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 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 (CA

Scope of report:	HAI Type	C/
		National
	Central line-associated bloodstream infections (CLABSI) by locations	þ
	Catheter-associated urinary tract infections (CAUTI) by locations	þ
	Ventilator-associated events (VAE) by locations	þ
	Surgical site infections (SSI)- All procedures for adults and pediatrics (using Complex AR model)	þ
	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	þ
	Hospital-onset Clostridium difficile (CDI) by facility wide reporting	þ

State HAI Data Report

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I risk adjustment calculations. Standardized infection ratios (SIRs) are used to describe different HAI types year's report will not compare 2015 SIRs to those from the prior year.

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2015 Annual National and State HAI Data Report <u>Critical Access Hospitals</u>: Full series of tables for all national and state-specific data

Tables included in this report:

- Table 1
 Characteristics of NHSN Critical Access 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)
 - 1d. Surgical site infections (SSI)
 - 1e. Hospital-onset methicillin-resistant Staphylococcus aureus (MRSA) bacteremia
 - 1f. Hospital-onset Clostridium difficile (CDI)
 - 1g. Table 1 Footnotes

Table 2 National standardized infection ratios (SIRs)

- 2a. CLABSI, CAUTI, VAE, hospital-onset MRSA bacteremia, and hospital-onset CDI from Critical Access Hospitals
- 2b. Adult (18 years and older) SSIs from all NHSN procedure categories from Critical Access Hospitals
- 2c. Pediatric (less than 18 years) SSIs from all NHSN procedure categories from Critical Access Hospitals
- Table 3
 State-specific SIRs for CLABSI from Critical Access Hospitals
 - 3a. All locations combined
 - 3b. Critical care locations only
 - 3c. Ward (non-critical care) locations only
- Table 4
 State-specific SIRs for CAUTI from Critical Access Hospitals
 - 4a. All locations combined
 - 4b. Critical care locations only
 - 4c. Ward (non-critical care) locations only
- Table 5State-specific SIRs for VAE from Critical Access 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 SSI from Critical Access Hospitals

 6a. Colon surgery
 6a

6b. Abdominal hysterectomy

- Table 7
 State-specific SIRs for hospital-onset MRSA bacteremia from Critical Access Hospitals
- Table 8
 State-specific SIRs for hospital-onset CDI from Critical Access Hospitals
- Appendix A Factors used in NHSN risk adjustment of the device-associated HAIs (CLABSI, CAUTI, and VAE) negative binomial regression models from
- Appendix B Factors used in NHSN risk adjustment of the MRSA Bacteremia and C.difficile negative binomial regression models from Critical Access I
- 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

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Hospitals

- Regression, Adults \geq 18 years of age
- Regression, Pediatrics < 18 years of age
- Complex Admission/Readmission Model, Adults ≥ 18 years of age

Table 1.	Characteristics o	f NHSN Critical	Access Hospi	tals reporting to NH	ISN by Stat	e ¹ , 2015:	
	1a. Centra	al line-associate	ed bloodstrear	n infections (CLAB	SI) ²		
				2015			
					Lo	cations (n) ²
State	No. of Acute Care Hospitals in State ³	State NHSN Mandate⁴	Any Validation⁵	No. of Critical Access Hospitals Reporting ⁶	Total	ICU	Wards ²
Alaska	16	No	No		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
lowa	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

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

Table 1a

Table	e 1b
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	1b. Cath	eter-associated	urinary tract in	nfections (CAU	TI)²		
				2015			
State					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
lowa	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	1	0	0	0
Maine	31	No	Yes	9	12	3	9
Michigan	123		Yes	15	22	7	15
Minnesota	111	Yes	No	74	81	8	73
Missouri	123	No	No	8	12	4	8

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

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Tennessee 69 No No 2 2	1	
Texas 452 No No 6 7	5	
Utah 34 No No 0 0	0	
Virginia 80 No No 2 2	2	
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Washington 80 No No 8 8 Wisconsin 137 No No 9 12	6	
Wisconsin137NoNo912West Virginia55NoNo45	ь 4	

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

	1	d. Surgical site	e infections ⁸				
		2015					
State		Any Validation⁵		No. of Procedures [®] Colon and Abdominal Hysterectomy surgeries i 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		
lowa	122	No	Yes	12	88		
Idaho	31	No	No	4	90		
Illinois	159	No	No	16	194		
Indiana	135	No	No	28	348		
Kansas	140	No	Yes	9	108		
Kentucky	82	No	No	9 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		

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

			-resistant <i>Staphylococcus aureus</i> bacteremia ⁹ 2015				
State	No. of Acute Care Hospitals in State ³						
Alaska	16	No	No				
Alabama	94	No	No				
Arkansas	79	No	Yes				
Arizona	64	No	No				
California	305	Yes	Yes	2			
Colorado	72	No	No	1.			
Connecticut	27	No	No				
D.C.	10	No	No				
Delaware	7	No	No				
Florida	149	No	No				
Georgia	97	No	No				
Guam	1	No	No				
Hawaii	21	No	No				
owa	122	No	Yes	2			
daho	31	No	No				
llinois	159	Yes	Yes	4			
ndiana	112	No	No	2			
Kansas	140	No	Yes	2			
Kentucky	82	No	No				
Louisiana	89	No	No				
Massachusetts	57	No	No				
Maryland	50	No	No				
Vaine	31	Yes	Yes	1,			
Vichigan	123	No	Yes	1			
Vinnesota	111	No	No				
Vissouri	123	No	No				
Vississippi	92	No	No				
Vontana	50	No	No				
North Carolina	101	No	No	1			
North Dakota	27	No	No				
Vebraska	53	Yes	Yes				
New Hampshire	24	No	No	1			
New Jersey	58	No	No				
New Mexico	32	No	No				
Vevada	25	Yes	No				
New York	154	No	No				
Dhio	133	No	No				
Oklahoma	133	No	No				
	60	Yes	Yes	2			
Dregon		No	Yes	1			
Pennsylvania Puerto Rico	172 17	NO	No				
Rhode Island	9	No	No				
South Carolina South Dakota	66 37	Yes No	Yes No				

