

2016 National

Ac

Introduction:

Welcome to the 2016 National and State HAI Progress Report using the new 2015 by comparing the number of observed infections to the number of predicted infections. This report is created by CDC staff with the National Healthcare Safety Network (NHSN).

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

Scope of report:

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

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

Local and State HAI Progress Report

Acute Care Hospitals

baseline and risk adjustment calculations. Standardized infection ratios (SIRs) are used to describe different HAI types. This year's report will compare 2016 SIRs to those from the prior year. (IHSN).

Acute Care Hospitals (ACHs).

ACH	
National	State
b	b
b	b
b	b
b	
	b
b	b
b	b

procedures nationally.

AI types

Characteristics of Acute Care Hospi

Table 1. Characteristics of acute care hos
Characteristics
Number of facilities reporting to NHSN ¹
Total Number of hospital admissions
Median number of beds
Mean number of beds
Median number of ICU beds
Mean number of ICU beds
Mean number of full time epidemiologists

Table 1a. Number of reporting facil
Type of hospital
Children's hospitals
General hospitals
Military hospitals
Oncology hospitals
Orthopedic hospitals
Psychiatric hospitals
Surgical hospitals
Veteran Administration hospitals
Women's hospitals
Women and Child hospitals

Table 1b. Median and Mean Numk
Type of hospital
Children's hospitals
General hospitals
Military hospitals
Oncology hospitals
Orthopeadic hospitals
Psychiatric hospitals
Surgical hospitals
Veteran Administration hospitals
Women and Child hospitals

Table 2. Total No. (%) of facilities affiliated
Medical School Affiliation
Total number of reporting facilities
Yes

No

Table 2a. Total No. (%) of facilities affiliated
Type of medical school affiliation
Graduate Medical School
Major Teaching School
Undergraduate Medical School

Facilities Reporting to National Healthcare Safety Network (NHSN),

Hospitals reporting to NHSN, 2016	
2016 Statistics	
	3,931
	139,694
	135
	190
	12
	28
	1.4

Facilities by type, NHSN 2016	
No. (%)	
	89 (2%)
	3448 (88%)
	48 (1%)
	17 (less than 1 percent)
	30 (less than 1 percent)
	66 (2%)
	125 (3%)
	82 (2%)
	13 (less than 1 percent)
	13 (less than 1 percent)

Number of beds by type of hospital, NHSN 2016		
	Median No. of beds	Mean No. of beds
	181	197
	146	201
	45	73
	74	154
	29	47
	72	109
	22	39
	108	145
	243	252

Facilities with medical school, NHSN 2016	
No. (%)	
	3,931
	1,798 (46%)

NO. OF FACILITIES

2,133 (54%)

with medical by type, NHSN 2016

No. (%)

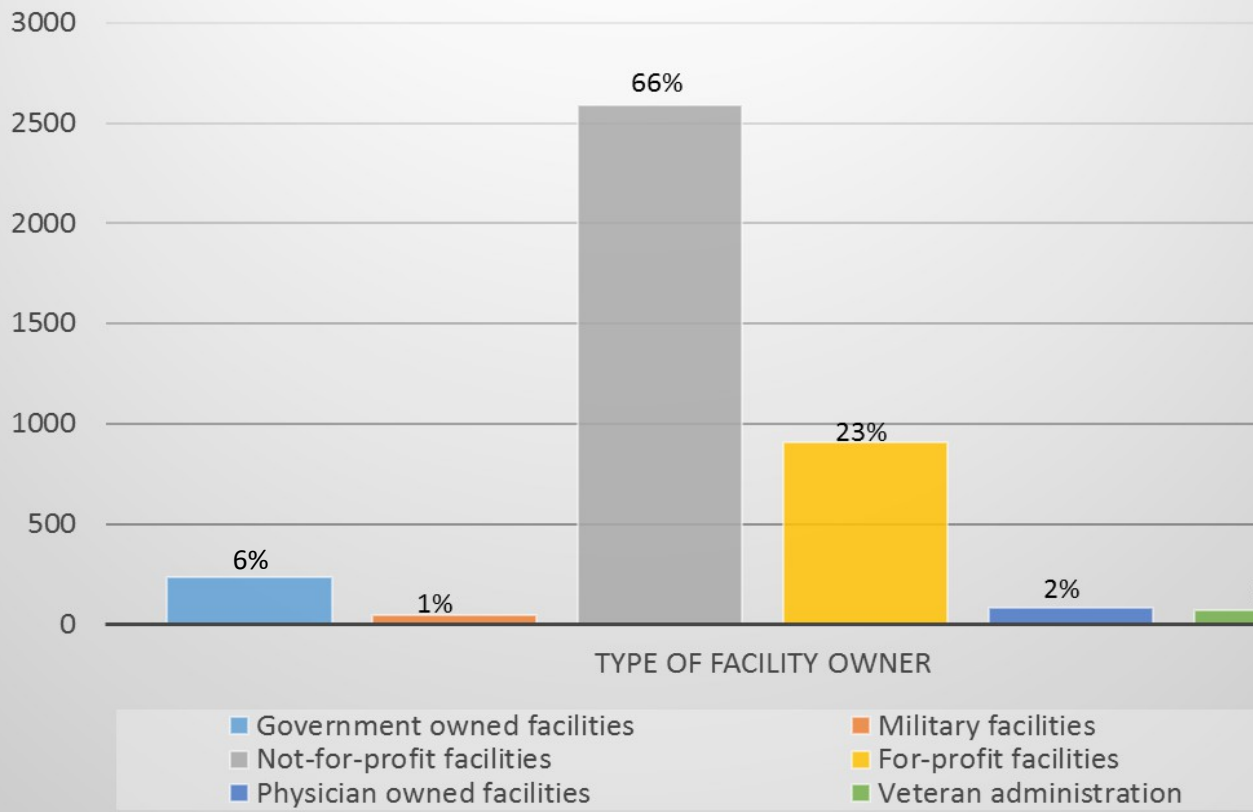
664 (37%)

792 (44%)

342 (19%)

2016

Chart 1. TYPE OF FACILITIES REPORTING TO THE NATIONAL HEALTHCARE SAFETY NETWORK (NHSN), 2016





2016 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:

Table 1	Characteristics of NHSN Acute Care Hospitals reporting to NHSN by state 1a. Central line-associated bloodstream infections (CLABSI) 1b. Catheter-associated urinary tract infections (CAUTI) 1c. Ventilator-associated events (VAE), including Infection-related ventilator-associated condition and possible ventilator-associated pneumonia 1d. Surgical site infections (SSI) 1e. Hospital-onset methicillin-resistant <i>Staphylococcus aureus</i> (MRSA) bacteremia 1f. Hospital-onset <i>Clostridium difficile</i> (CDI) 1g. Table 1 Footnotes
Table 2	National standardized infection ratios (SIRs) 2a. CLABSI, CAUTI, and VAE from Acute Care Hospitals 2b. Hospital-onset MRSA bacteremia and hospital-onset CDI from Acute Care Hospitals 2c. Adult SSIs from all NHSN procedure categories from Acute Care Hospitals 2d. Pediatric SSIs from all NHSN procedure categories from Acute Care Hospitals
Table 3	State-specific SIRs for CLABSI from Acute Care Hospitals 3a. All locations combined 3b. Critical care locations only 3c. Ward (non-critical care) locations only 3d. Neonatal critical care locations only
Table 4	State-specific SIRs for CAUTI from Acute Care Hospitals 4a. All locations combined 4b. Critical care locations only 4c. Ward (non-critical care) locations only
Table 5	State-specific SIRs for VAE from Acute Care Hospitals 5a. VAE, all locations combined 5b. VAE, critical care locations only 5c. VAE, ward (non-critical care) locations only

Table 6	State-specific SIRs for Adult SSI from Acute Care Hospitals 6a. Colon surgery 6b. Abdominal hysterectomy surgery 6c. Hip arthroplasty 6d. Knee arthroplasty 6e. Rectal surgery 6f. Vaginal hysterectomy 6g. Coronary artery bypass graft 6h. Other cardiac surgery 6i. Peripheral vascular bypass surgery 6j. Abdominal aortic aneurysm repair 6k. Cesarean section surgery 6l. Spinal fusion surgery 6m. Laminectomy surgery 6n. Exploratory laparotomy surgery 6o. Gallbladder surgery
Table 7	State-specific SIRs for hospital-onset MRSA bacteremia from Acute Care Hospitals
Table 8	State-specific SIRs for hospital-onset CDI from Acute Care Hospitals
Table 9	Changes in national SIRs for CLABSI, CAUTI, VAE, SSI, hospital-onset MRSA bacteremia, and hospital-onset CDI between 2015 and 20
Table 10	Changes in state-specific SIRs between 2015 and 2016 from Acute Care Hospitals 10a. CLABSI, all locations combined 10b. CAUTI, all locations combined 10c. VAE, all locations, combined 10d. SSI, colon surgery 10e. SSI, abdominal hysterectomy surgery 10f. Hospital-onset MRSA bacteremia 10g. Hospital-onset CDI
Appendix A	Factors used in NHSN risk adjustment of the device-associated HAIs (CLABSI, CAUTI, VAE, IVAC-Plus) negative binomial regression mc
Appendix B	Factors used in NHSN risk adjustment of the MRSA Bacteremia and C.difficile negative binomial regression models from Acute Care Hos

Appendix C List of NHSN procedures included in this report with predictive risk factors from the NHSN Complex Admission/Re-admission SSI Logistic

Appendix D List of NHSN procedures included in this report with predictive risk factors from the NHSN Complex Admission/Re-admission SSI Logistic

Appendix E List of NHSN procedures and corresponding SCIP procedures included in this report with factors used in the NHSN risk adjustment of the

Additional Resources [SIR Guide](#)
 [Technical Appendix](#)
 [HAI Progress Report Home Page](#)

monia (IVAC-Plus)

16 from Acute Care Hospitals

odels from Acute Care Hospitals

pitals

: Regression, Adults \geq 18 years of age

: Regression, Pediatrics < 18 years of age

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

Table 1. Characteristics of NHSN Acute Care Hospitals reporting to NHSN by State¹, 2016:
1a. Central line-associated bloodstream infections (CLABSI)²

State	2016						
	State NHSN Mandate ³	Any Validation ⁴	No. of Acute Care Hospitals Reporting ⁵	Total	ICU	Wards ²	NICU ⁶
Alaska	Yes	Yes	9	47	10	36	1
Alabama	Yes	Yes ^a	77	463	138	310	15
Arkansas	Yes		49	276	63	203	10
Arizona	No	No	66	417	90	310	17
California	Yes		333	2438	532	1767	139
Colorado	Yes	No	50	333	67	245	21
Connecticut	Yes		32	260	48	200	12
D.C.	Yes	No	8	98	24	67	7
Delaware			8	80	14	64	2
Florida	No	No	202	1706	428	1215	63
Georgia	Yes	Yes	103	712	174	498	40
Guam	No	No	1	1	1	0	0
Hawaii	Yes	Yes	16	80	24	54	2
Iowa	No	Yes	39	214	48	154	12
Idaho	No	No	11	86	17	60	9
Illinois	Yes	Yes	133	932	209	680	43
Indiana	Yes	Yes	86	548	116	404	28
Kansas	No	Yes	51	227	57	161	9
Kentucky	Yes	No	69	420	117	288	15
Louisiana	No	Yes	87	452	110	313	29
Massachusetts	Yes	Yes	67	508	118	380	10
Maryland	Yes	No	49	457	81	359	17
Maine	Yes	Yes	17	90	21	65	4
Michigan	No	Yes	93	636	174	442	20
Minnesota	Yes	Yes	52	278	70	197	11
Missouri			75	561	123	415	23
Mississippi	Yes	Yes	55	324	72	239	13
Montana	No		13	63	12	46	5
North Carolina	Yes	Yes	94	653	164	465	24
North Dakota	No	Yes	7	57	10	41	6
Nebraska	M		26	128	25	97	6
New Hampshire	Yes	Yes	13	100	21	76	3
New Jersey	Yes	No	71	598	138	436	24
New Mexico	Yes	No	32	148	36	105	7
Nevada	Yes	No	22	176	43	125	8
New York	Yes		174	1523	344	1126	53
Ohio	No	Yes	137	994	251	714	29
Oklahoma	Yes	No	77	329	80	241	8
Oregon	Yes	Yes	36	240	51	179	10
Pennsylvania	Yes	Yes	163	1328	273	1009	46
Puerto Rico	No		13	82	26	50	6
Rhode Island	No	No	11	91	16	74	1
South Carolina	Yes	Yes	62	433	106	318	9
South Dakota	No	Yes	17	82	18	61	3
Tennessee	Yes	Yes	105	604	163	415	26
Texas	Yes		328	1775	428	1222	125
Utah	Yes		34	133	40	80	13
Virginia	Yes	Yes	83	578	139	413	26
Virgin Island			2	11	2	7	2
Vermont	Yes	Yes	6	32	7	24	1
Washington	Yes		56	400	75	310	15
Wisconsin	No	No	72	408	91	299	18
West Virginia	Yes	Yes	29	204	51	148	5
Wyoming	No	No	10	29	8	21	0
All US			3,531	23,843	5,564	17,228	1,051

Table 1b

**Table 1. Characteristics of NHSN Acute Care Hospitals reporting to NHSN by State¹, 2016:
1b. Catheter-associated urinary tract infections (CAUTI)²**

State	2016						
				Locations (n) ²			
				Total	ICU		
Alaska	Yes	Yes	10	50	10	40	
Alabama	Yes		88	465	138	327	
Arkansas	Yes		49	279	64	215	
Arizona	No	No	67	410	90	320	
California	No	No	335	2316	535	1781	
Colorado	No	No	50	330	67	263	
Connecticut	Yes	Yes	32	254	48	206	
D.C.	Yes	No	8	86	24	62	
Delaware			8	83	14	69	
Florida	No	No	202	1672	423	1249	
Georgia	Yes	Yes	106	693	174	519	
Guam	No	No	1	1	1	0	
Hawaii	Yes	Yes	16	79	24	55	
Iowa	No	Yes	40	212	49	163	
Idaho	No	No	15	86	18	68	
Illinois	Yes	No	134	930	210	720	
Indiana	Yes	Yes	88	530	116	414	
Kansas	No	Yes	53	229	57	172	
Kentucky	Yes	No	71	418	117	301	
Louisiana	No		90	445	110	335	
Massachusetts	Yes	Yes	69	507	118	389	
Maryland	Yes	No	49	443	81	362	
Maine	No	Yes	17	88	21	67	
Michigan	No	Yes	95	634	174	460	
Minnesota	Yes	Yes	53	272	71	201	
Missouri			76	547	123	424	
Mississippi	Yes		60	332	72	260	

Table 1b

Montana	No		13	65	12	53
North Carolina	Yes		94	645	165	480
North Dakota	No	Yes	7	52	10	42
Nebraska	No		27	129	25	104
New Hampshire	Yes	Yes	13	99	21	78
New Jersey	Yes	No	71	586	138	448
New Mexico	No		32	142	34	108
Nevada	No	No	22	168	43	125
New York	No	Yes	176	1499	344	1155
Ohio	No	Yes	139	998	249	749
Oklahoma	Yes	No	86	349	81	268
Oregon	Yes	Yes	37	242	51	191
Pennsylvania	Yes	Yes	174	1381	274	1107
Puerto Rico	No		14	82	29	53
Rhode Island	No	Yes	11	92	16	76
South Carolina	No	No	63	421	107	314
South Dakota	No	Yes	21	87	18	69
Tennessee	Yes		106	605	163	442
Texas	M		359	1750	431	1319
Utah	Yes		35	128	40	88
Virginia	Yes	Yes	83	570	139	431
Virgin Islands			2	12	2	10
Vermont	No	Yes	6	33	7	26
Washington	No	No	59	388	73	315
Wisconsin	No	Yes	72	410	91	319
West Virginia	Yes	Yes	29	207	51	156
Wyoming	No	No	11	32	8	24
All US			3,644	23,563	5,571	17,992

Table 1c

1c. Ventilator-associated events (VAE)

State	2016					
				Total	ICU	
	No	Yes				
Alaska	No	No	8	11	6	5
Alabama	No	No	42	91	79	12
Arkansas	No	No	23	38	33	5
Arizona	No	No	31	49	39	10
California	No	No	170	345	282	63
Colorado	No	No	36	63	53	10
Connecticut	No	No	16	35	25	10
D.C.	No	No	3	6	6	0
Delaware			3	8	6	2
Florida	No	No	113	255	223	32
Georgia	No	No	69	137	127	10
Guam	No	No	0	0	0	0
Hawaii	No	No	6	7	6	1
Iowa	No	No	14	16	15	1
Idaho	No	No	7	11	10	1
Illinois	No	No	61	113	81	32
Indiana	No	No	67	109	93	16
Kansas	No	No	31	44	40	4
Kentucky	No	No	42	68	64	4
Louisiana	No	Yes	36	57	44	13
Massachusetts	No	No	24	49	42	7
Maryland	No	No	24	41	33	8
Maine	No	No	12	18	17	1
Michigan	No	Yes	74	154	140	14
Minnesota	No	No	10	15	11	4
Missouri			37	76	68	8
Mississippi	No	No	26	42	40	2

Table 1c

Montana	No	No	4	4	4	0
North Carolina	No	No	41	74	64	10
North Dakota	No	No	1	1	1	0
Nebraska	No	No	12	19	13	6
New Hampshire	No	No	10	17	10	7
New Jersey	No	No	47	110	81	29
New Mexico	No	No	19	25	21	4
Nevada	No	No	19	40	30	10
New York	No	No	136	443	249	194
Ohio	No	No	81	233	147	86
Oklahoma	No	No	36	53	50	3
Oregon	No	No	24	34	29	5
Pennsylvania	Yes	Yes	142	363	259	104
Puerto Rico	No	No	7	25	11	14
Rhode Island	No	No	9	18	14	4
South Carolina	Yes	Yes	55	114	98	16
South Dakota	No	No	6	11	9	2
Tennessee	No	No	53	121	91	30
Texas	No	No	140	231	194	37
Utah	M	No	7	7	7	0
Virginia	No	No	64	140	110	30
Virgin Islands			1	1	1	0
Vermont	No	No	0	0	0	0
Washington	No	No	31	45	40	5
Wisconsin	No	Yes	57	78	68	10
West Virginia	No	No	19	35	31	4
Wyoming	No	No	5	5	5	0
All US			2,011	4,105	3,220	885

**Table 1. Characteristics of NHSN Acute Care Hospitals reporting to NHSN by State¹, 2016:
1d. Surgical site infections⁷**

State	2016		No. of Acute Care Hospitals Reporting colon and hysterectomy surgeries in adults ⁵	No. of Procedures ⁷ colon and hysterectomy surgeries in adults
	Any Validation ⁴			
Alaska	Yes	Yes	7	1,139
Alabama	Yes	Yes	69	13,519
Arkansas	Yes	Yes	42	6,653
Arizona	No	No	58	13,882
California	Yes		318	54,664
Colorado	Yes	Yes	47	10,534
Connecticut	Yes	Yes	30	7,711
D.C.	Yes	No	7	1,858
Delaware			7	1,815
Florida	No	No	190	47,492
Georgia	Yes	Yes	90	22,815
Guam	No	No	0	-
Hawaii	Yes	Yes	14	1,756
Iowa	No	Yes	35	6,477
Idaho	No	No	12	2,238
Illinois	Yes	No	127	23,390
Indiana	Yes	Yes	79	13,046
Kansas	No	Yes	44	6,153
Kentucky	Yes	No	65	10,740
Louisiana	No	No	74	10,730
Massachusetts	Yes	Yes	61	11,852
Maryland	Yes	No	45	10,995
Maine	No	Yes	17	2,713
Michigan	No	Yes	86	21,153
Minnesota	Yes	Yes	50	9,963
Missouri			66	14,516
Mississippi	Yes		43	7,062
Montana	No	No	12	1,619
North Carolina	Yes	Yes	89	20,643
North Dakota	No	No	6	1,578
Nebraska	No		22	4,243
New Hampshire	Yes	Yes	13	2,470
New Jersey	Yes	No	70	15,608
New Mexico	No	No	29	3,136
Nevada	No	No	19	4,302
New York	Yes		165	38,552
Ohio	No	Yes	125	27,544
Oklahoma	Yes	No	65	8,779
Oregon	Yes	Yes	34	7,074
Pennsylvania	Yes	Yes	153	29,343
Puerto Rico	No	No	0	-

Rhode Island	No	No	11	2,503
South Carolina	Yes	Yes	57	10,751
South Dakota	No	Yes	16	2,185
Tennessee	Yes		90	18,011
Texas	Yes	Yes	298	52,079
Utah	Yes		33	5,353
Virginia	Yes	Yes	74	16,204
Virgin Islands			2	120
Vermont	No	Yes	6	891
Washington	Yes		53	11,758
Wisconsin	No		68	11,383
West Virginia	Yes	Yes	27	4,105
Wyoming	No	No	10	625
All US			3,230	635,725

Table 1. Characteristics of NHSN Acute Care Hospitals reporting to NHSN by State¹, 2016:

1e. Hospital-onset methicillin-resistant *Staphylococcus aureus* bacteremia⁸

State	2016		
Alaska	Yes	Yes	8
Alabama	No	Yes ^a	89
Arkansas	Yes		48
Arizona	No	No	68
California	Yes		339
Colorado	No	No	52
Connecticut	Yes		32
D.C.	Yes	No	8
Delaware			8
Florida	No	No	199
Georgia	Yes	Yes	105
Guam	No	No	0
Hawaii	Yes	Yes	16
Iowa	No	Yes	38
Idaho	No	No	14
Illinois	Yes	Yes	135
Indiana	No	No	91
Kansas	No	Yes	57
Kentucky	Yes	Yes	70
Louisiana	No		94
Massachusetts	Yes	No	70
Maryland	Yes	No	48
Maine	Yes	Yes	17
Michigan	No	Yes	97
Minnesota	Yes	Yes	53
Missouri			77
Mississippi	Yes	Yes	61
Montana	No		13
North Carolina	Yes	No	97
North Dakota	No	Yes	8
Nebraska	Yes		28
New Hampshire	No	No	13
New Jersey	Yes	No	71
New Mexico	No	Yes	36
Nevada	Yes	No	20
New York	No	Yes	182
Ohio	No	Yes	138
Oklahoma	Yes	No	89
Oregon	Yes	Yes	36
Pennsylvania	Yes	Yes	167
Puerto Rico	No		2
Rhode Island	No	No	11
South Carolina	Yes	Yes	63
South Dakota	No	Yes	22
Tennessee	Yes	Yes	111
Texas	No		371

Utah	Yes		35
Virginia	Yes	Yes	80
Virgin Islands			2
Vermont	No	Yes	6
Washington	No		57
Wisconsin	No	Yes	74
West Virginia	Yes	Yes	30
Wyoming	No	No	11
All US			3,667

1f. Hospital-onset *Clostridium difficile*⁸

State	2016		Any Validation ⁴	
	Yes	No		
Alaska	Yes	Yes		8
Alabama	No			89
Arkansas	Yes			48
Arizona	No	No		68
California	Yes			339
Colorado	Yes	No		54
Connecticut	Yes			32
D.C	M	No		7
Delaware				8
Florida	No	No		199
Georgia	Yes	Yes		105
Guam	No	No		0
Hawaii	Yes	Yes		16
Iowa	No	Yes		40
Idaho	No	No		14
Illinois	Yes	Yes		135
Indiana	No	No		91
Kansas	No	Yes		57
Kentucky	Yes	Yes		70
Louisiana	No			95
Massachusetts	Yes	No		70
Maryland	Yes	No		48
Maine	Yes	Yes		17
Michigan	No	Yes		97
Minnesota	Yes	Yes		54
Missouri				77
Mississippi	Yes	Yes		61
Montana	No			13
North Carolina	Yes	No		97
North Dakota	No	Yes		8
Nebraska	Yes			28
New Hampshire	No	No		13
New Jersey	Yes	No		71
New Mexico	No	Yes		37
Nevada	No	No		21
New York	Yes			183
Ohio	No	Yes		140
Oklahoma	Yes	No		89
Oregon	Yes	Yes		36
Pennsylvania	Yes	Yes		168
Puerto Rico	No			5
Rhode Island	No	No		11
South Carolina	Yes	Yes		63

South Dakota	No	Yes	22
Tennessee	Yes	Yes	111
Texas	No		374
Utah	Yes		36
Virginia	Yes	Yes	80
Virgin Islands			2
Vermont	Yes	Yes	6
Washington	No		57
Wisconsin	No	Yes	74
West Virginia	Yes	Yes	30
Wyoming	No	No	11
All US			3,685

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 2016 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. On Table 1c, the presence of a state mandate reflects a mandate for colon surgery or abdominal hysterectomy data.

4. Yes indicates that the state health department reported the completion of all of the following validation activities for NHSN data during that year: state health department had access to NHSN data, state health department performed an assessment of missing or implausible values on at least six months of the year's data prior to the freeze date of October 1, 2017 for 2016 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 October 1, 2017 for 2016 data to confirm proper case ascertainment (although intensity of auditing activities varies by state). On Table 1c, validation information applies to either colon surgery or abdominal hysterectomy data. Information on validation efforts was requested from all states, regardless of the presence of a legislative mandate for the particular HAI type. Some states without mandatory reporting of a given HAI to the state health department have performed validation on NHSN data that is voluntarily shared with them by facilities in their jurisdiction.

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

6. 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 hysterectomy surgeries, detected during the same admission as the surgical procedure or upon readmission to the same facility.

