2016 National ar
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Introduction: Welcome to the 2016 National and State HAI Progress Report using the new 2015 baseli
are used to describe different HAI types by comparing the number of observed infections
This report is created by CDC staff with the National Healthcare Safety Network (NHSN).

This workbook includes national and state-specific SIR data for inpatient rehabilitation fac

Scope of report:

HAI Type	IR
	National
Central line-associated bloodstream infections (CLABSI) by locations	☑
Catheter-associated urinary tract infections (CAUTI) by locations	☑
Hospital-onset *Clostridium difficile* (CDI) by facility-wide reporting	☑
Hospital-onset methicillin-resistant *Staphylococcus aureus* (MRSA) bacteremia by facility-wide reporting	☑

ıd State HAI Progress Report

t Rehabilitation Facilities

ine and risk adjustment calculations. Standardized infection ratios (SIRs)
to the number of predicted infections. This year's report will compare 2016 SIRs to those from the prior year.

cilities (IRFs).

RF State
☑
☑
☑
☑

2016 Annual National and State HAI Progress Report
Inpatient Rehabilitation Facilities: Full series of tables for all national and state-specific data

Additional Resources
SIR Guide
Technical Appendix
HAI Progress Report Home Page

NOTE: Tables contain data from Inpatient Rehabilitation Facilities (IRFs); as such, they exclude dat

tion Facilities (IRFs):

A bacteremia between 2015 and 2016 from IRFs

ative binomial regression models from IRFs

regression models from IRFs

a from Long-term Acute Care Hospitals (LTACHs), Critical Access Hospitals (CAHs), and Acute Care Hospitals (AC

CHs).

HAI Type	Reporting Hospitals	
	No. of Facilities Reporting[1]	Total Patient Days
CLABSI, all[4]	674	8,108,525
CAUTI, all[4]	1,165	17,344,127

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 tha
3. Facility-specific percentiles are only calculated if at least 20 facilities had ≥1.0 predicted HAI in
4. Data from all IRF locations (or facilities). Risk factors used in the calculation of the number of

Table 1a. National standardized infection ratios
Central line-associated b

s	Standardized Infection Ratio Data					
Total Device Days	Observed Events	Predicted Events	SIR	Lower 95% Confidence Interval	Upper 95% Confidence Interval	No. Facilities with ≥1 Predicted Infection
340,668	148	162.538	0.911	0.772	1.066	14
630,151	1,249	1,170.600	1.067	1.009	1.127	411

an or less than the nominal value of the national SIR for the given HAI type. This is only calculated if at least 10 fac
2016. If a facility's predicted number of HAIs was <1.0, a facility-specific SIR was neither calculated nor included ir
predicted CLABSI and CAUTI are listed in Appendix A.

(SIRs) and facility-specific summary SIRs using HAI data reported to NHSN during 2016 by facility and loodstream infections (CLABSIs) and catheter-associated urinary tract infections (CAUTIs)

Facility SIRs Compared to National SIR							
No. Facilities with SIR Significantly > National SIR		No. Facilities with SIR Significantly < National SIR					
N	%[2]	N		5%	10%	15%	20%
3	21%	0	0%	.	.	.	.
20	5%	9	2%	0.000	0.000	0.000	0.000

ilities had ≥ 1.0 predicted HAI in 2016.
the distribution of facility-specific SIRs.

HAI type:

Percentile Distribution of Facility-specific SIRs[3]

					Median				
25%	**30%**	**35%**	**40%**	**45%**	**50%**	**55%**	**60%**	**65%**	**70%**
.	.	.	.	.	.	.	.	.	.
0.000	0.000	0.336	0.498	0.667	0.776	0.850	0.945	1.053	1.320

75%	80%	85%	90%	95%
.	.	.	.	.
1.518	1.687	1.983	2.386	2.828

HAI and Patient Population	Reporting Hospitals	
	No. of Inpatient Rehabilitation Hospitals Reporting[1]	Total Admissions[2]
Laboratory-identified *C. difficile,* facility-wide	1,160	693,434
Laboratory-identified MRSA bacteremia, facility-wide	1,162	691,890

1. The number of reporting facilities included in the SIR calculation.
2. Total inpatient admissions reported from all inpatient locations. Admissions for *C. difficile* further ex
3. Total patient days reported from all inpatient units, excluding counts from CMS-certified rehabilitatio
4. Hospital-onset events are defined as those that were identified in an inpatient location on the 4th da
5. Calculated from a negative binomial regression model. Risk factors used in the calculation of the nu
6. Percent of facilities with at least one predicted event that had an SIR significantly greater than or les
7. Percentile distribution of facility-specific SIRs. This is only calculated if at least 20 facilities had ≥1.0