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					
			2015			
State						
Alaska	16	No	No	4		
Alabama	94	No	No	3		
Arkansas	79	No	Yes	5		
Arizona	64	No	No	3 5 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		
lowa	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			
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	172	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
AII 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, 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 (D 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 value of this column is "M" for midyear implementation. No indicates that a state mandate id 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, 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	No. of Infectio	ons (events)
i j je, ji i i i i i i i i i	Reporting ¹	Observed	Predicted
CLABSI, all⁴	462	34	29.743
ICUs⁵	181	5	3.921
Wards ⁶	439	29	25.836
NICUs ⁷	0		
CAUTI, all [®]	635	179	177.987
	190	21	24.032
	610	158	153.950
VAE, all ⁸	96	4	4.000
	79	4	3.667
	20	0	0.332
Hospital-onset MRSA bacteremia, facility-wide ⁹	434	28	28.204
Hospital-onset <i>C. difficile</i> , facility-wide ⁹	500	487	483.111

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

	<u>95% Cl</u>	for SIR		Facility-spec	ific SIRs	
SIR	Lower	Upper	No. Facilities with ≥1	No. Facilities	with SIR	No. Facilitie
			Predicted Infection (events)	Significantly > N	National SIR	Significantly <
				Ν	%²	Ν
1.143	0.804	1.579	1			
1.275	0.467	2.826	0			
1.122	0.766	1.591	0			
1.006	0.866	1.161	13	0	0%	0
0.874	0.555	1.313	1			
1.026	0.875	1.196	10	0	0%	0
1.000	0.318	2.412	0			
1.091	0.347	2.631	0			
			0			
0.994	0.673	1.416	0			
1.008	0.921	1.101	197	8	4%	1

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

a different from the numbers shown in Table 1. Refer to the Technical Appendix for information about exclusion crit an the nominal value of the national SIR for the given HAI type. This is only calculated if at least 10 facilities had ≥ icility's predicted number of HAIs was <1.0, a facility-specific SIR was neither calculated nor included in the distribution or critical access hospitals; as such, they exclude data from LTACHs, IRFs, and ACHs.

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

ology/oncology, bone marrow transplant]). These tables contain data from critical access hospitals; as such, they e e-associated bloodstream infections are considered CLABSIs.

cations. These tables contain data from critical access hospitals; as such, they exclude data from LTACHs, IRFs, a within the facility. Risk factors used in the calculation of the number of predicted MRSA bacteremia and *C. difficile*

								Percent
es with SIR			/			/		
< National SIR	5%	10%	15%	20%	25%	30%	35%	40%
0%								
076	•	·	·	•	•	•	•	·
0%								
	•							
·	·	·	·	•	·	·	·	·
1%	0.000	0.000	0.000	0.000	0.000	0.321	0.468	0.581

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

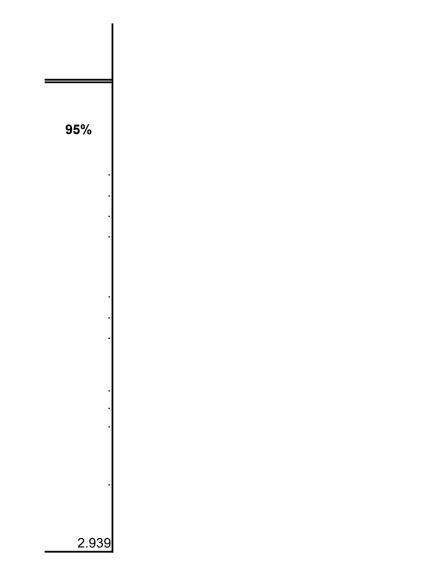
eria. 2 1.0 predicted HAI in 2015. ution of facility-specific SIRs.

xclude data from LTACHs, IRFs, and ACHs.

and ACHs. *e* infections are listed in Appendix A.

Id patient population: MRSA) bacteremia, and *Clostridium difficile* (CDI)

ile Distribu	ution of Faci	lity-specific	SIRs ³						
45%	Median 50%	55%	60%	65%	70%	75%	80%	85%	90%
45 %	50%	55%	00 %	05%	70%	15%	00%	03%	90%
	•	•	•	•	•	•	•	•	•
	•	·	·	•	•	•	•	·	·
0.631	0.695	0.788	0.946	1.050	1.307	1.456	1.664	1.869	2.186



Surgical Procedure	No. of Critical Access	No. of
	Hospitals Reporting ²	Procedures
	242	22 420
US, all NHSN procedures	343	22,130
US, SCIP procedures only⁵	333	17,338
AAA Abdominal aortic aneurysm repair⁵	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 surgery⁵	0	
CABG- Coronary artery bypass graft ^{5,6}	0	
CEA Carotid endarterectomy	0	
CHOL Gallbladder surgery	39	665
COLO Colon surgery⁵	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 arthroplasty⁵	157	4355
HTP Heart transplant	0	
HYST Abdominal hysterectomy⁵	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	10
PVBY Peripheral vascular bypass surgery⁵	0	
REC Rectal surgery ⁵	8	21
RFUSN Refusion of spine	2	21
SB Small bowel surgery	23	129
SPLE Spleen surgery	3	123
THOR Thoracic surgery	3	15
THYR Thyroid and/or parathyroid surgery	3	10
	30	0E7
VHYS Vaginal hysterectomy⁵ VSHN Ventricular shunt	30	257
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, thi statistics are only calculated for procedures in which at least 5 facilities reported adult SSI data in
- 3. Risk factors used in the calculation of the number of predicted SSIs are listed in Appendix C.
- 4. Percent of facilities with at least one predicted infection that had an SIR significantly greater than
- 5. These procedures were presented in previous versions of the HAI Progress Report and follow seland the corresponding SCIP procedures are listed in Appendix E.
- 6. Coronary artery bypass graft includes procedures with either chest only or chest and donor site in
- 7. Facility-specific percentiles are only calculated if at least 20 facilities had ≥ 1.0 predicted SSI in 20

No. of Inf	fections		<u>95% Cl</u>	for SIR		Facility-
Observed	Predicted ³	SIR	Lower	Upper	No. Hosp with ≥1	No. Hosp
					Predicted Infection	Significantly >
						Ν
119	111.973	1.063	0.884	1.267	22	0
102	95.802	1.065	0.873	1.287	15	0
		•				
0 3	0.013	2404	0.632	6.761	0	
3	1.208	2.484	0.032	0.701	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	•
1	2.100	0.459	0.023	2.203	U	•
4	3.557	1.125	0.357	2.713	0	•
1	0.807		0.001	2.1.10	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	
	0.025	•				
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 abou 2015.

