

2015 National and

Critical Ac

Introduction: Welcome to the 2015 National and State HAI Data Report using the new 2015 baseline and 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 critical access hospitals (CAH).

Scope of report:

HAI Type	CAH
	National
Central line-associated bloodstream infections (CLABSI) by locations	p
Catheter-associated urinary tract infections (CAUTI) by locations	p
Ventilator-associated events (VAE) by locations	p
Surgical site infections (SSI)- All procedures for adults and pediatrics (using Complex AR model)	p
Surgical site infections (SSI)- Adult procedures only (using Complex AR model), for COLO and HYST	
Hospital-onset methicillin-resistant <i>Staphylococcus aureus</i> (MRSA) bacteremia by facility-wide reporting	p
Hospital-onset <i>Clostridium difficile</i> (CDI) by facility wide reporting	p

2015 Annual National and State HAI Data Report

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

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om Critical Access Hospitals

Hospitals

: Regression, Adults ≥ 18 years of age

: Regression, Pediatrics < 18 years of age

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

Table 1a

Table 1. Characteristics of NHSN Critical Access Hospitals reporting to NHSN by State ¹ , 2015: 1a. Central line-associated bloodstream infections (CLABSI) ²							
State	No. of Acute Care Hospitals in State ³	2015					
		State NHSN Mandate ⁴	Any Validation ⁵	No. of Critical Access Hospitals Reporting ⁶	Locations (n) ²		
					Total	ICU	Wards ²
Alaska	16	No	No	4	8	2	6
Alabama	94	Yes	Yes ^A	3	4	1	3
Arkansas	79	No	Yes	8	12	1	11
Arizona	64	No	No	2	2	0	2
California	305	Yes		28	59	17	42
Colorado	72	Yes	Yes	11	16	3	13
Connecticut	27	No	No	0	0	0	0
D.C.	10	No	No	0	0	0	0
Delaware	7	No	No	0	0	0	0
Florida	149	No	No	4	5	1	4
Georgia	97	No	No	6	7	1	6
Guam	1	No	No	0	0	0	0
Hawaii	21	No	No	1	2	1	1
Iowa	122	No	Yes	41	47	4	43
Idaho	31	No	No	6	8	3	5
Illinois	159	Yes	No	37	46	16	30
Indiana	112	No	No	30	53	17	36
Kansas	140	No	Yes	26	35	5	30
Kentucky	82	No	No	5	7	1	6
Louisiana	89	No	No	4	5	1	4
Massachusetts	57	No	No	2	4	1	3
Maryland	50	No	No	0	0	0	0
Maine	31	Yes	Yes	10	20	3	17
Michigan	123	No	Yes	12	22	7	15
Minnesota	111	No	No	18	22	1	21
Missouri	123	No	Yes	8	12	4	8
Mississippi	92	No	No	3	3	0	3

Table 1a

Montana	50	No	No	8	13	3	10
North Carolina	101	No	No	10	15	3	12
North Dakota	27	No	No	7	12	3	9
Nebraska	53	No	No	8	11	1	10
New Hampshire	24	Yes		13	23	9	14
New Jersey	58	No	No	0	0	0	0
New Mexico	32	No	No	6	10	2	8
Nevada	25	Yes	No	1	1	1	0
New York	154	No	No	3	6	3	3
Ohio	133	No	No	10	23	10	13
Oklahoma	110	No	No	2	2	0	2
Oregon	60	Yes	Yes	17	35	12	23
Pennsylvania	172	Yes	Yes	13	29	5	24
Puerto Rico	17	Yes	No	0	0	0	0
Rhode Island	9	No	No	0	0	0	0
South Carolina	66	Yes	Yes	5	7	2	5
South Dakota	37	No	No	0	0	0	0
Tennessee	69	No	No	2	2	1	1
Texas	452	Yes		20	31	10	21
Utah	34	No	Yes	3	3	0	3
Virginia	80	Yes	Yes	3	6	3	3
Virgin Island		.	.	0	0	0	0
Vermont	12	Yes	No	2	3	1	2
Washington	80	Yes		36	57	12	45
Wisconsin	137	No	Yes	37	58	13	45
West Virginia	55	No	No	16	25	8	17
Wyoming	24	No	No	12	14	2	12
All US	4,334			503	785	194	591

Table 1b

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

State		2015					
						Total	ICU
Alaska	16	No	No	4	6	2	4
Alabama	94	Yes	Yes	4	5	1	4
Arkansas	79	No	Yes	8	9	1	8
Arizona	64	No	No	2	2	0	2
California	305	No	No	27	42	15	27
Colorado	72	No	No	11	13	2	11
Connecticut	27	No	No	1	0	0	0
D.C.	10	No	No	1	0	0	0
Delaware	7	No	No	1	0	0	0
Florida	149	No	No	4	5	1	4
Georgia	97	No	No	7	7	1	6
Guam	1	No	No	1	0	0	0
Hawaii	21	No	No	1	2	1	1
Iowa	122	No	Yes	63	67	4	63
Idaho	31	No	No	7	9	3	6
Illinois	159	No	No	39	47	14	33
Indiana	112	No	No	31	47	17	30
Kansas	140	No	Yes	33	38	5	33
Kentucky	82	No	No	5	6	1	5
Louisiana	89	No	No	4	5	1	4
Massachusetts	57	No	No	2	3	1	2
Maryland	50	No	No	1	0	0	0
Maine	31	No	Yes	9	12	3	9
Michigan	123	No	Yes	15	22	7	15
Minnesota	111	Yes	No	74	81	8	73
Missouri	123	No	No	8	12	4	8

Table 1b

Mississippi	92	No	No	3	3	0	3
Montana	50	No	No	9	11	2	9
North Carolina	101	No	No	10	13	3	10
North Dakota	27	No	No	9	11	2	9
Nebraska	53	No	No	9	10	1	9
New Hampshire	24	Yes	Yes	13	21	8	13
New Jersey	58	No	No	1	0	0	0
New Mexico	32	No	No	5	7	2	5
Nevada	25	No	No	1	1	1	0
New York	154	No	No	4	7	3	4
Ohio	133	No	No	10	18	9	9
Oklahoma	110	No	No	2	2	0	2
Oregon	60	Yes	Yes	22	36	14	22
Pennsylvania	172	Yes	Yes	13	18	5	13
Puerto Rico	17	Yes	No	1	0	0	0
Rhode Island	9	No	No	1	0	0	0
South Carolina	66	No	No	5	7	2	5
South Dakota	37	No	No	1	0	0	0
Tennessee	69	No	No	2	2	1	1
Texas	452	Yes	Yes	24	30	8	22
Utah	34	No	Yes	4	4	0	4
Virginia	80	No	Yes	3	6	3	3
Virgin Island	.	.	.	1	0	0	0
Vermont	12	No	No	2	3	1	2
Washington	80	No	No	29	39	10	29
Wisconsin	137	No	Yes	56	69	13	56
West Virginia	55	Yes	Yes	19	27	8	19
Wyoming	24	No	No	13	15	2	13
All US	4,334			635	800	190	610

Table 1. Characteristics of NHSN Critical Access Hospitals reporting to NHSN by State¹, 2015:

1c. Ventilator-associated events (VAE)⁹

		2015						
State		Any Validation ⁵		Total	ICU	Wards ²		
Alaska	16	No	No	2	2	0	2	
Alabama	94	No	No	0	0	0	0	
Arkansas	79	No	No	2	2	0	2	
Arizona	64	No	No	0	0	0	0	
California	305	No	No	13	15	10	5	
Colorado	72	No	No	2	3	2	1	
Connecticut	27	No	No	0	0	0	0	
D.C.	10	No	No	0	0	0	0	
Delaware	7	No	No	0	0	0	0	
Florida	149	No	No	2	2	1	1	
Georgia	97	No	No	0	0	0	0	
Guam	1	No	No	0	0	0	0	
Hawaii	21	No	No	0	0	0	0	
Iowa	122	No	No	4	4	1	3	
Idaho	31	No	No	1	2	1	1	
Illinois	159	No	No	6	6	4	2	
Indiana	112	No	No	17	25	13	12	
Kansas	140	No	No	4	5	3	2	
Kentucky	82	No	No	1	2	1	1	
Louisiana	89	No	No	1	1	0	1	
Massachusetts	57	No	No	1	1	1	0	
Maryland	50	No	No	0	0	0	0	
Maine	31	No	No	2	2	1	1	
Michigan	123	No	Yes	6	7	6	1	
Minnesota	111	No	No	3	3	0	3	
Missouri	123	No	No	2	3	2	1	
Mississippi	92	No	No	0	0	0	0	
Montana	50	No	No	3	3	1	2	
North Carolina	101	No	No	4	5	2	3	
North Dakota	27	No	No	1	1	1	0	
Nebraska	53	No	No	0	0	0	0	
New Hampshire	24	No	No	4	5	4	1	
New Jersey	58	No	No	0	0	0	0	
New Mexico	32	No	No	1	1	1	0	
Nevada	25	No	No	0	0	0	0	
New York	154	No	No	2	3	2	1	
Ohio	133	No	No	6	9	7	2	
Oklahoma	110	No	No	0	0	0	0	
Oregon	60	No	No	8	8	6	2	
Pennsylvania	172	Yes	Yes	6	6	4	2	
Puerto Rico	17	Yes	No	0	0	0	0	
Rhode Island	9	No	No	0	0	0	0	
South Carolina	66	M	Yes	2	3	2	1	
South Dakota	37	No	No	0	0	0	0	
Tennessee	69	No	No	2	2	1	1	
Texas	452	No	No	6	7	5	2	
Utah	34	No	No	0	0	0	0	
Virginia	80	No	No	2	2	2	0	
Virgin Island	.	.	.	0	0	0	0	
Vermont	12	No	No	0	0	0	0	
Washington	80	No	No	8	8	6	2	
Wisconsin	137	No	No	9	12	6	6	
West Virginia	55	No	No	4	5	4	1	