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, all⁴	3,531	121,163,842
ICUs⁵	3,125	18,973,520
Wards⁶	3,479	102,190,322
NICUs⁷	1,004	6,201,182
CAUTI, all⁸	3,644	125,337,259
	3,130	19,001,811
	3,598	106,335,448
VAE, all⁸	1,953	12,895,443
	1,919	10,318,377
	302	2,577,066

1. The number of reporting facilities included in the SIR calculation. Due to SIR exclusion criteria, this may be different from the total number of facilities.
2. Percent of facilities with at least one predicted infection (event) that had an SIR significantly greater than or less than the predicted SIR.
3. Facility-specific percentiles are only calculated if at least 20 facilities had ≥ 1.0 predicted HAI in 2016. If a facility's predicted HAI is ≥ 1.0 , the facility's SIR is calculated as the ratio of the facility's predicted HAI to the facility's predicted SIR.
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 locations are included.
6. Data from all wards (for this table wards also include step-down and specialty care areas [including hematology/oncology]).
7. Data from all NICU locations, including Level II/III and Level III nurseries. Both umbilical line and central line-associated infections are included.
8. Data from all ICUs and wards (and other non-critical care locations). This excludes NICUs. For VAE, pediatric locations are included. IVAC-plus includes those events identified as infection-related ventilator-associated condition (IVAC) and possible

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

**Table 2a. Na
Central line-**

Total Device Days	No. of Infections (Events)		SIR	95% CI for SIR		No. Facil Predicted Ir
	Observed	Predicted		Lower	Upper	
26,982,284	23,591	26,472.710	0.891	0.880	0.903	
9,197,999	9,055	9,726.020	0.931	0.912	0.950	
16,368,701	12,946	14,770.710	0.876	0.861	0.892	
1,415,584	1,590	1,975.980	0.805	0.766	0.845	
26,786,528	26,983	29,002.430	0.930	0.919	0.942	
10,692,640	12,959	13,978.920	0.927	0.911	0.943	
1,609,388	14,024	15,023.500	0.933	0.918	0.949	
3,628,885	24,039	24552.999	0.979	0.967	0.992	
3,449,560	23,457	23885.286	0.982	0.970	0.995	
179,325	582	667.713	0.872	0.803	0.945	

ent from the numbers shown in Table 1. These tables contain data from acute care hospitals; as su
than the nominal value of the national SIR for the given HAI type. This is only calculated if at least
s predicted number of HAIs was <1.0, a facility-specific SIR was neither calculated nor included in th

rs are excluded from SIR since pediatric and neonatal locations are excluded from VAE surveillance
oncology, bone marrow transplant]). For VAE, pediatric locations are excluded from SIR since pedi
ociated bloodstream infections are considered CLABSIs.

ocations are excluded from SIR since pediatric and neonatal locations are excluded from VAE survei
le ventilator-associated pneumonia (pVAP). IVAC-plus events are a subset of the total VAE, meanir

pendix A.

**ational standardized infection ratios (SIRs) and facility-specific summary SIRs using HAI data repo
associated bloodstream infections (CLABSIs), catheter-associated urinary tract infections (CAUTI**

Facilities with ≥1 infection (Event)	Facility-specific SIRs		No. Facilities with SIR		5%	10%
	No. Facilities with SIR		No. Facilities with SIR			
	Significantly > National SIR	Significantly < National SIR	Significantly > National SIR	Significantly < National SIR		
	N	% ²	N	%		
2,345	245	10%	259	11%	0.000	0.000
1,708	133	8%	108	6%	0.000	0.000
1,977	176	9%	162	8%	0.000	0.000
456	30	7%	16	4%	0.000	0.000
2,591	267	10%	299	12%	0.000	0.000
1,944	174	9%	121	6%	0.000	0.000
2,231	198	9%	175	8%	0.000	0.000
1,473	298	20%	364	25%	0.000	0.000
1,461	296	20%	363	25%	0.000	0.000
132	14	11%	18	14%	0.000	0.000

ch, they exclude data from LTACHs, IRFs, and CAHs.
10 facilities had ≥ 1.0 predicted HAI in 2016.
re distribution of facility-specific SIRs.

3.
atric and neonatal locations are excluded from VAE surveillance.

illance. Total VAE includes IVAC-plus events.
ng the IVAC-plus events are included in the total VAE SIR as well.

orted to NHSN during 2016 by facility type, HAI, and patient population:
 ls) and ventilator-associated events (VAE)

Percentile Distribution of Facility-specific SIRs³									
Median									
15%	20%	25%	30%	35%	40%	45%	50%	55%	60%
0.204	0.328	0.421	0.498	0.567	0.632	0.700	0.783	0.849	0.916
0.000	0.217	0.334	0.452	0.535	0.609	0.699	0.770	0.843	0.931
0.000	0.254	0.352	0.443	0.513	0.588	0.652	0.730	0.817	0.892
0.000	0.000	0.254	0.367	0.435	0.507	0.583	0.649	0.747	0.810
0.229	0.360	0.448	0.518	0.591	0.664	0.747	0.819	0.885	0.957
0.000	0.296	0.393	0.483	0.563	0.658	0.745	0.818	0.890	0.969
0.113	0.281	0.398	0.485	0.576	0.645	0.720	0.787	0.866	0.947
0.000	0.000	0.154	0.290	0.429	0.541	0.640	0.797	0.912	1.048
0.000	0.000	0.163	0.298	0.432	0.541	0.652	0.807	0.920	1.061
0.000	0.000	0.000	0.000	0.134	0.267	0.402	0.498	0.590	0.690

65%	70%	75%	80%	85%	90%	95%
0.996	1.085	1.217	1.326	1.502	1.792	2.239
1.032	1.135	1.281	1.455	1.647	1.944	2.479
0.983	1.095	1.201	1.354	1.586	1.845	2.307
0.882	0.962	1.095	1.293	1.487	1.706	2.195
1.038	1.131	1.250	1.371	1.541	1.790	2.184
1.076	1.178	1.289	1.461	1.632	1.932	2.385
1.045	1.148	1.271	1.392	1.537	1.799	2.262
1.204	1.349	1.525	1.720	1.946	2.215	2.653
1.208	1.353	1.546	1.740	1.946	2.214	2.649
0.800	0.930	1.229	1.483	1.755	2.334	2.767

HAI and Patient Population	Reporting	
	No. of Acute Care Hospitals Reporting ¹	Total Admissions ²
Laboratory-identified MRSA bacteremia, facility-wide	3,602	36,052,090
Laboratory-identified <i>C. difficile</i> , facility-wide	3,605	33,251,802

1. The number of reporting facilities included in the SIR calculation. Due to SIR exclusion criteria, this may be less than the total number of facilities.
2. Total inpatient admissions reported from all inpatient locations, excluding counts from CMS-certified rehabilitation centers.
3. Total patient days reported from all inpatient units, excluding counts from CMS-certified rehabilitation centers.
4. Community-onset events are defined as those that were identified in an inpatient location on the first, second, or third day of hospitalization.
5. Hospital-onset events are defined as those that were identified in an inpatient location on the 4th day (or later) of hospitalization.
6. Calculated from a negative binomial regression model. Risk factors used in the calculation of the number of predicted events include patient age, gender, race, ethnicity, insurance status, and facility type.
7. Percent of facilities with at least one predicted event that had an SIR significantly greater than or less than the expected SIR.
8. Percentile distribution of facility-specific SIRs. This is only calculated if at least 20 facilities had ≥ 1.0 predicted events.

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

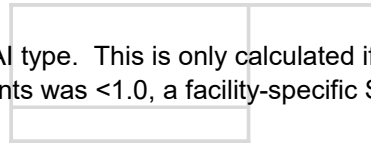
Hospitals		Standardized Infection Ratio Data				95% CI
Total Patient Days³	Inpatient Community-onset events⁴	Hospital-onset events⁵	Predicted Hospital-onset events⁶	SIR	Lower	
155,107,407	24,854	8,546	9,142.247	0.935	0.915	
142,405,255	119,874	95,530	103,780.133	0.921	0.915	

may be different from the numbers shown in Table 1.

rehabilitation and psychiatric locations. Admissions for *C.difficile* further excludes counts from NICUs and well-baby units and psychiatric locations. Patient days for *C.difficile* further excludes counts from NICUs and well-baby units on the second, or third day of a patient's admission to the facility. For *C.difficile*, this excluded events in which the infection occurred (or later) after admission to the facility.

Number of predicted events are listed in Appendix B.

greater than the nominal value of the national SIR for the given HAI type. This is only calculated if at least 10 facilities reported a predicted HAI in 2016. If a facility's predicted number of events was <1.0, a facility-specific SIR was neither calculated nor reported.



**rs) and facility-specific SIR distributions using HAI data reported to NHSN during 2016:
Staphylococcus aureus (MRSA) bacteremia and *Clostridium difficile* (*C.difficile*) in Acute Care Hospitals**

for SIR	Facility SIRs Compared to National SIR						5%
	No. Facilities with ≥1 Predicted Event	No. Facilities with SIR Significantly > National SIR		No. Facilities with SIR Significantly < National SIR			
		N	% ⁷	N	%		
Upper 0.955	1,859	124	7%	67	4%	0.000	
0.926	3,180	314	10%	644	20%	0.000	

well-baby units.

its.

patient was recently discharged from the reporting facility in the previous 4 weeks.

ities had ≥ 1.0 predicted HAI in 2016.

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	0.167	0.333	0.419	0.506	0.587	0.660	0.733	0.796	0.865
0.262	0.394	0.486	0.568	0.629	0.694	0.749	0.802	0.851	0.903

Specific SIRs⁸

60%	65%	70%	75%	80%	85%	90%	95%
0.947	1.057	1.172	1.324	1.492	1.684	1.956	2.382
0.963	1.011	1.073	1.144	1.219	1.307	1.466	1.729

Surgical Procedure	No. of Acute Care Hospitals Reporting ²	No. of Procedures
US, all NHSN procedures	3,346	2,623,800
US, SCIP procedures only⁵	3,318	1,686,684
AAA Abdominal aortic aneurysm repair ⁵	250	1,429
AMP Limb amputation	145	7,799
APPY Appendix surgery	399	37,287
AVSD Shunt for dialysis	110	1,762
BILI Bile duct, liver or pancreatic surgery	308	10,942
BRST Breast surgery	226	15,631
CARD Cardiac surgery ⁵	398	41,617
CABG- Coronary artery bypass graft ^{5,6}	759	124,281
CEA Carotid endarterectomy	279	9,841
CHOL Gallbladder surgery	423	64,227
COLO Colon surgery ⁵	3,133	318,352
CRAN Craniotomy	151	25,054
CSEC Cesarean section	438	235,828
FUSN Spinal fusion	551	129,520
FX Open reduction of fracture	398	48,511
GAST Gastric surgery	384	37,447
HER Herniorrhaphy	222	10,635
HPRO Hip arthroplasty ⁵	1,983	349,277
HTP Heart transplant	32	1,142
HYST Abdominal hysterectomy ⁵	2,986	302,548
KPRO Knee arthroplasty ⁵	1,939	504,333
KTP Kidney transplant	53	4,031
LAM Laminectomy	513	99,688
LTP Liver transplant	28	1,594
NECK Neck surgery	85	1,081
NEPH Kidney surgery	275	10,128
OVRY Ovarian surgery	367	37,806
PACE Pacemaker surgery	322	23,193
PRST Prostate surgery	106	3,486
PVBY Peripheral vascular bypass surgery ⁵	294	9,346
REC Rectal surgery ⁵	330	7,854
RFUSN Refusion of spine	-	-
SB Small bowel surgery	387	26,324
SPLE Spleen surgery	246	2,596
THOR Thoracic surgery	320	25,887
THYR Thyroid and/or parathyroid surgery	122	3,932
VHYS Vaginal hysterectomy ⁵	738	27,647
VSHN Ventricular shunt	102	2,090
XLAP Abdominal surgery	395	59,654

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

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

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

No. of Infections		SIR	95% CI for SIR		No. Hosp with ≥1 Predicted Infection	Facility- No. Hosp Significantly > N
Observed	Predicted³		Lower	Upper		
19,253	20,374.957	0.945	0.932	0.958	2,409	193
14,583	15,578.517	0.936	0.921	0.951	2,352	174
5	9.757	0.512	0.188	1.136	0	.
50	43.700	1.144	0.858	1.496	19	2
143	143.566	0.996	0.843	1.170	36	2
2	4.625	0.432	0.073	1.429	0	.
299	336.561	0.888	0.792	0.993	61	5
121	148.217	0.816	0.680	0.972	45	3
116	148.852	0.779	0.647	0.931	39	1
855	913.694	0.936	0.875	1.000	319	21
6	8.047	0.746	0.302	1.551	0	.
222	239.740	0.926	0.810	1.054	84	3
7,466	8,004.918	0.933	0.912	0.954	1,817	108
312	273.012	1.143	1.021	1.275	68	4
417	382.370	1.091	0.990	1.199	114	9
925	941.222	0.983	0.921	1.048	254	21
334	340.415	0.981	0.880	1.091	100	9
203	255.640	0.794	0.690	0.909	79	0
73	72.202	1.011	0.798	1.264	16	1
2,167	2,252.419	0.962	0.922	1.003	702	56
7	13.870	0.505	0.221	0.998	4	.
1,757	2,010.678	0.874	0.834	0.915	629	35
1,864	1,774.402	1.050	1.004	1.099	609	43
37	24.683	1.499	1.071	2.044	9	.
308	349.618	0.881	0.787	0.984	117	3
80	76.366	1.048	0.836	1.297	21	2
27	26.990	1.000	0.673	1.435	6	.
26	33.373	0.779	0.520	1.125	4	.
29	24.279	1.194	0.815	1.693	0	.
49	41.223	1.189	0.889	1.559	2	.
18	9.133	1.971	1.205	3.055	0	.
167	184.380	0.906	0.776	1.051	58	1
66	137.640	0.480	0.374	0.606	32	2
					0	.
486	527.896	0.921	0.841	1.005	148	7
17	15.289	1.112	0.669	1.744	0	.
63	89.107	0.707	0.548	0.899	18	1
3	3.029	0.990	0.252	2.695	0	.
120	141.776	0.846	0.705	1.008	16	3
29	32.923	0.881	0.601	1.249	10	1
384	339.344	1.132	1.023	1.249	106	9

procedures that occurred in 2016 with a primary or other than primary skin closure technique, detected during the audit. These numbers may be different from the numbers shown in Table 1. Refer to the Technical Appendix for information about

or less than the nominal value of the national SIR for the given procedure type. This is only calculated if at least 10 inpatient surgical procedures approximating procedures covered by the Surgical Care Improvement Project

are performed.

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

SIRs using adult surgical site infection (SSI) data1 reported to NHSN from NHSN Acute Care Hospi

specific SIRs							
> National SIR	No. Hosp with SIR	< National SIR	5%	10%	15%	20%	25%
% ⁴	N						
8%	184	8%	0.000	0.000	0.215	0.365	0.454
7%	148	6%	0.000	0.000	0.204	0.349	0.450
.
11%	0	0%	.	.	.	.	.
6%	0	0%	0.000	0.000	0.000	0.000	0.000
.
8%	4	7%	0.000	0.000	0.000	0.000	0.125
7%	1	2%	0.000	0.000	0.000	0.000	0.000
3%	0	0%	0.000	0.000	0.000	0.000	0.000
7%	4	1%	0.000	0.000	0.000	0.000	0.000
.
4%	0	0%	0.000	0.000	0.000	0.000	0.000
6%	65	4%	0.000	0.000	0.000	0.085	0.343
6%	1	1%	0.000	0.000	0.000	0.000	0.261
8%	5	4%	0.000	0.000	0.000	0.000	0.000
8%	11	4%	0.000	0.000	0.000	0.239	0.373
9%	1	1%	0.000	0.000	0.000	0.000	0.000
0%	1	1%	0.000	0.000	0.000	0.000	0.000
6%	0	0%	.	.	.	.	.
8%	23	3%	0.000	0.000	0.000	0.000	0.202
.
6%	10	2%	0.000	0.000	0.000	0.000	0.000
7%	12	2%	0.000	0.000	0.000	0.000	0.000
.
3%	0	0%	0.000	0.000	0.000	0.000	0.000
10%	1	5%	0.000	0.000	0.258	0.345	0.360
.
.
.
.
2%	0	0%	0.000	0.000	0.000	0.000	0.000
6%	0	0%	0.000	0.000	0.000	0.000	0.000
.
5%	0	0%	0.000	0.000	0.000	0.000	0.000
.
6%	0	0%	.	.	.	.	.
.
19%	0	0%	.	.	.	.	.
10%	0	0%	.	.	.	.	.
8%	2	2%	0.000	0.000	0.000	0.000	0.478

ing the same admission as the surgical procedure or upon readmission to the same facility.
 it exclusion criteria.

at least 10 facilities had ≥ 1.0 predicted SSI in 2016.
Specific NHSN procedures

in the distribution of facility-specific SIRs.

itals during 2016 by surgical procedure.

Percentile Distribution of Facility-specific SIRs⁷									
Median									
30%	35%	40%	45%	50%	55%	60%	65%	70%	75%
0.549	0.619	0.696	0.766	0.835	0.900	0.978	1.068	1.170	1.265
0.536	0.609	0.682	0.758	0.835	0.905	0.992	1.079	1.177	1.284
.
.
0.000	0.636	0.784	0.820	0.930	0.987	1.128	1.390	1.714	1.866
.
0.193	0.429	0.504	0.637	0.740	0.794	0.822	0.983	1.108	1.223
0.000	0.325	0.424	0.549	0.710	0.731	0.824	0.875	0.960	1.037
0.000	0.000	0.000	0.400	0.486	0.702	0.799	0.897	1.017	1.403
0.179	0.407	0.502	0.628	0.705	0.797	0.868	1.014	1.203	1.335
.
0.287	0.537	0.612	0.669	0.702	0.759	0.851	0.951	0.996	1.129
0.444	0.558	0.627	0.710	0.801	0.880	0.959	1.082	1.207	1.336
0.501	0.600	0.755	0.782	0.883	1.101	1.207	1.340	1.533	1.628
0.316	0.426	0.543	0.703	0.786	0.900	1.023	1.214	1.484	1.608
0.486	0.561	0.654	0.728	0.788	0.903	0.981	1.146	1.227	1.427
0.429	0.510	0.580	0.620	0.750	0.797	0.891	1.072	1.305	1.459
0.301	0.434	0.492	0.634	0.719	0.774	0.884	0.942	0.979	1.202
.
0.370	0.517	0.616	0.719	0.809	0.892	0.954	1.117	1.345	1.495
.
0.293	0.449	0.542	0.635	0.698	0.790	0.873	0.978	1.144	1.353
0.380	0.517	0.617	0.715	0.817	0.891	0.967	1.115	1.337	1.522
.
0.000	0.000	0.252	0.417	0.520	0.648	0.705	0.788	0.872	0.966
0.497	0.516	0.535	0.633	0.720	1.026	1.135	1.150	1.348	1.564
.
.
.
.
.
0.360	0.444	0.472	0.557	0.645	0.697	0.815	0.937	1.149	1.310
0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.256	0.335
.
0.376	0.457	0.541	0.676	0.740	0.831	0.916	0.991	1.082	1.242
.
.
.
.
0.543	0.656	0.740	0.843	0.898	1.010	1.119	1.404	1.492	1.581

80%	85%	90%	95%
1.394	1.567	1.798	2.198
1.419	1.581	1.805	2.219
.	.	.	.
.	.	.	.
1.887	2.273	2.556	2.881
.	.	.	.
1.323	1.565	1.650	2.096
1.164	1.538	2.295	2.474
1.535	1.937	2.378	3.371
1.537	1.715	2.069	2.873
.	.	.	.
1.323	1.687	1.927	2.319
1.504	1.683	1.919	2.337
1.746	1.970	2.136	2.486
1.889	2.101	2.668	3.123
1.588	1.802	1.963	2.786
1.561	1.764	1.988	2.825
1.347	1.551	1.665	2.040
.	.	.	.
1.677	1.913	2.386	2.974
.	.	.	.
1.528	1.742	2.036	2.536
1.758	1.962	2.478	3.006
.	.	.	.
1.118	1.662	1.847	2.314
2.039	2.205	2.431	3.781
.	.	.	.
.	.	.	.
.	.	.	.
.	.	.	.
1.603	1.707	1.855	2.194
0.438	0.489	0.796	2.022
.	.	.	.
1.402	1.558	1.872	2.489
.	.	.	.
.	.	.	.
.	.	.	.
1.690	1.983	2.820	3.335

Surgical Procedure	No. of Acute Care Hospitals Reporting²	No. of Procedures
US, all NMSN procedures	1,291	51,754
	899	13,386
	.	.
	0	0
AMP Limb amputation	0	0
APPY Appendix surgery	350	12,572
AVSD Shunt for dialysis	0	0
BILI Bile duct, liver or pancreatic surgery	46	372
BRST Breast surgery	0	0
	83	6,751
	0	0
CEA Carotid endarterectomy	0	0
CHOL Gallbladder surgery	215	1,184
COLO Colon surgery ⁵	693	5,711
CRAN Craniotomy (ALL AGE)	71	1,704
CRAN Craniotomy (AGE >=2)	66	1,335
CRAN Craniotomy (AGE <2)	32	369
CSEC Cesarean section	322	1,579
FUSN Spinal fusion (AGE >=2)	197	4,793
FX Open reduction of fracture	246	3,168
GAST Gastric surgery	0	0
HER Herniorrhaphy	46	742
	146	236
HTP Heart transplant	0	0
	109	123
	119	194
KTP Kidney transplant	15	136
LAM Laminectomy	151	1,964
LTP Liver transplant	9	111
NECK Neck surgery	0	0
NEPH Kidney surgery	0	0
OVRV Ovarian surgery	0	0
PACE Pacemaker surgery	0	0
PRST Prostate surgery	0	0
	0	0
	43	371
RFUSN Refusion of spine	0	0
SB Small bowel surgery	106	1,341
SPLE Spleen surgery	0	0
THOR Thoracic surgery	106	1,491
THYR Thyroid and/or parathyroid surgery	0	0
	0	0
VSHN Ventricular shunt	55	2,958
XLAP Abdominal surgery	166	2,549
	0	0

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

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

<u>No. of Infections</u>		<u>SIR</u>	<u>95% CI for SIR</u>		<u>No. Hosp with ≥1 Predicted Infection</u>	<u>Facility- No. Hosp Significantly > N</u>
<u>Observed</u>			<u>Lower</u>	<u>Upper</u>		
409	465.129	0.879	0.797	0.968	81	7
144	196.860	0.731	0.619	0.859	48	0
.
.
51	41.652	1.224	0.921	1.597	8	.
.
3	6.650	0.451	0.115	1.228	0	.
.
35	63.306	0.553	0.391	0.760	22	0
.
.
0	0.872	.	.	.	0	.
105	127.045	0.826	0.679	0.996	26	0
14	17.962	0.779	0.444	1.277	8	.
10	14.566	0.687	0.349	1.224	6	.
4	3.396	1.178	0.374	2.841	0	.
7	4.232	1.654	0.723	3.272	0	.
47	52.168	0.901	0.670	1.188	15	0
13	9.633	1.349	0.751	2.250	0	.
.
0	1.029	0.000	.	2.911	0	.
1	0.963	.	.	.	0	.
.
2	2.365	0.846	0.142	2.793	0	.
1	2.120	0.472	0.024	2.326	0	.
2	1.097	1.824	0.306	6.025	0	.
22	12.608	1.745	1.121	2.599	0	.
7	7.655	0.914	0.400	1.809	2	.
.
.
.
.
.
0	1.060	0.000	.	2.826	0	.
.
16	13.286	1.204	0.713	1.914	1	.
.
5	1.820	2.747	1.007	6.090	0	.
.
.
55	67.276	0.818	0.622	1.056	24	1
9	12.367	0.728	0.355	1.336	1	.

t procedures in pediatric patients less than 18 years that occurred in 2016 with a primary or other than primary diagnosis may be different from the numbers shown in Table 1. Refer to the Technical Appendix for information about procedures in 2016.

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

procedures.

2016. If a facility's predicted number of SSIs was < 1.0 , a facility-specific SIR was neither calculated nor included.

ry skin closure technique, detected during the same admission as the surgical procedure or upon readmission. SIRS and accompanying
at exclusion criteria. SIRS and accompanying

at least 10 facilities had ≥ 1.0 predicted SSI in 2016.
Specific NHSN procedures

ed in the distribution of facility-specific SIRS.

ation to the same facility.