Table 1b. National standardized infect
Laboratory-identified *Clostridiu*

s	Standardized Infection Ratio Data					
Total Patient Days[3]	Observed Hospital-onset Events[4]	Predicted Hospital-onset Events[5]	SIR	Lower 95% Confidence Interval	Upper 95% Confidence Interval	No. Facilities with ≥1 Predicted Event
8,863,198	3,731	3,902.188	0.956	0.926	0.987	948
8,862,912	197	168.525	1.169	1.014	1.341	1

cludes counts from NICUs and well-baby units.
n and psychiatric locations. Patient days for *C. difficile* further excludes counts from NICUs and well-baby units.
y (or later) after admission to the facility.
umber of predicted events are listed in Appendix B.
s than the nominal value of the national SIR for the given HAI type. This is only calculated if at least 10 facilities ha
) predicted HAI in 2016. If a facility's predicted number of events was <1.0, a facility-specific SIR was neither calcul

ion ratios (SIRs) and facility-specific summary SIRs using HAI data reported to NHSN during 2016: *um difficile* (*C. difficile*) and methicillin-resistant Staphylococcus aureus (MRSA) bacteremia

Facility SIRs Compared to National SIR							
No. Facilities with SIR Significantly > National SIR		No. Facilities with SIR Significantly < National SIR					
N	%[6]	N		5%	10%	15%	20%
72	8%	65	7%	0.000	0.000	0.000	0.267
.	.	.	.	.	.	.	.

ıd ≥ 1.0 predicted HAI in 2016.
ated nor included in the distribution of facility-specific SIRs.

Percentile Distribution of Facility-specific SIRs[7]

					Median				
25%	**30%**	**35%**	**40%**	**45%**	**50%**	**55%**	**60%**	**65%**	**70%**
0.388	0.474	0.552	0.630	0.704	0.804	0.879	0.968	1.075	1.190
.	.	.	.	.	.	.	.	.	.

75%	80%	85%	90%	95%
1.323	1.504	1.684	1.990	2.505
.	.	.	.	.

Table 2. State-specific standardized infection rat
NHSN Inpatient Rehabilitation
Central line-associated bloodstream

State	State NHSN Mandate[2]	Any Validation[3]	No. of IRFs Reporting[4]	No. of Infections			95% CI
				Observed	Predicted	SIR	Lower
Alaska	No	No	2	.	.	.	.
Alabama	No	No	5	6	2.690	2.231	0.904
Arkansas	No	Yes	13	2	2.496	0.801	0.134
Arizona	No	No	13	2	2.225	0.899	0.151
California	Yes	Yes[a]	76	16	15.369	1.041	0.616
Colorado	Yes	No	19	1	4.446	0.225	0.011
Connecticut	M	Yes	4	.	.	.	.
D.C.	Yes	No	2	.	.	.	.
Delaware			3	.	.	.	.
Florida	No	No	22	8	8.920	0.897	0.417
Georgia	No	Yes	18	2	4.827	0.414	0.069
Guam	No	No	0	.	.	.	.
Hawaii	No	Yes	0	.	.	.	.
Iowa	No	Yes	10	2	1.134	1.764	0.296
Idaho	No	No	2	.	.	.	.
Illinois	No	No	33	2	9.144	0.219	0.037
Indiana	No	No	23	13	5.959	2.182	1.213
Kansas	No	Yes	8	0	1.624	0.000	.
Kentucky	No	No	8	1	1.746	0.573	0.029
Louisiana	No	No	19	4	3.314	1.207	0.383
Massachusetts	No	No	3	.	.	.	.
Maryland	No	No	2	.	.	.	.
Maine	No	No	4	.	.	.	.
Michigan	No	Yes	17	6	4.008	1.497	0.607
Minnesota	No	No	4	.	.	.	.
Missouri			15	4	2.798	1.430	0.454
Mississippi	No	No	9	1	1.598	0.626	0.031
Montana	No	No	5	0	0.179	.	.
North Carolina	M	No	10	4	5.953	0.672	0.214
North Dakota	No	No	3	.	.	.	.
Nebraska	M	No	5	3	0.815	.	.
New Hampshire	No	No	1	.	.	.	.
New Jersey	No	No	5	2	1.582	1.264	0.212
New Mexico	No	No	4	.	.	.	.
Nevada	Yes	No	11	7	4.178	1.676	0.733
New York	No	No	44	9	8.243	1.092	0.532
Ohio	No	No	27	1	5.410	0.185	0.009
Oklahoma	No	No	12	3	2.650	1.132	0.288
Oregon	No	No	5	0	0.604	.	.
Pennsylvania	Yes	Yes	78	25	22.089	1.132	0.749
Puerto Rico	No	No	0	.	.	.	.
Rhode Island	No	No	5	3	0.969	.	.