Wyoming	24	No	No	2	4	2	2
All US	4,334			139	169	102	67

1d. Surgical site infections ⁸						
State		2015				
		Any Validation ⁵		No. of Procedures ⁸ Colon and Abdominal Hysterectomy surgeries in Adults		
Alaska	16	No	No	2		16
Alabama	94	Yes	Yes	1		9
Arkansas	79	No	No	3		28
Arizona	64	No	No	2		14
California	305	Yes	Yes	18		304
Colorado	72	Yes	Yes	11		110
Connecticut	27	No	No	0		0
D.C.	10	No	No	0		0
Delaware	7	No	No	0		0
Florida	149	No	No	2		7
Georgia	97	No	No	2		34
Guam	1	No	No	0		0
Hawaii	21	No	No	1		13
Iowa	122	No	Yes	12		88
Idaho	31	No	No	4		90
Illinois	159	No	No	16		194
Indiana	112	No	No	28		348
Kansas	140	No	Yes	9		108
Kentucky	82	No	No	2		5
Louisiana	89	No	No	2		53
Massachusetts	57	No	No	2		10
Maryland	50	No	No	0		0
Maine	31	No	Yes	11		190
Michigan	123	No	Yes	7		85
Minnesota	111	No	No	4		9
Missouri	123	No	Yes	5		115
Mississippi	92	No	No	0		0
Montana	50	No	No	7		90
North Carolina	101	No	No	8		156
North Dakota	27	No	No	1		5
Nebraska	53	No	No	1		4
New Hampshire	24	Yes	Yes ^A	12		209
New Jersey	58	No	No	0		0
New Mexico	32	No	No	3		32
Nevada	25	No	No	1		7
New York	154	No	No	2		19
Ohio	133	No	No	5		88
Oklahoma	110	No	No	0		0
Oregon	60	Yes	Yes	14		235
Pennsylvania	172	Yes	Yes	8		92
Puerto Rico	17	No	No	0		0

Rhode Island	9	No	No	0	0
South Carolina	66	Yes	Yes	1	13
South Dakota	37	No	No	0	0
Tennessee	69	No	No	1	3
Texas	452	Yes	Yes	16	126
Utah	34	Yes	Yes	1	13
Virginia	80	No	Yes	3	51
Virgin Island	.	.	.	0	0
Vermont	12	Yes	No	4	31
Washington	80	Yes	Yes	22	385
Wisconsin	137	No	Yes	34	522
West Virginia	55	No	No	7	144
Wyoming	24	No	No	3	18
All US	4,334			298	4,073

1e. Hospital-onset methicillin-resistant *Staphylococcus aureus* bacteremia⁹

State	No. of Acute Care Hospitals in State ³	2015		
Alaska	16	No	No	4
Alabama	94	No	No	3
Arkansas	79	No	Yes	3
Arizona	64	No	No	2
California	305	Yes	Yes	29
Colorado	72	No	No	14
Connecticut	27	No	No	0
D.C.	10	No	No	0
Delaware	7	No	No	0
Florida	149	No	No	4
Georgia	97	No	No	6
Guam	1	No	No	0
Hawaii	21	No	No	1
Iowa	122	No	Yes	21
Idaho	31	No	No	7
Illinois	159	Yes	Yes	49
Indiana	112	No	No	26
Kansas	140	No	Yes	23
Kentucky	82	No	No	5
Louisiana	89	No	No	2
Massachusetts	57	No	No	2
Maryland	50	No	No	0
Maine	31	Yes	Yes	14
Michigan	123	No	Yes	11
Minnesota	111	No	No	7
Missouri	123	No	No	7
Mississippi	92	No	No	2
Montana	50	No	No	5
North Carolina	101	No	No	10
North Dakota	27	No	No	8
Nebraska	53	Yes	Yes	5
New Hampshire	24	No	No	10
New Jersey	58	No	No	0
New Mexico	32	No	No	5
Nevada	25	Yes	No	1
New York	154	No	No	3
Ohio	133	No	No	9
Oklahoma	110	No	No	2
Oregon	60	Yes	Yes	23
Pennsylvania	172	No	Yes	10
Puerto Rico	17	No	No	0
Rhode Island	9	No	No	0
South Carolina	66	Yes	Yes	5
South Dakota	37	No	No	0

Tennessee	69	No	No	1
Texas	452	No	No	22
Utah	34	No	Yes	2
Virginia	80	No	Yes	3
Virgin Islands	.	.	.	0
Vermont	12	No	No	4
Washington	80	No	No	14
Wisconsin	137	No	Yes	55
West Virginia	55	No	No	11
Wyoming	24	No	No	#VALUE!
All US	4,334			453

1f. Hospital-onset *Clostridium difficile* ⁹

State		2015		
Alaska	16	No	No	4
Alabama	94	No	No	3
Arkansas	79	No	Yes	5
Arizona	64	No	No	2
California	305	Yes	Yes	29
Colorado	72	No	Yes	17
Connecticut	27	No	No	0
D.C	10	No	No	0
Delaware	7	No	No	0
Florida	149	No	No	4
Georgia	97	No	No	6
Guam	1	No	No	0
Hawaii	21	No	No	1
Iowa	122	No	Yes	35
Idaho	31	No	No	5
Illinois	159	Yes	Yes	49
Indiana	112	No	No	26
Kansas	140	No	Yes	28
Kentucky	82	No	No	5
Louisiana	89	No	No	2
Massachusetts	57	No	No	2
Maryland	50	No	No	0
Maine	31	Yes	Yes	14
Michigan	123	No	Yes	11
Minnesota	111	No	No	10
Missouri	123	No	No	7
Mississippi	92	No	No	3
Montana	50	No	No	7
North Carolina	101	No	No	10
North Dakota	27	No	No	8
Nebraska	53	Yes	Yes	7
New Hampshire	24	No	No	13
New Jersey	58	No	No	0
New Mexico	32	No	No	6
Nevada	25	No	No	1
New York	154	No	No	3
Ohio	133	No	No	9
Oklahoma	110	No	No	2
Oregon	60	Yes	Yes	23
Pennsylvania	172	No	Yes	10
Puerto Rico	17	No	No	0
Rhode Island	9	No	No	0

South Carolina	66	Yes	Yes	5
South Dakota	37	No	No	0
Tennessee	69	No	No	1
Texas	452	No	No	22
Utah	34	No	Yes	2
Virginia	80	No	Yes	3
Virgin Island	.	.	.	0
Vermont	12	No	No	4
Washington	80	Yes	Yes	37
Wisconsin	137	No	Yes	55
West Virginia	55	No	No	14
Wyoming	24	No	No	13
All US	4,334			523

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 2015 from critical access hospital ICUs (critical care units), NICUs (CLABSI only, see footnote 7), and ward plus (for this report wards also include step-down, mixed acuity and specialty care areas [hematology/oncology, bone marrow transplant]). 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. The total number of acute care hospitals in a state was computed from the American Hospital Association (AHA) annual survey for fiscal year 2015, after excluding rehabilitation hospitals and long-term acute care hospitals (Available at <http://www.ahadataviewer.com/about/hospital-database/>). The AHA is a voluntary survey that hospitals opt to participate. The response rate of the survey is about 75%. Because of this methodology, this count may differ slightly from counts provided by state regulatory authorities. This number also excludes facilities that were not operational in 2015 (0 DAYS OPEN DURING REPORTING PERIOD). So, the total # facilities will be lower than that in 2013 worksheet (shown in the 2014 HAI Progress Report) for which we reported all hospitals regardless of operational status. Critical access hospitals are a subset of the reported number of acute care hospitals in the US

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

5. 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 July 1, 2016 for 2015 data, and state health department contacted identified facilities. Yes^a indicates that the state also conducted an audit of facility medical or laboratory records prior to July 1, 2016 for 2015 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.

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

7. 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.

8. SSIs included are those classified as deep incisional or organ/space infections following inpatient procedures within colon surgeries and abdominal hysterectomy surgeries performed in adults, detected during the same admission as the surgical procedure or upon readmission to the same facility.

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

Facility Type, HAI, and Patient Population	No. of Facilities Reporting ¹	No. of Infections (events)	
		Observed	Predicted
CLABSI, all⁴	462	34	29.743
ICUs⁵	181	5	3.921
Wards⁶	439	29	25.836
NICUs⁷	0	.	.
CAUTI, all⁸	635	179	177.987
	190	21	24.032
	610	158	153.950
VAE, all⁸	96	4	4.000
	79	4	3.667
	20	0	0.332
Hospital-onset MRSA bacteremia, facility-wide⁹	434	28	28.204
Hospital-onset <i>C. difficile</i>, facility-wide⁹	500	487	483.111

1. The number of reporting facilities included in the SIR calculation. Due to SIR exclusion criteria, this may be
2. Percent of facilities with at least one predicted infection that had an SIR significantly greater than or less th
3. Facility-specific percentiles are only calculated if at least 20 facilities had ≥ 1.0 predicted HAI in 2015. If a fa
4. Data from all ICUs, wards (and other non-critical care locations), and NICUs. These tables contain data fr
5. Data from all ICUs; excludes wards (and other non-critical care locations) and NICUs. These tables contai
6. Data from all wards (for this table wards also include step-down and specialty care areas [including hematc
7. Data from all NICU locations, including Level II/III and Level III nurseries. Both umbilical line and central lin
8. Data from all ICUs and wards (and other non-critical care locations). This excludes NICUs and pediatric lo
9. Hospital-onset is defined as event detected on the 4th day (or later) after admission to an inpatient location

summary SIRs using HAI data reported to NHSN from Critical Access Hospitals during 2015, HAI, and CAUTIs), ventilator-associated events (VAEs), methicillin-resistant *Staphylococcus aureus* (

Facilities with SIR < National SIR	Percent							
	5%	10%	15%	20%	25%	30%	35%	40%
.
.
.
.
0%
0%
.
.
.
.
1%	0.000	0.000	0.000	0.000	0.000	0.321	0.468	0.581

eria.
 ≥ 1.0 predicted HAI in 2015.
 ation of facility-specific SIRs.

clude data from LTACHs, IRFs, and ACHs.
 and ACHs.
 e infections are listed in Appendix A.