Table 3. State-specific standardized infection ratios (SIRs) and facility-specific SIR summary measures,
NHSN Acute Care Hospitals reporting during 2016

3a. Central line-associated bloodstream infections (CLABSI), all locations¹

State	State NHSN Mandate ²	Any Validation ³	No. of Acute Care Hospitals Reporting ⁴	No. of Infections		95% CI for SIR			Facility-specific SIRs			Facility-specific SIRs at Key Percentiles ⁵				
				Observed	Predicted	SIR	Lower	Upper	No. of hosp with at least 1 predicted CLABSI	% of hosp with SIR sig higher than national SIR ⁶	% of hosp with SIR sig lower than national SIR ⁷	10%	25%	Median (50%)	75%	90%
Alaska	Yes	Yes	9	28	32.340	0.866	0.587	1.234	5	.	.	.	.	.	.
Alabama	Yes		77	564	503.340	1.121	1.031	1.216	36	31%	3%	0.146	0.800	1.156	1.591	1.804
Arkansas	Yes		49	291	292.560	0.995	0.885	1.114	25	4%	8%	0.342	0.622	0.938	1.265	1.597
Arizona	No	No	66	420	550.300	0.763	0.693	0.839	44	5%	9%	0.000	0.383	0.680	0.893	1.236
California	Yes		333	2,582	2,735.120	0.944	0.908	0.981	269	9%	9%	0.000	0.481	0.885	1.287	1.850
Colorado	Yes	No	50	234	325.410	0.719	0.631	0.816	31	3%	32%	0.000	0.175	0.596	0.941	1.284
Connecticut	Yes		32	247	240.980	1.025	0.903	1.159	24	17%	4%	0.000	0.545	0.878	1.204	1.629
D.C.	Yes	No	8	166	174.730	0.95	0.814	1.103	8	.	.	.	.	.	.	.
Delaware			8	90	93.230	0.965	0.781	1.181	8	.	.	.	.	.	.	.
Florida	No	No	202	1,851	2,044.190	0.905	0.865	0.947	174	16%	11%	0.183	0.478	0.841	1.322	1.896
Georgia	Yes		103	1,002	877.090	1.142	1.073	1.215	65	26%	9%	0.104	0.488	0.943	1.522	1.978
Guam	No	No	1	.	.	.	.	.	.	.	.	.	.	.	.	.
Hawaii	Yes	Yes	16	56	106.610	0.525	0.401	0.677	13	0%	38%	.	.	.	.	.
Iowa	No	Yes	39	136	214.300	0.635	0.534	0.748	23	0%	22%	0.000	0.115	0.459	0.843	0.919
Idaho	No	No	11	29	73.600	0.394	0.269	0.559	8	.	.	.	.	.	.	.
Illinois	Yes	Yes	133	677	968.260	0.699	0.648	0.753	102	3%	12%	0.000	0.316	0.632	0.938	1.452
Indiana	Yes	Yes	86	551	558.990	0.986	0.906	1.071	58	9%	7%	0.000	0.490	0.654	1.146	1.501
Kansas	No	Yes	51	176	207.330	0.849	0.73	0.982	19	0%	0%	.	.	.	.	.
Kentucky	Yes	No	69	316	411.890	0.767	0.686	0.855	39	8%	18%	0.076	0.403	0.618	0.975	1.531
Louisiana	No	Yes	87	492	437.220	1.125	1.029	1.228	43	21%	12%	0.000	0.411	1.047	1.533	2.139
Massachusetts	Yes	Yes	67	463	605.980	0.764	0.697	0.836	48	2%	13%	0.000	0.279	0.575	0.814	1.438
Maryland	Yes	No	49	519	470.140	1.104	1.012	1.202	44	18%	14%	0.000	0.396	0.891	1.326	2.170
Maine	Yes	Yes	17	65	70.240	0.925	0.72	1.172	9	.	.	.	.	.	.	.
Michigan	No	Yes	93	565	725.500	0.779	0.717	0.845	57	11%	11%	0.000	0.333	0.716	1.026	1.394
Minnesota	Yes	Yes	52	299	349.110	0.856	0.763	0.958	20	5%	10%	0.000	0.448	0.607	0.992	1.210
Missouri			75	619	662.920	0.934	0.862	1.01	48	10%	17%	0.000	0.412	0.684	1.085	1.569
Mississippi	Yes	Yes	55	232	251.050	0.924	0.811	1.049	29	14%	7%	0.000	0.492	0.853	1.252	2.042
Montana	No		13	26	37.690	0.69	0.46	0.996	9	.	.	.	.	.	.	.
North Carolina	Yes	Yes	94	807	779.820	1.035	0.965	1.108	60	13%	8%	0.000	0.514	0.837	1.358	1.675
North Dakota	No	Yes	7	56	66.320	0.844	0.644	1.089	6	.	.	.	.	.	.	.
Nebraska	M		26	126	161.370	0.781	0.653	0.926	18	11%	17%	.	.	.	.	.
New Hampshire	Yes	Yes	13	67	69.860	0.959	0.749	1.21	11	9%	0%	.	.	.	.	.
New Jersey	Yes	No	71	535	651.090	0.822	0.754	0.894	64	11%	17%	0.202	0.369	0.725	1.187	1.942
New Mexico	Yes	No	32	122	115.810	1.053	0.879	1.253	13	15%	0%	.	.	.	.	.
Nevada	Yes	No	22	270	288.740	0.935	0.828	1.052	19	16%	16%	.	.	.	.	.
New York	Yes		174	1,726	1,767.320	0.977	0.931	1.023	133	19%	8%	0.329	0.593	0.926	1.326	2.363
Ohio	No	Yes	137	938	1,121.910	0.836	0.784	0.891	96	7%	14%	0.000	0.255	0.589	0.974	1.367
Oklahoma	Yes	No	77	326	399.860	0.815	0.73	0.907	32	6%	16%	0.237	0.471	0.731	1.022	1.814
Oregon	Yes	Yes	36	160	234.260	0.683	0.583	0.795	25	0%	8%	0.000	0.064	0.479	1.004	1.547
Pennsylvania	Yes	Yes	163	1,286	1,360.550	0.945	0.895	0.998	108	8%	11%	0.000	0.363	0.764	1.134	1.604
Puerto Rico	No		13	60	67.350	0.891	0.686	1.139	10	10%	0%	.	.	.	.	.
Rhode Island	No	No	11	76	74.120	1.025	0.814	1.276	9	.	.	.	.	.	.	.
South Carolina	Yes	Yes	62	412	427.610	0.963	0.874	1.06	33	6%	3%	0.000	0.598	0.858	1.223	1.570
South Dakota	No	Yes	17	48	62.410	0.769	0.573	1.011	5	.	.	.	.	.	.	.
Tennessee	Yes	Yes	105	584	749.660	0.779	0.718	0.844	60	15%	17%	0.000	0.314	0.731	1.147	1.911
Texas	Yes		328	1,915	2,205.270	0.868	0.83	0.908	203	9%	8%	0.000	0.450	0.806	1.148	1.690
Utah	Yes		34	116	138.750	0.836	0.694	0.999	13	0%	8%	.	.	.	.	.
Virginia	Yes	Yes	83	402	589.310	0.682	0.618	0.751	54	4%	17%	0.000	0.226	0.547	1.043	1.476
Virgin Islands			2	.	.	.	.	.	.	.	.	.	.	.	.	.
Vermont	Yes	Yes	6	18	26.430	0.681	0.416	1.055	2	.	.	.	.	.	.	.
Washington	Yes		56	344	485.800	0.708	0.636	0.786	45	4%	13%	0.087	0.450	0.632	0.859	1.333
Wisconsin	No	No	72	318	397.850	0.799	0.715	0.891	44	7%	7%	0.000	0.452	0.777	1.023	1.463
West Virginia	Yes	Yes	29	168	194.660	0.863	0.74	1.001	20	15%	25%	0.000	0.127	0.320	1.389	2.134
Wyoming	No	No	10	5	13.750	0.364	0.133	0.806	2	.	.	.	.	.	.	.
All US			3,531	23,591	26,472.710	0.891	0.880	0.903	2,345	10%	11%	0.000	0.421	0.783	1.217	2.239

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 2016. M indicates midyear implementation of a mandate. No indicates that a state mandate did not exist during 2016. 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 2016 NHSN data, state health department performed an assessment of missing or implausible values on at least six months of 2016 NHSN data prior to October 1, 2017, and state health department contacted identified facilities. YesA indicates that the state also conducted an audit of facility medical or laboratory records prior to October 1, 2017 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 2016.
5. Percent of facilities with at least one predicted CLABSI that had an SIR significantly greater or less than the nominal value of the 2016 national overall CLABSI SIR of 0.891. This is only calculated if at least 10 facilities had ≥ 1.0 predicted CLABSI in 2016.
6. Facility-specific key percentiles were only calculated if at least 20 facilities had ≥ 1.0 predicted CLABSI in 2016. 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 2016

3b. Central line-associated bloodstream infections (CLABSI), critical care locations¹

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	12	8.074	1.486	0.805	2.527	2	.	.	.	.	.	.
Alabama	Yes	68	196	190.885	1.027	0.890	1.178	30	10%	3%	0.000	0.653	0.988	1.678	2.208
Arkansas	Yes	42	118	103.558	1.139	0.947	1.360	19	5%	11%	.	.	.	.	.
Arizona	No	53	164	206.567	0.794	0.679	0.923	37	3%	5%	0.000	0.337	0.742	1.134	1.382
California	Yes	311	970	972.359	0.998	0.936	1.062	198	8%	3%	0.000	0.428	0.917	1.395	1.997
Colorado	Yes	45	81	107.193	0.756	0.604	0.934	26	0%	8%	0.000	0.000	0.419	0.880	1.507
Connecticut	No	28	85	81.845	1.039	0.835	1.278	16	13%	0%	.	.	.	.	.
D.C.	Yes	8	60	59.092	1.015	0.782	1.298	8	.	.	.	.	.	.	.
Delaware		8	27	32.794	0.823	0.554	1.181	6	.	.	.	.	.	.	.
Florida	No	195	705	782.465	0.901	0.836	0.969	139	10%	12%	0.000	0.289	0.747	1.287	2.039
Georgia	Yes	93	427	340.233	1.255	1.140	1.378	51	16%	4%	0.000	0.388	0.910	1.584	2.065
Guam	No	1	.	.	.	.	.	.	.	.	.	.	.	.	.
Hawaii	Yes	15	17	35.875	0.474	0.285	0.743	9	.	.	.	.	.	.	.
Iowa	No	34	38	66.466	0.572	0.410	0.777	11	0%	17%	.	.	.	.	.
Idaho	No	10	11	26.217	0.420	0.221	0.729	6	.	.	.	.	.	.	.
Illinois	Yes	126	270	343.273	0.787	0.697	0.885	71	1%	4%	0.000	0.000	0.705	1.104	1.480
Indiana	Yes	71	194	211.395	0.918	0.795	1.054	39	3%	3%	0.000	0.208	0.711	0.998	1.730
Kansas	No	37	59	72.669	0.812	0.624	1.040	13	8%	0%	.	.	.	.	.
Kentucky	Yes	65	137	176.587	0.776	0.654	0.914	31	3%	13%	0.000	0.147	0.736	1.199	1.466
Louisiana	No	66	200	160.617	1.245	1.081	1.427	30	20%	7%	0.000	0.448	1.150	1.783	2.545
Massachusetts	Yes	63	176	212.401	0.829	0.713	0.958	25	4%	12%	0.000	0.062	0.734	0.890	1.293
Maryland	Yes	46	182	158.372	1.149	0.991	1.326	29	17%	3%	0.000	0.061	0.624	1.287	2.344
Maine	Yes	14	26	22.256	1.168	0.779	1.687	4	.	.	.	.	.	.	.
Michigan	No	87	274	318.842	0.859	0.762	0.966	50	2%	4%	0.000	0.265	0.778	1.209	1.523
Minnesota	Yes	41	112	120.614	0.929	0.768	1.113	17	6%	0%	.	.	.	.	.
Missouri		71	173	227.981	0.759	0.652	0.878	36	3%	11%	0.000	0.307	0.583	0.976	1.418
Mississippi	Yes	44	81	89.211	0.908	0.726	1.123	16	13%	0%	.	.	.	.	.
Montana	No	10	4	11.980	0.334	0.106	0.805	5	.	.	.	.	.	.	.
North Carolina	Yes	86	352	296.201	1.188	1.069	1.318	36	17%	6%	0.103	0.528	0.814	1.615	1.836
North Dakota	No	5	18	23.713	0.759	0.464	1.176	5	.	.	.	.	.	.	.
Nebraska	No	19	32	48.364	0.662	0.460	0.923	11	0%	9%	.	.	.	.	.
New Hampshire	Yes	13	16	23.104	0.693	0.410	1.101	6	.	.	.	.	.	.	.
New Jersey	Yes	71	178	232.716	0.765	0.659	0.884	54	6%	9%	0.000	0.152	0.555	1.165	1.923
New Mexico	Yes	29	59	46.939	1.257	0.966	1.610	10	30%	0%	.	.	.	.	.
Nevada	Yes	19	113	120.740	0.936	0.775	1.121	16	6%	6%	.	.	.	.	.
New York		163	540	582.193	0.928	0.852	1.008	98	6%	6%	0.000	0.374	0.830	1.166	1.983
Ohio	No	125	400	445.730	0.897	0.813	0.989	75	11%	13%	0.000	0.169	0.568	0.973	1.734
Oklahoma	Yes	52	111	150.859	0.736	0.608	0.883	21	5%	14%	0.000	0.074	0.536	0.816	1.507
Oregon	Yes	33	53	75.446	0.702	0.532	0.912	15	0%	0%	.	.	.	.	.
Pennsylvania	Yes	147	581	522.056	1.113	1.025	1.206	84	10%	2%	0.000	0.404	0.816	1.361	1.733
Puerto Rico	No	13	21	22.171	0.947	0.602	1.423	6	.	.	.	.	.	.	.
Rhode Island	No	10	24	23.793	1.009	0.661	1.478	5	.	.	.	.	.	.	.
South Carolina	Yes	55	141	146.767	0.961	0.812	1.129	20	15%	0%	0.447	0.618	0.832	1.169	2.425
South Dakota	No	11	19	14.470	1.313	0.814	2.013	3	.	.	.	.	.	.	.
Tennessee	Yes	87	257	287.670	0.893	0.789	1.008	43	9%	7%	0.000	0.515	0.739	1.185	1.917
Texas	Yes	261	818	868.670	0.942	0.879	1.008	153	9%	5%	0.000	0.416	0.926	1.431	2.213

Utah	Yes	28	50	59.563	0.839	0.630	1.098	10	10%	20%	.	.	.	.	.
Virginia	Yes	79	166	207.321	0.801	0.686	0.930	36	8%	8%	0.000	0.000	0.590	1.058	1.472
Virgin Islands		2	.	.	.	.	.	.	.	.	.	.	.	.	.
Vermont	Yes	5	2	7.658	0.261	0.044	0.863	1	.	.	.	.	.	.	.
Washington	Yes	50	105	154.438	0.680	0.559	0.820	34	3%	6%	0.000	0.144	0.596	1.105	1.660
Wisconsin	No	66	111	142.692	0.778	0.643	0.933	26	0%	12%	0.000	0.000	0.730	1.011	1.963
West Virginia	Yes	29	82	77.365	1.060	0.848	1.309	13	15%	0%	.	.	.	.	.
Wyoming	No	8	2	3.808	0.525	0.088	1.735	2	.	.	.	.	.	.	.
All US		3,125	9,055	9,726.020	0.931	0.912	0.950	1,708	8%	6%	0.000	0.334	0.770	1.281	2.479

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 2016. M indicates midyear implementation of a mandate. No indicates that a state mandate did not exist during 2016. 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 2016.
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 2016 national ICU CLABSI SIR of 0.931. This is only calculated if at least 10 facilities had at least one predicted ICU CLABSI in 2016.
5. Facility-specific key percentiles were only calculated if at least 20 facilities had ≥ 1.0 predicted ICU CLABSI in 2016. 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.

Vermont	No	6	15	17.240	0.87	0.505	1.403	2	.	.	.	.	.	.	.
Washington	Yes	56	227	306.770	0.74	0.648	0.841	40	3%	5%	0.000	0.354	0.651	1.055	1.348
Wisconsin	No	71	175	228.320	0.766	0.659	0.887	37	3%	0%	0.000	0.055	0.634	1.050	1.325
West Virginia	Yes	28	79	108.190	0.73	0.582	0.905	16	13%	13%	.	.	.	.	.
Wyoming	No	10	3	9.940	0.302	0.077	0.821	2	.	.	.	.	.	.	.
All US		3,479	12,946	14,770.710	0.876	0.861	0.892	1,977	9%	8%	0.000	0.352	0.730	1.201	2.307

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 2016. M indicates midyear implementation of a mandate. No indicates that a state mandate did not exist during 2016. 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 2016.
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 2016 national ward CLABSI SIR of 0.876. This is only calculated if at least 10 facilities had at least one predicted ward CLABSI in 2016.
5. Facility-specific key percentiles were only calculated if at least 20 facilities had ≥ 1.0 predicted ward CLABSI in 2016. 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 2016
3d. Central line-associated bloodstream infections (CLABSI), neonatal critical care locations¹**

State		No. of Infections	95% CI for SIR				Facility-specific SIRs				10%	25%	75%	90%	
			Observed	Predicted	SIR	Lower	Upper								
Alaska	Yes	1	.	.	.	.	.	.	.	.	.	.	.	.
Alabama	Yes	14	88	54.562	1.613	1.301	1.977	10	60%	0%	.	.	.	.
Arkansas	Yes	9	21	30.644	0.685	0.436	1.030	5	.	.	.	.	.	.
Arizona	No	17	21	32.639	0.643	0.409	0.967	9	.	.	.	.	.	.
California	Yes	133	160	205.473	0.779	0.665	0.907	51	6%	0%	0.000	0.458	0.785	1.293	1.908
Colorado	Yes	20	27	23.294	1.159	0.779	1.663	6	.	.	.	.	.	.	.
Connecticut	Yes	11	11	15.462	0.711	0.374	1.237	2	.	.	.	.	.	.	.
D.C.	Yes	7	9	17.413	0.517	0.252	0.948	4	.	.	.	.	.	.	.
Delaware		2	.	.	.	.	.	.	.	.	.	.	.	.	.
Florida	No	59	99	129.894	0.762	0.623	0.924	26	8%	8%	0.000	0.429	0.769	1.312	2.117
Georgia	Yes	35	86	85.000	1.012	0.814	1.243	21	5%	0%	0.213	0.458	0.949	1.492	2.201
Guam	No	0	.	.	.	.	.	.	.	.	.	.	.	.	.
Hawaii	Yes	2	.	.	.	.	.	.	.	.	.	.	.	.	.
Iowa	No	10	9	19.382	0.464	0.226	0.852	4	.	.	.	.	.	.	.
Idaho	No	9	5	5.878	0.851	0.312	1.885	3	.	.	.	.	.	.	.
Illinois	Yes	42	48	79.224	0.606	0.452	0.797	21	5%	0%	0.000	0.236	0.616	0.906	1.476
Indiana	Yes	25	42	33.353	1.259	0.919	1.686	7	.	.	.	.	.	.	.
Kansas	No	9	11	10.141	1.085	0.570	1.885	4	.	.	.	.	.	.	.
Kentucky	Yes	15	17	23.501	0.723	0.435	1.135	4	.	.	.	.	.	.	.
Louisiana	No	28	36	45.749	0.787	0.559	1.078	10	0%	20%	.	.	.	.	.
Massachusetts	Yes	10	28	23.344	1.199	0.813	1.710	8	.	.	.	.	.	.	.
Maryland	Yes	17	19	30.930	0.614	0.381	0.942	8	.	.	.	.	.	.	.
Maine	Yes	3	.	.	.	.	.	.	.	.	.	.	.	.	.
Michigan	No	20	36	62.980	0.572	0.406	0.783	14	0%	0%	.	.	.	.	.
Minnesota	Yes	11	9	16.573	0.543	0.265	0.997	3	.	.	.	.	.	.	.
Missouri		22	48	51.149	0.938	0.700	1.234	8	.	.	.	.	.	.	.
Mississippi	Yes	13	18	22.163	0.812	0.496	1.259	3	.	.	.	.	.	.	.
Montana	No	5	3	3.844	0.781	0.199	2.124	1	.	.	.	.	.	.	.
North Carolina	Yes	24	56	65.866	0.850	0.648	1.096	11	0%	9%	.	.	.	.	.
North Dakota	No	6	9	7.524	1.196	0.583	2.195	1	.	.	.	.	.	.	.
Nebraska	No	5	5	5.627	0.889	0.326	1.970	2	.	.	.	.	.	.	.
New Hampshire	Yes	3	.	.	.	.	.	.	.	.	.	.	.	.	.
New Jersey	Yes	24	27	37.693	0.716	0.482	1.028	12	0%	0%	.	.	.	.	.
New Mexico	Yes	6	6	9.643	0.622	0.252	1.294	3	.	.	.	.	.	.	.
Nevada	Yes	8	7	27.375	0.256	0.112	0.506	7	.	.	.	.	.	.	.
New York		53	74	114.189	0.648	0.513	0.809	29	0%	3%	0.000	0.502	1.077	1.630	3.167
Ohio	No	20	53	78.271	0.677	0.512	0.879	16	13%	6%	.	.	.	.	.
Oklahoma	Yes	8	26	31.640	0.822	0.548	1.187	6	.	.	.	.	.	.	.
Oregon	Yes	9	12	11.584	1.036	0.561	1.761	3	.	.	.	.	.	.	.
Pennsylvania	Yes	43	74	74.640	0.991	0.784	1.238	16	6%	6%	.	.	.	.	.
Puerto Rico	No	6	3	2.017	1.488	0.378	4.049	0	.	.	.	.	.	.	.
Rhode Island	No	1	.	.	.	.	.	.	.	.	.	.	.	.	.
South Carolina	Yes	9	38	31.207	1.218	0.874	1.654	5	.	.	.	.	.	.	.
South Dakota	No	3	.	.	.	.	.	.	.	.	.	.	.	.	.
Tennessee	Yes	26	37	59.071	0.626	0.448	0.854	12	0%	17%	.	.	.	.	.
Texas	Yes	121	175	226.789	0.772	0.664	0.893	52	2%	2%	0.000	0.369	0.767	1.188	1.689
Utah	Yes	13	12	22.336	0.537	0.291	0.913	5	.	.	.	.	.	.	.
Virginia	Yes	26	35	43.965	0.796	0.563	1.095	11	9%	0%	.	.	.	.	.
Virgin Islands		2	.	.	.	.	.	.	.	.	.	.	.	.	.
Vermont	Yes	1	.	.	.	.	.	.	.	.	.	.	.	.	.
Washington	Yes	15	12	24.588	0.488	0.264	0.830	7	.	.	.	.	.	.	.
Wisconsin	No	18	32	26.831	1.193	0.830	1.664	10	20%	0%	.	.	.	.	.
West Virginia	Yes	5	7	9.104	0.769	0.336	1.521	3	.	.	.	.	.	.	.

Wyoming	No	0													
All US		1,004	1,590	1,975,980	0.805	0.766	0.845	456	7%	4%	0.000	0.254	0.649	1.095	2.195

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 2016. M indicates midyear implementation of a mandate. No indicates that a state mandate did not exist during 2016. 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 2016.
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 2016 national NICU CLABSI SIR of 0.805. This is only calculated if at least 10 facilities had at least one predicted NICU CLABSI in 2016.
5. Facility-specific key percentiles were only calculated if at least 20 facilities had ≥ 1.0 predicted NICU CLABSI in 2016. 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 2016
4a. Catheter-associated urinary tract infections (CAUTI), all locations¹**

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	52	28.540	1.822	1.375	2.371	6	.	.	.	.	.
Alabama	Yes		88	528	612.370	0.862	0.791	0.938	45	7%	9%	0.000	0.477	0.810	1.269	1.566
Arkansas	Yes		49	339	334.480	1.014	0.910	1.126	30	3%	7%	0.000	0.524	0.911	1.131	1.981
Arizona	No	No	67	377	547.560	0.689	0.622	0.761	46	0%	20%	0.000	0.389	0.655	0.993	1.206
California	No	No	335	3,262	2,932.930	1.112	1.075	1.151	284	19%	9%	0.000	0.478	0.926	1.489	1.988
Colorado	No	No	50	310	370.340	0.837	0.748	0.934	33	12%	18%	0.105	0.453	0.947	1.429	1.699
Connecticut	Yes	Yes	32	251	264.050	0.951	0.838	1.074	25	4%	4%	0.199	0.728	0.910	1.220	1.408
D.C.	Yes	No	8	142	130.000	1.092	0.923	1.284	8	.	.	.	.	.	.	.
Delaware			8	68	73.680	0.923	0.722	1.163	8	.	.	.	.	.	.	.
Florida	No	No	202	1,893	2,300.800	0.823	0.786	0.860	182	9%	18%	0.155	0.442	0.694	1.032	1.548
Georgia	Yes	Yes	106	974	961.290	1.013	0.951	1.078	75	11%	8%	0.088	0.517	0.809	1.316	1.893
Guam	No	No	1	.	.	.	.	.	.	.	.	.	.	.	.	.
Hawaii	Yes	Yes	16	63	85.400	0.738	0.572	0.938	13	15%	31%	.	.	.	.	.
Iowa	No	Yes	40	218	217.610	1.002	0.875	1.142	26	15%	15%	0.000	0.449	0.847	1.218	2.010
Idaho	No	No	15	55	97.910	0.562	0.427	0.726	9	.	.	.	.	.	.	.
Illinois	Yes	No	134	856	1,011.280	0.846	0.791	0.905	109	5%	11%	0.000	0.396	0.719	1.126	1.522
Indiana	Yes	Yes	88	464	561.360	0.827	0.754	0.904	55	9%	13%	0.271	0.461	0.741	1.067	1.601
Kansas	No	Yes	53	202	216.660	0.932	0.810	1.068	25	0%	8%	0.000	0.549	0.810	1.143	1.356
Kentucky	Yes	No	71	412	493.880	0.834	0.757	0.918	49	10%	10%	0.000	0.284	0.751	1.163	1.416
Louisiana	No		90	515	595.730	0.864	0.792	0.942	54	9%	9%	0.000	0.407	0.808	1.381	2.023
Massachusetts	Yes	Yes	69	611	646.540	0.945	0.872	1.022	57	12%	11%	0.000	0.485	0.709	1.212	1.811
Maryland	Yes	No	49	540	511.980	1.055	0.969	1.147	43	26%	9%	0.292	0.666	1.050	1.727	2.128
Maine	No	Yes	17	100	70.630	1.416	1.158	1.715	11	18%	0%	.	.	.	.	.
Michigan	No	Yes	95	793	926.690	0.856	0.798	0.917	65	3%	14%	0.042	0.423	0.764	1.011	1.357
Minnesota	Yes	Yes	53	363	334.900	1.084	0.977	1.200	26	15%	12%	0.000	0.600	1.023	1.548	2.048
Missouri			76	621	673.430	0.922	0.852	0.997	58	5%	3%	0.000	0.565	0.754	1.039	1.328
Mississippi	Yes		60	251	335.990	0.747	0.659	0.844	33	0%	9%	0.000	0.469	0.788	1.066	1.244
Montana	No		13	38	41.910	0.907	0.651	1.232	9	.	.	.	.	.	.	.
North Carolina	Yes		94	824	907.200	0.908	0.848	0.972	74	8%	8%	0.000	0.406	0.849	1.153	1.733
North Dakota	No	Yes	7	74	68.700	1.077	0.852	1.345	6	.	.	.	.	.	.	.
Nebraska	No		27	114	131.600	0.866	0.718	1.037	17	0%	24%	.	.	.	.	.
New Hampshire	Yes	Yes	13	113	95.400	1.185	0.981	1.419	13	8%	8%	.	.	.	.	.
New Jersey	Yes	No	71	630	723.700	0.871	0.805	0.941	70	9%	7%	0.283	0.519	0.758	1.104	1.842
New Mexico	No		32	181	146.240	1.238	1.067	1.428	14	29%	7%	.	.	.	.	.
Nevada	No	No	22	264	299.180	0.882	0.781	0.994	18	22%	28%	.	.	.	.	.
New York	No	Yes	176	2,187	1,986.490	1.101	1.056	1.148	148	20%	12%	0.191	0.567	0.964	1.422	1.988
Ohio	No	Yes	139	1,062	1,375.870	0.772	0.727	0.819	104	6%	16%	0.000	0.468	0.698	0.964	1.484
Oklahoma	Yes	No	86	398	394.410	1.009	0.914	1.112	38	13%	11%	0.000	0.111	0.520	1.173	2.007
Oregon	Yes	Yes	37	251	282.040	0.890	0.785	1.005	28	11%	11%	0.000	0.619	0.807	1.048	1.796
Pennsylvania	Yes	Yes	174	1,447	1,515.790	0.955	0.906	1.005	124	8%	6%	0.000	0.483	0.812	1.150	1.616
Puerto Rico	No		14	87	118.170	0.736	0.593	0.904	14	7%	21%	.	.	.	.	.
Rhode Island	No	Yes	11	91	79.110	1.150	0.932	1.406	9	.	.	.	.	.	.	.
South Carolina	No	No	63	422	456.210	0.925	0.840	1.017	42	21%	10%	0.000	0.347	0.922	1.677	2.294
South Dakota	No	Yes	21	69	65.000	1.062	0.832	1.335	7	.	.	.	.	.	.	.
Tennessee	Yes		106	711	795.750	0.894	0.830	0.961	67	9%	19%	0.000	0.421	0.806	1.167	1.902
Texas	M		359	1,840	2,232.230	0.824	0.787	0.863	216	5%	14%	0.000	0.370	0.727	1.064	1.509
Utah	Yes		35	174	139.470	1.248	1.072	1.444	18	11%	11%	0.000	0.000	0.334	1.094	1.736