South Carolina	Yes	Yes	17	0	5.444	0.000	.
South Dakota	No	No	1	.	.	.	.
Tennessee	No	No	12	0	2.512	0.000	.
Texas	No	No	49	4	10.712	0.373	0.119
Utah	Yes	Yes	3	.	.	.	.
Virginia	No	No	9	4	3.601	1.111	0.353
Virgin Islands			0	.	.	.	.
Vermont	No	No	1	.	.	.	.
Washington	Yes	Yes	12	1	2.602	0.384	0.019
Wisconsin	No	No	19	4	3.660	1.093	0.347
West Virginia	No	No	2	.	.	.	.
Wyoming	No	No	0	.	.	.	.
All US			**674**	**148**	**162.538**	**0.911**	**0.772**

1. Includes data reported from all locations (i.e., adult and pediatric rehabilitation wards) within free-standing IRFs.
2. Yes indicates the presence of a state mandate to report facility-wide CLABSI data to NHSN at the beginning of 2
   No indicates that a state mandate did not exist during 2016.
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 2016 NHSN data prior to July 1, 2016, an
   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 IRFs that reported 2016 CLABSI data and are included in the SIR calculation. SIRs and accomp
   from at least one location in 2016.
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 2016.
6. Facility-specific key percentiles were only calculated if at least 20 facilities had ≥1.0 predicted CLABSI in 2016.
   nor included in the distribution of facility-specific SIRs.

ios (SIRs) and facility-specific SIR summary measures,
Facilities (IRFs) reporting during 2016

infections (CLABSIs) in IRFs, 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%
.	.	.	.	.	.	.	.
4.640	1	.	.	.	.	.	.
2.647	0	.	.	.	.	.	.
2.970	0	.	.	.	.	.	.
1.655	1	.	.	.	.	.	.
1.109	0	.	.	.	.	.	.
.	.	.	.	.	.	.	.
.	.	.	.	.	.	.	.
.	.	.	.	.	.	.	.
1.703	2	.	.	.	.	.	.
1.369	0	.	.	.	.	.	.
.	.	.	.	.	.	.	.
.	.	.	.	.	.	.	.
5.827	0	.	.	.	.	.	.
.	.	.	.	.	.	.	.
0.723	1	.	.	.	.	.	.
3.637	0	.	.	.	.	.	.
1.844	1	.	.	.	.	.	.
2.824	0	.	.	.	.	.	.
2.911	0	.	.	.	.	.	.
.	.	.	.	.	.	.	.
.	.	.	.	.	.	.	.
.	.	.	.	.	.	.	.
3.114	0	.	.	.	.	.	.
.	.	.	.	.	.	.	.
3.448	0	.	.	.	.	.	.
3.086	0	.	.	.	.	.	.
.	0	.	.	.	.	.	.
1.621	1	.	.	.	.	.	.
.	.	.	.	.	.	.	.
.	0	.	.	.	.	.	.
.	.	.	.	.	.	.	.
4.177	0	.	.	.	.	.	.
.	.	.	.	.	.	.	.
3.315	0	.	.	.	.	.	.
2.004	0	.	.	.	.	.	.
0.912	0	.	.	.	.	.	.
3.081	1	.	.	.	.	.	.
.	0	.	.	.	.	.	.
1.646	4	.	.	.	.	.	.
.	.	.	.	.	.	.	.
.	0	.	.	.	.	.	.

0.550	0	.	.	.	.	.	.
.	.	.	.	.	.	.	.
1.193	0	.	.	.	.	.	.
0.901	1	.	.	.	.	.	.
.	.	.	.	.	.	.	.
2.680	0	.	.	.	.	.	.
.	.	.	.	.	.	.	.
.	.	.	.	.	.	.	.
1.895	0	.	.	.	.	.	.
2.636	1	.	.	.	.	.	.
.	.	.	.	.	.	.	.
.	.	.	.	.	.	.	.
1.066	**14**	**.**	**.**	**.**	**.**	**.**	**.**

Also includes data from CMS-certified IRF units within a hospital.
2016. M indicates midyear implementation of a mandate.

state health department had access to 2016 NHSN data, state health department performed an
d 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
ily shared with them by facilities in their jurisdiction.
panying statistics are only calculated for states in which at least 5 IRFs reported CLABSI data

lue of the 2016 national IRF CLABSI SIR of 0.911. 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

tiles[6]
90%

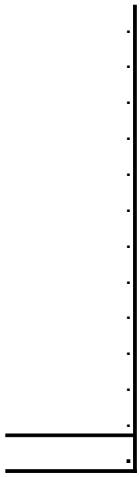


Table 3. State-specific standardized infection rat
NHSN Inpatient Rehabilitation
Catheter-associated urinary tract