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

cisions.

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

Rs using adult surgical site infection (SSI) data¹ reported to NHSN from NHSN Critical Access Hos

specific SIRs							
with SIR		o with SIR					
National SIR		< National SIR	5%	10%	15%	20%	25%
% ⁴	N	l					
0	C) 0	0.000	0.000	0.000	0.000	0.000
0	C) 0					
				•		•	
				•		•	
•				•		•	
					•		
			-	•	•		
•				•	•	•	
•						•	
•					•	·	
				•			
			-	•	•		
•			-		•	•	
•					•	•	
			-				
			-			•	
			-				
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			-				
			-				
			-				
		-					
•						•	
			-				
			-			•	
						•	
						•	

Ig the same admission as the surgical procedure or upon readmission to the same facility.

It exclusion criteria. SIRs and accompanying

ast 10 facilities had \geq 1.0 predicted SSI in 2015. \Rightarrow ct (SCIP). Specific NHSN procedures

ed in the distribution of facility-specific SIRs.

pitals during 2015 by surgical procedure.

		Percentil	e Distributi		lity-specific	: SIRs ⁷			
30%	35%	40%	45%	Median 50%	55%	60%	65%	70%	75%
50 /0	5576	40 /8	4J /0	50 /8	5578	00 /8	0378	1078	1370
0.000	0.000	0.545	0.571	0.771	0.892	1.637	1.729	1.755	1.75
	•	•	•			•		•	
•	•	•	•	•	•	•	•	•	
•	•	•	•	•	•	•	•	•	
•	•			•					
•									
						•			
•									
•									
•	•	•		•			•		
•		•				•		•	
		•		•					
			•						
•	•	•		•			•		

80%	85%	90%	95%
1.947	1.976	1.998	2.4
•			
•	•	•	
•			
•	•	•	
•	•	•	
•		•	
•			
	•	•	
•			
	•		
•			
•	•	•	
•		•	
•	•	•	

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	
CEA Carotid endarterectomy	0	
CHOL Gallbladder surgery	6	9
	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	
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	
OVRY Ovarian surgery	0	
PACE Pacemaker surgery	0	
PRST Prostate surgery	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, thi 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
- These procedures were presented in previous versions of the HAI Progress Report and follow seland the corresponding SCIP procedures are listed in Appendix E.
- 6. Coronary artery bypass graft includes procedures with either chest only or chest and donor site in
- 7. Facility-specific percentiles are only calculated if at least 20 facilities had ≥ 1.0 predicted SSI in 20

No. of Infecti	ons		95% C	I for SIR		Facility-s
Observed		SIR	Lower	Upper	No. Hosp with ≥1 Predicted Infection	No. Hosp v Significantly > N
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					

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

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

or less than the nominal value of the national SIR for the given procedure type. This is only calculated if at least 1 ect inpatient surgical procedures approximating procedures covered by the Surgical Care Improvement Project (\$

cisions.

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

pecific SIRs No. Hosp with SIR with SIR Significantly < National SIR National SIR 5% 25% 10% 20% 15% Ν

using pediatric surgical site infection (SSI) data¹ reported to NHSN from NHSN Critical Access Hosp

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

0 facilities had ≥ 1.0 predicted SSI in 2015. CP. Specific NHSN procedures

the distribution of facility-specific SIRs.

vitals during 2015 by surgical procedure.

30%	35%	40%	45%	Median 50%	55%	60%	65%	70%	75%
· · ·		-	· · ·			· · ·	· · ·	• • •	· · ·
· · ·		· · ·				· · ·	· · ·		
	• • •	· · ·	•	• • •		· · ·	· · ·		· · ·
	• • •	•	•	• • •		· · ·	· · ·		• • •
•		•	•			· · · · ·	· · ·	•	· · ·
· · ·		· · ·				· · · ·	· · ·	· · ·	· · ·
								· · ·	
						· · ·	· · ·		
	•					· · ·	· · ·		