Virginia	Yes	Yes	83	627	631.670	0.993	0.917	1.073	60	12%	10%	0.000	0.286	0.794	1.265	1.631
Virgin Islands			2	.	.	.	.	.	.	.	.	.	.	.	.	.
Vermont	No	Yes	6	30	41.080	0.730	0.502	1.029	3	.	.	.	.	.	.	.
Washington	No	No	59	490	477.300	1.027	0.939	1.121	44	9%	7%	0.251	0.633	0.977	1.225	1.678
Wisconsin	No	Yes	72	394	381.960	1.032	0.933	1.137	45	9%	9%	0.154	0.499	1.015	1.398	2.170
West Virginia	Yes	Yes	29	180	252.250	0.714	0.615	0.824	22	0%	18%	0.000	0.109	0.502	0.760	1.069
Wyoming	No	No	11	9	22.020	0.409	0.199	0.750	3	.	.	.	.	.	.	.
All US			3,644	26,983	29,002.430	0.930	0.919	0.942	2,591	10%	12%	0.000	0.448	0.747	1.250	2.184

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 2016. M indicates midyear implementation of a mandate. No indicates that a state mandate did not exist during 2016. 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 2016 NHSN data, state health department performed an assessment of missing or implausible values on at least six months of 2016 NHSN data prior to October 1, 2017, and state health department contacted identified facilities. YesA indicates that the state also conducted an audit of facility medical or laboratory records prior to October 1, 2017 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 2016.
5. Percent of facilities with at least one predicted CAUTI that had an SIR significantly greater or less than the nominal value of the 2016 national overall CAUTI SIR of 0.930. This is only calculated if at least 10 facilities had at least one predicted CAUTI in 2016.
6. Facility-specific key percentiles were only calculated if at least 20 facilities had ≥ 1.0 predicted CAUTI in 2016. 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 2016

4b. Catheter-associated urinary tract infections (CAUTI), critical care locations¹

State		No. of Infections			95% CI for SIR		Facility-specific SIRs			10% 25% 75% 90%					
		Observed	Predicted	SIR	Lower	Upper									
Alaska	Yes	7	17	8.750	1.942	1.169	3.046	2	.	.	.	.	.	.
Alabama	Yes	68	258	358.570	0.720	0.636	0.811	37	0%	5%	0.000	0.484	0.744	1.142	1.443
Arkansas	Yes	43	166	146.890	1.130	0.968	1.312	23	9%	9%	0.000	0.301	0.832	1.321	1.626
Arizona	No	53	210	270.690	0.776	0.676	0.886	40	5%	10%	0.000	0.290	0.681	1.053	1.605
California	No	312	1493	1284.750	1.162	1.104	1.222	219	16%	4%	0.000	0.515	1.010	1.583	2.321
Colorado	No	45	136	166.600	0.816	0.688	0.963	27	4%	15%	0.000	0.143	0.940	1.659	2.249
Connecticut	Yes	28	112	128.890	0.869	0.719	1.042	22	5%	0%	0.000	0.212	0.787	1.251	1.840
D.C.	M	8	85	77.170	1.101	0.885	1.355	8	.	.	.	.	.	.	.
Delaware		8	33	37.580	0.878	0.614	1.219	6	.	.	.	.	.	.	.
Florida	No	194	946	1137.980	0.831	0.780	0.886	155	8%	12%	0.000	0.320	0.704	1.198	1.667
Georgia	Yes	93	490	492.660	0.995	0.909	1.086	57	14%	11%	0.000	0.341	0.732	1.337	2.098
Guam	No	1	.	.	.	.	.	.	.	.	.	.	.	.	.
Hawaii	Yes	15	27	37.500	0.720	0.484	1.033	9	.	.	.	.	.	.	.
Iowa	No	34	97	92.820	1.045	0.852	1.269	14	7%	0%	.	.	.	.	.
Idaho	No	10	21	37.410	0.561	0.357	0.843	6	.	.	.	.	.	.	.
Illinois	Yes	127	401	458.520	0.875	0.792	0.963	81	4%	2%	0.000	0.283	0.715	1.049	1.635
Indiana	Yes	71	230	280.090	0.821	0.720	0.933	44	7%	2%	0.075	0.356	0.752	0.987	1.931
Kansas	No	37	86	109.690	0.784	0.631	0.964	14	0%	0%	.	.	.	.	.
Kentucky	Yes	65	225	254.940	0.883	0.773	1.004	36	6%	3%	0.000	0.060	0.690	1.117	1.381
Louisiana	No	66	257	280.160	0.917	0.810	1.035	36	8%	3%	0.289	0.604	1.091	1.514	1.946
Massachusetts	Yes	63	290	308.050	0.941	0.838	1.055	37	11%	3%	0.000	0.407	0.824	1.482	1.979
Maryland	Yes	46	246	242.660	1.014	0.893	1.147	33	15%	6%	0.000	0.564	0.934	1.406	2.182
Maine	No	14	46	30.700	1.498	1.110	1.981	4	.	.	.	.	.	.	.
Michigan	No	87	440	520.550	0.845	0.769	0.927	54	4%	6%	0.250	0.545	0.733	1.053	1.375
Minnesota	Yes	42	200	169.610	1.179	1.024	1.351	18	28%	11%	.	.	.	.	.
Missouri		71	317	321.150	0.987	0.883	1.100	40	5%	0%	0.000	0.427	0.850	1.263	1.686
Mississippi	Yes	44	115	156.440	0.735	0.610	0.879	23	0%	4%	0.000	0.449	0.898	1.275	1.683
Montana	No	10	10	15.710	0.636	0.323	1.135	5	.	.	.	.	.	.	.
North Carolina	Yes	86	417	459.700	0.907	0.823	0.997	46	11%	9%	0.000	0.256	0.785	1.291	1.787
North Dakota	No	5	33	31.110	1.061	0.742	1.473	5	.	.	.	.	.	.	.
Nebraska	No	19	58	51.000	1.137	0.872	1.460	11	9%	0%	.	.	.	.	.
New Hampshire	Yes	13	58	36.280	1.599	1.225	2.052	7	.	.	.	.	.	.	.
New Jersey	Yes	71	279	330.070	0.845	0.750	0.949	60	3%	10%	0.000	0.298	0.657	1.178	1.634
New Mexico	No	28	95	70.110	1.355	1.102	1.649	10	30%	0%	.	.	.	.	.
Nevada	No	19	112	159.990	0.700	0.579	0.839	16	0%	19%	.	.	.	.	.
New York		163	860	883.500	0.973	0.910	1.040	116	10%	8%	0.000	0.372	0.892	1.345	1.782
Ohio	No	124	523	688.130	0.760	0.697	0.827	85	2%	6%	0.000	0.311	0.760	1.092	1.809
Oklahoma	Yes	52	177	181.970	0.973	0.837	1.124	22	9%	5%	0.000	0.125	0.595	1.168	1.421
Oregon	Yes	33	112	108.600	1.031	0.853	1.236	18	11%	0%	.	.	.	.	.
Pennsylvania	Yes	147	701	744.550	0.942	0.874	1.013	94	10%	4%	0.000	0.462	0.800	1.256	1.811
Puerto Rico	No	13	32	45.320	0.706	0.491	0.985	11	0%	9%	.	.	.	.	.
Rhode Island	No	10	35	36.600	0.956	0.676	1.315	6	.	.	.	.	.	.	.
South Carolina	No	56	206	226.020	0.911	0.793	1.042	25	12%	12%	0.000	0.080	0.868	1.188	1.996
South Dakota	No	11	16	19.610	0.816	0.483	1.296	3	.	.	.	.	.	.	.
Tennessee	Yes	87	385	403.230	0.955	0.863	1.054	51	10%	6%	0.000	0.309	0.736	1.040	1.766
Texas	Yes	265	985	1174.070	0.839	0.788	0.893	166	9%	8%	0.000	0.395	0.751	1.247	1.725
Utah	Yes	28	102	77.930	1.309	1.073	1.582	12	17%	8%	.	.	.	.	.

Virginia	Yes	79	309	293.920	1.051	0.939	1.174	39	15%	3%	0.000	0.424	0.921	1.432	2.133
Virgin Islands		2	.	.	.	.	.	.	.	.	.	.	.	.	.
Vermont	No	5	6	15.750	0.381	0.154	0.792	2	.	.	.	.	.	.	.
Washington	No	49	197	201.290	0.979	0.849	1.123	38	5%	5%	0.000	0.564	0.874	1.198	1.840
Wisconsin	No	66	209	177.190	1.180	1.028	1.348	31	10%	0%	0.000	0.461	0.940	1.533	2.341
West Virginia	Yes	29	87	127.340	0.683	0.551	0.839	17	6%	12%	.	.	.	.	.
Wyoming	No	8	3	6.230	0.481	0.122	1.310	2	.	.	.	.	.	.	.
All US		3,130	12,959	13,978.920	0.927	0.911	0.943	1,944	9%	6%	0.000	0.393	0.745	1.289	2.385

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 2016. M indicates midyear implementation of a mandate. No indicates that a state mandate did not exist during 2016. 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 2016.
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 2016 national ICU CAUTI SIR of 0.927. This is only calculated if at least 10 facilities had at least one predicted ICU CAUTI in 2016.
5. Facility-specific key percentiles were only calculated if at least 20 facilities had ≥ 1.0 predicted ICU CAUTI in 2016. 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.

Vermont	No	6	24	25.330	0.948	0.621	1.388	2	.	.	.	.	.	.	.
Washington	No	59	293	276.020	1.062	0.945	1.188	43	7%	5%	0.237	0.725	0.935	1.302	1.543
Wisconsin	No	72	185	204.770	0.903	0.780	1.041	36	6%	8%	0.000	0.497	0.816	1.118	1.734
West Virginia	Yes	28	93	124.900	0.745	0.604	0.908	19	0%	11%	.	.	.	.	.
Wyoming	No	11	6	15.790	0.380	0.154	0.790	2	.	.	.	.	.	.	.
All US		3,598	14,024	15,023.500	0.933	0.918	0.949	2,231	9%	8%	0.000	0.398	0.787	1.271	2.262

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 2016. M indicates midyear implementation of a mandate. No indicates that a state mandate did not exist during 2016. 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 2016.
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 2016 national ward CAUTI SIR of 0.933. This is only calculated if at least 10 facilities had at least one predicted ward CAUTI in 2016.
5. Facility-specific key percentiles were only calculated if at least 20 facilities had ≥ 1.0 predicted ward CAUTI in 2016. 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.

Virginia	No	No	64	886	812.184	1.091	1.021	1.165	45	22%	16%	0.000	0.340	1.293	1.623	2.166
Virgin Islands			1	.	.	.	.	.	.	.	.	.	.	.	.	.
Vermont	No	No	0	.	.	.	.	.	.	.	.	.	.	.	.	.
Washington	No	No	31	174	215.012	0.809	0.696	0.936	26	19%	35%	0.000	0.000	0.017	1.547	2.217
Wisconsin	No	Yes	57	466	315.793	1.476	1.346	1.614	32	31%	13%	0.000	0.599	1.399	1.939	2.715
West Virginia	No	No	18	81	157.217	0.515	0.412	0.637	12	0%	25%	.	.	.	.	.
Wyoming	No	No	5	10	7.877	1.270	0.645	2.263	1	.	.	.	.	.	.	.
All US			1,953	24,039	24,552.999	0.979	0.967	0.992	1,473	20%	25%	0.000	0.154	0.797	1.525	2.215

- 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.
- Yes indicates the presence of a state mandate to report VAE data from any location to NHSN at the beginning of 2016. M indicates midyear implementation of a mandate. No indicates that a state mandate did not exist during 2016. A blank field indicates data not available.
- Yes indicates that the state health department reported the completion of all of the following validation activities: state health department had access to 2016 NHSN data, state health department performed an assessment of missing or implausible values on at least six months of 2016 NHSN data prior to October 1, 2017, and state health department contacted identified facilities. YesA indicates that the state also conducted an audit of facility medical or laboratory records prior to October 1, 2017 to confirm proper case ascertainment (although intensity of auditing activities varies by state). Information on validation efforts was requested from all states, regardless of the presence of a legislative mandate for the particular HAI type. Some states without mandatory reporting of a given HAI to the state health department have performed validation on NHSN data that is voluntarily shared with them by facilities in their jurisdiction.
- The number of reporting facilities included in the SIR calculation. SIRs and accompanying statistics are only calculated for states in which at least 5 facilities reported VAE data in 2016.
- Percent of facilities with at least one predicted VAE that had an SIR significantly greater or less than the nominal value of the 2016 national overall VAE SIR of 0.979. This is only calculated if at least 10 facilities had at least one predicted VAE in 2016.
- Facility-specific key percentiles were only calculated if at least 20 facilities had ≥ 1.0 predicted VAE in 2016. 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.

Vermont	No	0													
Washington	No	30	174	214.372	0.812	0.698	0.939	26	19%	35%	0.000	0.000	0.017	1.547	2.217
Wisconsin	No	56	464	309.047	1.501	1.369	1.643	32	31%	13%	0.000	0.599	1.472	1.939	2.715
West Virginia	No	18	81	157.092	0.516	0.412	0.638	12	0%	25%					
Wyoming	No	5	10	7.877	1.270	0.645	2.263	1							
All US		1,919	23,457	23,885.286	0.982	0.970	0.995	1,461	20%	25%	0.000	0.163	0.807	1.546	2.214

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 2016. M indicates midyear implementation of a mandate. No indicates that a state mandate did not exist during 2016. 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 2016.
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 2016 national ICU VAE SIR of 0.982. This is only calculated if at least 10 facilities had at least one predicted ICU VAE in 2016.
5. Facility-specific key percentiles were only calculated if at least 20 facilities had ≥ 1.0 predicted ICU VAE in 2016. 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.

Virginia	No	12	18	25.781	0.698	0.427	1.082	5	.	.	.	.	.	.
Virgin Islands		0	.	.	.	.	.	.	.	.	.	.	.	.
Vermont	No	0	.	.	.	.	.	.	.	.	.	.	.	.
Washington	No	4	.	.	.	.	.	.	.	.	.	.	.	.
Wisconsin	No	7	2	6.746	0.296	0.050	0.980	3	.	.	.	.	.	.
West Virginia	No	1	.	.	.	.	.	.	.	.	.	.	.	.
Wyoming	No	0	.	.	.	.	.	.	.	.	.	.	.	.
All US		302	582	667.713	0.872	0.803	0.945	132	11%	14%	0.000	0.000	0.498	1.229	2.334

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 2016. M indicates midyear implementation of a mandate. No indicates that a state mandate did not exist during 2016. 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 2016.
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 2016 national ward VAE SIR of 0.872. This is only calculated if at least 10 facilities had at least one predicted ward VAE in 2016.
5. Facility-specific key percentiles were only calculated if at least 20 facilities had ≥ 1.0 predicted ward VAE in 2016. 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 2016
6a. Surgical site infections (SSI) following colon surgery¹ in adults, ≥ 18years**

State	No. of Acute Care Hospitals Reporting ¹		No. of Procedures		No. of Infections			95% CI for SIR		Facility-specific SIRs							
					Observed	Predicted	SIR	Lower	Upper	No. of hosp with at least 1 predicted SSI	10%	25%	75%	90%			
Alaska	Yes	Yes	7	608	4	15.289	0.262	0.083	0.631	5	.	.	.	.	.
Alabama	Yes	Yes	66	6,109	102	150.453	0.678	0.556	0.820	29	0%	21%	0.000	0.000	0.402	0.883	1.548
Arkansas	Yes	Yes	38	3,086	63	69.917	0.901	0.698	1.145	21	0%	5%	0.000	0.000	0.586	1.174	1.693
Arizona	No	No	58	6,682	185	160.743	1.151	0.994	1.326	34	12%	0%	0.000	0.431	0.924	1.648	2.569
California	Yes		306	28,424	677	706.845	0.958	0.888	1.032	189	5%	3%	0.000	0.412	0.880	1.331	1.862
Colorado	Yes	No	46	4,934	113	116.793	0.968	0.801	1.159	29	3%	0%	0.000	0.501	0.935	1.356	1.870
Connecticut	Yes	Yes	30	3,716	107	95.228	1.124	0.925	1.352	22	5%	5%	0.423	0.787	1.251	1.682	1.846
D.C.	M	No	7	1,048	35	36.639	0.955	0.676	1.314	5	.	.	.	.	.	.	.
Delaware			7	1,157	32	31.239	1.024	0.713	1.429	5	.	.	.	.	.	.	.
Florida	No	No	187	25,914	482	595.380	0.810	0.740	0.884	141	7%	6%	0.000	0.342	0.668	1.156	1.742
Georgia	Yes	Yes	89	10,247	262	264.216	0.992	0.877	1.117	53	8%	0%	0.000	0.361	0.857	1.265	1.716
Guam	No	No	0	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Hawaii	Yes	Yes	13	1,075	22	27.177	0.810	0.520	1.206	7	.	.	.	.	.	.	.
Iowa	No	Yes	35	3,082	70	74.144	0.944	0.742	1.186	21	14%	0%	0.000	0.372	0.686	1.666	2.307
Idaho	No	No	12	1,269	29	29.773	0.974	0.665	1.381	8	.	.	.	.	.	.	.
Illinois	Yes	No	125	11,641	266	305.550	0.871	0.771	0.980	77	3%	3%	0.000	0.317	0.811	1.395	1.829
Indiana	Yes	Yes	77	6,890	158	170.391	0.927	0.791	1.081	42	5%	2%	0.000	0.400	0.795	1.371	1.759
Kansas	No	Yes	41	2,816	86	69.872	1.231	0.991	1.513	14	7%	7%	.	.	.	.	.
Kentucky	Yes	No	65	5,272	127	128.876	0.985	0.825	1.168	31	6%	3%	0.000	0.000	0.854	1.488	2.218
Louisiana	No	No	71	5,325	113	133.037	0.849	0.703	1.017	33	3%	0%	0.000	0.000	0.867	1.309	1.703
Massachusetts	Yes	Yes	61	7,022	147	174.405	0.843	0.715	0.988	42	2%	2%	0.000	0.000	0.754	1.190	1.490
Maryland	Yes	No	45	5,516	154	156.028	0.987	0.840	1.152	33	9%	0%	0.000	0.389	0.731	1.505	1.763
Maine	No	Yes	17	1,553	44	34.764	1.266	0.931	1.684	8	.	.	.	.	.	.	.
Michigan	No	Yes	86	11,107	260	284.908	0.913	0.807	1.029	51	4%	6%	0.296	0.593	0.889	1.422	1.810
Minnesota	Yes	Yes	50	5,542	156	149.582	1.043	0.889	1.217	22	5%	5%	0.133	0.658	1.022	1.309	1.510
Missouri			64	7,457	152	184.092	0.826	0.702	0.965	37	5%	5%	0.000	0.271	0.787	1.139	1.954
Mississippi	Yes		41	3,031	60	70.118	0.856	0.659	1.094	21	10%	5%	0.000	0.000	0.491	1.024	1.494
Montana	No	No	12	877	17	18.244	0.932	0.561	1.462	7	.	.	.	.	.	.	.
North Carolina	Yes	Yes	88	10,445	216	269.170	0.802	0.701	0.915	50	0%	8%	0.000	0.000	0.568	1.135	1.961
North Dakota	No	No	6	831	35	20.282	1.726	1.221	2.373	6	.	.	.	.	.	.	.
Nebraska	No		22	2,041	72	51.743	1.392	1.097	1.742	12	25%	0%	.	.	.	.	.
New Hampshire	Yes	Yes	13	1,317	32	32.875	0.973	0.677	1.358	11	0%	0%	.	.	.	.	.
New Jersey	Yes	No	70	8,152	151	204.338	0.739	0.628	0.864	47	2%	6%	0.000	0.331	0.647	0.953	1.459
New Mexico	No	No	28	1,308	35	29.248	1.197	0.847	1.646	9	.	.	.	.	.	.	.
Nevada	No	No	19	2,414	67	52.740	1.270	0.992	1.603	14	14%	0%	.	.	.	.	.
New York	Yes		164	19,287	576	529.176	1.088	1.002	1.180	107	9%	1%	0.000	0.476	0.873	1.603	2.093
Ohio	No	Yes	124	14,362	314	388.896	0.807	0.722	0.901	79	4%	4%	0.000	0.153	0.661	1.161	1.945
Oklahoma	Yes	No	58	4,242	111	103.176	1.076	0.889	1.291	22	9%	0%	0.000	0.343	1.070	1.405	1.878
Oregon	Yes	Yes	34	3,918	69	98.907	0.698	0.547	0.878	23	4%	4%	0.000	0.096	0.618	1.258	1.743
Pennsylvania	Yes	Yes	150	15,792	342	415.969	0.822	0.738	0.913	91	3%	3%	0.000	0.324	0.742	1.236	1.773
Puerto Rico	No	No	0	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Rhode Island	No	No	11	1,167	33	28.295	1.166	0.816	1.619	6	.	.	.	.	.	.	.
South Carolina	Yes	Yes	55	4,880	117	113.559	1.030	0.856	1.230	27	4%	0%	0.000	0.214	0.740	1.668	2.094
South Dakota	No	Yes	14	1,000	26	22.313	1.165	0.777	1.683	4	.	.	.	.	.	.	.
Tennessee	Yes		87	8,156	195	211.935	0.920	0.798	1.056	45	9%	4%	0.000	0.434	0.794	0.965	1.705
Texas	Yes	Yes	268	23,143	522	585.140	0.892	0.818	0.971	141	4%	6%	0.000	0.244	0.700	1.344	1.951
Utah	Yes		32	2,125	62	51.984	1.193	0.922	1.519	9	.	.	.	.	.	.	.
Virginia	Yes	Yes	74	7,594	208	183.020	1.136	0.990	1.299	40	10%	3%	0.000	0.583	1.031	1.572	1.900
Virgin Islands			2	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Vermont	No	Yes	6	485	21	11.037	1.903	1.209	2.859	2	.	.	.	.	.	.	.
Washington	Yes		48	5,849	128	145.539	0.879	0.737	1.042	34	9%	9%	0.000	0.210	0.793	1.511	2.000
Wisconsin	No		68	6,025	140	141.477	0.990	0.836	1.164	34	9%	3%	0.000	0.337	0.716	1.602	2.208
West Virginia	Yes	Yes	26	2,108	64	53.882	1.188	0.922	1.507	15	7%	0%	.	.	.	.	.
Wyoming	No	No	10	291	6	6.134	0.978	0.396	2.034	2	.	.	.	.	.	.	.