95%

2.939

Surgical Procedure	No. of Critical Access Hospitals Reporting ²	No. of Procedures
US, all NHSN procedures	343	22,130
US, SCIP procedures only⁵	333	17,338
AAA Abdominal aortic aneurysm repair ⁵	0	.
AMP Limb amputation	8	22
APPY Appendix surgery	31	409
AVSD Shunt for dialysis	0	.
BILI Bile duct, liver or pancreatic surgery	6	16
BRST Breast surgery	14	56
CARD Cardiac surgery ⁵	0	.
CABG- Coronary artery bypass graft ^{5,6}	0	.
CEA Carotid endarterectomy	0	.
CHOL Gallbladder surgery	39	665
COLO Colon surgery ⁵	251	2190
CRAN Craniotomy	0	.
CSEC Cesarean section	40	1702
FUSN Spinal fusion	4	0
FX Open reduction of fracture	23	655
GAST Gastric surgery	13	149
HER Herniorrhaphy	23	235
HPRO Hip arthroplasty ⁵	157	4355
HTP Heart transplant	0	.
HYST Abdominal hysterectomy ⁵	224	1751
KPRO Knee arthroplasty ⁵	181	8764
KTP Kidney transplant	0	.
LAM Laminectomy	5	127
LTP Liver transplant	0	.
NECK Neck surgery	0	.
NEPH Kidney surgery	2	.
OVRY Ovarian surgery	22	198
PACE Pacemaker surgery	5	48
PRST Prostate surgery	2	.
PVBY Peripheral vascular bypass surgery ⁵	0	.
REC Rectal surgery ⁵	8	21
RFUSN Refusion of spine	2	.
SB Small bowel surgery	23	129
SPLE Spleen surgery	3	.
THOR Thoracic surgery	7	15
THYR Thyroid and/or parathyroid surgery	3	.
VHYS Vaginal hysterectomy ⁵	30	257
VSHN Ventricular shunt	0	.
XLAP Abdominal surgery	27	265

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 statistic is only calculated for procedures in which at least 5 facilities reported adult SSI data in 2010.
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 listed 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 2b. National standardized infection ratios (SIRs) and facility-specific summary SI

No. of Infections		SIR	95% CI for SIR		No. Hosp with ≥1 Predicted Infection	Facility- No. Hosp Significantly > N
Observed	Predicted³		Lower	Upper		
119	111.973	1.063	0.884	1.267	22	0
102	95.802	1.065	0.873	1.287	15	0
.
0	0.013	.	.	.	0	.
3	1.208	2.484	0.632	6.761	0	.
.
0	0.144	.	.	.	0	.
0	0.442	.	.	.	0	.
.
.
2	1.681	1.190	0.199	3.931	0	.
45	40.658	1.107	0.817	1.468	1	.
.
1	2.180	0.459	0.023	2.263	0	.
.
4	3.557	1.125	0.357	2.713	0	.
1	0.807	.	.	.	0	.
0	1.462	0.000	.	2.048	0	.
20	21.351	0.937	0.588	1.421	0	.
.
8	9.570	0.836	0.388	1.587	0	.
28	22.811	1.228	0.832	1.750	1	.
.
0	0.356	.	.	.	0	.
.
.
.
1	0.128	.	.	.	0	.
0	0.076	.	.	.	0	.
.
.
1	0.327	.	.	.	0	.
.
3	2.353	1.275	0.324	3.469	0	.
.
0	0.035	.	.	.	0	.
.
0	1.085	0.000	.	2.761	0	.
.
2	1.450	1.379	0.231	4.556	0	.

procedures that occurred in 2015 with a primary or other than primary skin closure technique, detected durir

s may be different from the numbers shown in Table 1. Refer to the Technical Appendix for information about 2015.

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

cisions.

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

at exclusion criteria. SIRs and accompanying

at 10 facilities had ≥ 1.0 predicted SSI in 2015.
ect (SCIP). Specific NHSN procedures

ed in the distribution of facility-specific SIRs.

Surgical Procedure	No. of Acute Care	No. of Procedures
US, all NHSN procedures	55	235
	24	31
	0	.
AMP Limb amputation	0	.
APPY Appendix surgery	28	115
AVSD Shunt for dialysis	0	.
BILI Bile duct, liver or pancreatic surgery	0	.
BRST Breast surgery	0	.
	0	.
	0	.
CEA Carotid endarterectomy	0	.
CHOL Gallbladder surgery	6	9
	13	13
CRAN Craniotomy (ALL AGE)	0	.
CRAN Craniotomy (AGE >=2)	0	.
CRAN Craniotomy (AGE <2)	0	.
CSEC Cesarean section	14	21
FUSN Spinal fusion (AGE >=2)	0	.
FX Open reduction of fracture	13	41
GAST Gastric surgery	0	.
HER Herniorrhaphy	2	.
	4	.
HTP Heart transplant	0	.
	3	.
	6	10
KTP Kidney transplant	0	.
LAM Laminectomy	2	.
LTP Liver transplant	0	.
NECK Neck surgery	0	.
NEPH Kidney surgery	0	.
OVRV Ovarian surgery	0	.
PACE Pacemaker surgery	0	.
PRST Prostate surgery	0	.
	0	.
	0	.
RFUSN Refusion of spine	0	.
SB Small bowel surgery	2	.
SPLE Spleen surgery	0	.
THOR Thoracic surgery	0	.
THYR Thyroid and/or parathyroid surgery	0	.
	0	.
VSHN Ventricular shunt	0	.
XLAP Abdominal surgery	5	5

1. SSIs included are those classified as deep incisional or organ/space infections following inpatient
2. The number of reporting facilities included in the SIR calculation. Due to SIR exclusion criteria, this statistics are only calculated for procedures in which at least 5 facilities reported pediatric SSI data
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
5. These procedures were presented in previous versions of the HAI Progress Report and follow SCIP 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 SIRs

<u>No. of Infections</u>		<u>SIR</u>	<u>95% CI for SIR</u>		<u>No. Hosp with ≥1 Predicted Infection</u>	<u>Facility-s No. Hosp v Significantly > | N</u>
<u>Observed</u>			<u>Lower</u>	<u>Upper</u>		
3	0.978					
1	0.516					
.
.
1	0.142			0		
.
.
.
.
0	0.007	.	.	0		
1	0.329	.	.	0		
.
.
0	0.043	.	.	0		
.
0	0.189	.	.	0		
.
.
.
0	0.109	.	.	0		
.
.
.
.
.
.
.
.
.
.
0	0.043	.	.	0		

procedures that occurred in 2015 with a primary skin closure technique, detected during the same admission as procedures may be different from the numbers shown in Table 1. Refer to the Technical Appendix for information about exclusions in 2015.

or less than the nominal value of the national SIR for the given procedure type. This is only calculated if at least 100 inpatient surgical procedures approximating procedures covered by the Surgical Care Improvement Project (SCIP) are performed.

cisions.

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

the surgical procedure or upon readmission to the same facility.
clusion criteria. SIRs and accompanying

10 facilities had ≥ 1.0 predicted SSI in 2015.
3CIP). Specific NHSN procedures

1 the distribution of facility-specific SIRs.

**Table 3. State-specific standardized infection ratios (SIRs) and facility-specific SIR summary measures,
NHSN Critical Access Hospitals reporting during 2015
3c. Central line-associated bloodstream infections (CLABSI), ward (non-critical care) locations¹**

State		No. of Infections	95% CI for SIR			Facility-specific SIRs						
			Observed	Predicted	SIR	Lower	Upper	10%	25%	75%	90%	
Alaska	No	4	.	.	.	.	.	.	.	.	.	.
Alabama	No	2	.	.	.	.	.	.	.	.	.	.
Arkansas	No	8	2	0.919	.	.	.	0	.	.	.	.
Arizona	No	1	.	.	.	.	.	.	.	.	.	.
California	Yes	24	3	1.681	1.785	0.454	4.857	0	.	.	.	.
Colorado	No	7	0	0.229	.	.	.	0	.	.	.	.
Connecticut	No	0	.	.	.	.	.	.	.	.	.	.
D.C.	No	0	.	.	.	.	.	.	.	.	.	.
Delaware	No	0	.	.	.	.	.	.	.	.	.	.
Florida	No	4	.	.	.	.	.	.	.	.	.	.
Georgia	No	5	1	0.384	.	.	.	0	.	.	.	.
Guam	No	0	.	.	.	.	.	.	.	.	.	.
Hawaii	No	1	.	.	.	.	.	.	.	.	.	.
Iowa	No	36	1	1.802	0.555	0.028	2.737	0	.	.	.	.
Idaho	No	5	0	0.21	.	.	.	0	.	.	.	.
Illinois	No	25	0	1.436	0	.	2.086	0	.	.	.	.
Indiana	No	27	1	1.362	0.734	0.037	3.621	0	.	.	.	.
Kansas	No	25	2	1.767	1.132	0.176	3.467	0	.	.	.	.
Kentucky	No	5	1	0.206	.	.	.	.	.	.	.	.
Louisiana	No	4	.	.	.	.	.	.	.	.	.	.
Massachusetts	No	2	.	.	.	.	.	.	.	.	.	.
Maryland	No	0	.	.	.	.	.	.	.	.	.	.
Maine	No	10	0	0.819	.	.	.	0	.	.	.	.
Michigan	No	11	0	0.218	.	.	.	0	.	.	.	.
Minnesota	No	17	0	0.476	.	.	.	0	.	.	.	.
Missouri	No	7	1	1.192	0.839	0.042	4.138	0	.	.	.	.
Mississippi	No	3	0	.	.	.	.	.	.	.	.	.
Montana	No	7	2	0.385	.	.	.	0	.	.	.	.
North Carolina	No	10	1	0.449	.	.	.	0	.	.	.	.
North Dakota	No	7	0	0.357	.	.	.	0	.	.	.	.
Nebraska	No	6	1	0.247	.	.	.	0	.	.	.	.
New Hampshire	No	12	0	0.768	.	.	.	0	.	.	.	.
New Jersey	No	0	.	.	.	.	.	.	.	.	.	.
New Mexico	No	6	1	0.11	.	.	.	0	.	.	.	.
Nevada	Yes	0	.	.	.	.	.	.	.	.	.	.
New York	No	2	.	.	.	.	.	.	.	.	.	.
Ohio	No	9	0	0.072	.	.	.	0	.	.	.	.
Oklahoma	No	2	.	.	.	.	.	.	.	.	.	.
Oregon	Yes	16	2	0.687	.	.	.	0	.	.	.	.
Pennsylvania	Yes	13	3	1.081	2.774	0.706	7.551	0	.	.	.	.
Puerto Rico	Yes	0	.	.	.	.	.	.	.	.	.	.
Rhode Island	No	0	.	.	.	.	.	.	.	.	.	.
South Carolina	Yes	4	.	.	.	.	.	0	.	.	.	.
South Dakota	No	0	.	.	.	.	.	.	.	.	.	.
Tennessee	No	1	.	.	.	.	.	.	.	.	.	.
Texas	No	11	0	0.62	.	.	.	0	.	.	.	.

