2015 National ar

Long

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

This workbook includes national and state-specific SIR data for long term acute care hosp

Scope of report:

HAI Type
Central line-associated bloodstream infections (CLABSI) by locations
Catheter-associated urinary tract infections (CAUTI) by locations
Ventilator-associated events (VAE) by locations
Infection-related ventilator-associated condition and possible ventilator-associated pneum by locations
Hospital-onset methicillin-resistant *Staphylococcus aureus* (MRSA) bacteremia by facility
Hospital-onset *Clostridium difficile* (CDI) by facility wide reporting

nd State HAI Data Report

Term Acute Care Hospitals

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

pitals (LTACHs).

	LTACH	
	National	State
	☑	☑
	☑	☑
	☑	☑
nonia (IVAC-Plus)		
	☑	☑
-wide reporting	☑	☑
	☑	☑

2015 Annual National and State HAI Data Report
<u>**Long-term Acute Care Hospitals**</u>: **Full series of tables for all national and state-specific data**

NOTE: Tables contain data from long-term acute care hospitals (LTACHs); as such, they exclude d

are Hospitals (LTACHs)

monia (IVAC-Plus)

E) negative binomial regression models from LTACHs

omial regression models from LTACHs

lata from Inpatient Rehabilitation Facilities (IRFs), Critical Access Hospitals (CAHs) and Acute Care Hospitals (ACH

-ls).

HAI Type and Patient Population	No. of Facilities Reporting[1]	No. of Infections (Events)	
		Observed	Predicted
Long-Term Acute Care Hospitals (LTACHs)			
CLABSI, all[4]	489	3,807	3,824.780
ICUs[5]	83	323	342.370
Wards[6]	484	3,484	3,482.410
CAUTI, all[4]	489	3,830	3,859.250
	83	278	286.560
	484	3,552	3,572.690
VAE, all[4]	208	490	497.890
	26	71	70.932
	198	419	426.958
IVAC Plus, all[4]	208	137	140.227
	26	16	12.610
	198	121	127.616
Hospital-onset MRSA bacteremia, facility-wide[7]	478	857	887.996
Hospital-onset *C. difficile*, facility-wide[7]	474	5,770	6,114.419

1. The number of reporting facilities included in the SIR calculation.
2. Percent of facilities with at least one predicted infection that had an SIR significantly greater than or less th
3. Facility-specific percentiles are only calculated if at least 20 facilities had ≥1.0 predicted HAI in 2015. If a fa
4. Data from all LTACH critical care locations and wards. As with other HAIs, only inpatient locations are inclu
5. Data from all LTACH critical care locations. As with other HAIs, only inpatient locations are included for VA
6. Data from all LTACH wards. As with other HAIs, only inpatient locations are included for VAE, per the NHS
7. Hospital-onset is defined as event detected on the 4th day (or later) after admission to an inpatient location

NOTE: Risk factors used in the calculation of the number of predicted device-associated infections are listed
Risk factors used in the calculation of the number of predicted MRSA bacteremia and *C. difficile* are listed in

Table 1. National standardized infection ratios (SIRs) and facility-specific s

Central line-associated bloodstream infections (CLABSIs), catheter-associated urinary tract inf

	95% CI for SIR		Facility-specific SIRs			
SIR	Lower	Upper	No. Facilities with ≥1 Predicted Infection (Events)	No. Facilities with SIR Significantly > National SIR		No. Faciliti Significantly <
				N	%[2]	N
0.995	0.964	1.027	469	56	12%	77
0.943	0.845	1.051	78	11	14%	10
1.000	0.968	1.034	463	56	12%	75
0.992	0.961	1.024	473	61	12%	79
0.970	0.861	1.089	78	9	11%	3
0.994	0.962	1.027	467	59	12%	77
0.984	0.900	1.074	129	26	20%	20
1.001	0.788	1.255	19	5	26%	3
0.981	0.891	1.079	118	21	18%	16
0.977	0.823	1.151	49	4	8%	0
1.269	0.751	2.016	2	.	.	.
0.948	0.790	1.129	46	4	9%	0
0.965	0.902	1.031	348	27	8%	12
0.944	0.920	0.968	466	63	14%	55

an the nominal value of the national SIR for the given HAI type. This is only calculated if at least 10 facilities had a

icility's predicted number of HAIs was <1.0, a facility-specific SIR was neither calculated nor included in the distribu

uded for VAE, per the NHSN VAE Surveillance protocols.

E, per the NHSN VAE Surveillance protocols.

iN VAE Surveillance protocols.

i within the facility.

in Appendix A.

Appendix B.

summary SIRs using HAI data reported to NHSN by Long-term Acute Care Hospitals (LTACHs) during
ections (CAUTIs), ventilator-associated events (VAEs), infection related ventilator associated compli

es with SIR								Percent
< National SIR	5%	10%	15%	20%	25%	30%	35%	40%
16%	0.000	0.168	0.258	0.353	0.447	0.529	0.643	0.710
13%	0.000	0.000	0.000	0.193	0.234	0.411	0.523	0.599
16%	0.000	0.143	0.241	0.347	0.440	0.517	0.634	0.705
16%	0.000	0.140	0.235	0.344	0.422	0.494	0.565	0.623
4%	0.000	0.000	0.147	0.337	0.400	0.460	0.530	0.610
16%	0.000	0.116	0.217	0.322	0.392	0.461	0.540	0.621
16%	0.000	0.000	0.000	0.000	0.000	0.000	0.216	0.390
16%	.	.	.	.	.	.	.	.
14%	0.000	0.000	0.000	0.000	0.000	0.000	0.241	0.391
0%	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
.	.	.	.	.	.	.	.	.
0%	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
3%	0.000	0.000	0.000	0.000	0.000	0.322	0.483	0.582
12%	0.109	0.291	0.444	0.566	0.622	0.718	0.773	0.851

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

ile Distribution of Facility-specific SIRs[3]

	Median									
45%	50%	55%	60%	65%	70%	75%	80%	85%	90%
0.799	0.876	0.954	1.042	1.154	1.255	1.391	1.485	1.679	1.990
0.673	0.727	0.923	1.033	1.242	1.418	1.586	1.800	2.109	2.371
0.793	0.866	0.943	1.026	1.125	1.239	1.365	1.493	1.682	1.971
0.701	0.797	0.886	0.986	1.085	1.235	1.371	1.550	1.761	2.104
0.649	0.759	0.791	0.852	0.905	1.109	1.414	1.527	1.769	2.296
0.696	0.809	0.893	1.001	1.118	1.248	1.368	1.512	1.761	2.074
0.547	0.659	0.760	0.911	1.287	1.601	1.910	2.228	2.713	3.176
.	.	.	.	.	.	.	.	.	.
0.547	0.657	0.760	0.839	1.267	1.464	1.819	2.130	2.613	3.136
0.000	0.635	0.659	0.671	0.711	0.817	1.164	1.346	1.777	2.955
.	.	.	.	.	.	.	.	.	.
0.000	0.219	0.645	0.668	0.696	0.817	1.164	1.346	1.800	2.955
0.706	0.784	0.912	1.031	1.189	1.344	1.482	1.711	1.986	2.448
0.901	0.964	1.029	1.081	1.193	1.260	1.373	1.472	1.604	1.800

ile (CDI).