State				No. of Events			95% CI
				Observed	Predicted	SIR	Lower
Alaska	Yes	No	2	.	.	.	.
Alabama	No	No	16	21	18.460	1.138	0.723
Arkansas	Yes	Yes	25	17	21.076	0.807	0.486
Arizona	No	No	24	18	25.691	0.701	0.428
California	No	No	76	50	72.931	0.686	0.514
Colorado	No	No	19	15	16.745	0.896	0.521
Connecticut	Yes	Yes	6	4	3.582	1.117	0.355
D.C.	M	No	2	.	.	.	.
Delaware			3	.	.	.	.
Florida	No	No	54	65	84.250	0.772	0.600
Georgia	Yes	Yes	28	27	28.422	0.950	0.639
Guam	No	No	0	.	.	.	.
Hawaii	Yes	Yes	1	.	.	.	.
Iowa	No	Yes	15	14	8.088	1.731	0.985
Idaho	No	No	6	9	5.442	1.654	0.807
Illinois	Yes	No	49	82	50.811	1.614	1.292
Indiana	Yes	No	38	29	33.995	0.853	0.582
Kansas	No	Yes	21	17	13.458	1.263	0.760
Kentucky	Yes	No	16	26	15.153	1.716	1.145
Louisiana	No	No	45	39	34.448	1.132	0.816
Massachusetts	No	No	10	19	22.446	0.846	0.525
Maryland	No	No	3	.	.	.	.
Maine	No	No	5	2	4.510	0.443	0.074
Michigan	No	Yes	39	57	35.157	1.621	1.239
Minnesota	No	No	14	18	11.584	1.554	0.950
Missouri			30	36	30.089	1.196	0.851
Mississippi	Yes	No	11	4	9.059	0.442	0.140
Montana	No	No	5	0	1.235	0.000	.
North Carolina	Yes	Yes	26	47	27.394	1.716	1.275
North Dakota	No	Yes	5	6	2.262	2.653	1.075
Nebraska	No	No	9	16	10.471	1.528	0.905
New Hampshire	No	No	8	21	6.783	3.096	1.968
New Jersey	No	No	17	47	42.194	1.114	0.828
New Mexico	No	No	8	6	8.574	0.700	0.284
Nevada	No	No	12	15	18.193	0.824	0.479
New York	No	No	58	65	52.469	1.239	0.964
Ohio	No	No	53	37	49.275	0.751	0.536
Oklahoma	No	No	23	28	16.687	1.678	1.137
Oregon	Yes	Yes	8	7	5.800	1.207	0.528
Pennsylvania	Yes	Yes	79	101	78.851	1.281	1.049
Puerto Rico	No	No	4	.	.	.	.
Rhode Island	No	No	6	4	3.944	1.014	0.322

South Carolina	No	No	18	11	13.282	0.828	0.436
South Dakota	No	Yes	3	.	.	.	.
Tennessee	Yes	Yes	32	31	26.516	1.169	0.808
Texas	No	No	144	140	153.075	0.915	0.772
Utah	Yes	Yes	11	11	6.868	1.602	0.842
Virginia	No	No	26	23	28.647	0.803	0.521
Virgin Island			0	.	.	.	.
Vermont	No	No	2	.	.	.	.
Washington	No	No	16	28	26.590	1.053	0.714
Wisconsin	No	Yes	23	13	15.735	0.826	0.460
West Virginia	Yes	Yes	8	8	6.844	1.169	0.543
Wyoming	No	No	3	.	.	.	.
All US			**1,165**	**1,249**	**1,170.600**	**1.067**	**1.009**

1. Includes data reported from all locations (i.e., adult and pediatric rehabilitation wards) within free-standing IRFs.
2. Yes indicates the presence of a state mandate to report facility-wide CAUTI data to NHSN at the beginning of 2(No indicates that a state mandate did not exist during 2016.
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 2016 NHSN data prior to July 1, 2016, an

   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 IRFs that reported 2016 CAUTI data and are included in the SIR calculation. SIRs and accompa from at least one location in 2016.
5. Percent of facilities with ≥1.0 predicted CAUTI that had an SIR significantly greater or less than the nominal valu ≥ 1.0 predicted CAUTI in 2016.
6. Facility-specific key percentiles were only calculated if at least 20 facilities had ≥1.0 predicted CAUTI in 2016. If nor included in the distribution of facility-specific SIRs.