80%	85%	90%	95%
			•
			•
			•
•			•
			•
•			
•			
			•
•			

			Table	3. State-specif	ic standardized NHSN Criti				ility-specific SI during 2015	R summary me	asures,					
				3a. Co	entral line-asso		•		-	cations ¹						
				No. of Int	fections		<u>95% Cl</u> 1	for SIR	Fac	cility-specific S	IRs	Facili	ity-specif	ic SIRs at K	ey Percen	tiles ⁶
State	State NHSN Mandate ²	Any Validation ³	No. of Critical Access Hospitals Reporting⁴	Observed	Predicted	SIR	Lower	Upper	No. of hosp with at least 1 predicted CLABSI	% of hosp with SIR sig higher than national SIR⁵	% of hosp with SIR sig lower than national SIR⁵	10%	25%	Median (50%)	75%	90%
Alaska	No	No	4													
Alabama	Yes		2			•	•					•				
Arkansas	No	Yes	8	2	0.928	•	•		0			•				
Arizona	No	No	1													
California	Yes		25	3	2.434	1.233	0.314	3.354	0							
Colorado	Yes	Yes	8	0	0.268	•	•		0			•				
Connecticut	No	No	0	•	•	•	•		· ·			•				
D.C.	No	No	0						· ·							
Delaware	No	No	0						· ·							
Florida	No	No	4													
Georgia	No	No	6	1	0.458				0							
Guam	No	No	0						· ·							
Hawaii	No	No	1						· ·							
lowa	No	Yes	36	1	1.815	0.551	0.028	2.717	0	-						
ldaho	No	No	6	0	0.332				0	-						
Illinois	Yes	No	31	0	1.584	0.000		1.891	0	-		•				
Indiana	No	No	29	2	1.650	1.212	0.203	4.005	0	-		•				
Kansas	No	Yes	26	3	1.878	1.597	0.406	4.348	0	-		•				
Kentucky	No	No	5	1	0.206				0	-		•				
Louisiana	No	No	4													
Massachusetts	No	No	2	•	•											
Maryland	No	No	0													
Maine	Yes	Yes	10	0	0.845				0							
Michigan	No	Yes	11	0	0.269				0							
Minnesota	No	No	17	0	0.478				0							
Missouri	No	Yes	7	3	1.729	1.735	0.441	4.722	1							
Mississippi	No	No	3													
Montana	No	No	8	2	0.414				0							
North Carolina	No	No	10	1	0.539				0							
North Dakota	No	No	7	0	0.373				0							
Nebraska	No	No	6	1	0.247				0							
New Hampshire	No		12	0	0.878				0							
New Jersey	No	No	0													
New Mexico	No	No	6	1	0.118				0							
Nevada	Yes	No	1													
New York	No	No	3													
Ohio	No	No	10	0	0.185				0							
Oklahoma	No	No	2													
Oregon	Yes	Yes	17	3	1.026	2.924	0.744	7.958	0							
Pennsylvania	Yes	Yes	13	3	1.129	2.657	0.676	7.232	0							
Puerto Rico	Yes	No	0													
Rhode Island	No	No	0						.							
South Carolina	Yes	Yes	4						.							
South Dakota	No	No	0						.							
Tennessee	No	No	2						.							
Texas	Yes		15	0	0.687				0							

Utah	No	Yes	3					1					Т
			ő						·			•	1
Virginia	Yes	Yes	3	•	•	•	•		•	 •	•		1
Virgin Islands			0										
Vermont	Yes	No	2										
Washington	Yes		33	5	2.950	1.695	0.621	3.757	0				
Wisconsin	No	Yes	34	0	1.679	0.000		1.673	0				
West Virginia	No	No	14	1	0.896				0				
Wyoming	No	No	11	0	0.368				0				
All US			462	34	29.743	1.143	0.804	1.579	1				

1. Data from all ICUs, wards (and other non-critical care locations), and NICUs. These tables contain data from critical access hospitals; as such, they exclude data from LTACHs, IRFs, and ACHs.

2. Yes indicates the presence of a state mandate to report CLABSI 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.

Yes^A indicates that the state also conducted an audit of facility medical or laboratory records prior to July 1, 2016 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 CLABSI data in 2015.

5. Percent of facilities with at least one predicted CLABSI that had an SIR significantly greater or less than the nominal value of the 2015 national overall CLABSI SIR of 1.057. This is only calculated if at least 10 facilities had ≥ 1.0 predicted CLABSI in 2015.

6. Facility-specific key percentiles were only calculated if at least 20 facilities had ≥1.0 predicted CLABSI in 2015. 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.

				NHS	SN Critica	al Access H	lospitals repo	rting during 2015							
			3b.	Central line-as	sociated	bloodstrea	m infections (CLABSI), critical ca	are locat	ions ¹					
			<u>No. of In</u>	fections		<u>95% Cl</u>	for SIR	Facility-s	pecific S	IRs	Facil	ity-specific SIF	Rs at Key I	Percenti	les⁵
State	F	No. of ical Access lospitals	Observed	Dradiatad	cin.	1	Unner	with high	f hosp SIR sig er than	% of hosp with SIR sig lower than	10%	25%		759/	90%
State Alaska	No No	eporting ³	Observed	Predicted	SIR	Lower	Upper	natio	nal SIR⁴	national SIR ^₄	10%	25%		75%	90%
Alabama	Yes	2	•	•			•	•				•	•	•	
Arkansas	No	1	•	•			•	•				•	•	•	
Arizona	No	1					· ·		•		•	•	•		
		0					· ·		•		•		•	•	
California	Yes	17	0	0.754			· ·	0				•	•	•	
Colorado	Yes	3	•	•			· ·	•			•	•	•	•	
Connecticut	No	0					· ·						•		
D.C.	No	0					· · · [
Delaware	No	0					· · ·								
Florida	No	1					· · ·]								
Georgia	No	1													
Guam	No	0													
Hawaii	No	1													
lowa	No	3													
Idaho	No	3													
Illinois	Yes	14	0	0.147				0							
Indiana	No	17	1	0.289				0			·	•	•	•	
Kansas	No	5	1	0.111				0	•			•	•	•	
Kentucky	No	1	1	0.111				0	•		•		•	•	
Louisiana		1	•	•			· ·	•	•		•	•	•	•	
	No	1					· ·		•		•		•	•	
Massachusetts	No	1	•	•			· ·					•		•	
Maryland	No	0	•	•			· ·	•			•	•	•	•	
Maine	Yes	3		•			· ·						•		
Michigan	No	6	0	0.051			· ·	0							
Minnesota	No	1					· ·								
Missouri	No	4													
Mississippi	No	0													
Montana	No	3													
North Carolina	No	3													
North Dakota	No	2]								
Nebraska	No	1]								
New Hampshire	Yes	8	0	0.111				0							
New Jersey	No	0	0				·	-	•	·	•			•	
New Mexico	No	2	•	•				•				•	•		
Nevada	Yes	2					· · ·]		•		•		•	•	
New York	No	2		•			· · ·	•	•		•		•	•	
Ohio	No	3	0	0.112			· · ·	0				•			
		(0	0.112			· · ·	U	•		•		•	•	
Oklahoma	No	0					· · ·							-	
Oregon	Yes	12	1	0.340			· · ·	0			•		•	•	
Pennsylvania	Yes	5	0	0.049			· · ·	0							
Puerto Rico	Yes	0					· · ·]	•				•	•	-	
Rhode Island	No	0					· · ·]								
South Carolina	Yes	2					· · ·]								
South Dakota	No	0					!								