95%
2.497
2.854
2.528
2.505
3.239
2.520
3.916
.
3.916
5.015
.
5.015
3.167
2.152

Table 2. State-specific standardized infection ratios (SIRs)
NHSN Long-Term Acute Care Hospitals (LT
2. Central line-associated bloodstream infections

State	State NHSN Mandate[2]	Any Validation[3]	No. of LTACHs Reporting[4]	No. of Infections		95% CI	
				Observed	Predicted	SIR	Lower
Alaska	No	Yes	1	.	.	.	.
Alabama	No	No	8	40	44.177	0.905	0.656
Arkansas	Yes	Yes	7	41	39.916	1.027	0.747
Arizona	No	No	10	53	69.062	0.767	0.581
California	Yes	Yes[A]	25	489	349.000	1.401	1.281
Colorado	Yes	Yes	9	25	38.061	0.657	0.434
Connecticut	Yes	No	3	.	.	.	.
D.C.	Yes	No	2	.	.	.	.
Delaware	Yes	No	1	.	.	.	.
Florida	No	No	25	331	265.159	1.248	1.119
Georgia	Yes	No	16	108	120.107	0.899	0.741
Guam	No	No	0	.	.	.	.
Hawaii	Yes	Yes	1	.	.	.	.
Iowa	No	No	3	.	.	.	.
Idaho	No	No	3	.	.	.	.
Illinois	No	No	9	167	158.731	1.052	0.901
Indiana	No	No	14	133	125.566	1.059	0.890
Kansas	No	No	5	37	30.801	1.201	0.858
Kentucky	M	No	7	93	87.379	1.064	0.864
Louisiana	No	No	36	128	165.583	0.773	0.648
Massachusetts	No	No	16	120	117.865	1.018	0.848
Maryland	No	No	3	.	.	.	.
Maine	No	No	0	.	.	.	.
Michigan	No	No	19	135	112.413	1.201	1.011
Minnesota	No	No	2	.	.	.	.
Missouri	No	No	12	89	86.534	1.028	0.831
Mississippi	Yes	No	10	79	64.815	1.219	0.971
Montana	No	No	1	.	.	.	.
North Carolina	Yes	Yes	9	94	94.826	0.991	0.806
North Dakota	No	No	2	.	.	.	.
Nebraska	No	No	4	.	.	.	.
New Hampshire	No	No	0	.	.	.	.
New Jersey	No	No	12	97	88.962	1.090	0.889
New Mexico	No	No	3	.	.	.	.
Nevada	Yes	No	10	72	100.032	0.720	0.567
New York	No	No	3	.	.	.	.
Ohio	No	No	32	187	252.079	0.742	0.641
Oklahoma	No	No	15	61	79.649	0.766	0.591
Oregon	Yes	Yes	1	.	.	.	.
Pennsylvania	Yes	Yes	23	156	131.779	1.184	1.009
Puerto Rico	No	No	0	.	.	.	.
Rhode Island	No	No	1	.	.	.	.
South Carolina	Yes	Yes	6	63	44.441	1.418	1.099
South Dakota	No	No	1	.	.	.	.

Tennessee	Yes	Yes	10	86	75.300	1.142	0.919
Texas	No	No	88	629	713.302	0.882	0.815
Utah	Yes	Yes	4	.	.	.	.
Virginia	No	No	6	57	40.786	1.398	1.068
Virgin Islands	.	.	0	.	.	.	.
Vermont	No	No	0	.	.	.	.
Washington	Yes	Yes	3	.	.	.	.
Wisconsin	No	Yes	6	42	50.945	0.824	0.602
West Virginia	Yes	Yes	2	.	.	.	.
Wyoming	No	No	0	.	.	.	.
All US			**489**	**3,807**	**3824.780**	**0.995**	**0.964**

1. Includes data reported from all locations (i.e., adult and pediatric critical care units and wards) within LTACHs.
2. Yes indicates the presence of a state mandate to report CLABSI data from any location to NHSN at the beginnir
   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
   assessment of missing or implausible values on at least six months of 2015 NHSN data prior to July 1, 2016, ar
   Yes[A] indicates that the state also conducted an audit of facility medical or laboratory records prior to July 1, 201
   varies by state). Information on validation efforts was requested from all states, regardless of the presence of a
   reporting of a given HAI to the state health department have performed validation on NHSN data that is voluntar
4. The number of LTACHs that reported 2015 CLABSI data and are included in the SIR calculation. SIRs and accc
   from at least one location in 2015.
5. Percent of facilities with ≥1.0 predicted CLABSI that had an SIR significantly greater or less than the nominal va
   ≥ 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. I
   nor included in the distribution of facility-specific SIRs.

and facility-specific SIR summary measures,
ГACHs) reporting during 2015
(CLABSIs) in LTACHs, all locations[1]