ios (SIRs) and facility-specific SIR summary measures,
Facilities (IRFs) reporting during 2016

infections (CAUTIs) in IRFs, all locations[1]

for SIR		Facility-specific SIRs					
Upper	No. of facs with at least 1 predicted CAUTI			10%	25%		75%
.	.	.	.	.	.	.	.
1.709	9	.	.	.	.	.	.
1.265	4	.	.	.	.	.	.
1.086	13	8%	0%	.	.	.	.
0.897	26	0%	8%	0.000	0.000	0.000	0.824
1.444	8	.	.	.	.	.	.
2.694	0	.	.	.	.	.	.
.	.	.	.	.	.	.	.
.	.	.	.	.	.	.	.
0.977	36	0%	0%	0.000	0.274	0.804	0.992
1.363	12	0%	0%	.	.	.	.
.	.	.	.	.	.	.	.
.	.	.	.	.	.	.	.
2.835	3	.	.	.	.	.	.
3.035	3	.	.	.	.	.	.
1.993	15	13%	0%	.	.	.	.
1.209	12	0%	0%	.	.	.	.
1.981	4	.	.	.	.	.	.
2.478	4	.	.	.	.	.	.
1.532	7	.	.	.	.	.	.
1.297	6	.	.	.	.	.	.
.	.	.	.	.	.	.	.
1.465	2	.	.	.	.	.	.
2.085	12	17%	0%	.	.	.	.
2.408	4	.	.	.	.	.	.
1.638	8	.	.	.	.	.	.
1.065	4	.	.	.	.	.	.
2.426	0	.	.	.	.	.	.
2.262	10	10%	0%	.	.	.	.
5.517	0	.	.	.	.	.	.
2.428	2	.	.	.	.	.	.
4.652	2	.	.	.	.	.	.
1.469	13	0%	0%	.	.	.	.
1.456	5	.	.	.	.	.	.
1.329	9	.	.	.	.	.	.
1.569	18	6%	0%	.	.	.	.
1.024	20	5%	0%	0.000	0.000	0.374	0.968
2.393	5	.	.	.	.	.	.
2.387	2	.	.	.	.	.	.
1.550	22	9%	0%	0.000	0.670	1.533	2.444
.	.	.	.	.	.	.	.
2.446	0	.	.	.	.	.	.

1.439	5	.	.	.	.	.	.
.	.	.	.	.	.	.	.
1.639	10	10%	0%	.	.	.	.
1.076	58	5%	2%	0.000	0.000	0.367	1.309
2.784	3	.	.	.	.	.	.
1.186	12	0%	0%	.	.	.	.
.	.	.	.	.	.	.	.
.	.	.	.	.	.	.	.
1.502	7	.	.	.	.	.	.
1.377	4	.	.	.	.	.	.
2.220	4	.	.	.	.	.	.
.	.	.	.	.	.	.	.
1.127	**411**	**5%**	**2%**	**0.000**	**0.000**	**0.776**	**1.518**

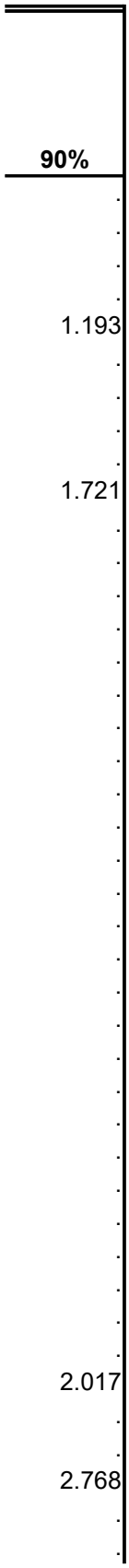
Also includes data from CMS-certified IRF units within a hospital.
016. M indicates midyear implementation of a mandate.

state health department had access to 2016 NHSN data, state health department performed an
d state health department contacted identified facilities.

legislative mandate for the particular HAI type. Some states without mandatory
ily shared with them by facilities in their jurisdiction.
anying statistics are only calculated for states in which at least 5 IRFs reported CAUTI data

ue of the 2016 national IRF CAUTI SIR of 1.067. This is only calculated if at least 10 facilities had

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


90%
1.193
1.721
2.017
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1.836
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2.386

Table 4. State-specific standardized infection rat
NHSN Inpatient Rehabilitation
Hospital-onset *Clostridi*