Tennessee	No	1										
Texas	Yes	8	0	0.067				0				
Utah	No	o										
Virginia	Yes	3										
Virgin Islands		o										
Vermont	Yes	1										
Washington	Yes	11	0	0.390				0				
Wisconsin	No	12	0	0.124				0				
West Virginia	No	8	0	0.111				0				
Wyoming	No	2										
All US		181	5	3.921	1.143	0.804	1.579	0				

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 CLABSI 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 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. 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 critical care location in 2015.

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 2015 national ICU CLABSI SIR of 1.176. This is only calculated if at least 10 facilities had at least one predicted ICU CLABSI in 2015.

5. Facility-specific key percentiles were only calculated if at least 20 facilities had ≥1.0 predicted ICU CLABSI in 2015. 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.

			30 Cont	ral line_secordet	SN Critical	troam info	tione (CLADON	ward (non orisi	cal care) locations ¹				
			No. of In		ea biooas	95% CI			pecific SIRs				
			<u>NO. 01 III</u>	lections		<u>95% CI</u>		<u>racinty-s</u>	pecific SIKS				
State			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		1.785	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											
lowa	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					Ū.	·			·	
Montana	No	7	2	0.385				0	·		•	•	
North Carolina	No	10	- 1	0.449	-			0	·		•	•	
North Dakota	No	7	0	0.357			l l	0		1 .			•
Nebraska	No	6	1	0.247			1	0		1 .			•
New Hampshire	No	12	0	0.768			1	0	•	· 1 ·	•	•	
New Jersey	No	12	0	0.700	•	•	-1	U	•	· · ·	•	•	
New Mexico	No	6	1	0.11	•	•	-1	0	•	· · ·	•	•	
New Mexico Nevada	Yes	0	1	0.11	•	•		U		· · · ·	•	•	•
Nevada New York		0	•	•	•			•		· · ·	•	•	•
	No	2	0	0.072			1			· · · ·			•
Ohio	No	9	0	0.072				0		· · ·			
Oklahoma	No	2			•				•	· ·	•	•	•
Oregon	Yes	16	2			. 702	7 55 4	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.

						ISN Critical Acces								
	1		No. of Int	ections	4a. Cathete	er-associated urin <u>95% Cl fo</u>		ons (CAUTI), all locations Facility-s	s ¹ specific SIRs	-				
State			Observed	Predicted	SIR	Lower	Upper	No. of hosp with at least 1 predicted CAUTI		10%	25%	7	5%	90%
Alaska	No	No	4 .											
labama	Yes	Yes	4 .											
rkansas	No	Yes	8 0	3.840	0.000		0.780	0						
rizona	No	No	2 .								•			
alifornia	No No		27 10 11 0	11.667 1.549	0.857 0.000	0.435	1.528 1.934	3					•	
Colorado Connecticut	No	No No	1	1.549	0.000		1.934	U		· ·		•		
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											
lowa	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 Maine	No	No	9 6					0			•			
Michigan	No No	Yes Yes	15 1	3.950 2.452	1.519 0.408	0.616 0.020	3.159 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			0.000	0.000			1				
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 Ohio	No	No No	4 . 10 0		0.000			0		· ·	•	•		
Ohio Oklahoma	No No	No	2 0	1.818	0.000		1.648	U		· · ·				
Oklanoma Oregon	Yes	Yes	2	7.486	0.935	0.409	1.850	0		· 1 · ·				
Pennsylvania	Yes	Yes	13 3	5.792	0.518	0.409	1.650	1	•	·] ·	•		•	
Puerto Rico	Yes	No	1	0.792	0.010	0.132	1.410			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 13 1	5.488	0.364	0.061	1.204 2.001	0	•	· ·	•	•		
Wyoming All US	No	No	13 1 635 179	2.465 177.987	0.406	0.020	2.001 1.161	0	0%				<u> </u>	

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 SIR.

			4b. Catheter-as:	sociated u	<u>rinary tr</u> act	infections (CAL	<u>JTI), critical care</u>	e locations'				
		<u>No. o</u>	Infections		95% CI			pecific SIRs				
State		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	õ										
Florida	No	1										
Georgia	No	1	· ·				•			•		
Guam	No	ò		•	•	1			· · ·			
Hawaii	No	1										
lowa	No	4										
daho	No	3		•	•							
Illinois	No	14	1 1.033	0.968	0.048	4.774	0					
ndiana	No	17	2 2.232	0.908	0.048	2.960	0	•	· ·	•	•	
Kansas	No	5	2 2.232 0 1.145	0.090	0.150	2.900	0	·	· ·	•		
		5	0 1.145			2.010	0	·	· ·	•		
Kentucky	No	1		•	•	·			· ·	•	• •	
Louisiana	No	1	• •	•					· ·			
Massachusetts	No	1	• •	•					· ·			
Maryland	No	0										
Maine	No	3						•	· ·	•	• •	
Vichigan	No	/	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	1					1		1		1
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.