for SIR	Facility-specific SIRs			Facility-specific SIRs at Key Percen			
Upper	No. of facs with at least 1 predicted CLABSI	% of facs with SIR sig higher than national SIR[5]	% of facs with SIR sig lower than national SIR[5]	10%	25%	Median (50%)	75%
1.221	8	.	.	.	.	.	.
1.380	7	.	.	.	.	.	.
0.996	9	.	.	.	.	.	.
1.530	24	33%	13%	0.122	1.061	1.472	1.752
0.955	9	.	.	.	.	.	.
	.	.	.	.	.	.	.
	.	.	.	.	.	.	.
	.	.	.	.	.	.	.
1.388	25	28%	24%	0.178	0.383	0.911	1.580
1.081	16	13%	19%	.	.	.	.
	.	.	.	.	.	.	.
	.	.	.	.	.	.	.
	.	.	.	.	.	.	.
1.221	9	.	.	.	.	.	.
1.251	14	14%	29%	.	.	.	.
1.638	4	.	.	.	.	.	.
1.298	7	.	.	.	.	.	.
0.916	31	6%	16%	0.000	0.189	0.688	1.335
1.213	15	20%	7%	.	.	.	.
	.	.	.	.	.	.	.
	.	.	.	.	.	.	.
1.417	19	16%	21%	.	.	.	.
	.	.	.	.	.	.	.
1.260	12	8%	8%	.	.	.	.
1.511	10	30%	10%	.	.	.	.
	.	.	.	.	.	.	.
1.208	9	.	.	.	.	.	.
	.	.	.	.	.	.	.
	.	.	.	.	.	.	.
1.324	11	27%	18%	.	.	.	.
	.	.	.	.	.	.	.
0.901	10	0%	20%	.	.	.	.
	.	.	.	.	.	.	.
0.854	31	10%	23%	0.000	0.220	0.652	1.111
0.977	12	8%	25%	.	.	.	.
	.	.	.	.	.	.	.
1.381	23	17%	9%	0.181	0.714	1.039	1.499
	.	.	.	.	.	.	.
	.	.	.	.	.	.	.
1.802	6	.	.	.	.	.	.
	.	.	.	.	.	.	.

1.404	10	10%	20%	.	.	.	.
0.953	86	6%	20%	0.073	0.414	0.749	1.249
.	.	.	.	.	.	.	.
1.798	6	.	.	.	.	.	.
.	.	.	.	.	.	.	.
.	.	.	.	.	.	.	.
1.104	6	.	.	.	.	.	.
.	.	.	.	.	.	.	.
1.027	**469**	**12%**	**16%**	**0.168**	**0.447**	**0.876**	**1.391**

ng of 2015. M indicates midyear implementation of a mandate.

: state health department had access to 2015 NHSN data, state health department performed an
ıd state health department contacted identified facilities.
6 to confirm proper case ascertainment (although intensity of auditing activities
 legislative mandate for the particular HAI type. Some states without mandatory
rily shared with them by facilities in their jurisdiction.
ompanying statistics are only calculated for states in which at least 5 LTACHs reported CLABSI data

lue of the 2015 national LTACH CLABSI SIR of 0.935. This is only calculated if at least 10 facilities had

If a facility's predicted number of CLABSI was <1.0, a facility-specific SIR was neither calculated

90%

2.352

2.716

1.812

1.657

2.185

1.579

1.990

Table 3. State-specific standardized infection
NHSN Long-Term Acute Care
3. Catheter-associated urinary tra

| State | | | | No. of Infections | | |
				Observed	Predicted	SIR
Alaska	No	Yes	1	.	.	.
Alabama	No	No	8	48	55.527	0.864
Arkansas	Yes	Yes	7	32	42.818	0.747
Arizona	No	No	10	38	56.054	0.678
California	No	No	25	417	376.363	1.108
Colorado	No	No	9	98	67.831	1.445
Connecticut	Yes	No	3	.	.	.
D.C.	No	No	2	.	.	.
Delaware	Yes	No	1	.	.	.
Florida	No	No	26	327	325.986	1.003
Georgia	Yes	No	16	200	161.565	1.238
Guam	No	No	0	.	.	.
Hawaii	Yes	Yes	0	.	.	.
Iowa	No	No	3	.	.	.
Idaho	No	No	3	.	.	.
Illinois	No	No	9	160	162.365	0.985
Indiana	No	No	14	130	97.981	1.327
Kansas	No	No	5	22	28.688	0.767
Kentucky	M	No	7	115	80.903	1.421
Louisiana	No	No	36	115	186.805	0.616
Massachusetts	No	No	16	154	123.241	1.250
Maryland	No	No	3	.	.	.
Maine	No	No	0	.	.	.
Michigan	No	No	19	120	94.564	1.269
Minnesota	No	No	2	.	.	.
Missouri	No	No	12	95	90.522	1.049
Mississippi	Yes	No	10	54	69.155	0.781
Montana	No	No	1	.	.	.
North Carolina	Yes	No	9	52	79.480	0.654
North Dakota	No	No	2	.	.	.
Nebraska	No	No	4	.	.	.
New Hampshire	No	No	0	.	.	.
New Jersey	No	No	12	98	106.447	0.921
New Mexico	No	No	3	.	.	.
Nevada	No	No	10	99	87.287	1.134
New York	No	No	3	.	.	.
Ohio	No	No	32	240	227.381	1.055
Oklahoma	No	No	15	63	86.173	0.731
Oregon	Yes	Yes	1	.	.	.
Pennsylvania	Yes	Yes	23	119	101.223	1.176
Puerto Rico	No	No	0	.	.	.

Rhode Island	No	No	1	.	.	.
South Carolina	No	No	6	51	36.424	1.400
South Dakota	No	No	1	.	.	.
Tennessee	Yes	Yes	10	82	69.227	1.185
Texas	No	No	88	516	636.701	0.810
Utah	Yes	Yes	4	.	.	.
Virginia	No	No	6	47	45.278	1.038
Virgin Islands	.	.	0	.	.	.
Vermont	No	No	0	.	.	.
Washington	No	No	3	.	.	.
Wisconsin	No	Yes	6	37	36.933	1.002
West Virginia	Yes	Yes	2	.	.	.
Wyoming	No	No	0	.	.	.
All US			**489**	**3,830**	**3859.250**	**0.992**

1. Includes data reported from all locations (i.e., adult and pediatric critical care units and wards) wit
2. Yes indicates the presence of a state mandate to report CAUTI data from any location to NHSN a
   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 valid
   assessment of missing or implausible values on at least six months of 2015 NHSN data prior to J

   varies by state). Information on validation efforts was requested from all states, regardless of the
   reporting of a given HAI to the state health department have performed validation on NHSN data
4. The number of LTACHs that reported 2015 CAUTI data and are included in the SIR calculation. S
   from at least one location in 2015.
5. Percent of facilities with ≥1.0 predicted CAUTI that had an SIR significantly greater or less than th
   ≥ 1.0 predicted CAUTI in 2015.
6. Facility-specific key percentiles were only calculated if at least 20 facilities had ≥1.0 predicted CA
   nor included in the distribution of facility-specific SIRs.

ratios (SIRs) and facility-specific SIR summary measures,
Hospitals (LTACHs) reporting during 2015
ct infections (CAUTIs) in LTACHs, all locations[1]