State				No. of Events			95% CI
				Observed	Predicted	SIR	Lower
Alaska	Yes	No	2	.	.	.	.
Alabama	No	No	16	104	85.782	1.212	0.996
Arkansas	Yes	Yes	25	55	66.539	0.827	0.629
Arizona	No	No	24	127	83.909	1.514	1.267
California	Yes	Yes[a]	75	215	227.409	0.945	0.825
Colorado	Yes	No	19	34	47.070	0.722	0.508
Connecticut	Yes	Yes	6	7	14.233	0.492	0.215
D.C.	M	No	2	.	.	.	.
Delaware			3	.	.	.	.
Florida	No	No	54	261	271.188	0.962	0.851
Georgia	Yes	Yes	28	91	92.738	0.981	0.795
Guam	No	No	0	.	.	.	.
Hawaii	Yes	Yes	1	.	.	.	.
Iowa	No	Yes	15	26	23.493	1.107	0.738
Idaho	No	No	6	13	11.547	1.126	0.626
Illinois	Yes	No	49	152	185.807	0.818	0.696
Indiana	No	No	38	88	108.784	0.809	0.653
Kansas	No	Yes	20	33	59.878	0.551	0.386
Kentucky	Yes	No	16	61	65.527	0.931	0.718
Louisiana	No	No	45	72	82.048	0.878	0.692
Massachusetts	No	No	10	56	77.660	0.721	0.550
Maryland	No	No	3	.	.	.	.
Maine	No	No	5	21	17.789	1.180	0.750
Michigan	No	No	39	107	138.560	0.772	0.636
Minnesota	No	No	14	26	32.520	0.799	0.533
Missouri			30	84	93.346	0.900	0.722
Mississippi	Yes	No	11	23	28.962	0.794	0.516
Montana	No	No	5	6	5.971	1.005	0.407
North Carolina	Yes	Yes	26	92	108.622	0.847	0.687
North Dakota	No	Yes	5	10	5.865	1.705	0.866
Nebraska	Yes	No	9	26	24.379	1.066	0.712
New Hampshire	No	No	8	31	28.458	1.089	0.753
New Jersey	No	No	17	119	123.269	0.965	0.803
New Mexico	No	No	7	63	27.367	2.302	1.784
Nevada	No	No	12	153	68.752	2.225	1.893
New York	Yes	Yes	57	198	201.627	0.982	0.852
Ohio	No	No	53	136	147.843	0.920	0.775
Oklahoma	No	No	23	41	45.172	0.908	0.660
Oregon	Yes	Yes	8	3	15.801	0.190	0.048
Pennsylvania	Yes	Yes	79	277	309.043	0.896	0.795
Puerto Rico	No	No	4	.	.	.	.
Rhode Island	No	No	6	12	10.969	1.094	0.593

South Carolina	Yes	Yes	18	49	70.215	0.698	0.522
South Dakota	No	No	3	.	.	.	.
Tennessee	Yes	Yes	32	63	102.150	0.617	0.478
Texas	No	No	142	474	480.884	0.986	0.900
Utah	Yes	Yes	11	31	25.494	1.216	0.841
Virginia	No	No	27	94	94.668	0.993	0.807
Virgin Island			0	.	.	.	.
Vermont	No	No	2	.	.	.	.
Washington	No	Yes	15	28	33.493	0.836	0.566
Wisconsin	No	Yes	24	44	44.249	0.994	0.731
West Virginia	Yes	No	8	43	27.060	1.589	1.164
Wyoming	No	No	3	.	.	.	.
All US			**1,160**	**3,731**	**3,902.188**	**0.956**	**0.926**

1. Includes data reported from all locations (i.e., adult and pediatric rehabilitation wards) within free-standing IRFs. Hospital-onset is defined as event detected on the 4th day (or later) after admission to a free-standing inpatient Alternatively, this measure includes events detected on the 4th day (or later) after transfer to an IRF unit within a
2. Yes indicates the presence of a state mandate to report facility-wide CDI data to NHSN at the beginning of 2016 No indicates that a state mandate did not exist during 2016.
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 2016 NHSN data prior to July 1, 2016, an

   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 IRFs that reported 2016 CDI data and are included in the SIR calculation. SIRs and accompany data in 2016.
5. Percent of facilities with ≥1.0 predicted CDI that had an SIR significantly greater or less than the nominal value c ≥ 1.0 predicted CDI in 2016.
6. Facility-specific key percentiles were only calculated if at least 20 facilities had ≥1.0 predicted CDI in 2016. If a f was neither calculated nor included in the distribution of facility-specific SIRs.

ios (SIRs) and facility-specific SIR summary measures,
Facilities (IRFs) reporting during 2016