			i able 4. State				os (SIRs) and fa ospitals reportii		IR summary measur	es,			
			4c. Ca No. of Inf		ed urinary	tract infec 95% Cl			I care) locations ¹				
						<u>35 /0 CI</u>		<u>racinty-s</u>	pecilic Sins				
State			Observed	Predicted	SIR	Lower	Upper			10%	25%	75%	90%
Alaska	No	4											
Alabama	Yes	4											
Arkansas	No	8	0	3.767	0.000		0.795	0					
Arizona	No	2											
California	No	27	9	8.423	1.069	0.521	1.961	1					
Colorado	No	11	0	1.365	0.000		2.195	0					
Connecticut	No	0											
D.C.	No	0											
Delaware	No	0											
Florida	No	4	-	-									
Georgia	No	6	2	1.421	1.407	0.236	4.650	0					
Guam	No	0											
Hawaii	No	1					. I						
lowa	No	63	15	11.204	1.339	0.778	2.159	0					
Idaho	No	6	3	1.513	1.983	0.504	5.396	0					
Illinois	No	33	5	7.364	0.679	0.249	1.505	0					
Indiana	No	30	6	6.549	0.916	0.371	1.906	0					
Kansas	No	33	12	10.050	1.194	0.647	2.030	2	·		•		•
Kentucky	No	5	1	0.608		0.017	2.000	0	·		•		•
Louisiana	No	4		0.000				0					•
Massachusetts	No	- 2											•
Maryland	No	0											•
Maine	No	0	6	3.707	1.619	0.656	3.366	0					•
Michigan	No	15	1	2.146	0.466	0.023	2.298	0			•		•
Minnesota	Yes	73	11	13.729	0.801	0.421	1.393	1					•
Missouri	No	10	6	3.092	1.940	0.787	4.036	1					•
Mississippi	No	3	0	5.032	1.540	0.707	4.050	1			•		•
Montana	No	3	2	2.451	0.816	0.137	2.696	0			•		•
North Carolina	No	10	2	3.152	0.952	0.137	2.590	0			•		•
North Dakota	No	0	2	2.802	0.932	0.242	2.358	1			•	• •	•
Nebraska	No	9	2	2.002		0.120	2.000	0			·		
New Hampshire	No	9 13	5	4.464	1.120	0.410	2.483	0			·		
New Jersey	No	13	5	4.404	1.120	0.410	2.403	U		· · ·	·		
New Jersey New Mexico	No	0 F	0	1.362	0.000		2.200	0		· · ·	·		
Nevada		5	0	1.302	0.000		2.200	U		· · ·	·		
Nevada New York	No	0			•	•				· · [· ·			
New York Ohio	No	4	0		•	•				· · ·			
	No	9	0	0.991	•	•		U		· · ·			
Oklahoma	No	22	7	5.718	1.224	0.505	2.422			· · [· ·			
Oregon Bonnovilvania	Yes	13	3	5.718	1.224 0.582	0.535	2.422	0		· · [· ·			
Pennsylvania Puerto Rico	Yes	13	3	5.155		0.148	1.584	I		· · [· ·			
	Yes	0			•	•				· · ·			
Rhode Island	No	0					- 07			· ·	·		
South Carolina	No	5	2	1.253	1.596	0.268	5.274	0		· [·	·		
South Dakota	No	0			•		·			· ·			
Tennessee	No	1								· ·	•		
Texas	No	22	5	5.575	0.897	0.329	1.988	1		· ·	•		
Utah	No	4		•					•		•		

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.

			able of otale-speci					ility-specific SIR summ during 2015	iary moustaires,				
								Il locations ¹					
			No. of	<u>Events</u>		95% CI			ecific SIRs				
State			Observed	Predicted	SIR	Lower	Unnor	No. of hosp with at least 1 predicted VAE		10%	25%	75%	90%
State Alaska	No	No	0		SIR	Lower	Upper			10%			
Alabama	No	No	2	•									•
Arkansas	No	No	1	•					•		•	•	•
Arizona	No	No		•					·	· ·	•	·	
California	No	No	10 0	0.905					·		•	·	•
Colorado	No	No	2	0.905				. 0	·	· ·	•	·	
	No		2										•
Connecticut D.C.	No	No No	0.										•
			0	•					·	· ·	•	·	
Delaware Florida	No No	No No								· · ·			•
	No									· · ·			•
Georgia	No	No No								· · ·			•
Guam			0										•
Hawaii Iowa	No No	No No	0 . 1										•
Idaho	No	No	1	•					•		•	•	•
Illinois	No		1	•					•		•	•	•
Indiana	No	No No	4 . 11 0	0.472					·		•	·	•
Kansas	No	No	2	0.472				. 0	·	· ·	•	·	
	No	No	2	•					·	· ·	•	·	
Kentucky Louisiana	No	No		•		· ·			•		•	·	•
Massachusetts	No	No	0 . 1	•					·	· ·	•	·	
	No	No		•					·	· ·	•	·	
Maryland Maine	No	No	0										•
	No			•					·	· ·	•	·	
Michigan Minnesota	No	Yes No	4.	•					•		•	•	•
Minnesota Missouri	No		1	•					·	· ·	•	·	
Mississippi	No	No No		•					·	· ·	•	·	
Montana	No	No	0 . 2	•					·	· ·	•	·	
North Carolina	No	No		•					·	· ·	•	·	
North Dakota	No	No	4.	•					·	· ·	•	·	
Nebraska	No	No		•					·	· ·	•	·	
	No			•					·	· ·	•	·	
New Hampshire		No	4.										•
New Jersey New Mexico	No No	No	0										•
Nevada	No	No	1.										•
		No	0										•
New York	No	No	2										•
Ohio	No No	No No	2										•
Oklahoma			0								•		•
Oregon	No	No	6 0					. 0		· ·			
Pennsylvania	Yes	Yes	6 0	0.331				. 0	•	· ·	•	·	
Puerto Rico	No	No		•					•	· ·			
Rhode Island	No	No	U .	•					•	· ·	•	·	
South Carolina	M	Yes	۲ . د							· ·	•	•	•
South Dakota	No	No		•					•	· ·			
Tennessee	No	No		•					•	· ·			
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.