95% CI for SIR		Facility-specific SIRs				
Lower	Upper	No. of facs with at least 1 predicted CAUTI			10%	25%
.	.	.	.	.	.	.
0.645	1.137	8	.	.	.	.
0.520	1.042	7	.	.	.	.
0.487	0.921	9	.	.	.	.
1.005	1.218	24	17%	21%	0.270	0.546
1.179	1.753	9	.	.	.	.
			.	.	.	.
.	.	.	.	.	.	.
.	.	.	.	.	.	.
0.899	1.116	25	20%	20%	0.071	0.444
1.075	1.419	16	25%	13%	.	.
			.	.	.	.
.	.	.	.	.	.	.
.	.	.	.	.	.	.
0.841	1.147	9	.	.	.	.
1.113	1.570	14	7%	0%	.	.
0.493	1.142	4	.	.	.	.
1.179	1.700	7	.	.	.	.
0.511	0.736	34	6%	21%	0.000	0.051
1.064	1.459	15	27%	13%	.	.
.	.	.	.	.	.	.
1.057	1.512	19	16%	11%	.	.
.	.	.	.	.	.	.
0.854	1.277	12	25%	17%	.	.
0.592	1.011	10	0%	30%	.	.
.	.	.	.	.	.	.
0.494	0.851	9	.	.	.	.
.	.	.	.	.	.	.
.	.	.	.	.	.	.
0.751	1.117	11	18%	27%	.	.
.	.	.	.	.	.	.
0.927	1.375	10	10%	10%	.	.
.	.	.	.	.	.	.
0.928	1.196	31	16%	10%	0.153	0.492
0.567	0.929	12	8%	25%	.	.
.	.	.	.	.	.	.
0.978	1.402	23	17%	13%	0.039	0.633
.	.	.	.	.	.	.

.	.	.	.	.	.	.
1.053	1.826	6	.	.	.	.
.	.	.	.	.	.	.
0.948	1.463	10	20%	0%	.	.
0.743	0.883	87	8%	24%	0.131	0.306
.	.	.	.	.	.	.
0.771	1.369	6	.	.	.	.
.	.	.	.	.	.	.
.	.	.	.	.	.	.
.	.	.	.	.	.	.
0.716	1.366	6	.	.	.	.
.	.	.	.	.	.	.
.	.	.	.	.	.	.
0.961	**1.024**	**473**	**12%**	**16%**	**0.140**	**0.422**

hin LTACHs.
at the beginning of 2015. M indicates midyear implementation of a mandate.

ation activities: state health department had access to 2015 NHSN data, state health department perforn
uly 1, 2016, and state health department contacted identified facilities.

presence of a legislative mandate for the particular HAI type. Some states without mandatory
that is voluntarily shared with them by facilities in their jurisdiction.
SIRs and accompanying statistics are only calculated for states in which at least 5 LTACHs reported CAL

ne nominal value of the 2015 national LTACH CAUTI SIR of 0.919. This is only calculated if at least 10 fa

UTI in 2015. If a facility's predicted number of CAUTI was <1.0, a facility-specific SIR was neither calcula

	75%	90%
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1.031	1.462	1.586
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0.718	1.285	2.189
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0.517	0.893	1.455
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.	.	.
0.885	1.508	1.959
.	.	.
.	.	.
0.970	1.464	3.263
.	.	.

| | 0.624 | 1.004 | 2.025 |
| | 0.797 | 1.371 | 2.104 |

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State				No. of Events		
				Observed	Predicted	SIR
Alaska	No	No	1	.	.	.
Alabama	No	No	2	.	.	.
Arkansas	Yes	Yes	5	6	9.379	0.640
Arizona	No	No	5	6	12.821	0.468
California	No	No	2	.	.	.
Colorado	No	No	4	.	.	.
Connecticut	Yes	No	0	.	.	.
D.C.	No	No	0	.	.	.
Delaware	No	No	1	.	.	.
Florida	No	No	12	52	35.034	1.484
Georgia	No	No	10	34	23.756	1.431
Guam	No	No	0	.	.	.
Hawaii	No	No	0	.	.	.
Iowa	No	No	2	.	.	.
Idaho	No	No	1	.	.	.
Illinois	No	No	2	.	.	.
Indiana	No	No	8	43	35.950	1.196
Kansas	No	No	3	.	.	.
Kentucky	M	No	3	.	.	.
Louisiana	No	No	5	2	0.264	.
Massachusetts	No	No	5	9	21.407	0.420
Maryland	No	No	1	.	.	.
Maine	No	No	0	.	.	.
Michigan	No	No	13	27	22.712	1.189
Minnesota	No	No	1	.	.	.
Missouri	No	No	5	12	12.506	0.960
Mississippi	Yes	No	5	11	8.928	1.232
Montana	No	No	0	.	.	.
North Carolina	No	No	3	.	.	.
North Dakota	No	No	2	.	.	.
Nebraska	No	No	2	.	.	.
New Hampshire	No	No	0	.	.	.
New Jersey	No	No	2	.	.	.
New Mexico	No	No	1	.	.	.
Nevada	No	No	1	.	.	.
New York	No	No	0	.	.	.
Ohio	No	No	18	37	29.377	1.260
Oklahoma	No	No	3	.	.	.
Oregon	No	No	1	.	.	.
Pennsylvania	Yes	Yes	21	63	74.882	0.841
Puerto Rico	No	No	0	.	.	.

Rhode Island	No	No	0	.	.	.
South Carolina	M	Yes	6	44	20.436	2.153
South Dakota	No	No	1	.	.	.
Tennessee	No	No	6	37	21.927	1.687
Texas	No	No	33	4	34.674	0.115
Utah	Yes	Yes	0	.	.	.
Virginia	No	No	3	.	.	.
Virgin Islands	.	.	0	.	.	.
Vermont	No	No	0	.	.	.
Washington	No	No	3	.	.	.
Wisconsin	No	Yes	4	.	.	.
West Virginia	No	No	2	.	.	.
Wyoming	No	No	0	.	.	.
All US			**208**	**490**	**497.890**	**0.984**

1. Includes data reported from all locations (i.e., adult critical care units and wards) within LTACHs.
2. Yes indicates the presence of a state mandate to report VAE data from any location to NHSN at th
   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 validat
   assessment of missing or implausible values on at least six months of 2015 NHSN data prior to Jul

   varies by state). Information on validation efforts was requested from all states, regardless of the p
   reporting of a given HAI to the state health department have performed validation on NHSN data th
4. The number of LTACHs that reported 2015 VAE data and are included in the SIR calculation. SIRs
   from at least one location in 2015.
5. Percent of facilities with ≥1.0 predicted VAE that had an SIR significantly greater or less than the n
   ≥ 1.0 predicted VAE in 2015.
6. Facility-specific key percentiles were only calculated if at least 20 facilities had ≥1.0 predicted VAE
   nor included in the distribution of facility-specific SIRs.

