change	0.2778
Nebraska	0.803	0.616	-23%	Decrease	0.0469
New Hampshire	0.714	0.585	18%	No change	0.3484
New Jersey	0.714	0.724	1%	No change	0.8476
New Mexico	0.733	0.398	-46%	Decrease	0.0013
Nevada	0.993	0.923	7%	No change	0.3937
New York	0.900	0.806	-10%	Decrease	0.0028
Ohio	0.743	0.712	4%	No change	0.3889
Oklahoma	0.820	0.711	13%	No change	0.0850
Oregon	0.719	0.523	-27%	Decrease	0.0091
Pennsylvania	0.789	0.735	7%	No change	0.1156
Puerto Rico	1.289	1.749	36%	Increase	0.0393
Rhode Island	1.067	0.767	-28%	Decrease	0.0488
South Carolina	0.844	0.807	4%	No change	0.5723
South Dakota	0.676	0.687	2%	No change	0.9419
Tennessee	0.718	0.677	6%	No change	0.3384
Texas	0.872	0.771	-12%	Decrease	0.0003
Utah	0.588	0.620	5%	No change	0.7292
Virginia	0.733	0.620	-15%	Decrease	0.0195
Virgin Islands	.	.	.		.
Vermont	0.996	0.753	24%	No change	0.3588
Washington	0.613	0.535	13%	No change	0.0922
Wisconsin	0.826	0.603	-27%	Decrease	0.0002
West Virginia	0.707	0.724	2%	No change	0.8339
Wyoming	0.832	0.087	-90%	Decrease	0.0089
All US	**0.814**	**0.739**	**-9%**	**Decrease**	**0.0000**

* 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 facilities).
2. States without SIR either in 2017 and/or 2018 and therefore subsequent data not calculated
3. 2017 SIRs were recalculated using an updated dataset and therefore might be slightly different from the data published in the 2017 HAI Progress Report.

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

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

	All Acute Care Hospitals Reporting to NHSN				
	2017 SIR	2018 SIR	Percent Change	Direction of Change, Based on Statistical Significance	p-value
Alaska	1.537	1.625	6%	No change	0.7937
Alabama	0.806	0.697	-14%	Decrease	0.0308
Arkansas	1.169	0.842	-28%	Decrease	0.0001
Arizona	0.615	0.565	8%	No change	0.2938
California	1.032	0.934	-9%	Decrease	0.0003
Colorado	0.827	0.690	-17%	Decrease	0.0306
Connecticut	1.120	0.929	-17%	Decrease	0.0295
D.C.	0.807	0.984	22%	No change	0.1230
Delaware	1.096	0.682	-38%	Decrease	0.0094
Florida	0.735	0.748	2%	No change	0.6425
Georgia	0.962	0.869	-10%	Decrease	0.0438
Guam	.	.	.		.
Hawaii	1.011	0.936	7%	No change	0.5991
Iowa	0.726	0.731	1%	No change	0.9508
Idaho	0.994	0.975	2%	No change	0.8979
Illinois	0.764	0.758	1%	No change	0.8842
Indiana	0.847	0.770	9%	No change	0.1486
Kansas	0.860	0.830	3%	No change	0.7423
Kentucky	0.768	0.686	11%	No change	0.1338
Louisiana	0.844	0.895	6%	No change	0.3682
Massachusetts	1.077	0.994	8%	No change	0.1482
Maryland	0.896	0.789	12%	No change	0.0777
Maine	1.194	0.885	26%	No change	0.0787
Michigan	0.764	0.698	9%	No change	0.1036
Minnesota	0.824	0.748	9%	No change	0.2509
Missouri	0.911	0.852	6%	No change	0.2433
Mississippi	0.669	0.619	7%	No change	0.4207
Montana	0.908	0.897	1%	No change	0.9583
North Carolina	0.894	0.924	3%	No change	0.5052
North Dakota	0.951	0.714	25%	No change	0.1293
Nebraska	0.872	0.871	0%	No change	0.9913
New Hampshire	0.987	0.954	3%	No change	0.8264
New Jersey	0.875	0.879	0%	No change	0.9377
New Mexico	0.971	0.988	2%	No change	0.8836
Nevada	0.751	0.909	21%	Increase	0.0351
New York	1.022	0.884	-14%	Decrease	0.0000
Ohio	0.761	0.660	-13%	Decrease	0.0017
Oklahoma	0.756	0.706	7%	No change	0.4116
Oregon	1.021	0.907	11%	No change	0.1990
Pennsylvania	0.853	0.820	4%	No change	0.3336
Puerto Rico	0.762	0.826	8%	No change	0.6054
Rhode Island	1.336	0.990	-26%	Decrease	0.0426
South Carolina	0.874	0.844	3%	No change	0.6338
South Dakota	0.986	0.618	-37%	Decrease	0.0193
Tennessee	0.777	0.729	6%	No change	0.2787
Texas	0.875	0.733	-16%	Decrease	0.0000
Utah	0.966	0.854	12%	No change	0.3406
Virginia	1.026	0.830	-19%	Decrease	0.0003
Virgin Islands	.	.	.		.
Vermont	1.169	1.038	11%	No change	0.5800
Washington	0.997	0.979	2%	No change	0.7766
Wisconsin	0.965	0.801	-17%	Decrease	0.0167
West Virginia	0.564	0.601	7%	No change	0.5636
Wyoming	0.819	0.466	43%	No change	0.1657
All US	**0.880**	**0.809**	**-8%**	**Decrease**	**0.0000**