Utah	No	3	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Virginia	No	3	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Virgin Islands	.	0	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Vermont	No	2	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Washington	Yes	33	5	2.563	1.951	0.715	4.324	0	.	.	.	.	.	.	.	.	.	.	.	.
Wisconsin	No	34	0	1.555	0	.	1.808	0	.	.	.	.	.	.	.	.	.	.	.	.
West Virginia	No	14	1	0.784	.	.	.	0	.	.	.	.	.	.	.	.	.	.	.	.
Wyoming	No	11	0	0.354	.	.	.	0	.	.	.	.	.	.	.	.	.	.	.	.
All US		439	29	25.836	1.122	0.766	1.591	0												

1. Data from all wards (for this table wards also include step-down and specialty care areas [including hematology/oncology, bone marrow transplant]). These tables contain data from critical access hospitals; as such, they exclude data from LTACHs, IRFs, and ACHs.

2. Yes indicates the presence of a state mandate to report CLABSI data from ward locations to NHSN at the beginning of 2015. M indicates midyear implementation of a mandate.

No indicates that a state mandate did not exist during 2015.

3. 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 CLABSI data from at least one ward in 2015.

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 2015 national ward CLABSI SIR of 0.965. This is only calculated if at least 10 facilities had at least one predicted ward CLABSI in 2015.

5. Facility-specific key percentiles were only calculated if at least 20 facilities had ≥ 1.0 predicted ward CLABSI in 2015. If a facility's predicted number of ward CLABSI was < 1.0 , a facility-specific SIR was neither calculated nor included in the distribution of facility-specific SIRs.

**Table 4. State-specific standardized infection ratios (SIRs) and facility-specific SIR summary measures,
NHSN Critical Access Hospitals reporting during 2015
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	No	No	4	.	.	.	.	.	.	.	.	.	.	.
Alabama	Yes	Yes	4	.	.	.	.	.	.	.	.	.	.	.
Arkansas	No	Yes	8	0	3.840	0.000	.	0.780	0	.	.	.	.	.
Arizona	No	No	2	.	.	.	.	.	.	.	.	.	.	.
California	No	No	27	10	11.667	0.857	0.435	1.528	3	.	.	.	.	.
Colorado	No	No	11	0	1.549	0.000	.	1.934	0	.	.	.	.	.
Connecticut	No	No	1	.	.	.	.	.	.	.	.	.	.	.
D.C.	No	No	1	.	.	.	.	.	.	.	.	.	.	.
Delaware	No	No	1	.	.	.	.	.	.	.	.	.	.	.
Florida	No	No	4	.	.	.	.	.	.	.	.	.	.	.
Georgia	No	No	7	2	1.563	1.280	0.215	4.228	0	.	.	.	.	.
Guam	No	No	1	.	.	.	.	.	.	.	.	.	.	.
Hawaii	No	No	1	.	.	.	.	.	.	.	.	.	.	.
Iowa	No	Yes	63	15	11.296	1.328	0.772	2.141	0	.	.	.	.	.
Idaho	No	No	7	5	2.104	2.376	0.871	5.267	0	.	.	.	.	.
Illinois	No	No	39	6	8.397	0.715	0.290	1.486	0	.	.	.	.	.
Indiana	No	No	31	8	8.782	0.911	0.423	1.730	0	.	.	.	.	.
Kansas	No	Yes	33	12	11.197	1.072	0.581	1.822	3	.	.	.	.	.
Kentucky	No	No	5	1	0.611	.	.	.	0	.	.	.	.	.
Louisiana	No	No	4	.	.	.	.	.	.	.	.	.	.	.
Massachusetts	No	No	2	.	.	.	.	.	.	.	.	.	.	.
Maryland	No	No	1	.	.	.	.	.	.	.	.	.	.	.
Maine	No	Yes	9	6	3.950	1.519	0.616	3.159	0	.	.	.	.	.
Michigan	No	Yes	15	1	2.452	0.408	0.020	2.011	0	.	.	.	.	.
Minnesota	Yes	No	74	11	14.501	0.759	0.399	1.318	1	.	.	.	.	.
Missouri	No	No	8	9	4.956	1.816	0.886	3.333	1	.	.	.	.	.
Mississippi	No	No	3	.	.	.	.	.	.	.	.	.	.	.
Montana	No	No	9	2	2.718	0.736	0.123	2.431	0	.	.	.	.	.
North Carolina	No	No	10	4	3.999	1.000	0.318	2.413	0	.	.	.	.	.
North Dakota	No	No	9	2	3.012	0.664	0.111	2.194	1	.	.	.	.	.
Nebraska	No	No	9	0	0.755	.	.	.	0	.	.	.	.	.
New Hampshire	No	Yes	13	7	5.461	1.282	0.561	2.536	0	.	.	.	.	.
New Jersey	No	No	1	.	.	.	.	.	.	.	.	.	.	.
New Mexico	No	No	5	1	1.492	0.670	0.034	3.306	0	.	.	.	.	.
Nevada	No	No	1	.	.	.	.	.	.	.	.	.	.	.
New York	No	No	4	.	.	.	.	.	.	.	.	.	.	.
Ohio	No	No	10	0	1.818	0.000	.	1.648	0	.	.	.	.	.
Oklahoma	No	No	2	.	.	.	.	.	.	.	.	.	.	.
Oregon	Yes	Yes	22	7	7.486	0.935	0.409	1.850	0	.	.	.	.	.
Pennsylvania	Yes	Yes	13	3	5.792	0.518	0.132	1.410	1	.	.	.	.	.
Puerto Rico	Yes	No	1	.	.	.	.	.	.	.	.	.	.	.
Rhode Island	No	No	1	.	.	.	.	.	.	.	.	.	.	.
South Carolina	No	No	5	3	1.610	1.863	0.474	5.071	0	.	.	.	.	.
South Dakota	No	No	1	.	.	.	.	.	.	.	.	.	.	.
Tennessee	No	No	2	.	.	.	.	.	.	.	.	.	.	.
Texas	Yes	Yes	24	7	6.087	1.150	0.503	2.275	1	.	.	.	.	.
Utah	No	Yes	4	.	.	.	.	.	.	.	.	.	.	.
Virginia	No	Yes	3	.	.	.	.	.	.	.	.	.	.	.
Virgin Islands	.	.	1	.	.	.	.	.	.	.	.	.	.	.
Vermont	No	No	2	.	.	.	.	.	.	.	.	.	.	.
Washington	No	No	29	33	14.542	2.269	1.588	3.150	1	.	.	.	.	.
Wisconsin	No	Yes	56	10	15.674	0.638	0.324	1.137	0	.	.	.	.	.
West Virginia	Yes	Yes	19	2	5.488	0.364	0.061	1.204	0	.	.	.	.	.
Wyoming	No	No	13	1	2.465	0.406	0.020	2.001	0	.	.	.	.	.
All US			635	179	177.987	1.006	0.866	1.161	13	0%	0%			

1. Data from all ICUs and wards (and other non-critical care locations). This excludes NICUs. These tables contain data from critical access hospitals; as such, they exclude data from LTACHs, IRFs, and ACHs.
2. Yes indicates the presence of a state mandate to report CAUTI data from any location to NHSN at the beginning of 2015. M indicates midyear implementation of a mandate. No indicates that a state mandate did not exist during 2015.
3. Yes indicates that the state health department reported the completion of all of the following validation activities: state health department had access to 2015 NHSN data, state health department performed an assessment of missing or implausible values on at least six months of 2015 NHSN data prior to July 1, 2016, and state health department contacted identified facilities.

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 CAUTI data in 2015.

5. Percent of facilities with at least one predicted CAUTI that had an SIR significantly greater or less than the nominal value of the 2015 national overall CAUTI SIR of 1.006. This is only calculated if at least 10 facilities had at least one predicted CAUTI in 2015.
6. Facility-specific key percentiles were only calculated if at least 20 facilities had ≥ 1.0 predicted CAUTI in 2015. If a facility's predicted number of CAUTI was < 1.0 , a facility-specific SIR was neither calculated nor included in the distribution of facility-specific SIRs.