***ium difficile* (CDI), facility-wide[1]**

for SIR		Facility-specific SIRs					
Upper	No. of facs with at least 1 predicted CDI			10%	25%		75%
.	.	.	.	.	.	.	.
1.463	14	21%	7%	.	.	.	.
1.068	19	5%	16%	.	.	.	.
1.795	22	14%	5%	0.398	0.916	1.244	1.634
1.078	66	6%	5%	0.000	0.420	0.805	1.361
0.998	18	0%	6%	.	.	.	.
0.973	6	.	.	.	.	.	.
.	.	.	.	.	.	.	.
.	.	.	.	.	.	.	.
1.085	51	10%	10%	0.184	0.444	0.841	1.325
1.199	26	12%	12%	0.000	0.215	0.911	1.221
.	.	.	.	.	.	.	.
.	.	.	.	.	.	.	.
1.598	9	.	.	.	.	.	.
1.877	4	.	.	.	.	.	.
0.956	45	4%	7%	0.000	0.000	0.619	1.234
0.992	32	6%	3%	0.000	0.310	0.682	1.252
0.765	13	0%	15%	.	.	.	.
1.188	14	7%	14%	.	.	.	.
1.099	31	7%	7%	0.000	0.000	0.742	1.670
0.930	10	0%	10%	.	.	.	.
.	.	.	.	.	.	.	.
1.774	4	.	.	.	.	.	.
0.929	34	3%	3%	0.000	0.403	0.802	1.257
1.155	11	0%	0%	.	.	.	.
1.108	26	4%	8%	0.000	0.617	0.868	1.323
1.173	9	.	.	.	.	.	.
2.090	2	.	.	.	.	.	.
1.034	19	5%	11%	.	.	.	.
3.039	3	.	.	.	.	.	.
1.540	6	.	.	.	.	.	.
1.527	8	.	.	.	.	.	.
1.151	16	6%	6%	.	.	.	.
2.926	6	.	.	.	.	.	.
2.600	11	36%	0%	.	.	.	.
1.126	45	4%	11%	0.000	0.000	0.658	1.104
1.085	39	8%	5%	0.000	0.247	0.832	1.297
1.219	14	7%	7%	.	.	.	.
0.517	6	.	.	.	.	.	.
1.007	59	7%	5%	0.193	0.587	0.872	1.280
.	.	.	.	.	.	.	.
1.860	6	.	.	.	.	.	.

0.915	15	7%	20%	.	.	.	.
.	.	.	.	.	.	.	.
0.784	23	0%	22%	0.000	0.209	0.602	1.154
1.077	121	12%	7%	0.000	0.457	0.856	1.534
1.705	9	.	.	.	.	.	.
1.210	22	5%	5%	0.390	0.686	1.020	1.451
.	.	.	.	.	.	.	.
.	.	.	.	.	.	.	.
1.192	12	0%	0%	.	.	.	.
1.323	16	6%	0%	.	.	.	.
2.121	5	.	.	.	.	.	.
.	.	.	.	.	.	.	.
0.987	**948**	**8%**	**7%**	**0.000**	**0.388**	**0.804**	**1.323**

Also includes data from CMS-certified IRF units within a hospital.
rehabilitation facility.
hospital.
5. M indicates midyear implementation of a mandate.

state health department had access to 2016 NHSN data, state health department performed an
d state health department contacted identified facilities.

legislative mandate for the particular HAI type. Some states without mandatory
ily shared with them by facilities in their jurisdiction.
ing statistics are only calculated for states in which at least 5 IRFs reported CDI

of the 2016 national IRF CDI SIR of 0.956. This is only calculated if at least 10 facilities had

facility's predicted number of CDI was <1.0, a facility-specific SIR

90%
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2.972
1.829
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2.165
2.186
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1.848
2.195
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2.248
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1.990

Table 5. State-specific standardized infection ratios (SIRs) and facility-specific S
NHSN Inpatient Rehabilitation Facilities (IRFs) reporting durin
Hospital-onset methicillin-resistant *Staphylococcus aureus* (MRSA) bacte