*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 facilities).
2. States without SIR either in 2017 and/or 2018 and therefore subsequent data not calculated

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

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

	All Acute Care Hospitals Reporting to NHSN				
	2017 SIR	2018 SIR	Percent Change	Direction of Change, Based on Statistical Significance	p-value
Alaska	1.385	1.327	4%	No change	0.8561
Alabama	0.797	0.849	7%	No change	0.3895
Arkansas	1.273	1.248	2%	No change	0.8372
Arizona	1.234	0.969	-21%	Decrease	0.0011
California	0.832	0.901	8%	Increase	0.0117
Colorado	1.161	0.987	-15%	Decrease	0.0218
Connecticut	1.261	1.289	2%	No change	0.7904
D.C.	.	.	.		.
Delaware	.	.	.		.
Florida	0.842	0.864	3%	No change	0.4641
Georgia	0.891	0.888	0%	No change	0.9454
Guam	.	.	.		.
Hawaii	0.158	0.235	49%	No change	0.3811
Iowa	1.406	1.217	13%	No change	0.2482
Idaho	0.962	0.906	6%	No change	0.7563
Illinois	0.977	1.028	5%	No change	0.3961
Indiana	1.061	0.891	-16%	Decrease	0.0014
Kansas	1.107	1.128	2%	No change	0.8578
Kentucky	1.019	0.987	3%	No change	0.6575
Louisiana	0.936	1.067	14%	No change	0.0904
Massachusetts	1.295	1.383	7%	No change	0.4305
Maryland	0.813	0.748	8%	No change	0.3771
Maine	1.936	1.842	5%	No change	0.6472
Michigan	1.161	1.277	10%	Increase	0.0102
Minnesota	0.987	1.224	24%	Increase	0.0316
Missouri	1.131	1.080	5%	No change	0.3679
Mississippi	0.352	0.686	95%	Increase	0.0001
Montana	.	1.033	.		.
North Carolina	1.375	1.262	8%	No change	0.0968
North Dakota	.	.	.		.
Nebraska	1.600	1.802	13%	No change	0.1879
New Hampshire	0.656	0.832	27%	No change	0.3108
New Jersey	0.929	0.946	2%	No change	0.7221
New Mexico	1.569	1.272	19%	No change	0.1332
Nevada	0.702	0.914	30%	Increase	0.0001
New York	0.698	0.641	-8%	Decrease	0.0174
Ohio	1.148	1.062	-7%	Decrease	0.0473
Oklahoma	0.678	0.678	0%	No change	0.9986
Oregon	0.833	0.876	5%	No change	0.6777
Pennsylvania	0.932	0.963	3%	No change	0.2831
Puerto Rico	0.780	0.810	4%	No change	0.8541
Rhode Island	0.982	1.198	22%	No change	0.1384
South Carolina	1.107	1.046	6%	No change	0.2656
South Dakota	0.628	1.027	64%	No change	0.1588
Tennessee	1.016	0.785	-23%	Decrease	0.0000
Texas	0.746	0.783	5%	No change	0.2151
Utah	0.754	1.434	90%	No change	0.0627
Virginia	1.204	1.112	8%	No change	0.0882
Virgin Islands	.	.	.		.
Vermont	.	.	.		.
Washington	0.719	0.834	16%	No change	0.1793
Wisconsin	1.371	1.306	5%	No change	0.4605
West Virginia	0.242	0.199	18%	No change	0.4456
Wyoming	0.359	0.264	26%	No change	0.7323
All US	**0.952**	**0.947**	**1%**	**No change**	**0.5600**