**Table 4. State-specific standardized infection ratios (SIRs) and facility-specific SIR summary measures,
NHSN Critical Access Hospitals reporting during 2015**

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

State		No. of Infections	95% CI for SIR			Facility-specific SIRs						
			Observed	Predicted	SIR	Lower	Upper	10%	25%	75%	90%	
Alaska	No	2	.	.	.	.	.	.	.	.	.	.
Alabama	Yes	1	.	.	.	.	.	.	.	.	.	.
Arkansas	No	1	.	.	.	.	.	.	.	.	.	.
Arizona	No	0	.	.	.	.	.	.	.	.	.	.
California	No	15	1	3.244	0.308	0.015	1.520	0	.	.	.	.
Colorado	No	2	.	.	.	.	.	.	.	.	.	.
Connecticut	No	0	.	.	.	.	.	.	.	.	.	.
D.C.	No	0	.	.	.	.	.	.	.	.	.	.
Delaware	No	0	.	.	.	.	.	.	.	.	.	.
Florida	No	1	.	.	.	.	.	.	.	.	.	.
Georgia	No	1	.	.	.	.	.	.	.	.	.	.
Guam	No	0	.	.	.	.	.	.	.	.	.	.
Hawaii	No	1	.	.	.	.	.	.	.	.	.	.
Iowa	No	4	.	.	.	.	.	.	.	.	.	.
Idaho	No	3	.	.	.	.	.	.	.	.	.	.
Illinois	No	14	1	1.033	0.968	0.048	4.774	0	.	.	.	.
Indiana	No	17	2	2.232	0.896	0.150	2.960	0	.	.	.	.
Kansas	No	5	0	1.145	0.000	.	2.616	0	.	.	.	.
Kentucky	No	1	.	.	.	.	.	.	.	.	.	.
Louisiana	No	1	.	.	.	.	.	.	.	.	.	.
Massachusetts	No	1	.	.	.	.	.	.	.	.	.	.
Maryland	No	0	.	.	.	.	.	.	.	.	.	.
Maine	No	3	.	.	.	.	.	.	.	.	.	.
Michigan	No	7	0	0.306	.	.	.	0	.	.	.	.
Minnesota	Yes	8	0	0.773	.	.	.	0	.	.	.	.
Missouri	No	4	.	.	.	.	.	.	.	.	.	.
Mississippi	No	0	.	.	.	.	.	.	.	.	.	.
Montana	No	2	.	.	.	.	.	.	.	.	.	.
North Carolina	No	3	.	.	.	.	.	.	.	.	.	.
North Dakota	No	2	.	.	.	.	.	.	.	.	.	.
Nebraska	No	1	.	.	.	.	.	.	.	.	.	.
New Hampshire	Yes	8	2	0.995	.	.	.	0	.	.	.	.
New Jersey	No	0	.	.	.	.	.	.	.	.	.	.
New Mexico	No	2	.	.	.	.	.	.	.	.	.	.
Nevada	No	1	.	.	.	.	.	.	.	.	.	.
New York	No	3	.	.	.	.	.	.	.	.	.	.
Ohio	No	9	0	0.827	.	.	.	0	.	.	.	.
Oklohoma	No		.	.	.	.	.	.	.	.	.	.
Oregon	Yes	14	0	1.767	0.000	.	1.695	0	.	.	.	.
Pennsylvania	Yes	5	0	0.637	.	.	.	0	.	.	.	.
Puerto Rico	Yes		.	.	.	.	.	.	.	.	.	.
Rhode Island	No		.	.	.	.	.	.	.	.	.	.
South Carolina	No	2	.	.	.	.	.	.	.	.	.	.
South Dakota	No		.	.	.	.	.	.	.	.	.	.
Tennessee	No	1	.	.	.	.	.	.	.	.	.	.
Texas	Yes	8	2	0.511	.	.	.	0	.	.	.	.

Utah	No									
Virginia	No	3	.	.	.	.	.	.	.	.
Virgin Islands	.									
Vermont	No	1	.	.	.	.	.	.	.	.
Washington	No	10	2	1.626	1.230	0.206	4.064	0	.	.
Wisconsin	No	13	1	0.859	.	.	.	0	.	.
West Virginia	Yes	8	0	0.877	.	.	.	0	.	.
Wyoming	No	2	.	.	.	.	.	.	.	.
All US		190	21	24.032	0.874	0.555	1.313	1		

1. Data from all ICUs; excludes wards (and other non-critical care locations), NICUs. These tables contain data from critical access hospitals; as such, they exclude data from LTACHs, IRFs, and ACHs.
2. Yes indicates the presence of a state mandate to report CAUTI data from critical care units to NHSN at the beginning of 2015. M indicates midyear implementation of a mandate. No indicates that a state mandate did not exist during 2015. Note that almost all Critical Access Hospitals are required to report CAUTI data from ICUs to NHSN for participation in the Centers for Medicare and Medicaid Services' Hospital Inpatient Quality Reporting Program.
3. The number of reporting facilities included in the SIR calculation. 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 CAUTI data from at least one critical care location in 2015.
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 2015 national ICU CAUTI SIR of 0.874. This is only calculated if at least 10 facilities had at least one predicted ICU CAUTI in 2015.
5. Facility-specific key percentiles were only calculated if at least 20 facilities had ≥ 1.0 predicted ICU CAUTI in 2015. 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.

Virginia	No	3	.	.	.	.	.	.	.	.	.
Virgin Island	.	0	.	.	.	.	.	.	.	.	.
Vermont	No	2	.	.	.	.	.	.	.	.	.
Washington	No	29	31	12.915	2.400	1.660	3.365	1	.	.	.
Wisconsin	No	56	9	14.814	0.608	0.296	1.115	0	.	.	.
West Virginia	Yes	19	2	4.610	0.434	0.073	1.433	0	.	.	.
Wyoming	No	13	1	2.340	0.427	0.021	2.108	0	.	.	.
All US		610	158	153.950	1.026	0.875	1.196	10	0%	0%	

1. Data from all wards (for this table wards also include stepdown and specialty care areas [including hematology/oncology, bone marrow transplant]). This excludes NICU. These tables contain data from critical access hospitals; as such, they exclude data from LTACHs, IRFs, and ACHs.
2. Yes indicates the presence of a state mandate to report CAUTI data from ward locations to NHSN at the beginning of 2015. M indicates midyear implementation of a mandate. No indicates that a state mandate did not exist during 2015.
3. 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 CAUTI data from at least one ward in 2015.
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 2015 national ward CAUTI SIR of 1.026. This is only calculated if at least 10 facilities had at least one predicted ward CAUTI in 2015.
5. Facility-specific key percentiles were only calculated if at least 20 facilities had ≥ 1.0 predicted ward CAUTI in 2015. If a facility's predicted number of ward CAUTI was < 1.0 , a facility-specific SIR was neither calculated nor included in the distribution of facility-specific SIRs.

**Table 5. State-specific standardized infection ratios (SIRs) and facility-specific SIR summary measures,
NHSN Critical Access Hospitals reporting during 2015
5a. Ventilator-associated events (VAE), all locations¹**

State			No. of Events		95% CI for SIR		Facility-specific SIRs			
	Observed	Predicted	SIR	Lower	Upper	No. of hosp with at least 1 predicted VAE	10%	25%	75%	90%
Alaska	No	No	2	.	.	.	.	.	.	.
Alabama	No	No	0	.	.	.	.	.	.	.
Arkansas	No	No	1	.	.	.	.	.	.	.
Arizona	No	No	0	.	.	.	.	.	.	.
California	No	No	10	0	0.905	.	0	.	.	.
Colorado	No	No	2	.	.	.	.	.	.	.
Connecticut	No	No	0	.	.	.	.	.	.	.
D.C.	No	No	0	.	.	.	.	.	.	.
Delaware	No	No	0	.	.	.	.	.	.	.
Florida	No	No	2	.	.	.	.	.	.	.
Georgia	No	No	0	.	.	.	.	.	.	.
Guam	No	No	0	.	.	.	.	.	.	.
Hawaii	No	No	0	.	.	.	.	.	.	.
Iowa	No	No	1	.	.	.	.	.	.	.
Idaho	No	No	1	.	.	.	.	.	.	.
Illinois	No	No	4	.	.	.	.	.	.	.
Indiana	No	No	11	0	0.472	.	0	.	.	.
Kansas	No	No	2	.	.	.	.	.	.	.
Kentucky	No	No	0	.	.	.	.	.	.	.
Louisiana	No	No	0	.	.	.	.	.	.	.
Massachusetts	No	No	1	.	.	.	.	.	.	.
Maryland	No	No	0	.	.	.	.	.	.	.
Maine	No	No	1	.	.	.	.	.	.	.
Michigan	No	Yes	4	.	.	.	.	.	.	.
Minnesota	No	No	1	.	.	.	.	.	.	.
Missouri	No	No	1	.	.	.	.	.	.	.
Mississippi	No	No	0	.	.	.	.	.	.	.
Montana	No	No	3	.	.	.	.	.	.	.
North Carolina	No	No	4	.	.	.	.	.	.	.
North Dakota	No	No	1	.	.	.	.	.	.	.
Nebraska	No	No	0	.	.	.	.	.	.	.
New Hampshire	No	No	4	.	.	.	.	.	.	.
New Jersey	No	No	0	.	.	.	.	.	.	.
New Mexico	No	No	1	.	.	.	.	.	.	.
Nevada	No	No	0	.	.	.	.	.	.	.
New York	No	No	2	.	.	.	.	.	.	.
Ohio	No	No	2	.	.	.	.	.	.	.
Oklahoma	No	No	0	.	.	.	.	.	.	.
Oregon	No	No	6	0	0.201	.	0	.	.	.
Pennsylvania	Yes	Yes	6	0	0.331	.	0	.	.	.
Puerto Rico	No	No	0	.	.	.	.	.	.	.
Rhode Island	No	No	0	.	.	.	.	.	.	.
South Carolina	M	Yes	2	.	.	.	.	.	.	.
South Dakota	No	No	0	.	.	.	.	.	.	.
Tennessee	No	No	0	.	.	.	.	.	.	.
Texas	No	No	2	.	.	.	.	.	.	.
Utah	No	No	0	.	.	.	.	.	.	.

Virginia	No	No	2	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Virgin Islands	.	.	0	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Vermont	No	No	0	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Washington	No	No	6	3	0.427	.	.	.	.	0	.	.	.	.	.	.	.	.	.	.
Wisconsin	No	No	5	0	0.213	.	.	.	.	0	.	.	.	.	.	.	.	.	.	.
West Virginia	No	No	4	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Wyoming	No	No	2	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
All US			96	4	4.000	1.000	0.318	2.412	0											

1. Data from all ICUs and wards (and other non-critical care locations). This excludes NICUs. Pediatric locations (ICUs or wards) are excluded, since pediatric and neonatal locations are excluded from VAE surveillance.