 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					d facility-specific SIF orting during 2015	R summary measu	ires,			
				5b. Ven		sociated ev	vents (VAE), o	critical care locations					
			No. of	Events		<u>95% Cl</u>	for SIR	Facility-sp	ecific SIRs				
State			Observed	Predicted	SIR	Lower	Upper			10%	25%	75%	90%
Alaska	No	0											
Alabama	No	0											
Arkansas	No	0											
Arizona	No	0											
California	No	10	0	0.905				0	·			·	
Colorado	No	2	Ŭ	0.000				Ŭ	·		•	•	
Connecticut	No	6											
D.C.	No	0		•				•	•	· · ·	•	•	
		0		•			•	•	•		•	•	
Delaware	No	0		•			· ·	•	·	· ·		·	
Florida	No	1		•			•	•	•	· ·	•	·	•
Georgia	No	0		•			• •	•	•		•	•	•
Guam	No	0					· ·						
Hawaii	No	0		•			· ·	•				•	
lowa	No	1					· ·						
Idaho	No	1											
Illinois	No	3											
Indiana	No	9	0	0.465				0					
Kansas	No	2											
Kentucky	No	0											
Louisiana	No	o											
Massachusetts	No	1											
Maryland	No	ò		•				•	•		•	•	
Maine	No	1											
Michigan	No			•				•	•		•	•	
		4		•			•	•	•		•	•	
Minnesota	No	0		•			· ·				•		
Missouri	No	1		•			· ·	•	•		•	•	
Mississippi	No	0					· ·					•	
Montana	No	1					· ·	•	•		•		
North Carolina	No	2		•			· ·			· ·			
North Dakota	No	1					· · ·						
Nebraska	No	0								· ·			
New Hampshire	No	4		•									
New Jersey	No	0											
New Mexico	No	1											
Nevada	No	0		-									
New York	No	2		-			1						
Ohio	No	2		•				·	·	· · · ·	·	•	
Oklahoma	No	2										•	•
Oregon	No	5	0	0.200				0	•	· · ·	•	•	
-		S	0	0.200			· ·	U	•	· ·		•	
Pennsylvania	Yes	4					· ·			· ·			
Puerto Rico	No	0		•			· ·	•	•	· ·		•	
Rhode Island	No	0					· ·			· ·			
South Carolina	Yes	2					· ·	•	•	· ·		•	
South Dakota	No	0								· .			

Tennessee	No	о									
Texas	No	2									
Utah	No	о									
Virginia	No	2									
Virgin Islands		o									
Vermont	No	0									
Washington	No	6	3	0.427				0			
Wisconsin	No	3									
West Virginia	No	4									
Wyoming	No	2									
All US		79	4	3.667	1.091	0.347	2.631	0			

1. Data from all ICUs; excludes wards (and other non-critical care locations) and NICUs. Pediatric locations (ICUs) 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 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 VAE 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 VAE data from at least one critical care location in 2015.

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 2015 national ICU VAE SIR of 1.091. This is only calculated if at least 10 facilities had at least one predicted ICU VAE in 2015.

5. Facility-specific key percentiles were only calculated if at least 20 facilities had ≥1.0 predicted ICU VAE in 2015. 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.

Sc. Ventilator-associated events (VAE), ward (non-critical care) locations ¹ No. of Events 95% Cl for SIR Facility-specific SIRs 10% 25% State Observed Predicted SIR Lower Upper 10% 25% Alaska No 2 . </th <th>75% 90</th> <th>90%</th>	75% 90	90%
Alaska No 2 . </th <th></th> <th><u>30%</u></th>		<u>30%</u>
Alaska No 2 . </th <th></th> <th></th>		
Arkansas No 1 .		
Arizona No 0 .<		
California No 0 . <th.< th=""> . <th.< td=""><td></td><td></td></th.<></th.<>		
Colorado No 0 .		
Connecticut No 0 . <t< td=""><td>· · · · · · · · · · · · · · · · · · ·</td><td></td></t<>	· · · · · · · · · · · · · · · · · · ·	
D.C. ⁶ No 0	· · ·	
Delaware No 0	· · ·	
Florida No 1		
Georgia No 0		
Guam No 0		
Hawaii No 0		
lowa 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 ^e No 0		
Washington No 0		
Wisconsin No 2		
West Virginia No 0		
Wyoming No 2		
AII US 20 0 0.332 0		

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.
 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.

- 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.
 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.

						gical site infectio	ons (SSI) fo								
					<u>No. of In</u>	fections		<u>95% CI 1</u>	or SIR	Facility-s	specific SIRs				
		I	No. of Critical Access Hospitals	No. of						No. of hosp with at least 1 predicted					
State			Reporting ⁴	Procedures	Observed	Predicted	SIR	Lower	Upper	SSI		10%	25%	75%	90%
Alaska	No	No	2				•				•				
Alabama Arkansas	Yes No	Yes No	3					•			•	· ·		•	•
Arizona	No	No	0			•		•		•	•		•	•	•
California	Yes	Yes	17	213	. 4	4.096	0.977	0.310	2.356	0		· ·			•
Colorado	Yes	Yes	10		4		0.000	0.310	2.350	0	•		•	•	•
		No	0		0	1.222	0.000		2.402	0	•		•	•	•
Connecticut	No					•						· ·			•
D.C.	No	No	0									· ·			·
Delaware	No	No	0					•			•				•
Florida	No	No	2									· ·			·
Georgia	No	No	1	11							•	· ·	•		
Guam	No	No	0			•	•	•		· ·	•	· ·		•	•
Hawaii	No	No	1								•	· ·	•		
lowa	No	Yes	8		1	0.974	•	•		0	•	· ·		•	•
Idaho	No	No	4	42				•							•
Illinois	No	No	14		0	2.459	0.000	•	1.218	0					•
Indiana	No	No	25		4	3.608	1.109	0.352	2.674	0					•
Kansas	No	Yes	8		8	0.826				0	•				•
Kentucky	No	No	2												
Louisiana	No	No	1												•
Massachusetts	No	No	2								•				•
Maryland	No	No	0											•	•
Maine	No	Yes	9		2		1.211	0.203	4.001	0	•				•
Michigan	No	Yes	5		0	0.709				0					
Minnesota	No	No	3	-											
Missouri	No	No	4	83											
Mississippi	No	No	0												
Montana	No	No	6		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							l .		1	•		
Virginia	No	Yes	3							· ·				-	
Virgin Islands	110	103	0									· · ·			•
Vermont	No	No	0												
Washington	Yes	Yes	18		. 1	2.812	0.356	0.018	1.754	. 0					
Wisconsin	No	Yes	30		3		0.624	0.018	1.698	0	•	1 .			•
West Virginia	No	No	30 7		3	2.205	0.624	0.139	2.236		•	· · ·	•	•	•

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.

 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.