All US		3,133	318,352	7,466	8,004.918	0.933	0.912	0.954	1,817	6%	4%	0.000	0.343	0.801	1.336	1.919
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- 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 2016 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.
- Yes indicates the presence of a state mandate to report SSIs following colon surgery to NHSN at the beginning of 2016. M indicates midyear implementation of a mandate. No indicates that a state mandate did not exist during 2016. A blank field indicates data not available.
- Yes indicates that the state health department reported the completion of all of the following validation activities: state health department had access to 2016 NHSN data, state health department performed an assessment of missing or implausible values on at least six months of 2016 NHSN data prior to October 1, 2017, and state health department contacted identified facilities. YesA indicates that the state also conducted an audit of facility medical or laboratory records prior to October 1, 2017 to confirm proper case ascertainment (although intensity of auditing activities varies by state). Information on validation efforts was requested from all states, regardless of the presence of a legislative mandate for the particular HAI type. Some states without mandatory reporting of a given HAI to the state health department have performed validation on NHSN data that is voluntarily shared with them by facilities in their jurisdiction.
- The number of reporting facilities included in the SIR calculation. Due to SIR exclusion criteria, this may be different from the numbers shown in Table 1. Refer to the Technical Appendix for information about exclusion criteria. SIRs and accompanying statistics are only calculated for states in which at least 5 facilities reported SSI data following colon surgery in 2016.
- 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 2016 national colon surgery SIR of 0.933. This is only calculated if at least 10 facilities had at least one predicted colon surgery SSI in 2016.
- Facility-specific key percentiles were only calculated if at least 20 facilities had ≥ 1.0 predicted colon surgery SSI in 2016. 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 2016
6b. Surgical site infections (SSI) following abdominal hysterectomy surgery¹ in adults, ≥ 18years

State			No. of Acute Care Hospitals Reporting ¹		No. of Infections		95% CI for SIR			Facility-specific SIRs							
					Observed	Predicted	SIR	Lower	Upper	10%	25%	75%	90%				
														No. of Procedures			
Alaska	Yes	Yes	7	480	0	2,943	0.000	.	1.018	1	.	.	.	.	.	.
Alabama	Yes	Yes	58	7,068	31	42,820	0.724	0.501	1.015	10	0%	0%	.	.	.	.
Arkansas	Yes	Yes	39	3,403	11	20,754	0.530	0.279	0.921	6	.	.	.	.	.	.
Arizona	No	No	51	6,884	45	40,230	1.119	0.826	1.483	15	0%	0%	.	.	.	.
California	Yes	Yes	295	24,523	143	167,427	0.854	0.722	1.003	58	5%	0%	0.000	0.344	0.715	1.470	2.467
Colorado	Yes	Yes	46	5,360	34	34,183	0.995	0.700	1.374	13	8%	0%	.	.	.	.	.
Connecticut	Yes	Yes	29	3,817	25	26,466	0.945	0.625	1.374	8	.	.	.	.	.	.	.
D.C.	M	No	7	768	0	6,943	0.000	.	0.431	2	.	.	.	.	.	.	.
Delaware			7	627	8	4,436	1.804	0.838	3.425	1	.	.	.	.	.	.	.
Florida	No	No	179	20,562	119	130,321	0.913	0.760	1.089	45	4%	0%	0.000	0.000	0.702	1.312	1.695
Georgia	Yes	Yes	84	12,223	74	79,562	0.930	0.736	1.161	28	0%	0%	0.000	0.416	0.845	1.332	1.942
Guam	No	No	0	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Hawaii	Yes	Yes	11	650	4	4,219	0.948	0.301	2.287	2	.	.	.	.	.	.	.
Iowa	No	Yes	31	3,252	14	20,050	0.698	0.397	1.144	4	.	.	.	.	.	.	.
Idaho	No	No	12	918	4	5,890	0.679	0.216	1.638	3	.	.	.	.	.	.	.
Illinois	Yes	No	122	11,209	60	82,688	0.726	0.559	0.928	26	4%	0%	0.000	0.000	0.365	1.062	1.901
Indiana	Yes	Yes	74	5,844	33	39,364	0.838	0.587	1.164	10	0%	0%	.	.	.	.	.
Kansas	No	Yes	39	3,223	9	20,259	0.444	0.217	0.815	5	.	.	.	.	.	.	.
Kentucky	Yes	No	58	5,233	40	34,879	1.147	0.830	1.546	9	.	.	.	.	.	.	.
Louisiana	No	No	68	5,198	30	33,101	0.906	0.623	1.278	11	9%	0%	.	.	.	.	.
Massachusetts	Yes	Yes	52	4,545	37	31,336	1.181	0.844	1.610	8	.	.	.	.	.	.	.
Maryland	Yes	No	42	5,238	29	37,282	0.778	0.531	1.103	10	0%	0%	.	.	.	.	.
Maine	No	Yes	16	1,086	3	6,911	0.434	0.110	1.181	1	.	.	.	.	.	.	.
Michigan	No	Yes	81	9,561	62	69,925	0.887	0.686	1.129	30	7%	3%	0.000	0.000	0.837	1.447	2.166
Minnesota	Yes	Yes	50	4,220	30	27,914	1.075	0.738	1.515	9	.	.	.	.	.	.	.
Missouri			62	6,805	41	46,024	0.891	0.648	1.197	13	15%	15%	.	.	.	.	.
Mississippi	Yes		42	3,721	33	21,982	1.501	1.051	2.084	7	.	.	.	.	.	.	.
Montana	No	No	12	723	1	4,239	0.236	0.012	1.163	1	.	.	.	.	.	.	.
North Carolina	Yes	Yes	85	9,672	49	67,047	0.731	0.547	0.958	19	0%	5%	.	.	.	.	.
North Dakota	No	No	6	715	3	3,798	0.790	0.201	2.150	1	.	.	.	.	.	.	.
Nebraska	No		21	2,087	15	12,756	1.176	0.683	1.896	5	.	.	.	.	.	.	.
New Hampshire	Yes	Yes	13	1,088	1	6,991	0.143	0.007	0.705	1	.	.	.	.	.	.	.
New Jersey	Yes	No	60	7,171	26	50,511	0.515	0.343	0.743	17	0%	0%	.	.	.	.	.
New Mexico	No	No	25	1,766	9	10,084	0.892	0.435	1.638	3	.	.	.	.	.	.	.
Nevada	No	No	17	1,770	15	11,076	1.354	0.787	2.184	5	.	.	.	.	.	.	.
New York			150	18,259	128	128,365	0.997	0.835	1.182	44	16%	0%	0.000	0.000	0.811	1.674	2.244
Ohio	No	Yes	120	12,495	79	89,269	0.885	0.705	1.097	27	7%	0%	0.000	0.000	0.636	1.373	1.791
Oklahoma	Yes	No	60	4,300	12	27,128	0.442	0.240	0.752	6	.	.	.	.	.	.	.
Oregon	Yes	Yes	33	2,966	11	19,691	0.559	0.294	0.971	7	.	.	.	.	.	.	.
Pennsylvania	Yes	Yes	134	12,738	98	91,409	1.072	0.875	1.301	25	8%	4%	0.000	0.407	0.806	1.324	2.065
Puerto Rico	No	No	0	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Rhode Island	No	No	10	1,280	13	8,088	1.607	0.894	2.680	2	.	.	.	.	.	.	.
South Carolina	Yes	Yes	53	5,671	34	35,787	0.950	0.668	1.313	13	0%	0%	.	.	.	.	.
South Dakota	No	Yes	16	1,130	12	6,920	1.734	0.940	2.948	2	.	.	.	.	.	.	.
Tennessee	Yes		81	9,558	62	58,157	1.066	0.824	1.358	15	7%	0%	.	.	.	.	.
Texas	Yes	Yes	276	27,998	113	188,284	0.600	0.497	0.719	58	2%	3%	0.000	0.000	0.457	0.970	1.586
Utah	Yes		30	3,048	25	17,623	1.419	0.938	2.063	6	.	.	.	.	.	.	.
Virginia	Yes	Yes	65	8,347	53	50,926	1.041	0.787	1.351	14	7%	0%	.	.	.	.	.
Virgin Islands			2	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Vermont	Yes	Yes	6	385	6	2,638	2.274	0.922	4.730	1	.	.	.	.	.	.	.
Washington	Yes		48	5,562	21	33,357	0.630	0.400	0.946	8	.	.	.	.	.	.	.
Wisconsin	No		65	5,089	28	32,250	0.868	0.588	1.238	9	.	.	.	.	.	.	.
West Virginia	Yes	Yes	26	1,892	23	13,965	1.647	1.069	2.432	5	.	.	.	.	.	.	.
Wyoming	No	No	10	323	1	1,817	0.550	0.028	2.715	0	.	.	.	.	.	.	.
All US			2,986	302,548	1,757	2,010,678	0.874	0.834	0.915	629	6%	2%	0.000	0.000	0.698	1.353	2.036

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 2016 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 2016. M indicates midyear implementation of a mandate. No indicates that a state mandate did not exist during 2016. 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 2016 NHSN data, state health department performed an assessment of missing or implausible values on at least six months of 2016 NHSN data prior to October 1, 2017, and state health department contacted identified facilities. YesA indicates that the state also conducted an audit of facility medical or laboratory records prior to October 1, 2017 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 2016.
 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 2016 national abdominal hysterectomy SIR of 0.874. This is only calculated if at least 10 facilities had at least one predicted abdominal hysterectomy SSI in 2016.
 6. Facility-specific key percentiles were only calculated if at least 20 facilities had ≥ 1.0 predicted abdominal hysterectomy SSI in 2016. 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.

Vermont	Yes	6	909	11	5.419	2.030	1.067	3.528	2	.	.	.	.	.	.	.
Washington	Yes	47	13,378	64	64.705	0.989	0.768	1.255	24	8%	0%	0.000	0.139	0.849	1.047	1.769
Wisconsin	No	56	8,662	50	51.907	0.963	0.723	1.260	18	6%	0%	.	.	.	.	.
West Virginia	No	9	1,144	11	11.755	0.936	0.492	1.627	3	.	.	.	.	.	.	.
Wyoming	No	4	.	.	.	.	.	.	.	.	.	.	.	.	.	.
All US		1,983	349,277	2,167	2,252.419	0.962	0.922	1.003	702	8%	3%	0.000	0.202	0.809	1.495	2.386

1. SSIs included are those classified as deep incisional or organ/space infections following NHSN-defined inpatient hip arthroplasty procedures that occurred in 2016 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 2016. M indicates midyear implementation of a mandate. No indicates that a state mandate did not exist during 2016. 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 2016.
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 2016 national hip arthroplasty SIR of 0.962. This is only calculated if at least 10 facilities had at least one predicted hip arthroplasty SSI in 2016.
5. Facility-specific key percentiles were only calculated if at least 20 facilities had ≥ 1.0 predicted hip arthroplasty SSI in 2016. 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.

Vermont	Yes	6	1,143	3	3.817	0.786	0.200	2.139	2	.	.	.	.	.	.	.
Washington	Yes	46	17,002	47	49.929	0.941	0.700	1.241	19	5%	0%	.	.	.	.	.
Wisconsin	No	56	12,737	33	40.912	0.807	0.564	1.120	13	8%	0%	.	.	.	.	.
West Virginia	No	9	1,811	11	7.262	1.515	0.797	2.633	3	.	.	.	.	.	.	.
Wyoming	No	4	.	.	.	.	.	.	.	.	.	.	.	.	.	.
All US		1,939	504,333	1,864	1,774.402	1.050	1.004	1.099	609	7%	2%	0.000	0.000	0.817	1.522	2.478

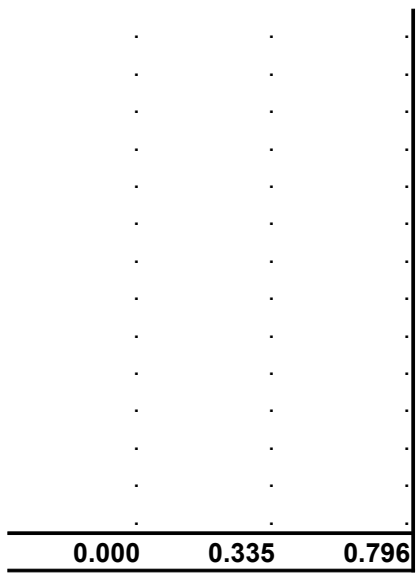
- SSIs included are those classified as deep incisional or organ/space infections following NHSN-defined inpatient knee arthroplasty procedures that occurred in 2016 with a primary or other than primary skin closure technique, detected during the same admission as the surgical procedure or upon readmission to the same facility.
- Yes indicates the presence of a state mandate to report SSIs following knee arthroplasty surgery to NHSN at the beginning of 2016. M indicates midyear implementation of a mandate. No indicates that a state mandate did not exist during 2016. A blank field indicates data not available.
- 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 2016.
- 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 2016 national knee arthroplasty SIR of 1.050. This is only calculated if at least 10 facilities had at least one predicted knee arthroplasty SSI in 2016.
- Facility-specific key percentiles were only calculated if at least 20 facilities had ≥ 1.0 predicted knee arthroplasty SSI in 2016. 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 standard:
NHSN
6e. Surgical site inf**

State		No. of Procedures		No. of Infections	
		Observed	Predicted	Observed	Predicted
Alaska	No	0	.	.	.
Alabama	No	0	.	.	.
Arkansas	No	0	.	.	.
Arizona	No	4	.	.	.
California	Yes	252	5,455	53	91.183
Colorado	No	2	.	.	.
Connecticut	No	0	.	.	.
D.C.	No	0	.	.	.
Delaware		0	.	.	.
Florida	No	3	.	.	.
Georgia	No	1	.	.	.
Guam	No	0	.	.	.
Hawaii	No	0	.	.	.
Iowa	No	1	.	.	.
Idaho	No	0	.	.	.
Illinois	No	2	.	.	.
Indiana	No	1	.	.	.
Kansas	No	0	.	.	.
Kentucky	No	0	.	.	.
Louisiana	No	3	.	.	.
Massachusetts	No	1	.	.	.
Maryland	No	0	.	.	.
Maine	No	1	.	.	.
Michigan	No	2	.	.	.
Minnesota	No	1	.	.	.
Missouri		1	.	.	.
Mississippi	No	0	.	.	.
Montana	No	1	.	.	.
North Carolina	No	0	.	.	.
North Dakota	No	0	.	.	.
Nebraska	No	1	.	.	.
New Hampshire	No	1	.	.	.
New Jersey	No	2	.	.	.
New Mexico	No	0	.	.	.
Nevada	No	3	.	.	.
New York		1	.	.	.
Ohio	No	5	137	0	2.056
Oklahoma	No	0	.	.	.
Oregon	No	1	.	.	.
Pennsylvania	Yes	26	852	5	18.746

Puerto Rico	No	0	.	.	.
Rhode Island	No	0	.	.	.
South Carolina	No	0	.	.	.
South Dakota	No	0	.	.	.
Tennessee	No	1	.	.	.
Texas	No	3	.	.	.
Utah	No	0	.	.	.
Virginia	No	0	.	.	.
Virgin Islands		0	.	.	.
Vermont	No	0	.	.	.
Washington	No	4	.	.	.
Wisconsin	No	3	.	.	.
West Virginia	No	3	.	.	.
Wyoming	No	0	.	.	.
All US		330	7,854	66	137.640

1. SSIs included are those classified as deep incisional or organ/space infections following NHSN-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 rectal surgery to NHSN at the time of the procedure. No indicates that a state mandate did not exist during 2016. A blank field indicates data not available.
3. The number of reporting facilities included in the SIR calculation. Refer to the Technical Appendix for more details. Statistics are only calculated for states in which at least 5 facilities reported SSI data following rectal surgery.
4. Percent of facilities with at least one predicted rectal surgery SSI that had an SIR significantly greater than 1.0. At least 10 facilities had at least one predicted rectal surgery SSI in 2016.
5. Facility-specific key percentiles were only calculated if at least 20 facilities had ≥ 1.0 predicted rectal surgery SSI. If a facility's SIR was neither calculated nor included in the distribution of facility-specific SIRs.



sure technique,

Table 6. State-specific standardi

NHSN

6f. Surgical site infecti

State		No. of Procedures		No. of Infections	
		Observed	Predicted	Observed	Predicted
Alaska	No	0	.	.	.
Alabama	No	1	.	.	.
Arkansas	No	1	.	.	.
Arizona	No	1	.	.	.
California	Yes	275	9,281	37	45.401
Colorado	No	18	746	0	3.989
Connecticut	No	0	.	.	.
D.C.	No	0	.	.	.
Delaware		1	.	.	.
Florida	No	7	111	0	0.469
Georgia	No	1	.	.	.
Guam	No	0	.	.	.
Hawaii	No	0	.	.	.
Iowa	No	3	.	.	.
Idaho	No	1	.	.	.
Illinois	No	5	208	1	0.945
Indiana	No	3	.	.	.
Kansas	No	1	.	.	.
Kentucky	No	1	.	.	.
Louisiana	No	6	94	0	0.610
Massachusetts	Yes	50	1,605	17	9.394
Maryland	No	3	.	.	.
Maine	No	1	.	.	.
Michigan	No	6	270	2	1.820
Minnesota	No	4	.	.	.
Missouri		2	.	.	.
Mississippi	No	7	644	0	2.761
Montana	No	2	.	.	.
North Carolina	No	1	.	.	.
North Dakota	No	0	.	.	.
Nebraska	No	1	.	.	.
New Hampshire	No	2	.	.	.
New Jersey	No	3	.	.	.
New Mexico	No	3	.	.	.
Nevada	No	0	.	.	.
New York		3	.	.	.
Ohio	No	12	520	0	2.669
Oklahoma	No	5	97	0	0.410
Oregon	No	2	.	.	.
Pennsylvania	Yes	24	971	4	6.265

Puerto Rico	No	0	.	.	.
Rhode Island	No	0	.	.	.
South Carolina	No	5	200	4	1.458
South Dakota	No	1	.	.	.
Tennessee	No	4	.	.	.
Texas	Yes	241	9,366	41	46.304
Utah	No	1	.	.	.
Virginia	No	0	.	.	.
Virgin Islands		0	.	.	.
Vermont	No	0	.	.	.
Washington	No	20	831	3	3.525
Wisconsin	No	8	233	3	1.311
West Virginia	No	2	.	.	.
Wyoming	No	0	.	.	.
All US		738	27,647	120	141.776

1. SSIs included are those classified as deep incisional or organ/space infections following NHSN-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 vaginal hysterectomy surgery. No indicates that a state mandate did not exist during 2016. A blank field indicates data not available.
3. The number of reporting facilities included in the SIR calculation. Refer to the Technical Appendix for details. Statistics are only calculated for states in which at least 5 facilities reported SSI data following vaginal hysterectomy.
4. Percent of facilities with at least one predicted vaginal hysterectomy SSI that had an SIR significantly greater than 1.0. At least 10 facilities had at least one predicted vaginal hysterectomy SSI in 2016.
5. Facility-specific key percentiles were only calculated if at least 20 facilities had ≥ 1.0 predicted vaginal hysterectomy SSI. If SIR was neither calculated nor included in the distribution of facility-specific SIRs.

Standardized infection ratios (SIRs) and facility-specific SIR summary measures,
 for Acute Care Hospitals reporting during 2016
 for Surgical Site Infections (SSI) following vaginal hysterectomy¹ in adults, ≥ 18 years

95% CI for SIR			Facility-specific SIRs	
SIR	Lower	Upper	10%	25%
.
.
.
0.815	0.582	1.111	0	.
0.000	.	0.751	0	.
.
.
.	.	.	0	.
.
.
.
.	.	.	0	.
.
1.810	1.089	2.839	1	.
.
1.099	0.184	3.630	0	.
.
0.000	.	1.085	1	.
.
.
.
.
.
.
0.000	.	1.122	0	.
.	.	.	0	.
.
0.638	0.203	1.540	1	.

.
2.743	0.872	6.617	1	.	.	.
.
0.885	0.644	1.190	8	.	.	.
.
.
0.851	0.216	2.316	0	.	.	.
2.288	0.582	6.226	0	.	.	.
.
.
0.846	0.705	1.008	16	19%	0%	.

defined inpatient vaginal hysterectomy procedures that occurred in 2016 with a primary or other than primary site of procedure.

performed inpatient vaginal hysterectomy procedures reported to NHSN at the beginning of 2016. M indicates midyear implementation of a mandate.

Table 1.

for information about exclusion criteria. SIRs and accompanying

national hysterectomy in 2016.

is significantly greater or less than the nominal value of the 2016 national vaginal hysterectomy SIR of 0.846. This is on

national hysterectomy SSI in 2016. If a facility's predicted number of vaginal hysterectomy SSI was <1.0, a facility-

Table 6. State-specific standardi

NHSI

6g. Surgical site infection:

State		No. of Procedures		No. of Infections	
		Observed	Predicted	Observed	Predicted
Alaska	No	1	.	.	.
Alabama	No	5	740	12	4.853
Arkansas	No	7	1,465	11	9.504
Arizona	No	7	645	3	3.929
California	Yes	130	15,362	94	106.450
Colorado	Yes	15	1,819	13	11.791
Connecticut	No	0	.	.	.
D.C.	No	1	.	.	.
Delaware		1	.	.	.
Florida	No	12	2,579	11	16.198
Georgia	No	10	2,847	22	20.628
Guam	No	0	.	.	.
Hawaii	No	1	.	.	.
Iowa	No	1	.	.	.
Idaho	No	1	.	.	.
Illinois	Yes	62	7,068	47	54.511
Indiana	No	13	1,688	12	13.047
Kansas	No	4	.	.	.
Kentucky	No	2	.	.	.
Louisiana	No	9	1,376	9	11.337
Massachusetts	Yes	14	4,113	22	32.556
Maryland	Yes	10	2,727	17	18.920
Maine	No	1	.	.	.
Michigan	No	9	1,496	23	13.733
Minnesota	No	3	.	.	.
Missouri		28	4,698	23	38.132
Mississippi	No	10	1,300	4	9.009
Montana	No	3	.	.	.
North Carolina	No	4	.	.	.
North Dakota	No	0	.	.	.
Nebraska	No	2	.	.	.
New Hampshire	Yes	4	.	.	.
New Jersey	Yes	18	4,915	39	34.836
New Mexico	No	0	.	.	.
Nevada	Yes	12	1,802	9	11.929
New York		37	10,960	111	93.963
Ohio	No	14	1,690	7	12.557
Oklahoma	No	6	591	6	4.553
Oregon	Yes	15	2,462	8	16.261
Pennsylvania	Yes	61	9,384	61	68.765

Puerto Rico	No	0	.	.	.
Rhode Island	No	1	.	.	.
South Carolina	Yes	17	3,624	33	26.189
South Dakota	No	0	.	.	.
Tennessee	Yes	24	6,944	48	51.791
Texas	Yes	137	16,486	122	110.874
Utah	No	0	.	.	.
Virginia	No	10	2,177	17	17.925
Virgin Islands		0	.	.	.
Vermont	No	1	.	.	.
Washington	Yes	17	3,520	11	24.253
Wisconsin	No	18	2,574	15	17.587
West Virginia	No	1	.	.	.
Wyoming	No	0	.	.	.
All US		759	124,281	855	913.694

1. SSIs included are those classified as deep incisional or organ/space infections following NHSN-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 coronary artery bypass graft surgery. No indicates that a state mandate did not exist during 2016. A blank field indicates data not available.
3. The number of reporting facilities included in the SIR calculation. Refer to the Technical Appendix for more details. Statistics are only calculated for states in which at least 5 facilities reported SSI data following coronary artery bypass graft surgery.
4. Percent of facilities with at least one predicted coronary artery bypass graft SSI that had an SIR significantly greater than 1.0. At least 10 facilities had at least one predicted coronary artery bypass graft SSI in 2016.
5. Facility-specific key percentiles were only calculated if at least 20 facilities had ≥ 1.0 predicted coronary artery bypass graft SIR. If the SIR was neither calculated nor included in the distribution of facility-specific SIRs.

ized infection ratios (SIRs) and facility-specific SIR summary measures,
 V Acute Care Hospitals reporting during 2016
 s (SSI) following coronary artery bypass graft¹ in adults, ≥ 18years

95% CI for SIR			Facility-specific SIRs			10%	25%
SIR	Lower	Upper					
.
2.473	1.340	4.204	2	.	.	.	.
1.157	0.609	2.012	3	.	.	.	.
0.763	0.194	2.078	0	.	.	.	.
0.883	0.718	1.076	32	3%	0%	0.000	0.213
1.102	0.613	1.838	2	.	.	.	.
.
.
0.679	0.357	1.180	7	.	.	.	.
1.067	0.685	1.588	9	.	.	.	.
.
.
0.862	0.641	1.137	18	17%	0%	.	.
0.920	0.498	1.564	4	.	.	.	.
.
0.794	0.387	1.457	2	.	.	.	.
0.676	0.434	1.006	9	.	.	.	.
0.899	0.541	1.409	6	.	.	.	.
.
1.675	1.087	2.473	7	.	.	.	.
.
0.603	0.392	0.891	15	0%	7%	.	.
0.444	0.141	1.071	3	.	.	.	.
.
.
.
1.120	0.807	1.515	14	7%	0%	.	.
.
0.754	0.368	1.384	5	.	.	.	.
1.181	0.976	1.417	31	16%	0%	0.000	0.000
0.557	0.244	1.103	5	.	.	.	.
1.318	0.534	2.741	2	.	.	.	.
0.492	0.228	0.934	8	.	.	.	.
0.887	0.684	1.132	29	7%	0%	0.000	0.000

.
1.260	0.882	1.749	11	9%	0%	.	.	
0.927	0.691	1.219	19	5%	5%	.	.	
1.100	0.918	1.309	33	3%	0%	0.000	0.353	
0.948	0.571	1.488	6	.	.	.	.
0.454	0.238	0.788	10	0%	0%	.	.	
0.853	0.496	1.375	4	.	.	.	.
.	
.	
0.936	0.875	1.000	319	7%	1%	0.000	0.000	

defined inpatient coronary artery bypass graft procedures that occurred in 2016 with a primary or other than prior facility.

of heart surgery to NHSN at the beginning of 2016. M indicates midyear implementation of a mandate.

Table.

For information about exclusion criteria, SIRs and accompanying

coronary artery bypass graft in 2016.