ratios (SIRs) and facility-specific SIR summary measures,
Hospitals (LTACHs) reporting during 2015
events (VAEs) in LTACHs, all locations[1]

95% CI for SIR		Facility-specific SIRs				
Lower	Upper	No. of facs with at least 1 predicted VAE			10%	25%
.	.	.	.	.	.	.
.	.	.	.	.	.	.
0.259	1.331	3	.	.	.	.
0.190	0.973	3	.	.	.	.
.	.	.	.	.	.	.
.	.	.	.	.	.	.
.	.	.	.	.	.	.
.	.	.	.	.	.	.
1.120	1.931	11	36%	0%	.	.
1.007	1.977	8	.	.	.	.
.	.	.	.	.	.	.
.	.	.	.	.	.	.
.	.	.	.	.	.	.
0.877	1.596	5	.	.	.	.
.	.	.	.	.	.	.
.	.	0	.	.	.	.
0.205	0.772	4	.	.	.	.
.	.	.	.	.	.	.
0.799	1.706	9	.	.	.	.
.	.	.	.	.	.	.
0.520	1.631	4	.	.	.	.
0.648	2.141	3	.	.	.	.
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.	.	.	.	.	.	.
.	.	.	.	.	.	.
.	.	.	.	.	.	.
0.900	1.718	9	.	.	.	.
.	.	.	.	.	.	.
0.652	1.069	16	13%	25%	.	.
.	.	.	.	.	.	.

.	.	.	.	.	.	.
1.584	2.864	6	.	.	.	.
.	.	.	.	.	.	.
1.206	2.301	6	.	.	.	.
0.037	0.278	8	.	.	.	.
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0.900	**1.074**	**129**	**20%**	**16%**	**0.000**	**0.000**

e beginning of 2015. M indicates midyear implementation of a mandate.

tion activities: state health department had access to 2015 NHSN data, state health department performe
ly 1, 2016, and state health department contacted identified facilities.

resence of a legislative mandate for the particular HAI type. Some states without mandatory
at is voluntarily shared with them by facilities in their jurisdiction.
 and accompanying statistics are only calculated for states in which at least 5 LTACHs reported VAE dat

ominal value of the 2015 national LTACH VAE SIR of 0.984. This is only calculated if at least 10 facilities

in 2015. If a facility's predicted number of VAE was <1.0, a facility-specific SIR was neither calculated

	75%	90%
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0.659	**1.910**	**3.176**

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Table 4. State-specific standardized infectio
NHSN Long-Term Acute Ca
4b. Infection-related Ventilator-Associated Complication and p

State				No. of Events		
				Observed	Predicted	SIR
Alaska	No	No	1	.	.	.
Alabama	No	No	2	.	.	.
Arkansas	Yes	Yes	5	0	2.624	0.000
Arizona	No	No	5	2	3.398	0.589
California	No	No	2	.	.	.
Colorado	No	No	4	.	.	.
Connecticut	Yes	No	0	.	.	.
D.C.	No	No	0	.	.	.
Delaware	No	No	1	.	.	.
Florida	No	No	12	18	10.339	1.741
Georgia	No	No	10	3	7.317	0.410
Guam	No	No	0	.	.	.
Hawaii	No	No	0	.	.	.
Iowa	No	No	2	.	.	.
Idaho	No	No	1	.	.	.
Illinois	No	No	2	.	.	.
Indiana	No	No	8	18	9.581	1.879
Kansas	No	No	3	.	.	.
Kentucky	M	No	3	.	.	.
Louisiana	No	No	5	0	0.077	.
Massachusetts	No	No	5	1	6.157	0.162
Maryland	No	No	1	.	.	.
Maine	No	No	0	.	.	.
Michigan	No	No	13	11	6.062	1.814
Minnesota	No	No	1	.	.	.
Missouri	No	No	5	4	3.568	1.121
Mississippi	Yes	No	5	7	2.794	2.505
Montana	No	No	0	.	.	.
North Carolina	No	No	3	.	.	.
North Dakota	No	No	2	.	.	.
Nebraska	No	No	2	.	.	.
New Hampshire	No	No	0	.	.	.
New Jersey	No	No	2	.	.	.
New Mexico	No	No	1	.	.	.
Nevada	No	No	1	.	.	.
New York	No	No	0	.	.	.
Ohio	No	No	18	7	9.659	0.725
Oklahoma	No	No	3	.	.	.
Oregon	No	No	1	.	.	.
Pennsylvania	Yes	Yes	21	16	21.951	0.729
Puerto Rico	No	No	0	.	.	.

Rhode Island	No	No	0	.	.	.
South Carolina	M	Yes	6	5	4.701	1.064
South Dakota	No	No	1	.	.	.
Tennessee	No	No	6	6	6.695	0.896
Texas	No	No	33	2	8.246	0.243
Utah	Yes	Yes	0	.	.	.
Virginia	No	No	3	.	.	.
Virgin Islands	.	.	0	.	.	.
Vermont	No	No	0	.	.	.
Washington	No	No	3	.	.	.
Wisconsin	No	Yes	4	.	.	.
West Virginia	No	No	2	.	.	.
Wyoming	No	No	0	.	.	.
All US			**208**	**137**	**140.227**	**0.977**

1. Includes data reported from all locations (i.e., adult critical care units and wards) within LTACHs. "
2. Yes indicates the presence of a state mandate to report IVAC-Plus data from any location to NHS
   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 valida
   assessment of missing or implausible values on at least six months of 2015 NHSN data prior to Ju

   varies by state). Information on validation efforts was requested from all states, regardless of the
   reporting of a given HAI to the state health department have performed validation on NHSN data t
2. The number of LTACHs that reported 2015 IVAC-Plus data and are included in the SIR calculatio
   from at least one location in 2015.
3. Percent of facilities with ≥1.0 predicted IVAC-Plus that had an SIR significantly greater or less tha
   ≥ 1.0 predicted IVAC-Plus in 2015.
4. Facility-specific key percentiles were only calculated if at least 20 facilities had ≥1.0 predicted IVA
   nor included in the distribution of facility-specific SIRs.