1				Table 6. Sta		HSN Critical Acc				ecific SIR summary mea	asures,					
				6b.		nfections (SSI) f			nysterecto	my surgery ¹ in adults <u>Facility-spe</u>						
					<u>NO. 01 III</u>	lections		<u>55% CI 1</u>		<u>racinty-spe</u>	<u>ecine ains</u>					
		N	o. of Critical													
			Access													
State			Hospitals Reporting⁴	No. of Procedures	Observed	Predicted	SIR	Lower	Upper			10%	25%		75%	90%
Alaska	No	No	2	Procedures	Observed	Fredicted	JIN		opper			10 %	23/0		15/0	30 /8
Alabama	Yes	Yes	1	9						•						
Arkansas	No	No	1	13								1				
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												
lowa	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		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	NI-	1	12								· ·		•		
Ohio Oklahoma	No No	No No	4	42								· ·				
			13	83	0		•	•		0		· ·	•	•		
Oregon Pennsylvania	Yes Yes	Yes Yes	13	83 57	0	0.483 0.294		•		0		· ·	•	•		
Pennsylvania Puerto Rico	No	No	5 0	57	0	0.294				U	•			•		
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	•	•				1 .	•	•		•
Utah	Yes	Yes	10	13	0	0.020	•	•				1 .	•	•		•
Virginia	No	Yes	1	21			•	•			•	1 .	•	•		•
Virgin Islands			0	21		•						1				
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						
Wyoming	No	No	3							-						
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.

					NHSN Crit	tical Acces	s Hospitals	s reporting	g during 2015					
r				Hospital-onse No. of I	t methicillin-res		ohylococcu	s aureus (MRSA) bacteremia, facility-w					
				<u>NO. OF I</u>	<u>Events</u>		<u>95% CI 1</u>	<u>IOF SIR</u>	<u>Facility-specific</u> No. of hosp with at least 1 predicted HO MRSA	<u>Siks</u>				
State				Observed	Predicted	SIR	Lower	Upper	bacteremia	10	%	25%	75%	90%
Alaska	No	No	3											
Alabama	No	No	3											
Arkansas	No	Yes	3											
Arizona	No	No	2											
California	Yes	Yes	28	1	2.066	0.484	0.024	2.388	0					
Colorado	No	No	14	1	0.321				0					
Connecticut	No	No	0											
D.C.	No	No	0											
Delaware	No	No	0											
Florida	No	No	4											
Georgia	No	No	6	0	0.363				0					
Guam	No	No	0											
Hawaii	No	No	1											
lowa	No	Yes	18	0	0.601				0					
Idaho	No	No	6	0					0					
Illinois	Yes	Yes	49	5	2.459	2.033	0.745	4.507	0					
Indiana	No	No	24	1	1.479	0.676	0.034	3.334	0		•	•		•
Kansas	No	Yes	23	3		2.596	0.660	7.065	0					
Kentucky	No	No	3	0	1.100	2.000	0.000	1.000	0		•	•		
Louisiana	No	No	2			•			•		•	•		•
Massachusetts	No	No	2			•	•				•	•		•
	No		2	•	•	•	•			· ·	•	•		•
Maryland		No	v			4.044		4.044		· ·	•	•		•
Maine	Yes	Yes	14	2		1.314	0.220	4.341	0	· ·	•	•		•
Michigan	No	Yes	10	0		•	•		0		•			•
Minnesota	No	No	(0					0	· ·	•			
Missouri	No	No	6	2	0.719	•	•		0	· ·	•	•		•
Mississippi	No	No	2			•					•	•		
Montana	No	No	4			•					•			•
North Carolina	No	No	10	0					0		•			
North Dakota	No	No	8	0	0.427				0		•			
Nebraska	Yes	Yes	4		•	•	•				•			•
New Hampshire	No	No	10	0	1.021	0.000		2.933	0					
New Jersey	No	No	0		•									
New Mexico	No	No	5	1	0.284				0					
Nevada	Yes	No	1											
New York	No	No	3											
Ohio	No	No	8	0	0.380				0					
Oklahoma	No	No	2											
Oregon	Yes	Yes	23	3	1.544	1.944	0.494	5.290	0					
Pennsylvania	No	Yes	10	3	0.841				0					
Puerto Rico	No	No	0											
Rhode Island	No	No	0											
South Carolina	Yes	Yes	3											
South Dakota	No	No	0											
Tennessee	No	No	1		·		•			. 1		•		
Texas	No	No	21	0	0.644				0		•			
Utah	No	Yes	2	0	0.044	•			Ŭ	· · ·	•	•		•

Virginia	No	Yes	3							 Ι.		
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), fa No. of Events 95% CI for SIR				acility-wide ¹ Facility-specific SIRs						
State				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		-										
lowa	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		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			4 050		4 704		•			•	•	•
Texas	No	No	20	13	12.285	1.058	0.589	1.764	5						•
Utah Virginia	No	Yes	2	•			•		· ·						•
Virginia Virgin Islanda	No	Yes	3	•	•				•	•			•	•	•
Virgin Islands		N.	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*							
	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	Intercept*							
C. difficile	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. mia 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	
КТР	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 significantl As a result, the overall incidence will be used in the SIR calcu

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

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

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

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 <u>></u> 2	Craniotomy	
CRAN, age <2 [‡]		
CSEC	Cesarean delivery	
FUSN, age <u>></u> 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://wwv

* These risk factors originate from the Annual Facility Survey

^ Sufficient national data were not available for analysis. As $\boldsymbol{\epsilon}$

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

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

port with predictive risk factors from the NHSN ion Model¹, Pediatrics < 18 years of age

Validated Parameters for Risk Model				
No SIR available [^]				
No SIR available [^]				
Hospital bed size*, procedure duration, wound class				
Trauma				
procedure duration, age				
closure, wound class, age, trauma, procedure duration				
BMI, anesthesia				
duration of labor				
ASA score, BMI				
Procedure duration, closure technique				
diabetes, wound class				
_				
Trauma				
Age				
Trauma				

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

Iculation (i.e., intercept-only model).

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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	
Vasculai	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,
	Coronary artery bypass graft with chest incision only	BMI
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.