Significantly greater or less than the nominal value of the 2016 national coronary artery bypass graft SIR of 0.93

coronary artery bypass graft SSI in 2016. If a facility's predicted number of coronary artery bypass graft SSI was <

	75%	90%
.	.	.
.	.	.
.	.	.
0.706	1.163	1.660
.	.	.
.	.	.
.	.	.
.	.	.
.	.	.
.	.	.
.	.	.
.	.	.
.	.	.
.	.	.
.	.	.
.	.	.
.	.	.
.	.	.
.	.	.
.	.	.
.	.	.
.	.	.
.	.	.
0.835	1.335	2.317
.	.	.
.	.	.
.	.	.
0.643	1.124	1.642

Table 6. State-specific standardi

NHSI

6h. Surgical site infect

No. of Infections

State		No. of Procedures		No. of Infections	
		Observed	Predicted	Observed	Predicted
Alaska	No	1	.	.	.
Alabama	No	0	.	.	.
Arkansas	No	1	.	.	.
Arizona	No	3	.	.	.
California	Yes	166	13,490	33	45.726
Colorado	No	4	.	.	.
Connecticut	No	0	.	.	.
D.C.	No	0	.	.	.
Delaware		0	.	.	.
Florida	No	7	467	2	1.149
Georgia	No	2	.	.	.
Guam	No	0	.	.	.
Hawaii	No	0	.	.	.
Iowa	No	1	.	.	.
Idaho	No	1	.	.	.
Illinois	No	6	161	1	0.799
Indiana	No	2	.	.	.
Kansas	No	3	.	.	.
Kentucky	No	2	.	.	.
Louisiana	No	5	664	1	2.787
Massachusetts	No	2	.	.	.
Maryland	No	1	.	.	.
Maine	No	1	.	.	.
Michigan	No	5	562	2	1.979
Minnesota	No	3	.	.	.
Missouri		4	.	.	.
Mississippi	No	3	.	.	.
Montana	No	2	.	.	.
North Carolina	No	1	.	.	.
North Dakota	No	0	.	.	.
Nebraska	No	2	.	.	.
New Hampshire	No	1	.	.	.
New Jersey	No	3	.	.	.
New Mexico	No	0	.	.	.
Nevada	No	0	.	.	.
New York		6	1,790	2	7.264
Ohio	No	9	572	0	2.046
Oklahoma	No	4	.	.	.
Oregon	No	5	874	1	2.632
Pennsylvania	Yes	69	7,754	26	28.867

Puerto Rico	No	0	.	.	.
Rhode Island	No	1	.	.	.
South Carolina	No	1	.	.	.
South Dakota	No	0	.	.	.
Tennessee	No	9	1,196	2	4.872
Texas	Yes	21	760	0	2.110
Utah	No	0	.	.	.
Virginia	No	4	.	.	.
Virgin Islands		0	.	.	.
Vermont	No	0	.	.	.
Washington	Yes	20	2,867	8	9.713
Wisconsin	No	16	1,664	5	5.835
West Virginia	No	1	.	.	.
Wyoming	No	0	.	.	.
All US		398	41,617	116	148.852

1. SSIs included are those classified as deep incisional or organ/space infections following NHSN-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 other cardiac surgery to NHSN. No indicates that a state mandate did not exist during 2016. A blank field indicates data not available.
3. The number of reporting facilities included in the SIR calculation. Refer to the Technical Appendix for details. Statistics are only calculated for states in which at least 5 facilities reported SSI data following other cardiac surgery.
4. Percent of facilities with at least one predicted other cardiac surgery SSI that had an SIR significantly greater than 1.0. At least 10 facilities had at least one predicted other cardiac surgery SSI in 2016.
5. Facility-specific key percentiles were only calculated if at least 20 facilities had ≥ 1.0 predicted other cardiac surgery SSI. If the SIR was neither calculated nor included in the distribution of facility-specific SIRs.

Standardized infection ratios (SIRs) and facility-specific SIR summary measures,
 All Acute Care Hospitals reporting during 2016
 Surgical Site Infections (SSI) following other cardiac surgery¹ in adults, ≥ 18years

SIR	95% CI for SIR		Facility-specific SIRs			10%	25%
	Lower	Upper					
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0.722	0.505	1.002	12	0%	0%	.	.
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1.740	0.292	5.749	0
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.	.	.	0
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0.359	0.018	1.769	1
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1.011	0.169	3.339	0
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.
0.275	0.046	0.910	2
0.000	.	1.464	0
.
0.380	0.019	1.873	0
0.901	0.601	1.301	8

Table 6. State-specific standardi

NHSN

6i. Surgical site infections (SSI)

State		No. of Procedures	No. of Infections	
			Observed	Predicted
Alaska	No	0	.	.
Alabama	No	0	.	.
Arkansas	No	0	.	.
Arizona	No	0	.	.
California	No	47	14	20.354
Colorado	No	2	.	.
Connecticut	No	0	.	.
D.C.	No	0	.	.
Delaware		1	.	.
Florida	No	5	9	4.725
Georgia	No	2	.	.
Guam	No	0	.	.
Hawaii	No	0	.	.
Iowa	No	1	.	.
Idaho	No	0	.	.
Illinois	No	3	.	.
Indiana	No	0	.	.
Kansas	No	0	.	.
Kentucky	No	0	.	.
Louisiana	No	4	.	.
Massachusetts	No	3	.	.
Maryland	No	1	.	.
Maine	No	1	.	.
Michigan	No	4	.	.
Minnesota	No	3	.	.
Missouri		3	.	.
Mississippi	No	2	.	.
Montana	No	1	.	.
North Carolina	No	1	.	.
North Dakota	No	0	.	.
Nebraska	No	0	.	.
New Hampshire	No	2	.	.
New Jersey	No	2	.	.
New Mexico	No	0	.	.
Nevada	No	1	.	.
New York		2	.	.
Ohio	No	7	5	8.834
Oklahoma	No	1	.	.
Oregon	No	4	.	.
Pennsylvania	Yes	23	31	20.701

Puerto Rico	No	0	.	.	.
Rhode Island	No	0	.	.	.
South Carolina	No	2	.	.	.
South Dakota	No	0	.	.	.
Tennessee	No	0	.	.	.
Texas	Yes	151	4,353	56	78.746
Utah	No	0	.	.	.
Virginia	No	1	.	.	.
Virgin Islands		0	.	.	.
Vermont	No	0	.	.	.
Washington	No	8	220	10	4.686
Wisconsin	No	5	122	4	2.302
West Virginia	No	1	.	.	.
Wyoming	No	0	.	.	.
All US		294	9,346	167	184.380

1. SSIs included are those classified as deep incisional or organ/space infections following NHSN-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 peripheral vascular bypass surgery. No indicates that a state mandate did not exist during 2016. A blank field indicates data not available.
3. The number of reporting facilities included in the SIR calculation. Refer to the Technical Appendix for details. Statistics are only calculated for states in which at least 5 facilities reported SSI data following peripheral vascular bypass surgery.
4. Percent of facilities with at least one predicted peripheral vascular bypass surgery SSI that had an SIR of at least 1.0. At least 10 facilities had at least one predicted peripheral vascular bypass surgery SSI in 2016.
5. Facility-specific key percentiles were only calculated if at least 20 facilities had ≥ 1.0 predicted peripheral vascular bypass surgery SIR. If a facility's SIR was neither calculated nor included in the distribution of facility-specific SIRs.

zed infection ratios (SIRs) and facility-specific SIR summary measures,
 I Acute Care Hospitals reporting during 2016
 3I) following peripheral vascular bypass surgery¹ in adults, ≥ 18years

95% CI for SIR			Facility-specific SIRs		
SIR	Lower	Upper			
				10%	25%
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0.688	0.392	1.127	5	.	.
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1.905	0.929	3.496	2	.	.
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0.566	0.207	1.255	3	.	.
.
.
1.498	1.035	2.100	10	0%	0%

.
.
.
.
0.711	0.542	0.917	22	0%	0%	0.000	0.000
.
.
.
2.134	1.084	3.804	2
1.738	0.552	4.192	0	.	.	.	.
.
.
0.906	0.776	1.051	58	2%	0%	0.000	0.000

defined inpatient peripheral vascular bypass surgery procedures that occurred in 2016 with a primary or other facility.

surgery to NHSN at the beginning of 2016. M indicates midyear implementation of a mandate.

ole.

for information about exclusion criteria. SIRs and accompanying

peripheral vascular bypass surgery in 2016.

SIR significantly greater or less than the nominal value of the 2016 national peripheral vascular bypass surge

peripheral vascular bypass surgery SSI in 2016. If a facility's predicted number of peripheral vascular bypass surg

Table 6. State-specific standardi

NHSN

6j. Surgical site infections (S

State		No. of Procedures	No. of Infections		
			Observed	Predicted	
Alaska	No	0	.	.	
Alabama	No	0	.	.	
Arkansas	No	0	.	.	
Arizona	No	0	.	.	
California	Yes	117	562	2	3.837
Colorado	No	2	.	.	
Connecticut	No	0	.	.	
D.C.	No	0	.	.	
Delaware		0	.	.	
Florida	No	2	.	.	
Georgia	No	1	.	.	
Guam	No	0	.	.	
Hawaii	No	0	.	.	
Iowa	No	0	.	.	
Idaho	No	0	.	.	
Illinois	No	1	.	.	
Indiana	No	0	.	.	
Kansas	No	0	.	.	
Kentucky	No	0	.	.	
Louisiana	No	3	.	.	
Massachusetts	No	2	.	.	
Maryland	No	0	.	.	
Maine	No	1	.	.	
Michigan	No	1	.	.	
Minnesota	No	1	.	.	
Missouri		0	.	.	
Mississippi	No	1	.	.	
Montana	No	0	.	.	
North Carolina	No	0	.	.	
North Dakota	No	0	.	.	
Nebraska	No	0	.	.	
New Hampshire	No	1	.	.	
New Jersey	No	0	.	.	
New Mexico	No	0	.	.	
Nevada	No	0	.	.	
New York		1	.	.	
Ohio	No	4	.	.	
Oklahoma	No	0	.	.	
Oregon	No	0	.	.	
Pennsylvania	Yes	16	127	0	0.867

Puerto Rico	No	0	.	.	.
Rhode Island	No	0	.	.	.
South Carolina	No	0	.	.	.
South Dakota	No	0	.	.	.
Tennessee	No	0	.	.	.
Texas	Yes	88	573	2	3.912
Utah	No	0	.	.	.
Virginia	No	0	.	.	.
Virgin Islands		0	.	.	.
Vermont	No	0	.	.	.
Washington	No	3	.	.	.
Wisconsin	No	3	.	.	.
West Virginia	No	2	.	.	.
Wyoming	No	0	.	.	.
All US		250	1,429	5	9.757

1. SSIs included are those classified as deep incisional or organ/space infections following NHSN-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 abdominal aortic aneurysm repair. No indicates that a state mandate did not exist during 2016. A blank field indicates data not available.
3. The number of reporting facilities included in the SIR calculation. Refer to the Technical Appendix for details. Statistics are only calculated for states in which at least 5 facilities reported SSI data following abdominal aortic aneurysm repair.
4. Percent of facilities with at least one predicted abdominal aortic aneurysm repair SSI that had an SIR of at least 1.0. At least 10 facilities had at least one predicted abdominal aortic aneurysm repair SSI in 2016.
5. Facility-specific key percentiles were only calculated if at least 20 facilities had ≥ 1.0 predicted abdominal aortic aneurysm repair SIR. Facility-specific SIR was neither calculated nor included in the distribution of facility-specific SIRs.

Table 6. State-specific standardi

NHSI

6k. Surgical site infectio

State		No. of Procedures		No. of Infections	
				Observed	Predicted
Alaska	No	1	.	.	.
Alabama	No	3	.	.	.
Arkansas	No	3	.	.	.
Arizona	No	1	.	.	.
California	Yes	242	141,124	209	203.604
Colorado	No	9	1,918	5	2.548
Connecticut	No	0	.	.	.
D.C.	No	1	.	.	.
Delaware		0	.	.	.
Florida	No	5	2,465	6	4.413
Georgia	No	3	.	.	.
Guam	No	0	.	.	.
Hawaii	No	0	.	.	.
Iowa	No	1	.	.	.
Idaho	No	1	.	.	.
Illinois	No	3	.	.	.
Indiana	No	4	.	.	.
Kansas	No	1	.	.	.
Kentucky	No	1	.	.	.
Louisiana	No	5	2,364	3	3.482
Massachusetts	Yes	1	.	.	.
Maryland	No	3	.	.	.
Maine	No	1	.	.	.
Michigan	No	7	4,440	13	13.385
Minnesota	No	1	.	.	.
Missouri		11	7,538	12	12.950
Mississippi	No	5	1,264	1	3.207
Montana	No	2	.	.	.
North Carolina	No	2	.	.	.
North Dakota	No	0	.	.	.
Nebraska	No	2	.	.	.
New Hampshire	No	3	.	.	.
New Jersey	No	4	.	.	.
New Mexico	No	1	.	.	.
Nevada	No	4	.	.	.
New York		3	.	.	.
Ohio	No	14	7,037	14	13.021
Oklahoma	No	4	.	.	.
Oregon	No	0	.	.	.
Pennsylvania	Yes	23	11,441	25	32.288

Puerto Rico	No	1	.	.	.
Rhode Island	No	1	.	.	.
South Carolina	No	4	.	.	.
South Dakota	No	0	.	.	.
Tennessee	No	5	3,595	5	9.815
Texas	No	26	11,291	22	20.982
Utah	No	0	.	.	.
Virginia	No	3	.	.	.
Virgin Islands		0	.	.	.
Vermont	No	0	.	.	.
Washington	No	8	3,968	2	4.503
Wisconsin	No	13	5,779	21	8.821
West Virginia	No	2	.	.	.
Wyoming	No	0	.	.	.
All US		438	235,828	417	382.370

1. SSIs included are those classified as deep incisional or organ/space infections following NHSN-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 cesarean section surgery. No indicates that a state mandate did not exist during 2016. A blank field indicates data not available.
3. The number of reporting facilities included in the SIR calculation. Refer to the Technical Appendix for details. Statistics are only calculated for states in which at least 5 facilities reported SSI data following cesarean section surgery.
4. Percent of facilities with at least one predicted cesarean section surgery SSI that had an SIR signal. At least 10 facilities had at least one predicted cesarean section surgery SSI in 2016.
5. Facility-specific key percentiles were only calculated if at least 20 facilities had ≥ 1.0 predicted cesarean section surgery SSI. SIR was neither calculated nor included in the distribution of facility-specific SIRs.

ized infection ratios (SIRs) and facility-specific SIR summary measures,
 ↓ Acute Care Hospitals reporting during 2016
 ns (SSI) following cesarean section surgery¹ in adults, ≥ 18years

95% CI for SIR			Facility-specific SIRs			10%	25%
SIR	Lower	Upper					
.
.
.
1.027	0.894	1.173	66	6%	3%	0.000	0.000
1.962	0.719	4.350	0	.	.	.	.
.
.
1.360	0.551	2.828	2	.	.	.	.
.
.
.
.
.
0.862	0.219	2.345	1	.	.	.	.
.
.
0.971	0.540	1.619	3	.	.	.	.
.
0.927	0.502	1.575	3	.	.	.	.
0.312	0.016	1.538	1	.	.	.	.
.
.
.
.
.
.
1.075	0.612	1.761	4	.	.	.	.
.
0.774	0.512	1.126	6	.	.	.	.

.
.
.
.
0.509	0.187	1.129	2	.	.	.	.
1.049	0.674	1.561	6	.	.	.	.
.
.
.
0.444	0.074	1.467	2	.	.	.	.
2.381	1.513	3.577	4	.	.	.	.
.
.
1.091	0.990	1.199	114	8%	4%	0.000	0.000

defined inpatient cesarean section surgery procedures that occurred in 2016 with a primary or other than primary facility.

to NHSN at the beginning of 2016. M indicates midyear implementation of a mandate.

ple.

for information about exclusion criteria. SIRs and accompanying

cesarean section surgery in 2016.

ificantly greater or less than the nominal value of the 2016 national cesarean section surgery SIR of 1.091. T

cesarean section surgery SSI in 2016. If a facility's predicted number of cesarean section surgery SSI was <1.0,

Table 6. State-specific standard

NHSI

6I. Surgical site infect

State		No. of Procedures		No. of Infections	
				Observed	Predicted
Alaska	No	0	.	.	.
Alabama	No	3	.	.	.
Arkansas	No	2	.	.	.
Arizona	No	5	2,260	27	24.514
California	Yes	222	38,108	234	277.290
Colorado	No	25	6,573	43	42.168
Connecticut	No	2	.	.	.
D.C.	No	0	.	.	.
Delaware		1	.	.	.
Florida	No	10	2,845	16	18.983
Georgia	No	12	4,497	56	32.485
Guam	No	0	.	.	.
Hawaii	No	1	.	.	.
Iowa	No	2	.	.	.
Idaho	No	2	.	.	.
Illinois	No	7	2,136	9	16.847
Indiana	No	8	3,866	15	21.757
Kansas	No	4	.	.	.
Kentucky	No	2	.	.	.
Louisiana	No	7	2,137	24	14.832
Massachusetts	No	4	.	.	.
Maryland	No	8	2,211	14	15.079
Maine	No	2	.	.	.
Michigan	No	7	2,721	13	14.596
Minnesota	No	4	.	.	.
Missouri		11	2,645	12	16.165
Mississippi	No	9	1,936	13	14.516
Montana	No	2	.	.	.
North Carolina	No	1	.	.	.
North Dakota	No	0	.	.	.
Nebraska	No	0	.	.	.
New Hampshire	No	4	.	.	.
New Jersey	No	5	1,132	4	7.490
New Mexico	No	0	.	.	.
Nevada	No	13	5,127	37	31.668
New York		19	4,488	37	39.039
Ohio	No	12	3,487	39	20.823
Oklahoma	No	2	.	.	.
Oregon	No	10	2,945	21	20.483
Pennsylvania	Yes	35	9,455	92	76.635

Puerto Rico	No	0	.	.	.
Rhode Island	No	1	.	.	.
South Carolina	No	4	.	.	.
South Dakota	No	0	.	.	.
Tennessee	No	7	3,538	21	32.665
Texas	Yes	41	6,480	30	44.044
Utah	No	1	.	.	.
Virginia	No	3	.	.	.
Virgin Islands		0	.	.	.
Vermont	No	1	.	.	.
Washington	No	16	4,904	25	27.007
Wisconsin	No	14	2,833	16	14.492
West Virginia	No	0	.	.	.
Wyoming	No	0	.	.	.
All US		551	129,520	925	941.222

1. SSIs included are those classified as deep incisional or organ/space infections following NHSN-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 fusion surgery to NHSN at the time of the procedure. No indicates that a state mandate did not exist during 2016. A blank field indicates data not available.
3. The number of reporting facilities included in the SIR calculation. Refer to the Technical Appendix for more details. Statistics are only calculated for states in which at least 5 facilities reported SSI data following spine surgery.
4. Percent of facilities with at least one predicted fusion surgery SSI that had an SIR significantly greater than 1.0. At least 10 facilities had at least one predicted fusion surgery SSI in 2016.
5. Facility-specific key percentiles were only calculated if at least 20 facilities had ≥ 1.0 predicted fusion surgery SIR. If a facility's predicted fusion surgery 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 2016

ions (SSI) following spinal fusion surgery¹ in adults, ≥ 18years

95% CI for SIR			Facility-specific SIRs			10%	25%
SIR	Lower	Upper					
.
.
.
1.101	0.741	1.580	2	.	.	.	.
0.844	0.741	0.957	79	5%	5%	0.000	0.133
1.020	0.747	1.361	14	0%	0%	.	.
.
.
.
0.843	0.499	1.340	8	.	.	.	.
1.724	1.315	2.222	11	45%	0%	.	.
.
.
.
0.534	0.261	0.980	4	.	.	.	.
0.689	0.401	1.112	7	.	.	.	.
.
.
1.618	1.061	2.371	6	.	.	.	.
.
0.928	0.528	1.521	5	.	.	.	.
.
0.891	0.495	1.485	5	.	.	.	.
.
0.742	0.402	1.262	5	.	.	.	.
0.896	0.498	1.493	5	.	.	.	.
.
.
.
.
0.534	0.170	1.288	3	.	.	.	.
.
1.168	0.835	1.594	9	.	.	.	.
0.948	0.677	1.293	9	.	.	.	.
1.873	1.350	2.535	6	.	.	.	.
.
1.025	0.652	1.540	5	.	.	.	.
1.200	0.973	1.465	18	11%	6%	.	.

.
.
.
0.643	0.409	0.966	5	.	.	.	.
0.681	0.468	0.960	13	0%	8%	.	.
.
.
.
0.926	0.612	1.346	9	.	.	.	.
1.104	0.654	1.755	4	.	.	.	.
.
.
0.983	0.921	1.048	254	8%	4%	0.000	0.373

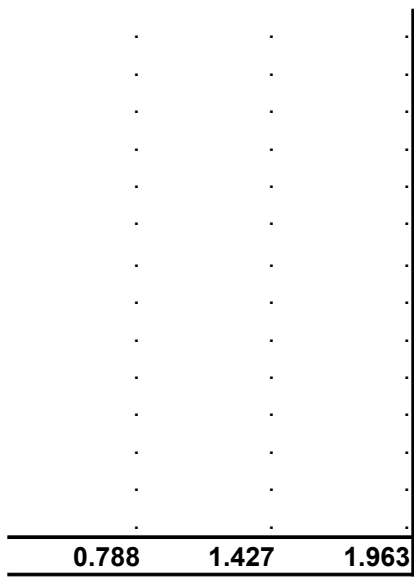
defined inpatient fusion surgery procedures that occurred in 2016 with a primary or other than primary skin closure at the facility.

at the beginning of 2016. M indicates midyear implementation of a mandate.

able.

for information about exclusion criteria. SIRs and accompanying data are for all inpatient fusion surgery in 2016.

greater than or less than the nominal value of the 2016 national fusion surgery SIR of 0.983. This is only calculated if there was at least one fusion surgery SSI in 2016. If a facility's predicted number of fusion surgery SSI was <1.0, a facility-specific



ure technique,

Table 6. State-specific standard:

NHSN

6m. Surgical site infect

No. of Infections

State		No. of Procedures		No. of Infections	
		Observed	Predicted	Observed	Predicted
Alaska	No	2	.	.	.
Alabama	No	2	.	.	.
Arkansas	No	1	.	.	.
Arizona	No	4	.	.	.
California	Yes	228	36,283	107	120.903
Colorado	No	17	2,757	6	8.774
Connecticut	No	2	.	.	.
D.C.	No	0	.	.	.
Delaware		0	.	.	.
Florida	No	6	1,239	3	4.339
Georgia	No	9	3,395	10	13.717
Guam	No	0	.	.	.
Hawaii	No	0	.	.	.
Iowa	No	1	.	.	.
Idaho	No	2	.	.	.
Illinois	No	3	.	.	.
Indiana	No	7	2,523	7	9.287
Kansas	No	3	.	.	.
Kentucky	No	1	.	.	.
Louisiana	No	4	.	.	.
Massachusetts	No	3	.	.	.
Maryland	No	6	1,125	4	3.978
Maine	No	2	.	.	.
Michigan	No	7	1,877	6	6.202
Minnesota	No	2	.	.	.
Missouri		7	1,296	9	4.487
Mississippi	No	9	1,245	6	4.975
Montana	No	2	.	.	.
North Carolina	No	2	.	.	.
North Dakota	No	0	.	.	.
Nebraska	No	1	.	.	.
New Hampshire	No	4	.	.	.
New Jersey	No	7	1,516	7	4.805
New Mexico	No	0	.	.	.
Nevada	Yes	17	3,794	8	13.351
New York		17	2,550	5	9.271
Ohio	No	10	2,591	9	9.645
Oklahoma	No	0	.	.	.
Oregon	Yes	23	6,526	8	22.389
Pennsylvania	Yes	37	7,173	35	26.959

Puerto Rico	No	0	.	.	.
Rhode Island	No	1	.	.	.
South Carolina	No	2	.	.	.
South Dakota	No	0	.	.	.
Tennessee	No	4	.	.	.
Texas	Yes	31	3,885	6	13.931
Utah	No	0	.	.	.
Virginia	No	4	.	.	.
Virgin Islands		0	.	.	.
Vermont	No	0	.	.	.
Washington	No	12	2,703	8	8.274
Wisconsin	No	10	1,778	2	5.834
West Virginia	No	1	.	.	.
Wyoming	No	0	.	.	.
All US		513	99,688	308	349.618

1. SSIs included are those classified as deep incisional or organ/space infections following NHSN-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 laminectomy surgery to NHSN. No indicates that a state mandate did not exist during 2016. A blank field indicates data not available.
3. The number of reporting facilities included in the SIR calculation. Refer to the Technical Appendix for details. Statistics are only calculated for states in which at least 5 facilities reported SSI data following laminectomy surgery.
4. Percent of facilities with at least one predicted laminectomy surgery SSI that had an SIR significantly greater than 1.0. At least 10 facilities had at least one predicted laminectomy surgery SSI in 2016.
5. Facility-specific key percentiles were only calculated if at least 20 facilities had ≥ 1.0 predicted laminectomy surgery SIR. If SIR was neither calculated nor included in the distribution of facility-specific SIRs.