* 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 facilities).
2. States without SIR either in 2017 and/or 2018 and therefore subsequent data not calculated

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

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

	All Acute Care Hospitals Reporting to NHSN				
	2017 SIR	2018 SIR	Percent Change	Direction of Change, Based on Statistical Significance	p-value
Alabama	0.804	0.558	-31%	Decrease	0.0115
Alaska	1.140	1.439	26%	No change	0.4733
Arizona	1.029	0.990	4%	No change	0.7349
Arkansas	1.274	0.838	-34%	Decrease	0.0122
California	0.976	0.960	2%	No change	0.7568
Colorado	1.034	0.995	4%	No change	0.7561
Connecticut	0.749	0.925	23%	No change	0.1797
Delaware	0.597	0.478	20%	No change	0.5363
District Columbia	0.771	0.897	16%	No change	0.5560
Florida	0.843	0.857	2%	No change	0.7879
Georgia	0.764	0.910	19%	No change	0.0627
Guam	.	.	.		.
Hawaii	0.877	0.532	39%	No change	0.1370
Idaho	0.758	1.262	66%	Increase	0.0407
Illinois	0.862	0.922	7%	No change	0.4243
Indiana	0.819	0.996	22%	No change	0.0823
Iowa	0.891	0.874	2%	No change	0.9102
Kansas	0.875	1.039	19%	No change	0.3017
Kentucky	1.045	1.211	16%	No change	0.1949
Louisiana	0.941	1.110	18%	No change	0.1884
Maine	1.144	1.003	12%	No change	0.5756
Maryland	0.799	0.853	7%	No change	0.5957
Massachusetts	0.891	0.888	0%	No change	0.9735
Michigan	1.086	1.014	7%	No change	0.4121
Minnesota	0.951	0.857	10%	No change	0.3884
Mississippi	1.138	1.101	3%	No change	0.8280
Missouri	0.864	0.857	1%	No change	0.9406
Montana	0.988	0.988	0%	No change	0.9999
Nebraska	1.142	1.107	3%	No change	0.8693
Nevada	1.228	1.116	9%	No change	0.5826
New Hampshire	1.121	0.883	21%	No change	0.3257
New Jersey	0.611	0.733	20%	No change	0.1354
New Mexico	1.274	0.994	22%	No change	0.3016
New York	0.973	0.928	5%	No change	0.4564
North Carolina	0.832	0.827	1%	No change	0.9439
North Dakota	1.757	1.633	7%	No change	0.7604
Ohio	0.765	0.737	4%	No change	0.6538
Oklahoma	0.968	1.033	7%	No change	0.6428
Oregon	0.795	0.718	10%	No change	0.5240
Pennsylvania	0.815	0.819	0%	No change	0.9500
Puerto Rico	.	.	.		.
Rhode Island	1.605	1.167	27%	No change	0.1923
South Carolina	1.006	0.884	12%	No change	0.3471
South Dakota	1.513	1.534	1%	No change	0.9582
Tennessee	0.817	0.790	3%	No change	0.7445
Texas	0.862	0.797	8%	No change	0.2037
Utah	1.272	0.976	23%	No change	0.1414
Vermont	1.259	1.239	2%	No change	0.9636
Virgin Islands	.	.	.		.
Virginia	0.970	0.799	18%	No change	0.0694
Washington	0.864	0.596	-31%	Decrease	0.0054
West Virginia	1.419	1.288	9%	No change	0.5680
Wisconsin	0.872	0.784	10%	No change	0.4174
Wyoming	0.375	0.516	38%	No change	0.7559
All US	**0.906**	**0.887**	**2%**	**No change**	**0.1981**