These tables contain data from critical access hospitals; as such, they exclude data from LTACHs, IRFs, and ACHs.

2. Yes indicates the presence of a state mandate to report VAE data from any location to NHSN at the beginning of 2015. M indicates midyear implementation of a mandate.

No indicates that a state mandate did not exist during 2015.

3. Yes indicates that the state health department reported the completion of all of the following validation activities: state health department had access to 2015 NHSN data, state health department performed an assessment of missing or implausible values on at least six months of 2015 NHSN data prior to July 1, 2016, and state health department contacted identified facilities.

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 VAE data in 2015.

5. Percent of facilities with at least one predicted VAE that had an SIR significantly greater or less than the nominal value of the 2015 national overall VAE SIR of 1.000. This is only calculated if at least 10 facilities had at least one predicted VAE in 2015.

6. Facility-specific key percentiles were only calculated if at least 20 facilities had ≥ 1.0 predicted VAE in 2015. If a facility's predicted number of VAE was < 1.0 , a facility-specific SIR was neither calculated nor included in the distribution of facility-specific SIRs.

Table 5. State-specific standardized infection ratios (SIRs) and facility-specific SIR summary measures, NHSN Critical Access Hospitals reporting during 2015
5c. Ventilator-associated events (VAE), ward (non-critical care) locations¹

State		No. of Events		95% CI for SIR		Facility-specific SIRs				
		Observed	Predicted	SIR	Lower	Upper	10%	25%	75%	90%
Alaska	No	2	.	.	.	.	.	.	.	.
Alabama	No	0	.	.	.	.	.	.	.	.
Arkansas	No	1	.	.	.	.	.	.	.	.
Arizona	No	0	.	.	.	.	.	.	.	.
California	No	0	.	.	.	.	.	.	.	.
Colorado	No	0	.	.	.	.	.	.	.	.
Connecticut	No	0	.	.	.	.	.	.	.	.
D.C. ⁶	No	0	.	.	.	.	.	.	.	.
Delaware	No	0	.	.	.	.	.	.	.	.
Florida	No	1	.	.	.	.	.	.	.	.
Georgia	No	0	.	.	.	.	.	.	.	.
Guam	No	0	.	.	.	.	.	.	.	.
Hawaii	No	0	.	.	.	.	.	.	.	.
Iowa	No	0	.	.	.	.	.	.	.	.
Idaho	No	0	.	.	.	.	.	.	.	.
Illinois	No	1	.	.	.	.	.	.	.	.
Indiana	No	3	.	.	.	.	.	.	.	.
Kansas	No	0	.	.	.	.	.	.	.	.
Kentucky	No	0	.	.	.	.	.	.	.	.
Louisiana	No	0	.	.	.	.	.	.	.	.
Massachusetts	No	0	.	.	.	.	.	.	.	.
Maryland	No	0	.	.	.	.	.	.	.	.
Maine	No	0	.	.	.	.	.	.	.	.
Michigan	No	0	.	.	.	.	.	.	.	.
Minnesota	No	1	.	.	.	.	.	.	.	.
Missouri	No	0	.	.	.	.	.	.	.	.
Mississippi	No	0	.	.	.	.	.	.	.	.
Montana	No	2	.	.	.	.	.	.	.	.
North Carolina	No	2	.	.	.	.	.	.	.	.
North Dakota ⁶	No	0	.	.	.	.	.	.	.	.
Nebraska	No	0	.	.	.	.	.	.	.	.
New Hampshire	No	0	.	.	.	.	.	.	.	.
New Jersey	No	0	.	.	.	.	.	.	.	.
New Mexico	No	0	.	.	.	.	.	.	.	.
Nevada	No	0	.	.	.	.	.	.	.	.
New York	No	0	.	.	.	.	.	.	.	.
Ohio	No	0	.	.	.	.	.	.	.	.
Oklahoma	No	0	.	.	.	.	.	.	.	.
Oregon	No	1	.	.	.	.	.	.	.	.
Pennsylvania	Yes	2	.	.	.	.	.	.	.	.
Puerto Rico	No	0	.	.	.	.	.	.	.	.
Rhode Island	No	0	.	.	.	.	.	.	.	.
South Carolina	No	0	.	.	.	.	.	.	.	.
South Dakota	No	0	.	.	.	.	.	.	.	.
Tennessee	No	0	.	.	.	.	.	.	.	.
Texas	No	0	.	.	.	.	.	.	.	.
Utah	No	0	.	.	.	.	.	.	.	.
Virginia	No	0	.	.	.	.	.	.	.	.
Virgin Islands	.	0	.	.	.	.	.	.	.	.
Vermont ⁶	No	0	.	.	.	.	.	.	.	.
Washington	No	0	.	.	.	.	.	.	.	.
Wisconsin	No	2	.	.	.	.	.	.	.	.
West Virginia	No	0	.	.	.	.	.	.	.	.
Wyoming	No	2	.	.	.	.	.	.	.	.
All US		20	0	0.332	.	.	0	.	.	.

1. Data from all wards (for this table wards also include stepdown and specialty care areas [including hematology/oncology, bone marrow transplant]). This excludes NICU. Pediatric locations (wards) are excluded, since pediatric and neonatal locations are excluded from VAE surveillance. These tables contain data from critical access hospitals; as such, they exclude data from LTACHs, IRFs, and ACHs.
2. Yes indicates the presence of a state mandate to report VAE data from ward locations to NHSN at the beginning of 2015. M indicates midyear implementation of a mandate. No indicates that a state mandate did not exist during 2015.

3. 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 VAE data from at least one ward in 2015.
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 2015 national ward VAE SIR. This is only calculated if at least 10 facilities had at least one predicted ward VAE in 2015.
5. Facility-specific key percentiles were only calculated if at least 20 facilities had ≥ 1.0 predicted ward VAE in 2015. If a facility's predicted number of ward VAE was < 1.0 , a facility-specific SIR was neither calculated nor included in the distribution of facility-specific SIRs.

**Table 6. State-specific standardized infection ratios (SIRs) and facility-specific SIR summary measures,
NHSN Critical Access Hospitals reporting during 2015
6a. Surgical site infections (SSI) following colon surgery¹ in adults**

State	No. of Critical Access Hospitals Reporting*		No. of Procedures	No. of Infections		95% CI for SIR			No. of hosp with at least 1 predicted SSI	Facility-specific SIRs			
	Yes	No		Observed	Predicted	SIR	Lower	Upper		10%	25%	75%	90%
Alaska	No	No	2	6	.	.	.	.	.	.	.	.	.
Alabama	Yes	Yes	0	.	.	.	.	.	.	.	.	.	.
Arkansas	No	No	3	13	.	.	.	.	.	.	.	.	.
Arizona	No	No	0	.	.	.	.	.	.	.	.	.	.
California	Yes	Yes	17	213	4	4.096	0.977	0.310	2.356	0	.	.	.
Colorado	Yes	Yes	10	67	0	1.222	0.000	.	2.452	0	.	.	.
Connecticut	No	No	0	.	.	.	.	.	.	.	.	.	.
D.C.	No	No	0	.	.	.	.	.	.	.	.	.	.
Delaware	No	No	0	.	.	.	.	.	.	.	.	.	.
Florida	No	No	2	6	.	.	.	.	.	.	.	.	.
Georgia	No	No	1	11	.	.	.	.	.	.	.	.	.
Guam	No	No	0	.	.	.	.	.	.	.	.	.	.
Hawaii	No	No	1	8	.	.	.	.	.	.	.	.	.
Iowa	No	Yes	8	54	1	0.974	.	.	.	0	.	.	.
Idaho	No	No	4	42	.	.	.	.	.	.	.	.	.
Illinois	No	No	14	127	0	2.459	0.000	.	1.218	0	.	.	.
Indiana	No	No	25	193	4	3.608	1.109	0.352	2.674	0	.	.	.
Kansas	No	Yes	8	49	8	0.826	.	.	.	0	.	.	.
Kentucky	No	No	2	4	.	.	.	.	.	.	.	.	.
Louisiana	No	No	1	1	.	.	.	.	.	.	.	.	.
Massachusetts	No	No	2	7	.	.	.	.	.	.	.	.	.
Maryland	No	No	0	.	.	.	.	.	.	.	.	.	.
Maine	No	Yes	9	83	2	1.652	1.211	0.203	4.001	0	.	.	.
Michigan	No	Yes	5	46	0	0.709	.	.	.	0	.	.	.
Minnesota	No	No	3	3	.	.	.	.	.	.	.	.	.
Missouri	No	No	4	83	.	.	.	.	.	.	.	.	.
Mississippi	No	No	0	.	.	.	.	.	.	.	.	.	.
Montana	No	No	6	49	1	0.844	.	.	.	0	.	.	.
North Carolina	No	No	8	72	1	1.361	0.735	0.037	3.623	0	.	.	.
North Dakota	No	No	1	1	.	.	.	.	.	.	.	.	.
Nebraska	No	No	1	4	.	.	.	.	.	.	.	.	.
New Hampshire	Yes	.	11	109	7	1.969	3.556	1.555	7.034	0	.	.	.
New Jersey	No	No	0	.	.	.	.	.	.	.	.	.	.
New Mexico	No	No	3	22	.	.	.	.	.	.	.	.	.
Nevada	No	No	1	4	.	.	.	.	.	.	.	.	.
New York	No	.	2	7	.	.	.	.	.	.	.	.	.
Ohio	No	No	4	46	.	.	.	.	.	.	.	.	.
Oklahoma	No	No	0	.	.	.	.	.	.	.	.	.	.
Oregon	Yes	Yes	13	146	3	2.850	1.053	0.268	2.865	0	.	.	.
Pennsylvania	Yes	Yes	6	35	1	0.609	.	.	.	0	.	.	.
Puerto Rico	No	No	0	.	.	.	.	.	.	.	.	.	.
Rhode Island	No	No	0	.	.	.	.	.	.	.	.	.	.
South Carolina	Yes	Yes	1	13	.	.	.	.	.	.	.	.	.
South Dakota	No	No	0	.	.	.	.	.	.	.	.	.	.
Tennessee	No	No	1	1	.	.	.	.	.	.	.	.	.
Texas	Yes	Yes	13	72	0	1.383	0.000	.	2.167	0	.	.	.
Utah	Yes	Yes	0	.	.	.	.	.	.	.	.	.	.
Virginia	No	Yes	3	30	.	.	.	.	.	.	.	.	.
Virgin Islands	.	.	0	.	.	.	.	.	.	.	.	.	.
Vermont	No	No	0	.	.	.	.	.	.	.	.	.	.
Washington	Yes	Yes	18	151	1	2.812	0.356	0.018	1.754	0	.	.	.
Wisconsin	No	Yes	30	287	3	4.809	0.624	0.159	1.698	0	.	.	.
West Virginia	No	No	7	115	1	2.205	0.453	0.023	2.236	0	.	.	.