Standardized infection ratios (SIRs) and facility-specific SIR summary measures,
 for Acute Care Hospitals reporting during 2016
 for Surgical Site Infections (SSI) following laminectomy surgery¹ in adults, ≥ 18years

SIR	95% CI for SIR		Facility-specific SIRs			10%	25%
	Lower	Upper					
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.
.
0.885	0.729	1.065	37	0%	0%	0.000	0.000
0.684	0.277	1.422	3
.
.
0.691	0.176	1.882	2
0.729	0.370	1.299	6
.
.
.
0.754	0.330	1.491	5	.	.	.	.
.
.
.
1.006	0.320	2.425	1	.	.	.	.
.
0.968	0.392	2.012	1	.	.	.	.
.
2.006	0.978	3.681	2	.	.	.	.
1.206	0.489	2.508	1	.	.	.	.
.
.
.
.
1.457	0.637	2.882	2	.	.	.	.
.
0.599	0.278	1.138	4
0.539	0.198	1.195	2
0.933	0.455	1.712	3
.
0.357	0.166	0.679	10	0%	0%	.	.
1.298	0.918	1.786	10	10%	0%	.	.

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.
.
0.431	0.175	0.896	5
.
.
.
0.967	0.449	1.836	2
0.343	0.057	1.133	3
.
.
0.881	0.787	0.984	117	3%	0%	0.000	0.000

defined inpatient laminectomy surgery procedures that occurred in 2016 with a primary or other than primary site of surgery.

HSN at the beginning of 2016. M indicates midyear implementation of a mandate.

note.

for information about exclusion criteria. SIRs and accompanying

laminectomy surgery in 2016.

is only greater or less than the nominal value of the 2016 national laminectomy surgery SIR of 0.881. This is only

laminectomy surgery SSI in 2016. If a facility's predicted number of laminectomy surgery SSI was <1.0, a facility-

Table 6. State-specific standard:

NHSN

6n. Surgical site infections (

State		No. of Procedures	No. of Infections		
			Observed	Predicted	
Alaska	No	0	.	.	
Alabama	No	1	.	.	
Arkansas	No	0	.	.	
Arizona	No	2	.	.	
California	Yes	309	45,459	280	250.827
Colorado	No	2	.	.	
Connecticut	No	0	.	.	
D.C.	No	0	.	.	
Delaware		0	.	.	
Florida	No	3	.	.	
Georgia	No	1	.	.	
Guam	No	0	.	.	
Hawaii	No	0	.	.	
Iowa	No	2	.	.	
Idaho	No	0	.	.	
Illinois	No	3	.	.	
Indiana	No	0	.	.	
Kansas	No	1	.	.	
Kentucky	No	1	.	.	
Louisiana	No	3	.	.	
Massachusetts	No	1	.	.	
Maryland	No	1	.	.	
Maine	No	0	.	.	
Michigan	No	3	.	.	
Minnesota	No	1	.	.	
Missouri		1	.	.	
Mississippi	No	0	.	.	
Montana	No	1	.	.	
North Carolina	No	0	.	.	
North Dakota	No	0	.	.	
Nebraska	No	1	.	.	
New Hampshire	No	1	.	.	
New Jersey	No	2	.	.	
New Mexico	No	1	.	.	
Nevada	No	0	.	.	
New York		1	.	.	
Ohio	No	4	.	.	
Oklahoma	No	0	.	.	
Oregon	No	0	.	.	
Pennsylvania	Yes	30	7,626	53	53.114

Puerto Rico	No	0	.	.	.
Rhode Island	No	0	.	.	.
South Carolina	No	0	.	.	.
South Dakota	No	0	.	.	.
Tennessee	No	0	.	.	.
Texas	No	9	177	0	0.727
Utah	No	0	.	.	.
Virginia	No	0	.	.	.
Virgin Islands		0	.	.	.
Vermont	No	0	.	.	.
Washington	No	4	.	.	.
Wisconsin	No	3	.	.	.
West Virginia	No	3	.	.	.
Wyoming	No	0	.	.	.
All US		395	59,654	384	339.344

1. SSIs included are those classified as deep incisional or organ/space infections following NHSN-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 exploratory laparotomy surgery. No indicates that a state mandate did not exist during 2016. A blank field indicates data not available.
3. The number of reporting facilities included in the SIR calculation. Refer to the Technical Appendix for details. Statistics are only calculated for states in which at least 5 facilities reported SSI data following exploratory laparotomy surgery.
4. Percent of facilities with at least one predicted exploratory laparotomy surgery SSI that had an SIR of at least 1.0. At least 10 facilities had at least one predicted exploratory laparotomy surgery SSI in 2016.
5. Facility-specific key percentiles were only calculated if at least 20 facilities had ≥ 1.0 predicted exploratory laparotomy surgery SIR. If SIR was neither calculated nor included in the distribution of facility-specific SIRs.

Table 6. State-specific standardi

NHSN

6o. Surgical site infec

No. of Infections

State		No. of Procedures		No. of Infections	
		Observed	Predicted	Observed	Predicted
Alaska	No	0	.	.	.
Alabama	No	0	.	.	.
Arkansas	No	0	.	.	.
Arizona	No	0	.	.	.
California	Yes	312	49,700	158	177.639
Colorado	No	5	676	1	2.923
Connecticut	No	0	.	.	.
D.C.	No	0	.	.	.
Delaware		0	.	.	.
Florida	No	3	.	.	.
Georgia	No	2	.	.	.
Guam	No	0	.	.	.
Hawaii	No	0	.	.	.
Iowa	No	1	.	.	.
Idaho	No	2	.	.	.
Illinois	No	5	497	3	1.605
Indiana	No	0	.	.	.
Kansas	No	1	.	.	.
Kentucky	No	1	.	.	.
Louisiana	No	5	338	0	0.737
Massachusetts	No	1	.	.	.
Maryland	No	1	.	.	.
Maine	No	1	.	.	.
Michigan	No	5	696	5	3.229
Minnesota	No	1	.	.	.
Missouri		1	.	.	.
Mississippi	No	0	.	.	.
Montana	No	1	.	.	.
North Carolina	No	0	.	.	.
North Dakota	No	0	.	.	.
Nebraska	No	1	.	.	.
New Hampshire	No	2	.	.	.
New Jersey	No	2	.	.	.
New Mexico	No	2	.	.	.
Nevada	No	2	.	.	.
New York		1	.	.	.
Ohio	No	4	.	.	.
Oklahoma	No	0	.	.	.
Oregon	No	0	.	.	.
Pennsylvania	Yes	33	4,833	27	25.045

Puerto Rico	No	0	.	.	.
Rhode Island	No	0	.	.	.
South Carolina	No	4	.	.	.
South Dakota	No	0	.	.	.
Tennessee	No	0	.	.	.
Texas	No	11	352	1	0.999
Utah	No	0	.	.	.
Virginia	No	1	.	.	.
Virgin Islands		0	.	.	.
Vermont	No	0	.	.	.
Washington	No	6	1,207	6	4.784
Wisconsin	No	3	.	.	.
West Virginia	No	3	.	.	.
Wyoming	No	0	.	.	.
All US		423	64,227	222	239.740

1. SSIs included are those classified as deep incisional or organ/space infections following NHSN-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 gallbladder surgery to NHSN. No indicates that a state mandate did not exist during 2016. A blank field indicates data not available.
3. The number of reporting facilities included in the SIR calculation. Refer to the Technical gallbladder statistics are only calculated for states in which at least 5 facilities reported SSI data following gallbladder surgery.
4. Percent of facilities with at least one predicted gallbladder surgery SSI that had an SIR significantly greater than 1.0. At least 10 facilities had at least one predicted gallbladder surgery SSI in 2016.
5. Facility-specific key percentiles were only calculated if at least 20 facilities had ≥ 1.0 predicted gallbladder surgery SSI. SIR was neither calculated nor included in the distribution of facility-specific SIRs.

Standardized infection ratios (SIRs) and facility-specific SIR summary measures,
 ↓ Acute Care Hospitals reporting during 2016
 Infections (SSI) following gallbladder surgery¹ in adults, ≥ 18years

SIR	95% CI for SIR		Facility-specific SIRs			10%	25%
	Lower	Upper					
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.
0.889	0.759	1.037	61	3%	0%	0.000	0.000
0.342	0.017	1.687	1
.
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.
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.
1.869	0.475	5.087	0
.
.
.	.	.	0
.
.
1.548	0.567	3.432	1
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1.078	0.725	1.547	9

Vermont	No	Yes	6	9	12.001	0.750	0.366	1.376	2	
Washington	No		57	101	146.301	0.690	0.565	0.835	33	0%	12%	0.047	0.361	0.558	0.916	1.469
Wisconsin	No	Yes	74	55	112.266	0.490	0.373	0.633	27	4%	11%	0.000	0.000	0.286	0.656	0.900
West Virginia	Yes	Yes	30	90	79.001	1.139	0.921	1.394	16	6%	0%	.	.	.	.	.
Wyoming	No	No	10	4	4.412	0.907	0.288	2.187	2	.	.	.	.	.	.	.
All US			3,602	8,546	9,142.247	0.935	0.915	0.955	1,859	7%	4%	0.000	0.419	0.796	1.324	1.956

- 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.
- Yes indicates the presence of a state mandate to report facility-wide MRSA bacteremia data to NHSN at the beginning of 2016. M indicates midyear implementation of a mandate. No indicates that a state mandate did not exist during 2016. A blank field indicates data not available.
- Yes indicates that the state health department reported the completion of all of the following validation activities: state health department had access to 2016 NHSN data, state health department performed an assessment of missing or implausible values on at least six months of 2016 NHSN data prior to October 1, 2017, and state health department contacted identified facilities. YesA indicates that the state also conducted an audit of facility medical or laboratory records prior to October 1, 2017 to confirm proper case ascertainment (although intensity of auditing activities varies by state). Information on validation efforts was requested from all states, regardless of the presence of a legislative mandate for the particular HAI type. Some states without mandatory reporting of a given HAI to the state health department have performed validation on NHSN data that is voluntarily shared with them by facilities in their jurisdiction.
- The number of reporting facilities included in the SIR calculation. Due to SIR exclusion criteria, this may be different from the numbers shown in Table 1. Refer to the Technical Appendix for information about exclusion criteria. SIRs and accompanying statistics are only calculated for states in which at least 5 facilities reported MRSA bacteremia data in 2016.
- 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 2016 national hospital-onset MRSA bacteremia SIR of 0.935. This is only calculated if at least 10 facilities had at least one predicted hospital-onset MRSA bacteremia in 2016.
- Facility-specific key percentiles were only calculated if at least 20 facilities had ≥ 1.0 predicted hospital-onset MRSA bacteremia in 2016. 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 2016
Hospital-onset *Clostridium difficile* (CDI), facility-wide¹

State			No. of Events	95% CI for SIR			Facility-specific SIRs									
	Observed	Predicted		SIR	Lower	Upper	No. of hosp with at least 1 predicted HO CDI	10%	25%	75%	90%	10%	25%	75%	90%	
Alaska	Yes	Yes	8	124	134.600	0.921	0.769	1.095	7	.	.	.	.	.	.	.
Alabama	No		84	1,227	1,970.036	0.623	0.589	0.658	68	3%	34%	0.000	0.421	0.637	0.897	1.291
Arkansas	Yes		47	688	868.616	0.792	0.735	0.853	41	5%	17%	0.000	0.234	0.672	0.958	1.198
Arizona	No	No	67	2,068	2,300.363	0.899	0.861	0.938	57	9%	18%	0.523	0.693	0.945	1.218	1.407
California	Yes		338	10,303	9,618.137	1.071	1.051	1.092	315	23%	10%	0.489	0.786	1.090	1.395	1.758
Colorado	Yes	No	52	1,318	1,257.714	1.048	0.993	1.106	46	13%	2%	0.537	0.783	1.084	1.334	1.756
Connecticut	Yes		32	1,091	1,082.191	1.008	0.950	1.069	31	19%	10%	0.587	0.841	1.114	1.503	1.735
D.C	M	No	7	465	416.047	1.118	1.019	1.223	7	.	.	.	.	.	.	.
Delaware			8	369	350.018	1.054	0.951	1.166	8	.	.	.	.	.	.	.
Florida	No	No	197	6,673	8,280.104	0.806	0.787	0.825	190	6%	25%	0.449	0.625	0.848	1.081	1.311
Georgia	Yes		104	2,647	3,007.777	0.880	0.847	0.914	90	10%	18%	0.279	0.512	0.790	1.059	1.538
Guam	No	No	0	.	.	.	.	.	.	.	.	.	.	.	.	.
Hawaii	Yes	Yes	16	257	356.219	0.721	0.637	0.814	15	7%	27%	.	.	.	.	.
Iowa	No	Yes	39	769	928.749	0.828	0.771	0.888	34	3%	21%	0.279	0.627	0.909	1.222	1.726
Idaho	No	No	13	227	311.148	0.730	0.639	0.829	11	0%	18%	.	.	.	.	.
Illinois	Yes	Yes	134	4,338	4,318.693	1.004	0.975	1.035	125	19%	13%	0.483	0.730	1.069	1.351	1.668
Indiana	No	No	89	2,045	2,296.879	0.890	0.852	0.930	78	8%	13%	0.253	0.506	0.837	1.118	1.360
Kansas	No	Yes	57	700	751.142	0.932	0.865	1.003	38	11%	5%	0.000	0.505	0.884	1.191	1.615
Kentucky	Yes	Yes	70	1,562	1,823.375	0.857	0.815	0.900	63	10%	16%	0.000	0.459	0.806	1.176	1.311
Louisiana	No		91	1,239	1,371.476	0.903	0.854	0.955	66	14%	15%	0.140	0.406	0.819	1.213	1.940
Massachusetts	Yes	No	69	2,366	2,513.585	0.941	0.904	0.980	66	14%	15%	0.500	0.756	1.074	1.246	1.647
Maryland	Yes	No	48	2,084	2,077.640	1.003	0.961	1.047	47	26%	4%	0.763	0.865	1.087	1.387	1.862
Maine	Yes	Yes	17	233	342.156	0.681	0.598	0.773	17	6%	18%	.	.	.	.	.
Michigan	No	Yes	96	3,060	3,490.027	0.877	0.846	0.908	85	8%	15%	0.431	0.717	0.934	1.108	1.415
Minnesota	Yes	Yes	54	1,324	1,429.316	0.926	0.877	0.977	49	10%	14%	0.191	0.732	0.964	1.257	1.592
Missouri			75	2,194	2,333.314	0.940	0.902	0.980	68	12%	22%	0.272	0.527	0.878	1.216	1.547
Mississippi	Yes	Yes	58	827	1,148.796	0.720	0.672	0.770	48	4%	23%	0.000	0.440	0.669	1.046	1.363
Montana	No		13	203	214.426	0.947	0.823	1.084	11	27%	9%	.	.	.	.	.
North Carolina	Yes	No	96	3,069	3,443.817	0.891	0.860	0.923	92	10%	20%	0.000	0.436	0.827	1.153	1.463
North Dakota	No	Yes	7	246	243.626	1.010	0.889	1.142	6	.	.	.	.	.	.	.
Nebraska	Yes		27	477	535.346	0.891	0.814	0.974	22	14%	18%	0.104	0.640	0.772	1.135	1.481
New Hampshire	No	No	13	376	324.563	1.158	1.046	1.280	13	23%	8%	.	.	.	.	.
New Jersey	Yes	No	71	2,666	2,852.207	0.935	0.900	0.971	71	14%	16%	0.371	0.780	0.966	1.167	1.545
New Mexico	No	Yes	34	527	493.435	1.068	0.980	1.162	29	21%	7%	0.000	0.578	0.905	1.290	1.782
Nevada	No	No	21	1,143	1,056.073	1.082	1.021	1.146	21	33%	14%	0.454	1.061	1.171	1.499	1.615
New York	Yes		181	6,897	7,495.248	0.920	0.899	0.942	172	16%	19%	0.374	0.688	0.988	1.298	1.618
Ohio	No	Yes	139	4,108	4,559.424	0.901	0.874	0.929	127	9%	13%	0.279	0.629	0.880	1.152	1.427
Oklahoma	Yes	No	83	1,090	1,223.667	0.891	0.839	0.945	57	9%	9%	0.000	0.417	0.801	1.243	1.608
Oregon	Yes	Yes	36	874	928.645	0.941	0.880	1.005	34	9%	6%	0.383	0.762	0.906	1.205	1.582
Pennsylvania	Yes	Yes	166	4,647	5,003.792	0.929	0.902	0.956	147	16%	15%	0.299	0.637	0.950	1.322	1.574
Puerto Rico	No		4	.	.	.	.	.	.	.	.	.	.	.	.	.
Rhode Island	No	No	11	443	366.720	1.208	1.099	1.325	11	27%	0%	.	.	.	.	.
South Carolina	Yes	Yes	63	1,376	1,720.206	0.800	0.758	0.843	58	0%	19%	0.185	0.489	0.776	1.017	1.299
South Dakota	No	Yes	19	298	308.156	0.967	0.862	1.082	10	10%	0%	.	.	.	.	.
Tennessee	Yes	Yes	109	2,272	2,572.503	0.883	0.847	0.920	93	13%	20%	0.000	0.406	0.782	1.218	1.583
Texas	No		346	7,343	8,327.460	0.882	0.862	0.902	262	11%	19%	0.255	0.568	0.871	1.173	1.503
Utah	Yes		36	568	526.612	1.079	0.993	1.170	29	17%	0%	0.000	0.623	1.041	1.657	1.791
Virginia	Yes	Yes	80	2,312	2,429.869	0.951	0.913	0.991	77	14%	12%	0.206	0.576	0.908	1.185	1.452
Virgin Islands			2	.	.	.	.	.	.	.	.	.	.	.	.	.
Vermont	Yes	Yes	6	116	117.532	0.987	0.819	1.179	6	.	.	.	.	.	.	.

Washington	No		57	1,824	1,720.741	1.060	1.012	1.109	53	19%	8%	0.346	0.680	0.939	1.309	1.819
Wisconsin	No	Yes	74	1,552	1,561.889	0.994	0.945	1.044	69	16%	15%	0.224	0.586	0.941	1.263	1.573
West Virginia	Yes	Yes	30	790	807.795	0.978	0.912	1.048	27	22%	11%	0.454	0.609	0.853	1.362	1.820
Wyoming	No	No	11	74	65.250	1.134	0.897	1.416	8	.	.	.	.	.	.	.
All US			3,605	95,530	103,780.133	0.921	0.915	0.926	3,180	10%	20%	0.262	0.568	0.851	1.144	1.466

- 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.
- Yes indicates the presence of a state mandate to report facility-wide CDI data to NHSN at the beginning of 2016. M indicates midyear implementation of a mandate. No indicates that a state mandate did not exist during 2016. A blank field indicates data not available.
- Yes indicates that the state health department reported the completion of all of the following validation activities: state health department had access to 2016 NHSN data, state health department performed an assessment of missing or implausible values on at least six months of 2016 NHSN data prior to October 1, 2017, and state health department contacted identified facilities. YesA indicates that the state also conducted an audit of facility medical or laboratory records prior to October 1, 2017 to confirm proper case ascertainment (although intensity of auditing activities varies by state). Information on validation efforts was requested from all states, regardless of the presence of a legislative mandate for the particular HAI type. Some states without mandatory reporting of a given HAI to the state health department have performed validation on NHSN data that is voluntarily shared with them by facilities in their jurisdiction.
- The number of reporting facilities included in the SIR calculation. Due to SIR exclusion criteria, this may be different from the numbers shown in Table 1. Refer to the Technical Appendix for information about exclusion criteria. SIRs and accompanying statistics are only calculated for states in which at least 5 facilities reported CDI data in 2016.
- 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 2016 national hospital-onset CDI SIR of 0.921. This is only calculated if at least 10 facilities had at least one predicted hospital-onset CDI in 2016.
- Facility-specific key percentiles were only calculated if at least 20 facilities had ≥ 1.0 predicted hospital-onset CDI in 2016. 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 *Clostridium difficile* infections, and surgical site infections (SSIs) following Surgical Care Im

	2015 SIR	2016 SIR	Percent Change	Direction of Change, Based on Statistical Significance	p-value
CLABSI, all locations¹	0.994	0.891	-10%	Decrease	0.0000
CLABSI, ICU ²	1.000	0.931	-7%	Decrease	0.0000
CLABSI, Ward ³	0.992	0.876	-12%	Decrease	0.0000
CLABSI, NICU ⁴	0.976	0.805	-18%	Decrease	0.0000
CAUTI, all locations⁵	0.993	0.930	-6%	Decrease	0.0000
CAUTI, ICU ²	1.002	0.927	-7%	Decrease	0.0000
CAUTI, Ward ³	0.984	0.933	-5%	Decrease	0.0000
	1.000	0.979	-2%	Decrease	0.0264
ICUs ⁵	0.999	0.982	2%	No change	0.0644
Wards ⁶	1.007	0.872	-13%	Decrease	0.0145
Hospital-onset MRSA bacteremia, facility-wide⁶	0.998	0.935	-6%	Decrease	0.0000
Hospital-onset <i>C. difficile</i> infections, facility-wide⁶	0.993	0.921	-7%	Decrease	0.0000
SSI, combined SCIP procedures⁷	1.000	0.936	-6%	Decrease	0.0000
SSI, Hip arthroplasty	0.998	0.962	4%	No change	0.2466
SSI, Knee arthroplasty	1.000	1.050	5%	No change	0.1566
SSI, Coronary artery bypass graft ⁸	1.004	0.936	7%	No change	0.1474
SSI, Cardiac surgery	0.995	0.779	22%	No change	0.0535
SSI, Peripheral vascular bypass surgery	1.010	0.906	10%	No change	0.3206
SSI, Abdominal aortic aneurysm repair	0.998	0.512	49%	No change	0.2205
SSI, Colon surgery	0.999	0.933	-7%	Decrease	0.0000
SSI, Rectal surgery	0.996	0.480	-52%	Decrease	0.0000
SSI, Abdominal hysterectomy	1.003	0.874	-13%	Decrease	0.0000
SSI, Vaginal hysterectomy	0.999	0.846	15%	No change	0.1776

*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 primary 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 2016 by HAI and patient population:
-associated events (VAEs), methicillin-resistant *Staphylococcus aureus* (MRSA) bacteremia,
Improvement Project (SCIP) procedures, 2015 compared to 2016

and IRF locations (or facilities).

locations (or facilities).

arrow transplant] in acute care hospitals. This excludes LTAC locations (or facilities) and IRF locations (or facilities).

are considered CLABSIs.

acilities).

ry 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 2015 and 2016 from NHSN Acute Care Hospitals

10a. Central line-associated bloodstream infections (CLABSI), all locations¹

State ²	All Acute Care Hospitals Reporting to NHSN				
	2015 SIR	2016 SIR	Percent Change	Direction of Change, Based on Statistical Significance	p-value
Alaska	1.091	0.866	21%	No change	0.3620
Alabama	1.407	1.121	-20%	Decrease	0.0001
Arkansas	1.095	0.995	9%	No change	0.2373
Arizona	0.849	0.763	10%	No change	0.1187
California	0.971	0.944	3%	No change	0.3160
Colorado	0.901	0.719	-20%	Decrease	0.0106
Connecticut	1.156	1.025	11%	No change	0.1640
D.C.	1.162	0.950	18%	No change	0.0532
Delaware	1.048	0.965	8%	No change	0.5754
Florida	1.096	0.905	-17%	Decrease	0.0000
Georgia	1.172	1.142	3%	No change	0.5696
Guam	.	.	.	.	.
Hawaii	0.324	0.525	62%	Increase	0.0275
Iowa	0.931	0.635	-32%	Decrease	0.0006
Idaho	0.642	0.394	-39%	Decrease	0.0377
Illinois	0.817	0.699	-14%	Decrease	0.0029
Indiana	1.117	0.986	-12%	Decrease	0.0331
Kansas	0.802	0.849	6%	No change	0.6001
Kentucky	1.068	0.767	-28%	Decrease	0.0000
Louisiana	1.434	1.125	-22%	Decrease	0.0001
Massachusetts	0.753	0.764	1%	No change	0.8363
Maryland	1.121	1.104	2%	No change	0.8057
Maine	0.804	0.925	15%	No change	0.4438
Michigan	0.942	0.779	-17%	Decrease	0.0007
Minnesota	0.775	0.856	10%	No change	0.2403
Missouri	1.063	0.934	-12%	Decrease	0.0188
Mississippi	1.108	0.924	-17%	Decrease	0.0390
Montana	0.929	0.690	26%	No change	0.2386
North Carolina	1.063	1.035	3%	No change	0.5874
North Dakota	0.791	0.844	7%	No change	0.7350
Nebraska	1.156	0.781	-32%	Decrease	0.0006
New Hampshire	1.044	0.959	8%	No change	0.6161
New Jersey	1.126	0.822	-27%	Decrease	0.0000
New Mexico	1.001	1.053	5%	No change	0.6935
Nevada	0.950	0.935	2%	No change	0.8551
New York	1.072	0.977	-9%	Decrease	0.0049
Ohio	0.882	0.836	5%	No change	0.2385
Oklahoma	0.945	0.815	14%	No change	0.0512
Oregon	0.796	0.683	14%	No change	0.1556
Pennsylvania	0.943	0.945	0%	No change	0.9574
Puerto Rico	1.006	0.891	11%	No change	0.5013
Rhode Island	1.072	1.025	4%	No change	0.7812
South Carolina	1.104	0.963	-13%	Decrease	0.0443
South Dakota	0.651	0.769	18%	No change	0.4320
Tennessee	0.903	0.779	-14%	Decrease	0.0090
Texas	0.970	0.868	-10%	Decrease	0.0004
Utah	0.819	0.836	2%	No change	0.8747
Virginia	0.920	0.682	-26%	Decrease	0.0000
Virgin Islands	.	.	.	.	.
Vermont	1.128	0.681	40%	No change	0.0848
Washington	0.865	0.708	-18%	Decrease	0.0060
Wisconsin	0.770	0.799	4%	No change	0.6414
West Virginia	0.744	0.863	16%	No change	0.1896
Wyoming	0.667	0.364	45%	No change	0.2754
All US	0.994	0.891	-10%	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 2015 and/or 2016 and therefore subsequent data not calculated