* 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 ar detected during the same admission as the surgical procedure or upon readmission to the same facility.
2. States without SIR either in 2017 and/or 2018 and therefore subsequent data not calculated

ıd other than primary skin closure technique,

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

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

	All Acute Care Hospitals Reporting to NHSN				
	2017 SIR	2018 SIR	Percent Change[2]	Direction of Change, Based on Statistical Significance	p-value
Alabama	0.787	0.967	23%	No change	0.3851
Alaska	1.203	0.631	48%	No change	0.4870
Arizona	0.916	0.927	1%	No change	0.9588
Arkansas	0.735	0.926	26%	No change	0.5194
California	0.875	0.878	0%	No change	0.9767
Colorado	0.833	0.961	15%	No change	0.5875
Connecticut	0.635	1.214	91%	Increase	0.0388
Delaware	1.619	1.408	13%	No change	0.7874
District Columbia	0.787	1.516	93%	No change	0.2472
Florida	0.889	0.898	1%	No change	0.9407
Georgia	0.824	1.055	28%	No change	0.1356
Guam	.	.	.		.
Hawaii	0.495	0.747	51%	No change	0.6827
Idaho	0.820	0.792	3%	No change	0.9685
Illinois	0.635	1.075	69%	Increase	0.0027
Indiana	1.078	0.972	10%	No change	0.6282
Iowa	1.421	0.842	41%	No change	0.0911
Kansas	0.713	0.897	26%	No change	0.5396
Kentucky	1.133	1.105	2%	No change	0.9121
Louisiana	0.955	0.810	15%	No change	0.5420
Maine	0.789	0.503	36%	No change	0.5629
Maryland	1.082	1.612	49%	No change	0.0562
Massachusetts	1.176	0.664	-44%	Decrease	0.0273
Michigan	0.794	1.191	50%	Increase	0.0195
Minnesota	1.389	1.026	26%	No change	0.2229
Mississippi	1.407	1.617	15%	No change	0.6013
Missouri	0.679	0.810	19%	No change	0.4883
Montana	0.946	1.376	45%	No change	0.5803
Nebraska	1.167	1.001	14%	No change	0.7064
Nevada	1.075	1.620	51%	No change	0.2820
New Hampshire	0.855	0.865	1%	No change	0.9785
New Jersey	0.606	1.104	82%	Increase	0.0093
New Mexico	1.285	1.118	13%	No change	0.7291
New York	1.026	0.922	10%	No change	0.4173
North Carolina	0.563	0.672	19%	No change	0.4138
North Dakota	1.754	1.875	7%	No change	0.9148
Ohio	0.816	0.733	10%	No change	0.5442
Oklahoma	0.913	0.717	21%	No change	0.4178
Oregon	1.162	0.753	35%	No change	0.2114
Pennsylvania	0.946	0.760	20%	No change	0.2018
Puerto Rico	.	.	.		.
Rhode Island	1.592	0.953	40%	No change	0.2881
South Carolina	0.871	1.017	17%	No change	0.5322
South Dakota	1.075	0.454	58%	No change	0.2178
Tennessee	1.081	0.785	27%	No change	0.1114
Texas	0.791	0.954	21%	No change	0.0855
Utah	0.785	0.467	41%	No change	0.2546
Vermont	1.380	0.330	76%	No change	0.2024
Virgin Islands	.	.	.		.
Virginia	0.858	1.067	24%	No change	0.2787
Washington	0.651	0.478	27%	No change	0.3476
West Virginia	0.995	0.775	22%	No change	0.5753
Wisconsin	1.229	1.249	2%	No change	0.9465
Wyoming	0.000	0.000	.		.
All US	**0.890**	**0.938**	**5%**	**No change**	**0.1182**

* 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 wi detected during the same admission as the surgical procedure or upon readmission to the same facility.
2. States without SIR either in 2017 and/or 2018 and therefore subsequent data not calculated. For any state with a referent SIR of 0.000, the percent chan

th a primary or other than primary skin closure technique,

ıge was reflected as greater than 100 percent.