n ratios (SIRs) and facility-specific SIR summary measures,
re Hospitals (LTACHs) reporting during 2015
possible ventilator-associated pneumonia (IVAC) Plus in LTACHs, all locations[1]

95% CI for SIR		Facility-specific SIRs					
Lower	Upper	No. of facs with at least 1 predicted IVAC-Plus				10%	25%
.	.	.	.	.	.	.	.
.	1.141	.	.	.	.	.	.
0.099	1.944	1	.	.	.	.	.
		1	.	.	.	.	.
.	.	.	.	.	.	.	.
.	.	.	.	.	.	.	.
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.	.	.	.	.	.	.	.
.	.	.	.	.	.	.	.
1.064	2.698	5	.	.	.	.	.
0.104	1.116	3	.	.	.	.	.
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.	.	.	.	.	.	.	.
1.148	2.912	2	.	.	.	.	.
.	.	.	.	.	.	.	.
.	.	0	.	.	.	.	.
0.008	0.801	3	.	.	.	.	.
.	.	.	.	.	.	.	.
.	.	.	.	.	.	.	.
0.954	3.154	2	.	.	.	.	.
.	.	.	.	.	.	.	.
0.356	2.704	1	.	.	.	.	.
1.096	4.956	1	.	.	.	.	.
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.	.	.	.	.	.	.	.
.	.	.	.	.	.	.	.
0.317	1.434	2	.	.	.	.	.
.	.	.	.	.	.	.	.
.	.	.	.	.	.	.	.
0.431	1.158	9	.	.	.	.	.
.	.	.	.	.	.	.	.

0.390	2.357		1	.	.	.	.
0.363	1.864		2	.	.	.	.
0.041	0.801		1	.	.	.	.
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0.823	**1.151**		**49**	**8%**	**0%**	**0.000**	**0.000**

'IVAC Plus" includes events that meet the NHSN defintion of infection-related ventilator-associated complica
;N at the beginning of 2015. M indicates midyear implementation of a mandate.

ation activities: state health department had access to 2015 NHSN data, state health department performed
uly 1, 2016, and state health department contacted identified facilities.

presence of a legislative mandate for the particular HAI type. Some states without mandatory
that is voluntarily shared with them by facilities in their jurisdiction.
n. SIRs and accompanying statistics are only calculated for states in which at least 5 LTACHs reported IVA

n the nominal value of the 2015 national LTACH IVAC-Plus SIR of 0.977. This is only calculated if at least 1

C-Plus in 2015. If a facility's predicted number of IVAC-Plus was <1.0, a facility-specific SIR was neither cal

	75%	90%
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  0.635      1.164      2.955
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ation (IVAC) or possible ventilator-associated pneumonia (pVAP).

l an

C-Plus data

0 facilities had

lculated

Table 5. State-specific standardized infection
NHSN Long-Term Acute Care
Hospital-onset methicillin-resistant *Sta*

State				Observed	Predicted	SIR
				No. of Events		
Alaska	No	Yes	1	.	.	.
Alabama	No	No	8	5	9.192	0.544
Arkansas	Yes	Yes	7	7	7.693	0.910
Arizona	No	No	10	11	14.672	0.750
California	Yes	Yes	24	123	76.895	1.600
Colorado	No	No	9	4	11.746	0.341
Connecticut	Yes	No	3	.	.	.
D.C.	Yes	No	2	.	.	.
Delaware	Yes	No	1	.	.	.
Florida	No	No	26	93	68.951	1.349
Georgia	Yes	No	15	29	34.050	0.852
Guam	No	No	0	.	.	.
Hawaii	Yes	Yes	0	.	.	.
Iowa	No	No	3	.	.	.
Idaho	No	No	3	.	.	.
Illinois	Yes	Yes	9	36	40.296	0.893
Indiana	No	No	14	21	21.948	0.957
Kansas	No	No	4	.	.	.
Kentucky	M	No	7	16	19.467	0.822
Louisiana	No	No	34	23	33.905	0.678
Massachusetts	No	No	16	22	52.078	0.422
Maryland	No	No	2	.	.	.
Maine	No	No	0	.	.	.
Michigan	No	No	19	50	25.647	1.950
Minnesota	No	No	2	.	.	.
Missouri	No	No	12	17	21.684	0.784
Mississippi	Yes	No	10	8	13.857	0.577
Montana	No	No	1	.	.	.
North Carolina	Yes	Yes	9	28	17.085	1.639
North Dakota	No	No	2	.	.	.
Nebraska	Yes	Yes	4	.	.	.
New Hampshire	No	No	0	.	.	.
New Jersey	No	No	12	22	25.917	0.849
New Mexico	No	No	3	.	.	.
Nevada	Yes	No	10	12	15.161	0.792
New York	No	No	2	.	.	.
Ohio	No	No	32	49	49.716	0.986
Oklahoma	No	No	15	16	15.121	1.058
Oregon	Yes	Yes	1	.	.	.
Pennsylvania	Yes	Yes	23	41	36.608	1.120
Puerto Rico	No	No	0	.	.	.
Rhode Island	No	No	1	.	.	.
South Carolina	Yes	Yes	6	12	8.608	1.394
South Dakota	No	No	1	.	.	.

Tennessee	Yes	Yes	10	29	22.648	1.280
Texas	No	No	84	96	119.086	0.806
Utah	Yes		4	.	.	.
Virginia	No	No	6	21	15.192	1.382
Virgin Islands	.	.	0	.	.	.
Vermont	No	No	0	.	.	.
Washington	No	No	3	.	.	.
Wisconsin	No	Yes	6	5	9.092	0.550
West Virginia	Yes	Yes	2	.	.	.
Wyoming	No	No	0	.	.	.
All US			**478**	**857**	**887.996**	**0.965**

1. Includes data reported from all locations (i.e., adult and pediatric critical care units and wards) wit
2. Yes indicates the presence of a state mandate to report MRSA bacteremia data from any locatior
   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 valid
   assessment of missing or implausible values on at least six months of 2015 NHSN data prior to J

   varies by state). Information on validation efforts was requested from all states, regardless of the
   reporting of a given HAI to the state health department have performed validation on NHSN data
2. The number of LTACHs that reported 2015 MRSA bacteremia data and are included in the SIR c
   MRSA bacteremia data from at least one location in 2015.
3. Percent of facilities with ≥1.0 predicted MRSA bacteremia that had an SIR significantly greater or
   ≥ 1.0 predicted MRSA bacteremia in 2015.
4. Facility-specific key percentiles were only calculated if at least 20 facilities had ≥1.0 predicted MR
   was neither calculated nor included in the distribution of facility-specific SIRs.