Table 10. Changes in state-specific standardized infection ratios (SIRs) between 2015 and 2016 from NHSN Acute Care Hospitals

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

	All Acute Care Hospitals Reporting to NHSN				
	2015 SIR	2016 SIR	Percent Change	Direction of Change, Based on Statistical Significance	p-value
Alaska	1.506	1.822	21%	No change	0.3562
Alabama	0.872	0.862	1%	No change	0.8557
Arkansas	1.126	1.014	10%	No change	0.1619
Arizona	0.891	0.689	-23%	Decrease	0.0002
California	1.120	1.112	1%	No change	0.7874
Colorado	0.910	0.837	8%	No change	0.2886
Connecticut	1.002	0.951	5%	No change	0.5401
D.C.	1.164	1.092	6%	No change	0.5934
Delaware	1.033	0.923	11%	No change	0.5031
Florida	0.893	0.823	-8%	Decrease	0.0108
Georgia	1.140	1.013	-11%	Decrease	0.0082
Guam	.	.	.	.	.
Hawaii	0.875	0.738	16%	No change	0.3231
Iowa	1.048	1.002	4%	No change	0.6396
Idaho	0.885	0.562	-36%	Decrease	0.0077
Illinois	0.889	0.846	5%	No change	0.3012
Indiana	0.965	0.827	-14%	Decrease	0.0152
Kansas	0.959	0.932	3%	No change	0.7725
Kentucky	0.885	0.834	6%	No change	0.3934
Louisiana	1.004	0.864	-14%	Decrease	0.0132
Massachusetts	1.079	0.945	-12%	Decrease	0.0159
Maryland	1.004	1.055	5%	No change	0.4229
Maine	1.053	1.416	34%	Increase	0.0496
Michigan	1.005	0.856	-15%	Decrease	0.0008
Minnesota	1.048	1.084	3%	No change	0.6516
Missouri	0.948	0.922	3%	No change	0.6232
Mississippi	0.895	0.747	-17%	Decrease	0.0344
Montana	1.211	0.907	25%	No change	0.1667
North Carolina	0.967	0.908	6%	No change	0.2051
North Dakota	0.916	1.077	18%	No change	0.3474
Nebraska	0.961	0.866	10%	No change	0.4130
New Hampshire	0.799	1.185	48%	Increase	0.0074
New Jersey	1.125	0.871	-23%	Decrease	0.0000
New Mexico	1.071	1.238	16%	No change	0.1876
Nevada	0.754	0.882	17%	No change	0.0849
New York	1.156	1.101	5%	No change	0.0992
Ohio	0.826	0.772	7%	No change	0.1160
Oklahoma	0.962	1.009	5%	No change	0.5054
Oregon	0.944	0.890	6%	No change	0.5050
Pennsylvania	1.050	0.955	-9%	Decrease	0.0088
Puerto Rico	0.621	0.736	19%	No change	0.2940
Rhode Island	1.353	1.150	15%	No change	0.2487
South Carolina	1.184	0.925	-22%	Decrease	0.0002
South Dakota	1.243	1.062	15%	No change	0.3383
Tennessee	0.922	0.894	3%	No change	0.5535
Texas	0.907	0.824	-9%	Decrease	0.0030
Utah	1.376	1.248	9%	No change	0.3461
Virginia	0.964	0.993	3%	No change	0.6008
Virgin Islands	.	.	.	.	.
Vermont	1.028	0.730	29%	No change	0.1526
Washington	0.989	1.027	4%	No change	0.5601
Wisconsin	0.960	1.032	8%	No change	0.3266
West Virginia	0.660	0.714	8%	No change	0.4657
Wyoming	0.568	0.409	28%	No change	0.4496
All US	0.993	0.930	-6%	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 2015 and/or 2016 and therefore subsequent data not calculated

Table 10. Changes in state-specific standardized infection ratios (SIRs) between 2015 and 2016 from NHSN Acute Care Hospitals

10c. Ventilator-associated events (VAE), all locations¹

	All Acute Care Hospitals Reporting to NHSN				
	2015 SIR	2016 SIR	Percent Change	Direction of Change, Based on Statistical Significance	p-value
Alaska	1.273	1.281	1%	No change	0.9733
Alabama	1.275	0.926	-27%	Decrease	0.0000
Arkansas	0.369	0.781	112%	Increase	0.0000
Arizona	1.412	1.371	3%	No change	0.6348
California	0.769	0.819	7%	No change	0.0875
Colorado	1.388	1.162	-16%	Decrease	0.0132
Connecticut	1.699	1.549	9%	No change	0.2538
D.C.	.	.	.	.	.
Delaware	.	.	.	.	.
Florida	1.001	0.821	-18%	Decrease	0.0000
Georgia	1.055	1.092	4%	No change	0.4293
Guam	.	.	.	.	.
Hawaii	0.231	0.319	38%	No change	0.5492
Iowa	2.510	1.209	-52%	Decrease	0.0000
Idaho	1.149	1.010	12%	No change	0.4938
Illinois	0.953	1.021	7%	No change	0.2997
Indiana	1.039	1.099	6%	No change	0.2607
Kansas	1.418	1.220	14%	No change	0.1165
Kentucky	1.302	1.369	5%	No change	0.5237
Louisiana	0.723	0.639	12%	No change	0.3329
Massachusetts	1.450	1.520	5%	No change	0.4588
Maryland	0.917	0.800	13%	No change	0.1435
Maine	1.236	1.930	56%	Increase	0.0038
Michigan	1.207	1.174	3%	No change	0.4751
Minnesota	1.411	1.182	16%	No change	0.0939
Missouri	1.092	0.913	-16%	Decrease	0.0158
Mississippi	0.563	0.708	26%	No change	0.1531
Montana	1.637	.	.	.	.
North Carolina	1.450	1.482	2%	No change	0.6927
North Dakota	.	.	.	.	.
Nebraska	1.937	1.746	10%	No change	0.2973
New Hampshire	0.774	0.696	10%	No change	0.7168
New Jersey	0.820	0.792	3%	No change	0.5503
New Mexico	1.920	1.690	12%	No change	0.2162
Nevada	0.739	0.539	-27%	Decrease	0.0002
New York	0.679	0.682	0%	No change	0.9118
Ohio	1.275	1.225	4%	No change	0.3119
Oklahoma	0.756	0.907	20%	Increase	0.0268
Oregon	1.022	0.998	2%	No change	0.8293
Pennsylvania	0.938	0.927	1%	No change	0.7083
Puerto Rico	0.392	1.081	176%	Increase	0.0000
Rhode Island	1.212	0.802	-34%	Decrease	0.0432
South Carolina	1.225	1.260	3%	No change	0.5505
South Dakota	1.682	1.271	24%	No change	0.2945
Tennessee	1.072	1.084	1%	No change	0.8409
Texas	0.729	0.736	1%	No change	0.8249
Utah	1.470	1.289	12%	No change	0.6224
Virginia	0.982	1.091	11%	Increase	0.0335
Virgin Islands	.	.	.	.	.
Vermont	.	.	.	.	.
Washington	0.896	0.809	10%	No change	0.3436
Wisconsin	1.613	1.476	8%	No change	0.1737
West Virginia	0.711	0.515	-28%	Decrease	0.0163
Wyoming	0.625	1.270	103%	No change	0.2349
All US	1.000	0.979	-2%	Decrease	0.0264

* 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 2015 and/or 2016 and therefore subsequent data not calculated

Table 10. Changes in state-specific standardized infection ratios (SIRs) between 2015 and 2016 from NHSN Acute Care Hospitals					
10d. Surgical site infections (SSI) following colon surgery¹					
	All Acute Care Hospitals Reporting to NHSN				
	2015 SIR	2016 SIR	Percent Change	Direction of Change, Based on Statistical Significance	p-value
Alaska	1.215	0.262	-78%	Decrease	0.0018
Alabama	0.860	0.678	21%	No change	0.0751
Arkansas	0.998	0.901	10%	No change	0.5605
Arizona	1.336	1.151	14%	No change	0.1439
California	1.067	0.958	-10%	Decrease	0.0430
Colorado	1.179	0.968	18%	No change	0.1272
Connecticut	1.041	1.124	8%	No change	0.5923
D.C.	0.570	0.955	68%	No change	0.0638
Delaware	1.423	1.024	28%	No change	0.1575
Florida	0.996	0.810	-19%	Decrease	0.0011
Georgia	1.252	0.992	-21%	Decrease	0.0056
Guam	.	.	.	.	.
Hawaii	0.739	0.810	10%	No change	0.7786
Iowa	1.181	0.944	20%	No change	0.1693
Idaho	1.153	0.974	16%	No change	0.5069
Illinois	0.896	0.871	3%	No change	0.7435
Indiana	0.990	0.927	6%	No change	0.5593
Kansas	1.229	1.231	0%	No change	0.9933
Kentucky	0.956	0.985	3%	No change	0.8136
Louisiana	0.994	0.849	15%	No change	0.2347
Massachusetts	0.929	0.843	9%	No change	0.4017
Maryland	0.984	0.987	0%	No change	0.9775
Maine	1.332	1.266	5%	No change	0.8124
Michigan	0.989	0.913	8%	No change	0.3590
Minnesota	1.012	1.043	3%	No change	0.7978
Missouri	0.922	0.826	10%	No change	0.3316
Mississippi	1.021	0.856	16%	No change	0.3178
Montana	0.564	0.932	65%	No change	0.1978
North Carolina	0.823	0.802	3%	No change	0.7971
North Dakota	1.159	1.726	49%	No change	0.1434
Nebraska	0.956	1.392	46%	No change	0.0515
New Hampshire	0.666	0.973	46%	No change	0.1780
New Jersey	0.754	0.739	2%	No change	0.8597
New Mexico	1.321	1.197	9%	No change	0.6754
Nevada	1.401	1.270	9%	No change	0.5615
New York	1.223	1.088	-11%	Decrease	0.0475
Ohio	0.894	0.807	10%	No change	0.1951
Oklahoma	0.902	1.076	19%	No change	0.2159
Oregon	0.586	0.698	19%	No change	0.3384
Pennsylvania	0.908	0.822	9%	No change	0.1850
Puerto Rico	.	.	.	.	.
Rhode Island	1.152	1.166	1%	No change	0.9644
South Carolina	0.993	1.030	4%	No change	0.7781
South Dakota	1.633	1.165	29%	No change	0.2032
Tennessee	0.839	0.920	10%	No change	0.3839
Texas	0.962	0.892	7%	No change	0.2178
Utah	1.030	1.193	16%	No change	0.4440
Virginia	1.108	1.136	3%	No change	0.7962
Virgin Islands	.	.	.	.	.
Vermont	2.024	1.903	6%	No change	0.8426
Washington	0.812	0.879	8%	No change	0.5433
Wisconsin	0.832	0.990	19%	No change	0.1747
West Virginia	1.324	1.188	10%	No change	0.5351
Wyoming	0.692	0.978	41%	No change	0.6118
All US	0.999	0.933	-7%	Decrease	0.0000

* Statistically significant, p < 0.0500

1. SSIs included are those classified as deep incisional or organ/space infections following NHSN-defined inpatient colon procedures with both primary and detected during the same admission as the surgical procedure or upon readmission to the same facility.
2. States without SIR either in 2015 and/or 2016 and therefore subsequent data not calculated

id other than primary skin closure technique,

Table 10. Changes in state-specific standardized infection ratios (SIRs) between 2015 and 2016 from NHSN Acute Care Hospitals

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

	All Acute Care Hospitals Reporting to NHSN				
	2015 SIR	2016 SIR	Percent Change ²	Direction of Change, Based on Statistical Significance	p-value
Alaska	0.000	0.000	.	.	.
Alabama	1.054	0.724	31%	No change	0.1070
Arkansas	0.705	0.530	25%	No change	0.4791
Arizona	1.015	1.119	10%	No change	0.6569
California	1.055	0.854	19%	No change	0.0574
Colorado	0.999	0.995	0%	No change	0.9843
Connecticut	1.145	0.945	17%	No change	0.4842
D.C.	1.059	0.000	-100%	Decrease	0.0066
Delaware	1.949	1.804	7%	No change	0.8775
Florida	0.937	0.913	3%	No change	0.8437
Georgia	1.103	0.930	16%	No change	0.2813
Guam	.	.	.	.	.
Hawaii	0.821	0.948	15%	No change	0.8439
Iowa	0.821	0.698	15%	No change	0.6666
Idaho	0.219	0.679	210%	No change	0.3343
Illinois	0.834	0.726	13%	No change	0.4387
Indiana	1.014	0.838	17%	No change	0.4233
Kansas	0.972	0.444	-54%	Decrease	0.0495
Kentucky	0.750	1.147	53%	No change	0.0846
Louisiana	1.078	0.906	16%	No change	0.4824
Massachusetts	0.991	1.181	19%	No change	0.4678
Maryland	0.989	0.778	21%	No change	0.3324
Maine	1.551	0.434	72%	No change	0.0624
Michigan	1.020	0.887	13%	No change	0.4218
Minnesota	1.053	1.075	2%	No change	0.9385
Missouri	0.572	0.891	56%	No change	0.0763
Mississippi	1.625	1.501	8%	No change	0.7462
Montana	1.749	0.236	-87%	Decrease	0.0282
North Carolina	0.958	0.731	24%	No change	0.1481
North Dakota	0.995	0.790	21%	No change	0.7811
Nebraska	2.030	1.176	42%	No change	0.0909
New Hampshire	0.501	0.143	71%	No change	0.3026
New Jersey	1.006	0.515	-49%	Decrease	0.0047
New Mexico	1.141	0.892	22%	No change	0.5875
Nevada	1.255	1.354	8%	No change	0.8402
New York	1.136	0.997	12%	No change	0.2804
Ohio	1.079	0.885	18%	No change	0.1903
Oklahoma	0.560	0.442	21%	No change	0.5496
Oregon	0.649	0.559	14%	No change	0.7201
Pennsylvania	0.895	1.072	20%	No change	0.2234
Puerto Rico	.	.	.	.	.
Rhode Island	0.914	1.607	76%	No change	0.2330
South Carolina	0.741	0.950	28%	No change	0.3386
South Dakota	1.292	1.734	34%	No change	0.5302
Tennessee	1.159	1.066	8%	No change	0.6402
Texas	0.859	0.600	-30%	Decrease	0.0035
Utah	1.169	1.419	21%	No change	0.5234
Virginia	1.611	1.041	-35%	Decrease	0.0111
Virgin Islands	.	.	.	.	.
Vermont	0.890	2.274	156%	No change	0.2599
Washington	0.772	0.630	18%	No change	0.4984
Wisconsin	1.071	0.868	19%	No change	0.4138
West Virginia	1.236	1.647	33%	No change	0.3746
Wyoming	0.000	0.550	.	No change	0.6422
All US	1.003	0.874	-13%	Decrease	0.0000

* 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 2015 and/or 2016 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,

ige was reflected as greater than 100 percent.

Table 10. Changes in state-specific standardized infection ratios (SIRs) between 2015 and 2016 from NHSN Acute Care Hospitals

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

	All Acute Care Hospitals Reporting to NHSN				
	2015 SIR	2016 SIR	Percent Change	Direction of Change, Based on Statistical Significance	p-value
Alaska	0.874	0.916	5%	No change	0.9188
Alabama	1.238	1.231	-1%	No change	0.9486
Arkansas	1.124	1.224	9%	No change	0.5548
Arizona	1.031	1.000	-3%	No change	0.7737
California	0.980	0.954	-3%	No change	0.5983
Colorado	0.590	0.721	22%	No change	0.2708
Connecticut	1.002	1.064	6%	No change	0.6773
D.C.	0.934	1.286	38%	No change	0.0786
Delaware	1.269	0.830	-35%	No change	0.0960
Florida	1.247	1.119	-10%	Decrease	0.0296
Georgia	1.266	1.072	-15%	Decrease	0.0365
Guam	.	.	.	.	.
Hawaii	0.583	0.447	-23%	No change	0.4415
Iowa	0.563	0.591	5%	No change	0.8145
Idaho	0.476	0.165	-65%	No change	0.0683
Illinois	0.815	0.672	-18%	Decrease	0.0370
Indiana	0.907	0.790	-13%	No change	0.2321
Kansas	0.941	0.609	-35%	Decrease	0.0333
Kentucky	1.354	1.221	-10%	No change	0.2862
Louisiana	1.366	1.362	0%	No change	0.9752
Massachusetts	0.813	0.593	-27%	Decrease	0.0076
Maryland	1.234	1.150	-7%	No change	0.4709
Maine	0.447	0.514	15%	No change	0.7019
Michigan	1.074	1.035	-4%	No change	0.6432
Minnesota	0.486	0.520	7%	No change	0.7223
Missouri	0.893	0.909	2%	No change	0.8667
Mississippi	1.086	1.149	6%	No change	0.6736
Montana	0.616	0.197	-68%	No change	0.0737
North Carolina	0.982	0.938	-4%	No change	0.5663
North Dakota	0.584	0.424	-27%	No change	0.4542
Nebraska	0.963	0.718	-25%	No change	0.1964
New Hampshire	0.780	0.783	0%	No change	0.9934
New Jersey	1.120	1.005	-10%	No change	0.1982
New Mexico	0.570	0.776	36%	No change	0.2900
Nevada	0.853	0.839	-2%	No change	0.9243
New York	1.060	0.971	-8%	No change	0.0913
Ohio	0.972	0.856	-12%	No change	0.0904
Oklahoma	1.285	1.137	-12%	No change	0.3027
Oregon	0.592	0.639	8%	No change	0.6987
Pennsylvania	0.904	0.811	-10%	No change	0.1372
Puerto Rico	.	.	.	.	.
Rhode Island	0.584	0.710	22%	No change	0.5566
South Carolina	1.217	1.014	-17%	No change	0.0878
South Dakota	0.368	0.683	86%	No change	0.1393
Tennessee	1.240	1.327	7%	No change	0.3783
Texas	0.911	0.838	-8%	No change	0.1391
Utah	0.675	0.679	1%	No change	0.9843
Virginia	0.837	0.850	2%	No change	0.9518
Virgin Islands	.	.	.	.	.
Vermont	1.122	0.750	-33%	No change	0.3608
Washington	0.647	0.690	7%	No change	0.6588
Wisconsin	0.510	0.490	-4%	No change	0.8338
West Virginia	1.139	1.139	0%	No change	0.9981
Wyoming	0.249	0.907	264%	No change	0.2576
All US	0.998	0.935	6%	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 2015 and/or 2016 and therefore subsequent data not calculated

Table 10. Changes in state-specific standardized infection ratios (SIRs) between 2015 and 2016 from NHSN Acute Care Hospitals

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

	All Acute Care Hospitals Reporting to NHSN				
	2015 SIR	2016 SIR	Percent Change	Direction of Change, Based on Statistical Significance	p-value
Alaska	0.881	0.921	5%	No Change	0.7430
Alabama	0.666	0.623	7%	No Change	0.0910
Arkansas	0.713	0.792	11%	No Change	0.0560
Arizona	0.984	0.899	-9%	Decrease	0.0030
California	1.161	1.071	-8%	Decrease	0.0000
Colorado	1.099	1.048	5%	No Change	0.2220
Connecticut	1.186	1.008	-15%	Decrease	0.0000
D.C.	1.055	1.118	6%	No Change	0.3930
Delaware	1.132	1.054	7%	No Change	0.3250
Florida	0.940	0.806	-14%	Decrease	0.0000
Georgia	0.968	0.880	-9%	Decrease	0.0000
Guam	.	.	.	.	.
Hawaii	0.753	0.721	4%	No Change	0.6220
Iowa	0.859	0.828	4%	No Change	0.4710
Idaho	0.852	0.730	14%	No Change	0.0940
Illinois	1.006	1.004	0%	No Change	0.9620
Indiana	1.009	0.890	-12%	Decrease	0.0000
Kansas	0.901	0.932	3%	No Change	0.5280
Kentucky	1.054	0.857	-19%	Decrease	0.0000
Louisiana	0.893	0.903	1%	No Change	0.7650
Massachusetts	1.064	0.941	-12%	Decrease	0.0000
Maryland	1.125	1.003	-11%	Decrease	0.0000
Maine	0.691	0.681	1%	No Change	0.8750
Michigan	0.915	0.877	4%	No Change	0.0860
Minnesota	0.940	0.926	2%	No Change	0.7020
Missouri	0.977	0.940	4%	No Change	0.2080
Mississippi	0.689	0.720	5%	No Change	0.3840
Montana	0.912	0.947	4%	No Change	0.7070
North Carolina	0.918	0.891	3%	No Change	0.2520
North Dakota	1.071	1.010	6%	No Change	0.5120
Nebraska	0.837	0.891	7%	No Change	0.3590
New Hampshire	1.070	1.158	8%	No Change	0.2980
New Jersey	1.055	0.935	-11%	Decrease	0.0000
New Mexico	1.329	1.068	-20%	Decrease	0.0000
Nevada	1.120	1.082	3%	No Change	0.4200
New York	1.000	0.920	-8%	Decrease	0.0000
Ohio	0.941	0.901	-4%	Decrease	0.0490
Oklahoma	1.007	0.891	-12%	Decrease	0.0030
Oregon	1.006	0.941	7%	No Change	0.1640
Pennsylvania	1.031	0.929	-10%	Decrease	0.0000
Puerto Rico	.	.	.	.	.
Rhode Island	1.185	1.208	2%	No Change	0.7710
South Carolina	0.949	0.800	-16%	Decrease	0.0000
South Dakota	0.932	0.967	4%	No Change	0.6570
Tennessee	0.964	0.883	-8%	Decrease	0.0030
Texas	0.927	0.882	-5%	Decrease	0.0020
Utah	1.054	1.079	2%	No Change	0.7080
Virginia	1.055	0.951	-10%	Decrease	0.0000
Virgin Islands	.	.	.	.	.
Vermont	1.131	0.987	13%	No Change	0.2850
Washington	1.121	1.060	5%	No Change	0.0860
Wisconsin	1.031	0.994	4%	No Change	0.3030
West Virginia	1.080	0.978	-9%	Decrease	0.0480
Wyoming	1.134	1.134	0%	No Change	1.0000
All US	0.993	0.921	-7%	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 2015 and/or 2016 and therefore subsequent data not calculated

**Appendix A. Factors used in NHSN risk adjustment of the device-associated HAIs
Negative Binomial Regression Models¹ 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* School Type* Location Type Facility Type* Facility Bed size*

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

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

Appendix B. Factors used in NHSN risk adjustment of the MRSA Bacteremia and *C. difficile* Negative Binomial Regression Models¹ in 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
<i>C. difficile</i>	Intercept Inpatient CO admission prevalence rate* CDI test type ⁺ Medical school affiliation [‡] Number of ICU beds [‡] Facility type size [‡] from an ED or 24-hour observation unit Bed Reporting

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

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

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

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

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

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

events, divided by total

patient days / total # of annual admissions.

Survey.

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

NHSN Procedure Code	NHSN Procedure
AAA	Abdominal aortic aneurysm
AMP	Limb amputation
APPY	Appendectomy
AVSD	Arteriovenous shunt for dialysis
BILI	Bile duct, liver or pancreatic surgery
BRST	Breast surgery
CABG	Coronary artery bypass graft
CARD	Cardiac surgery
CEA	Carotid endarterectomy
CHOL	Cholecystectomy
COLO	Colon surgery
CRAN	Craniotomy
CSEC	Cesarean delivery
FUSN	Spinal fusion
FX	Open reduction of long bone fracture
GAST	Gastric surgery
HER	Herniorrhaphy
HPRO	Hip arthroplasty
HTP	Heart transplant
HYST	Abdominal hysterectomy
KPRO	Knee arthroplasty
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.cdc.gov/nhsn/pdfs/sirguide>

* These risk factors originate from the Annual Facility Survey.

† None of the variables investigated were statistically significant.

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

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

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

Validated Parameters for Risk Model
<i>Intercept-only model[†]</i>
anesthesia, wound class, hospital bed size*, age
gender, wound class, hospital bed size*, procedure duration
gender, emergency, trauma, hospital bed size*, scope, age, procedure duration
ASA score, closure, age, procedure duration, BMI
emergency, medical school affiliation*, age, procedure duration, BMI
gender, diabetes, ASA score, trauma, wound class, medical school affiliation*, hospital bed size*, age, procedure duration, BMI, age-gender interaction
wound class
gender, diabetes, ASA score, wound class, hospital bed size*, age, procedure duration, age-gender interaction
gender, diabetes, trauma, anesthesia, ASA score, wound class, hospital bed size*, scope, closure, age, procedure duration, BMI
diabetes, trauma, ASA score, age, procedure duration, wound class
emergency, ASA score, wound class, medical school affiliation*, hospital bed size*, age, procedure duration, duration of labor
gender, diabetes, trauma, ASA score, medical school affiliation*, hospital bed size*, procedure duration, BMI, spinal level, approach
gender, diabetes, ASA score, wound class, closure, age, procedure duration, BMI
wound class, scope, age, procedure duration, BMI
gender, ASA score, wound class, medical school affiliation*, hospital bed size*, scope, age, procedure duration, BMI
diabetes, trauma, anesthesia, ASA score, wound class, medical school affiliation*, hospital bed size*, age, procedure duration, BMI, procedure type
closure
diabetes, ASA score, hospital bed size*, scope, age, procedure duration, BMI
gender, trauma, anesthesia, ASA score, wound class, medical school affiliation*, hospital bed size*, age, procedure duration, BMI, procedure type
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](https://www.dhs.gov/nhsn/pdfs/ps-analysis-resources/nhsn-sir-guide.pdf)

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

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

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

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

* These risk factors originate from the Annual Facility Survey

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

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

Appendix E. List of NHSN procedures and corresponding SCIP procedures included in this report with factors used in the NHSN risk adjustment of the Complex Admission/Readmission Model¹ for adults, ≥ 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 (2015 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.