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

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

	All Acute Care Hospitals Reporting to NHSN				
	2017 SIR	2018 SIR	Percent Change	Direction of Change, Based on Statistical Significance	p-value
Alaska	1.050	0.715	32%	No change	0.3392
Alabama	1.049	0.965	8%	No change	0.4048
Arkansas	1.158	1.093	6%	No change	0.6863
Arizona	0.680	0.845	24%	No change	0.0633
California	0.873	0.752	-14%	Decrease	0.0070
Colorado	0.721	0.576	20%	No change	0.2055
Connecticut	0.782	0.742	5%	No change	0.7487
D.C.	1.160	0.731	-37%	Decrease	0.0197
Delaware	0.808	1.017	26%	No change	0.3471
Florida	1.034	1.033	0%	No change	0.9758
Georgia	0.955	0.939	2%	No change	0.8436
Guam	.	.	.		.
Hawaii	0.554	0.378	32%	No change	0.2887
Iowa	0.515	0.587	14%	No change	0.5389
Idaho	0.402	0.253	37%	No change	0.3801
Illinois	0.588	0.593	1%	No change	0.9378
Indiana	0.702	0.737	5%	No change	0.6837
Kansas	0.772	0.706	9%	No change	0.6637
Kentucky	0.992	1.001	1%	No change	0.9356
Louisiana	1.113	1.257	13%	No change	0.2204
Massachusetts	0.693	0.671	3%	No change	0.7758
Maryland	0.970	0.896	8%	No change	0.4647
Maine	0.652	0.537	18%	No change	0.5473
Michigan	0.919	0.884	4%	No change	0.6308
Minnesota	0.545	0.438	20%	No change	0.2353
Missouri	0.776	0.814	5%	No change	0.6584
Mississippi	0.855	1.013	18%	No change	0.2257
Montana	0.569	0.237	58%	No change	0.1445
North Carolina	0.782	0.871	11%	No change	0.1910
North Dakota	0.888	0.589	34%	No change	0.2632
Nebraska	0.692	0.422	39%	No change	0.0628
New Hampshire	0.807	0.546	32%	No change	0.2168
New Jersey	0.908	0.944	4%	No change	0.6655
New Mexico	0.416	0.619	49%	No change	0.2353
Nevada	0.968	0.862	11%	No change	0.4631
New York	0.990	0.888	-10%	Decrease	0.0468
Ohio	0.920	0.917	0%	No change	0.9613
Oklahoma	1.061	0.843	21%	No change	0.0759
Oregon	0.766	0.716	7%	No change	0.7000
Pennsylvania	0.777	0.663	-15%	Decrease	0.0400
Puerto Rico	.	.	.		.
Rhode Island	0.541	1.212	124%	Increase	0.0071
South Carolina	0.917	1.073	17%	No change	0.1508
South Dakota	0.517	0.697	35%	No change	0.4072
Tennessee	1.089	1.288	18%	Increase	0.0341
Texas	0.764	0.830	9%	No change	0.1505
Utah	0.525	0.595	13%	No change	0.6362
Virginia	0.993	0.807	-19%	Decrease	0.0390
Virgin Islands	.	.	.		.
Vermont	0.678	0.455	33%	No change	0.4627
Washington	0.554	0.557	1%	No change	0.9681
Wisconsin	0.436	0.457	5%	No change	0.8096
West Virginia	1.391	1.072	23%	No change	0.0515
Wyoming	0.693	0.000	100%	No change	0.1085
All US	**0.862**	**0.840**	**3%**	**No change**	**0.1035**

* Statistically significant, $p < 0.0500$

1. Hospital-onset is defined as event detected on the 4th day (or later) after admission to an inpatient location within the facility.
2. States without SIR either in 2017 and/or 2018 and therefore subsequent data not calculated