ratios (SIRs) and facility-specific SIR summary measures,
Hospitals (LTACHs) reporting during 2015
phylococcus aureus (MRSA) bacteremia, facility-wide[1]

95% CI for SIR		Facility-specific SIRs					
Lower	Upper	No. of facs with at least 1 predicted MRSA				10%	25%
.		.	.	.		.	.
0.199	1.206	5	.	.		.	.
0.398	1.800	3	.	.		.	.
0.394	1.303	7	.	.		.	.
1.335	1.902	23	35%	4%		0.000	0.799
0.108	0.821	6	.	.		.	.
.	.	.	.	.		.	.
.	.	.	.	.		.	.
.	.	.	.	.		.	.
1.095	1.645	24	17%	4%		0.000	0.455
0.581	1.207	13	15%	15%		.	.
.	.	.	.	.		.	.
.	.	.	.	.		.	.
.	.	.	.	.		.	.
0.635	1.223	9	.	.		.	.
0.608	1.438	9	.	.		.	.
.	.	.	.	.		.	.
0.487	1.306	6	.	.		.	.
0.440	1.002	14	0%	7%		.	.
0.271	0.629	13	8%	23%		.	.
.	.	.	.	.		.	.
.	.	.	.	.		.	.
1.463	2.549	14	14%	0%		.	.
.	.	.	.	.		.	.
0.472	1.230	11	0%	0%		.	.
0.268	1.096	7	.	.		.	.
.	.	.	.	.		.	.
1.110	2.337	8	.	.		.	.
.	.	.	.	.		.	.
.	.	.	.	.		.	.
0.545	1.264	12	8%	0%		.	.
.	.	.	.	.		.	.
0.429	1.346	6	.	.		.	.
.	.	.	.	.		.	.
0.737	1.292	24	4%	0%		0.000	0.000
0.626	1.682	8	.	.		.	.
.	.	.	.	.		.	.
0.814	1.505	20	10%	0%		0.000	0.000
.	.	.	.	.		.	.
0.755	2.370	5	.	.		.	.
.	.	.	.	.		.	.

0.874	1.815	9	.	.	.	.
0.657	0.980	56	4%	0%	0.000	0.000
.	.	.	.	.	.	.
0.878	2.077	3	.	.	.	.
.	.	.	.	.	.	.
.	.	.	.	.	.	.
.	.	.	.	.	.	.
0.201	1.219	6	.	.	.	.
.	.	.	.	.	.	.
.	.	.	.	.	.	.
0.902	**1.031**	**348**	**8%**	**3%**	**0.000**	**0.000**

hin LTACHs.
n to NHSN at the beginning of 2015. M indicates midyear implementation of a mandate.

ation activities: state health department had access to 2015 NHSN data, state health department perforr
uly 1, 2016, and state health department contacted identified facilities.

presence of a legislative mandate for the particular HAI type. Some states without mandatory
that is voluntarily shared with them by facilities in their jurisdiction.
alculation. SIRs and accompanying statistics are only calculated for states in which at least 5 LTACHs re

less than the nominal value of the 2015 national LTACH MRSA SIR of 0.965. This is only calculated if a

:SA bacteremia in 2015. If a facility's predicted number of MRSA bacteremia was <1.0, a facility-specific

	75%	90%
.	.	.
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.	.	.
1.379	2.527	2.927
.	.	.
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.	.	.
0.953	1.872	3.097
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0.914	1.397	2.186
.	.	.
.	.	.
0.988	1.907	2.552
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0.577	1.099	1.856
.	.	.
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.	.	.
.	.	.
0.784	**1.482**	**2.448**

ned an

eported

t least 10 facilities had

SIR

State				No. of Events		
				Observed	Predicted	SIR
Alaska	No	Yes	1	.	.	.
Alabama	No	No	8	32	61.703	0.519
Arkansas	Yes	Yes	7	48	55.316	0.868
Arizona	No	No	10	99	94.333	1.049
California	Yes	Yes	24	656	633.036	1.036
Colorado	No	No	9	83	89.166	0.931
Connecticut	Yes	No	3	.	.	.
D.C.	No	No	2	.	.	.
Delaware	Yes	No	1	.	.	.
Florida	No	No	25	429	418.532	1.025
Georgia	Yes	No	15	181	197.989	0.914
Guam	No	No	0	.	.	.
Hawaii	Yes	Yes	0	.	.	.
Iowa	No	No	3	.	.	.
Idaho	No	No	3	.	.	.
Illinois	Yes		9	194	257.004	0.755
Indiana	No	No	14	155	162.196	0.956
Kansas	No	No	4	.	.	.
Kentucky	M	No	7	89	94.197	0.945
Louisiana	No	No	33	163	216.434	0.753
Massachusetts	No	No	16	370	440.977	0.839
Maryland	No	No	2	.	.	.
Maine	No	No	0	.	.	.
Michigan	No	No	19	174	196.284	0.886
Minnesota	No	No	2	.	.	.
Missouri	No	No	12	159	132.013	1.204
Mississippi	Yes	No	10	76	99.043	0.767
Montana	No	No	1	.	.	.
North Carolina	Yes	Yes	8	107	108.907	0.982
North Dakota	No	No	2	.	.	.
Nebraska	Yes	Yes	4	.	.	.
New Hampshire	No	No	0	.	.	.
New Jersey	No	No	12	126	156.144	0.807
New Mexico	No	No	3	.	.	.
Nevada	No	No	10	140	107.398	1.304
New York	Yes		3	.	.	.
Ohio	No	No	32	282	352.089	0.801
Oklahoma	No	No	15	146	114.341	1.277
Oregon	Yes	Yes	1	.	.	.
Pennsylvania	Yes	Yes	22	271	205.927	1.316
Puerto Rico	No	No	0	.	.	.
Rhode Island	No	No	1	.	.	.
South Carolina	Yes	Yes	6	79	63.696	1.240

South Dakota	No	No	1	.	.	.
Tennessee	Yes	Yes	9	103	114.033	0.903
Texas	No	No	84	873	865.380	1.009
Utah	Yes		4	.	.	.
Virginia	No	No	0	.	.	.
Virgin Island	.	.	6	104	76.125	1.366
Vermont	No	No	0	.	.	.
Washington	Yes	Yes	3	.	.	.
Wisconsin	No	Yes	6	61	67.681	0.901
West Virginia	Yes	No	2	.	.	.
Wyoming	No	No	0	.	.	.
All US			**474**	**5,770**	**6,114.419**	**0.944**

1. Includes data reported from all locations (i.e., adult and pediatric critical care units and wards) wi

2. Yes indicates the presence of a state mandate to report CDI data from any location to NHSN at tl
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 valid
assessment of missing or implausible values on at least six months of 2015 NHSN data prior to J

varies by state). Information on validation efforts was requested from all states, regardless of the
reporting of a given HAI to the state health department have performed validation on NHSN data

4. The number of LTACHs that reported 2015 CDI data and are included in the SIR calculation. SIR
from at least one location in 2015.