Wyoming	No	No	1	10						
All US			251	2,190	45	40.658	1.107	0.817	1.468	1

1. SSIs included in this table are those classified as deep incisional or organ/space infections following NHSN-defined inpatient colon procedures that occurred in 2015 with a primary or other than primary skin closure technique, detected during the same admission as the surgical procedure or upon readmission to the same facility. The colon surgery SSI data published in this report use different risk adjustment methodology and a different subset of data than that which are used for public reporting by CMS.

2. Yes indicates the presence of a state mandate to report SSIs following colon surgery to NHSN at the beginning of 2015. M indicates midyear implementation of a mandate.

No indicates that a state mandate did not exist during 2015.

3. Yes indicates that the state health department reported the completion of all of the following validation activities: state health department had access to 2015 NHSN data, state health department performed an assessment of missing or implausible values on at least six months of 2015 NHSN data prior to July 1, 2016, and state health department contacted identified facilities.

varies by state). Information on validation efforts was requested from all states, regardless of the presence of a legislative mandate for the particular HAI type. Some states without mandatory reporting of a given HAI to the state health department have performed validation on NHSN data that is voluntarily shared with them by facilities in their jurisdiction.

4. The number of reporting facilities included in the SIR calculation. Due to SIR exclusion criteria, this may be different from the numbers shown in Table 1. Refer to the Technical Appendix for information about exclusion criteria. SIRs and accompanying statistics are only calculated for states in which at least 5 facilities reported SSI data following colon surgery in 2015.

5. Percent of facilities with at least one predicted colon surgery SSI that had an SIR significantly greater or less than the nominal value of the 2015 national colon surgery SIR of 1.107. This is only calculated if at least 10 facilities had at least one predicted colon surgery SSI in 2015.

6. Facility-specific key percentiles were only calculated if at least 20 facilities had ≥ 1.0 predicted colon surgery SSI in 2015. If a facility's predicted number of colon surgery SSI was < 1.0 , a facility-specific SIR was neither calculated nor included in the distribution of facility-specific SIRs.

Table 6. State-specific standardized infection ratios (SIRs) and facility-specific SIR summary measures, NHSN Critical Access Hospitals reporting during 2015
6b. Surgical site infections (SSI) following abdominal hysterectomy surgery¹ in adults

State	No. of Critical Access Hospitals Reporting ^a		No. of Procedures	No. of Infections		95% CI for SIR			Facility-specific SIRs					
	Yes	No		Observed	Predicted	SIR	Lower	Upper	10%	25%	75%	90%		
Alaska	No	No	2	9	.	.	.	.	.	.	.	.	.
Alabama	Yes	Yes	1	9	.	.	.	.	.	.	.	.	.
Arkansas	No	No	1	13	.	.	.	.	.	.	.	.	.
Arizona	No	No	1	13	.	.	.	.	.	.	.	.	.
California	Yes	Yes	14	83	0	0.520	.	.	0	.	.	.	.
Colorado	Yes	Yes	10	43	0	0.259	.	.	0	.	.	.	.
Connecticut	No	No	0	.	.	.	.	.	.	.	.	.	.
D.C.	No	No	0	.	.	.	.	.	.	.	.	.	.
Delaware	No	No	0	.	.	.	.	.	.	.	.	.	.
Florida	No	No	1	1	.	.	.	.	.	.	.	.	.
Georgia	No	No	2	22	.	.	.	.	.	.	.	.	.
Guam	No	No	0	.	.	.	.	.	.	.	.	.	.
Hawaii	No	No	1	5	.	.	.	.	.	.	.	.	.
Iowa	No	Yes	9	33	0	0.191	.	.	0	.	.	.	.
Idaho	No	No	4	44	.	.	.	.	.	.	.	.	.
Illinois	No	No	9	64	1	0.394	.	.	0	.	.	.	.
Indiana	No	No	22	150	0	0.795	.	.	0	.	.	.	.
Kansas	No	Yes	7	58	1	0.294	.	.	0	.	.	.	.
Kentucky	No	No	1	1	.	.	.	.	.	.	.	.	.
Louisiana	No	No	2	51	.	.	.	.	.	.	.	.	.
Massachusetts	No	No	1	3	.	.	.	.	.	.	.	.	.
Maryland	No	No	0	.	.	.	.	.	.	.	.	.	.
Maine	No	Yes	10	105	1	0.473	.	.	0	.	.	.	.
Michigan	No	Yes	5	39	0	0.187	.	.	0	.	.	.	.
Minnesota	No	No	2	6	.	.	.	.	.	.	.	.	.
Missouri	No	Yes	5	32	0	0.194	.	.	0	.	.	.	.
Mississippi	No	No	0	.	.	.	.	.	.	.	.	.	.
Montana	No	No	6	39	0	0.239	.	.	0	.	.	.	.
North Carolina	No	No	6	78	0	0.445	.	.	0	.	.	.	.
North Dakota	No	No	1	4	.	.	.	.	.	.	.	.	.
Nebraska	No	No	0	.	.	.	.	.	.	.	.	.	.
New Hampshire	Yes	Yes	8	95	1	0.545	.	.	0	.	.	.	.
New Jersey	No	No	0	.	.	.	.	.	.	.	.	.	.
New Mexico	No	No	2	9	.	.	.	.	.	.	.	.	.
Nevada	No	No	1	2	.	.	.	.	.	.	.	.	.
New York	No	No	1	12	.	.	.	.	.	.	.	.	.
Ohio	No	No	4	42	.	.	.	.	.	.	.	.	.
Oklahoma	No	No	0	.	.	.	.	.	.	.	.	.	.
Oregon	Yes	Yes	13	83	0	0.483	.	.	0	.	.	.	.
Pennsylvania	Yes	Yes	5	57	0	0.294	.	.	0	.	.	.	.
Puerto Rico	No	No	0	.	.	.	.	.	.	.	.	.	.
Rhode Island	No	No	0	.	.	.	.	.	.	.	.	.	.
South Carolina	Yes	Yes	0	.	.	.	.	.	.	.	.	.	.
South Dakota	No	No	0	.	.	.	.	.	.	.	.	.	.
Tennessee	No	No	1	1	.	.	.	.	.	.	.	.	.
Texas	Yes	Yes	10	51	0	0.323	.	.	0	.	.	.	.
Utah	Yes	Yes	1	13	.	.	.	.	.	.	.	.	.
Virginia	No	Yes	1	21	.	.	.	.	.	.	.	.	.
Virgin Islands	.	.	0	.	.	.	.	.	.	.	.	.	.
Vermont	Yes	No	4	31	.	.	.	.	.	.	.	.	.
Washington	Yes	Yes	15	227	0	1.237	0.000	2.421	0	.	.	.	.
Wisconsin	No	Yes	27	166	0	0.822	.	.	0	.	.	.	.
West Virginia	No	No	5	28	0	0.177	.	.	0	.	.	.	.
Wyoming	No	No	3	8	.	.	.	.	.	.	.	.	.
All US			224	1,751	8	9.570	0.836	0.388	1.587	0				

1. SSIs included are those classified as deep incisional or organ/space infections following NHSN-defined inpatient abdominal hysterectomy procedures that occurred in 2015 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 2015. M indicates midyear implementation of a mandate. No indicates that a state mandate did not exist during 2015.
3. Yes indicates that the state health department reported the completion of all of the following validation activities: state health department had access to 2015 NHSN data, state health department performed an assessment of missing or implausible values on at least six months of 2015 NHSN data prior to July 1, 2016, and state health department contacted identified facilities.

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 2015.
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 2015 national abdominal hysterectomy SIR of 0.000. This is only calculated if at least 10 facilities had at least one predicted abdominal hysterectomy SSI in 2015.
6. Facility-specific key percentiles were only calculated if at least 20 facilities had ≥ 1.0 predicted abdominal hysterectomy SSI in 2015. 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.

Virginia	No	Yes	3	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Virgin Islands	.	.	0	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Vermont	No	No	4	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Washington	No	No	14	0	1.156	0.000	.	2.591	0	.	.	.	.	.	.	.	.	.	.	.
Wisconsin	No	Yes	54	1	3.127	0.320	0.016	1.577	0	.	.	.	.	.	.	.	.	.	.	.
West Virginia	No	No	11	1	0.681	.	.	.	0	.	.	.	.	.	.	.	.	.	.	.
Wyoming	No	No	3	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
All US			434	28	28.204	0.994	0.673	1.416	0	.	.	.	.	.	.	.	.	.	.	.