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

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

	All Acute Care Hospitals Reporting to NHSN				
	2017 SIR	2018 SIR	Percent Change	Direction of Change, Based on Statistical Significance	p-value
Alaska	0.813	0.893	10%	No change	0.4539
Alabama	0.651	0.555	-15%	Decrease	0.0002
Arkansas	0.784	0.773	1%	No change	0.7933
Arizona	0.733	0.664	-9%	Decrease	0.0117
California	0.852	0.677	-21%	Decrease	0.0000
Colorado	0.933	0.881	6%	No change	0.1828
Connecticut	0.892	0.818	8%	No change	0.0594
D.C.	0.988	0.661	-33%	Decrease	0.0000
Delaware	0.809	0.678	-16%	Decrease	0.0466
Florida	0.676	0.604	-11%	Decrease	0.0000
Georgia	0.706	0.674	5%	No change	0.1346
Guam	.	.	.		.
Hawaii	0.694	0.526	-24%	Decrease	0.0043
Iowa	0.908	0.727	-20%	Decrease	0.0000
Idaho	0.754	0.656	13%	No change	0.1575
Illinois	0.975	0.829	-15%	Decrease	0.0000
Indiana	0.810	0.716	-12%	Decrease	0.0004
Kansas	0.838	0.801	4%	No change	0.4228
Kentucky	0.757	0.653	-14%	Decrease	0.0004
Louisiana	0.752	0.738	2%	No change	0.6804
Massachusetts	0.898	0.780	-13%	Decrease	0.0000
Maryland	0.920	0.799	-13%	Decrease	0.0001
Maine	0.692	0.650	6%	No change	0.5086
Michigan	0.809	0.752	-7%	Decrease	0.0079
Minnesota	0.879	0.787	-10%	Decrease	0.0047
Missouri	0.734	0.767	4%	No change	0.1959
Mississippi	0.719	0.728	1%	No change	0.8169
Montana	0.851	0.536	-37%	Decrease	0.0004
North Carolina	0.770	0.713	-7%	Decrease	0.0060
North Dakota	1.132	0.956	16%	No change	0.0698
Nebraska	0.804	0.833	4%	No change	0.5896
New Hampshire	0.942	0.893	5%	No change	0.5041
New Jersey	0.883	0.794	-10%	Decrease	0.0002
New Mexico	0.954	0.947	1%	No change	0.9123
Nevada	0.858	0.636	-26%	Decrease	0.0000
New York	0.755	0.706	-6%	Decrease	0.0005
Ohio	0.833	0.723	-13%	Decrease	0.0000
Oklahoma	0.696	0.629	-10%	Decrease	0.0434
Oregon	0.825	0.706	-14%	Decrease	0.0040
Pennsylvania	0.819	0.790	4%	No change	0.1067
Puerto Rico	.	.	.		.
Rhode Island	1.008	0.925	8%	No change	0.2600
South Carolina	0.810	0.747	-8%	Decrease	0.0453
South Dakota	0.717	0.635	11%	No change	0.2276
Tennessee	0.825	0.677	-18%	Decrease	0.0000
Texas	0.750	0.636	-15%	Decrease	0.0000
Utah	1.136	0.736	-35%	Decrease	0.0000
Virginia	0.755	0.622	-18%	Decrease	0.0000
Virgin Islands	.	.	.		.
Vermont	0.793	0.739	7%	No change	0.6328
Washington	0.942	0.750	-20%	Decrease	0.0000
Wisconsin	0.854	0.685	-20%	Decrease	0.0000
West Virginia	0.829	0.841	1%	No change	0.7935
Wyoming	0.662	0.899	36%	No change	0.1009
All US	**0.804**	**0.711**	**-12%**	**Decrease**	**0.0000**

* Statistically significant, p < 0.0500

1. Hospital-onset is defined as event detected on the 4th day (or later) after admission to an inpatient location within the facility.
2. States without SIR either in 2017 and/or 2018 and therefore subsequent data not calculated

Appendix A. Factors used in NHSN risk adjustment of the device-associated HAIs Negative Binomial Regression Models[1] in Acute Care 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 Models[1] in Acute Care Hospitals

HAI Type	Validated Parameters for Risk Model
MRSA bacteremia	Intercept Inpatient CO admission prevalence rate* Average length of stay** Medical school affiliation‡ Facility type Number of ICU beds‡ Outpatient CO prevalence rate
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
LAM	Laminectomy
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
diabetes, ASA, hospital bed size*, BMI
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, ≥ 18 years of age

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

* These risk factors originate from the Annual Facility Survey.

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

Additional Resources

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

Technical Appendix (2017 Report): http://www.cdc.gov/hai/progress-report/index.html
Explains the methodology used to produce the HAI Report.

HAI Progress Report Home Page: http://www.cdc.gov/hai/progress-report/index.html
The complete HAI Report, including the Executive Summary and previous reports, can be found at the above

website.