5. Percent of facilities with ≥1.0 predicted CDI that had an SIR significantly greater or less than the ı
≥ 1.0 predicted CDI in 2015.

6. Facility-specific key percentiles were only calculated if at least 20 facilities had ≥1.0 predicted CD
nor included in the distribution of facility-specific SIRs.

ratios (SIRs) and facility-specific SIR summary measures,
Hospitals (LTACHs) reporting during 2015
ridium difficile (CDI), facility-wide[1]

95% CI for SIR		Facility-specific SIRs					
Lower	Upper	No. of facs with at least 1 predicted CDI			10%	25%	
0.361	0.723	8	.	.	.	.	.
0.647	1.141	7	.	.	.	.	.
0.858	1.272	10	20%	20%	.	.	.
0.959	1.118	24	21%	8%	0.428	0.816	1.036
0.746	1.148	9	.	.	.	.	.
.	.	.	.	.	.	.	.
.	.	.	.	.	.	.	.
0.931	1.126	25	8%	4%	0.417	0.693	0.909
0.788	1.055	15	20%	13%	.	.	.
.	.	.	.	.	.	.	.
.	.	.	.	.	.	.	.
0.654	0.867	9	.	.	.	.	.
0.814	1.115	14	14%	14%	.	.	.
0.763	1.157	7	.	.	.	.	.
0.644	0.876	31	3%	10%	0.217	0.451	0.798
0.757	0.928	16	19%	19%	.	.	.
0.762	1.026	18	0%	6%	.	.	.
1.028	1.403	12	17%	0%	.	.	.
0.609	0.955	10	0%	30%	.	.	.
0.809	1.182	8	.	.	.	.	.
0.675	0.957	12	17%	25%	.	.	.
1.101	1.533	10	40%	0%	.	.	.
0.711	0.899	32	6%	16%	0.163	0.479	0.803
1.082	1.497	13	8%	8%	.	.	.
1.166	1.480	22	27%	0%	0.851	1.045	1.357
0.989	1.538	6	.	.	.	.	.

0.741	1.091	9	.	.	.	.	.
0.944	1.077	82	13%	7%	0.408	0.615	0.935
1.122	1.649	6	.	.	.	.	.
0.695	1.150	6	.	.	.	.	.
0.920	**0.968**	**466**	**14%**	**12%**	**0.291**	**0.622**	**0.964**

ithin LTACHs.
he beginning of 2015. M indicates midyear implementation of a mandate.

lation activities: state health department had access to 2015 NHSN data, state health department performed an
July 1, 2016, and state health department contacted identified facilities.

e presence of a legislative mandate for the particular HAI type. Some states without mandatory
 that is voluntarily shared with them by facilities in their jurisdiction.
ts and accompanying statistics are only calculated for states in which at least 5 LTACHs reported CDI data

nominal value of the 2015 national LTACH CDI SIR of 0.944. This is only calculated if at least 10 facilities had

I in 2015. If a facility's predicted number of CDI was <1.0, a facility-specific SIR was neither calculated

75%	90%
.	.
.	.
.	.
.	.
1.433	1.604
.	.
.	.
.	.
.	.
1.308	1.511
.	.
.	.
.	.
.	.
.	.
.	.
.	.
.	.
1.074	1.248
.	.
.	.
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.	.
.	.
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.	.
.	.
1.131	1.390
.	.
.	.
1.736	2.218
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1.382        1.741|
  .              .
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  .              .
1.373        1.800
```

Appendix A. Factors used in NHSN risk adjustment of the device-associated HAIs (CLABSI, CAUTI, VAE, IVAC-Plus) negative binomial regression models[1] from Long-Term Acute Care Hospitals

HAI Type	Validated Parameters for Risk Model		
CLABSI	Intercept Type		Location Facility Bed Size* Average Length of Stay**
CAUTI	Intercept Average Length of Stay** Setting† Location Type		
VAE	Intercept bed size* admissions on hemodialysis***		Facility Proportion of Location Type Average Length of Stay
IVAC Plus	Facility bed size* Proportion of admissions on ventilator*** Average length of stay**		

1. SIR Guide: https://www.cdc.gov/nhsn/pdfs/ps-analysis-resources/nhsn-sir-guide.pdf
*Facility bed size is taken from the Annual LTACH Survey.
**Average length of stay is taken from the Annual LTACH Survey. It is calculated as: total # of annual patient
***Proportion of annual admissions on a ventilator (or hemodialysis) is taken from the Annual LTACH Survey.
It is calculated as: number of admissions on a ventilator (or hemodialysis) / total # of annual admissions.
† LTACH Setting (free-standing vs. within a hospital) is taken from the Annual LTACH Survey.

days / total # of annual admissions

Appendix b. Factors used in NHSN risk adjustment of the MRSA Bacteremia and *C. difficile* negative binomial regression models[1] from Long-Term Acute Care Hospitals

HAI Type	Validated Parameters for Risk Model
MRSA bacteremia	Percent of addmissions on ventilator*
C. difficile infections	Inpatient CO prevalence rate** Percent of admissions on ventilator* CDI test type^ Percent of single occupancy rooms‡

* Percent of annual admissions on a ventilator is taken from the Annual LTACH Survey. It is calculate
ventilator / total # annual admissions x 100

** Inpatient community-onset prevalence is calculated as the # of inpatient community-onset CDI ever
admissions * 100. The prevalence rate for each quarter is used in the risk adjustment.

^ CDI test type is reported on the FacWideIN MDRO denominator form on the 3rd month of each quart

‡ Percent of beds located in single occupancy rooms is taken from the Annual LTACH Survey. It is cal
rooms / total number of beds x 100.

d as: # admissions on a

nts, divided by total

ter.
lculated as: # of single occupancy

<u>Additional Resources</u>

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 Data 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.