1. MRSA bacteremia SIR is calculated at facility-wide. Hospital-onset is defined as event detected on the 4th day (or later) after admission to an inpatient location within the facility.
2. Yes indicates the presence of a state mandate to report facility-wide MRSA bacteremia data to NHSN at the beginning of 2015. M indicates midyear implementation of a mandate. No indicates that a state mandate did not exist during 2015.
3. Yes indicates that the state health department reported the completion of all of the following validation activities: state health department had access to 2015 NHSN data, state health department performed an assessment of missing or implausible values on at least six months of 2015 NHSN data prior to July 1, 2016, and state health department contacted identified facilities.

varies by state). Information on validation efforts was requested from all states, regardless of the presence of a legislative mandate for the particular HAI type. Some states without mandatory reporting of a given HAI to the state health department have performed validation on NHSN data that is voluntarily shared with them by facilities in their jurisdiction.
4. The number of reporting facilities included in the SIR calculation. Due to SIR exclusion criteria, this may be different from the numbers shown in Table 1. Refer to the Technical Appendix for information about exclusion criteria. SIRs and accompanying statistics are only calculated for states in which at least 5 facilities reported MRSA bacteremia data in 2015.
5. Percent of facilities with at least one predicted hospital-onset MRSA bacteremia that had an SIR significantly greater or less than the nominal value of the 2015 national hospital-onset MRSA bacteremia SIR of 0.994. This is only calculated if at least 10 facilities had at least one predicted hospital-onset MRSA bacteremia in 2015.
6. Facility-specific key percentiles were only calculated if at least 20 facilities had ≥ 1.0 predicted hospital-onset MRSA bacteremia in 2015. If a facility's predicted number of hospital-onset MRSA bacteremia was < 1.0 , a facility-specific SIR was neither calculated nor included in the distribution of facility-specific SIRs.

**Table 8. State-specific standardized infection ratios (SIRs) and facility-specific SIR summary measures,
NHSN Critical Access Hospitals reporting during 2015
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%					
Alaska	No	No	3	.	.	.	.	.	.	.	.	.	.	.	.
Alabama	No	No	3	.	.	.	.	.	.	.	.	.	.	.	.
Arkansas	No	Yes	5	1	5.072	0.197	0.010	0.972	2	.	.	.	.	.	.
Arizona	No	No	2	.	.	.	.	.	.	.	.	.	.	.	.
California	Yes	Yes	28	49	34.220	1.432	1.071	1.877	14	14%	0%	.	.	.	.
Colorado	No	Yes	16	9	4.870	1.848	0.901	3.391	1	.	.	.	.	.	.
Connecticut	No	No	0	.	.	.	.	.	.	.	.	.	.	.	.
D.C	No	No	0	.	.	.	.	.	.	.	.	.	.	.	.
Delaware	No	No	0	.	.	.	.	.	.	.	.	.	.	.	.
Florida	No	No	4	.	.	.	.	.	.	.	.	.	.	.	.
Georgia	No	No	6	5	4.748	1.053	0.386	2.334	2	.	.	.	.	.	.
Guam	No	No	0	.	.	.	.	.	.	.	.	.	.	.	.
Hawaii	No	No	1	.	.	.	.	.	.	.	.	.	.	.	.
Iowa	No	Yes	34	16	16.754	0.955	0.565	1.518	4	.	.	.	.	.	.
Idaho	No	No	5	8	5.771	1.386	0.644	2.632	3	.	.	.	.	.	.
Illinois	Yes	Yes	49	51	37.929	1.345	1.012	1.754	10	20%	0%	.	.	.	.
Indiana	No	No	25	27	23.793	1.135	0.763	1.628	12	0%	0%	.	.	.	.
Kansas	No	Yes	28	22	17.242	1.276	0.820	1.900	5	.	.	.	.	.	.
Kentucky	No	No	4	.	.	.	.	.	.	.	.	.	.	.	.
Louisiana	No	No	2	.	.	.	.	.	.	.	.	.	.	.	.
Massachusetts	No	No	2	.	.	.	.	.	.	.	.	.	.	.	.
Maryland	No	No	0	.	.	.	.	.	.	.	.	.	.	.	.
Maine	Yes	Yes	14	29	26.932	1.077	0.735	1.526	12	8%	0%	.	.	.	.
Michigan	No	Yes	10	8	13.676	0.585	0.272	1.111	4	.	.	.	.	.	.
Minnesota	No	No	10	7	5.117	1.368	0.598	2.706	1	.	.	.	.	.	.
Missouri	No	No	6	7	12.596	0.556	0.243	1.099	3	.	.	.	.	.	.
Mississippi	No	No	2	.	.	.	.	.	.	.	.	.	.	.	.
Montana	No	No	6	3	8.007	0.375	0.095	1.020	2	.	.	.	.	.	.
North Carolina	No	No	10	12	15.127	0.793	0.430	1.349	6	.	.	.	.	.	.
North Dakota	No	No	8	4	4.945	0.809	0.257	1.951	2	.	.	.	.	.	.
Nebraska	Yes	Yes	5	2	2.532	0.790	0.132	2.610	1	.	.	.	.	.	.
New Hampshire	No	No	13	18	18.026	0.999	0.610	1.548	10	0%	0%	.	.	.	.
New Jersey	No	No	0	.	.	.	.	.	.	.	.	.	.	.	.
New Mexico	No	No	6	4	5.028	0.796	0.253	1.919	3	.	.	.	.	.	.
Nevada	No	No	1	.	.	.	.	.	.	.	.	.	.	.	.
New York	No	No	3	.	.	.	.	.	.	.	.	.	.	.	.
Ohio	No	No	8	8	6.426	1.245	0.578	2.364	2	.	.	.	.	.	.
Oklahoma	No	No	2	.	.	.	.	.	.	.	.	.	.	.	.
Oregon	Yes	Yes	23	32	23.513	1.361	0.947	1.898	11	9%	0%	.	.	.	.
Pennsylvania	No	Yes	10	8	13.424	0.596	0.277	1.132	5	.	.	.	.	.	.
Puerto Rico	No	No	0	.	.	.	.	.	.	.	.	.	.	.	.
Rhode Island	No	No	0	.	.	.	.	.	.	.	.	.	.	.	.
South Carolina	Yes	Yes	3	.	.	.	.	.	.	.	.	.	.	.	.
South Dakota	No	No	0	.	.	.	.	.	.	.	.	.	.	.	.
Tennessee	No	No	1	.	.	.	.	.	.	.	.	.	.	.	.
Texas	No	No	20	13	12.285	1.058	0.589	1.764	5	.	.	.	.	.	.
Utah	No	Yes	2	.	.	.	.	.	.	.	.	.	.	.	.
Virginia	No	Yes	3	.	.	.	.	.	.	.	.	.	.	.	.
Virgin Islands	.	.	0	.	.	.	.	.	.	.	.	.	.	.	.
Vermont	No	No	4	.	.	.	.	.	.	.	.	.	.	.	.
Washington	Yes	Yes	35	31	36.499	0.849	0.587	1.191	16	0%	0%	.	.	.	.

Wisconsin	No	Yes	54	41	49.187	0.834	0.606	1.120	24	0%	0%	0.000	0.000	0.646	1.198	1.928
West Virginia	No	No	13	13	12.950	1.004	0.558	1.674	5	.	.	.	.	.	.	.
Wyoming	No	No	11	0	5.598	0.000	.	0.535	1	.	.	.	.	.	.	.
All US			500	487	483.111	1.008	0.921	1.101	187	4%	1%	0.000	0.000	0.695	1.456	2.186

1. CDI SIR is calculated at facility-wide. Hospital-onset is defined as event detected on the 4th day (or later) after admission to an inpatient location within the facility.
2. Yes indicates the presence of a state mandate to report facility-wide CDI data to NHSN at the beginning of 2015. M indicates midyear implementation of a mandate. No indicates that a state mandate did not exist during 2015.
3. Yes indicates that the state health department reported the completion of all of the following validation activities: state health department had access to 2015 NHSN data, state health department performed an assessment of missing or implausible values on at least six months of 2015 NHSN data prior to July 1, 2016, and state health department contacted identified facilities.

varies by state). Information on validation efforts was requested from all states, regardless of the presence of a legislative mandate for the particular HAI type. Some states without mandatory reporting of a given HAI to the state health department have performed validation on NHSN data that is voluntarily shared with them by facilities in their jurisdiction.

4. The number of reporting facilities included in the SIR calculation. Due to SIR exclusion criteria, this may be different from the numbers shown in Table 1. Refer to the Technical Appendix for information about exclusion criteria. SIRs and accompanying statistics are only calculated for states in which at least 5 facilities reported CDI data in 2015.
5. Percent of facilities with at least one predicted hospital-onset CDI that had an SIR significantly greater or less than the nominal value of the 2015 national hospital-onset CDI SIR of 1.008. This is only calculated if at least 10 facilities had at least one predicted hospital-onset CDI in 2015.
6. Facility-specific key percentiles were only calculated if at least 20 facilities had ≥ 1.0 predicted hospital-onset CDI in 2015. 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.

Appendix A. Factors used in NHSN risk adjustment of the device-associated HAIs (CLABSI, CAUTI, VAE) negative binomial regression models¹ from Critical Access Hospitals

HAI Type	Validated Parameters for Risk Model
CLABSI	Intercept*
CAUTI	Intercept Medical School Affiliation**
VAE	Intercept*

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

* None of the variables investigated were statistically significantly associated with CLABSIs in CAHs.

The predicted number of CLABSI events for CAHs is calculated using the 2015 national CAH CLABSI CAUTI, and VAE pooled mean (i.e., intercept-only model).

**Medical school affiliation is 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 from Critical Access Hospitals

HAI Type	Validated Parameters for Risk Model
MRSA bacteremia	<i>Intercept*</i>
<i>C. difficile</i>	Inpatient CO prevalence rate**

* None of the variables investigated were statistically significantly associated with MRSA bacteremia in C. The predicted number of events for CAHs will be calculated using the 2015 national CAH MRSA bacterer

** Inpatient community-onset (CO) prevalence rate is calculated as: # of inpatient CO CDI events, divided The prevalence rate for each quarter is used in the risk adjustment.

AHs.

nia incidence rate (i.e., Intercept-only model)
by total admissions x 100.

Appendix C. List of NHSN procedures included in this report: Admission/Re-admission SSI Logistic Regression¹, Adults :

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

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

* 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 calcula

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

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

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

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

**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

1. SSI risk adjustment methodology: SIR Guide: <https://www>

* 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

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

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

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

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

* These risk factors originate from the Annual Facility Survey.

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

Additional Resources

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

Technical Appendix (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.