State				No. of Events			95% CI for SIR		Fa
				Observed	Predicted	SIR	Lower	Upper	No. of facs with at least 1 predicted MRSA
Alaska	Yes	No	2	.	.	.	.	.	.
Alabama	No	No	16	4	3.757	1.065	0.338	2.568	0
Arkansas	Yes	No	25	2	3.193	0.626	0.105	2.070	0
Arizona	No	No	24	4	3.834	1.043	0.331	2.517	0
California	Yes		75	8	9.428	0.849	0.394	1.611	0
Colorado	No	No	19	0	2.096	0.000	.	1.429	0
Connecticut	Yes	Yes	6	1	0.623	.	.	.	0
D.C.	Yes	No	2	.	.	.	.	.	.
Delaware			3	.	.	.	.	.	.
Florida	No	No	54	17	12.581	1.351	0.813	2.119	0
Georgia	Yes	Yes	28	6	3.736	1.606	0.651	3.340	0
Guam	No	No	0	.	.	.	.	.	.
Hawaii	Yes	Yes	1	.	.	.	.	.	.
Iowa	No	Yes	15	1	0.891	.	.	.	0
Idaho	No	No	6	0	0.496	.	.	.	0
Illinois	Yes	No	49	10	7.327	1.365	0.693	2.433	0
Indiana	No	No	38	7	4.358	1.606	0.702	3.177	0
Kansas	No	Yes	20	2	2.371	0.843	0.141	2.786	0
Kentucky	Yes	No	16	5	2.886	1.732	0.635	3.840	0
Louisiana	No	No	45	7	3.792	1.846	0.807	3.652	0
Massachusetts	No	No	10	2	3.769	0.531	0.089	1.753	0
Maryland	No	No	3	.	.	.	.	.	.
Maine	No	No	5	0	0.806	.	.	.	0
Michigan	No	No	39	8	5.027	1.592	0.739	3.022	0
Minnesota	No	No	14	4	1.206	3.317	1.054	8.000	0
Missouri			30	5	4.312	1.159	0.425	2.570	0
Mississippi	Yes	No	11	1	1.394	0.717	0.036	3.537	0
Montana	No	No	5	0	0.254	.	.	.	0
North Carolina	Yes	Yes	26	9	4.241	2.122	1.035	3.894	0

North Dakota	No	No	5	1	0.243	.	.	.	0
Nebraska	Yes	No	9	1	1.000	1.000	0.050	4.931	0
New Hampshire	No	No	8	0	1.323	0.000	.	2.264	0
New Jersey	No	No	17	0	5.630	0.000	.	0.532	1
New Mexico	No	No	8	1	1.139	0.878	0.044	4.331	0
Nevada	Yes	No	12	4	2.631	1.520	0.483	3.667	0
New York	Yes	Yes	58	11	7.893	1.394	0.733	2.422	0
Ohio	No	No	53	4	6.551	0.611	0.194	1.473	0
Oklahoma	No	No	23	6	2.075	2.892	1.172	6.014	0
Oregon	Yes	Yes	8	0	0.593	.	.	.	0
Pennsylvania	Yes	Yes	79	11	13.209	0.833	0.438	1.448	0
Puerto Rico	No	No	4	.	.	.	.	.	.
Rhode Island	No	No	6	0	0.453	.	.	.	0
South Carolina	Yes	Yes	18	6	3.350	1.791	0.726	3.725	0
South Dakota	No	No	3	.	.	.	.	.	.
Tennessee	Yes	Yes	32	10	4.430	2.257	1.146	4.023	0
Texas	No	No	142	29	21.562	1.345	0.918	1.906	0
Utah	Yes	Yes	11	0	1.105	0.000	.	2.710	0
Virginia	No	No	27	5	4.109	1.217	0.446	2.697	0
Virgin Island			0	.	.	.	.	.	.
Vermont	No	No	2	.	.	.	.	.	.
Washington	No	No	15	0	1.299	0.000	.	2.306	0
Wisconsin	No	Yes	24	2	1.778	1.125	0.189	3.716	0
West Virginia	Yes	No	8	0	1.443	0.000	.	2.076	0
Wyoming	No	No	3	.	.	.	.	.	.
All US			**1,162**	**197**	**168.525**	**1.169**	**1.014**	**1.341**	**1**

1. Includes data reported from all locations (i.e., adult and pediatric rehabilitation wards) within free-standing IRFs. Also includes data from CMS-ce
   Hospital-onset is defined as event detected on the 4th day (or later) after admission to a free-standing inpatient rehabilitation facility.
   Alternatively, this measure includes events detected on the 4th day (or later) after transfer to an IRF unit within a hospital.
2. Yes indicates the presence of a state mandate to report facility-wide MRSA bacteremia data to NHSN at the beginning of 2016. M indicates mid
   No indicates that a state mandate did not exist during 2016.
3. Yes indicates that the state health department reported the completion of all of the following validation activities: state health department had acc
   assessment of missing or implausible values on at least six months of 2016 NHSN data prior to July 1, 2016, and state health department contac

   varies by state). Information on validation efforts was requested from all states, regardless of the presence of a legislative mandate for the partic
   reporting of a given HAI to the state health department have performed validation on NHSN data that is voluntarily shared with them by facilities i

4. The number of IRFs that reported 2016 MRSA bacteremia data and are included in the SIR calculation. SIRs and accompanying statistics are o
   bacteremia data from at least one location in 2016.
5. Percent of facilities with ≥1.0 predicted MRSA bacteremia that had an SIR significantly greater or less than the nominal value of the 2016 nationa
   ≥ 1.0 predicted MRSA bacteremia in 2016.
6. Facility-specific key percentiles were only calculated if at least 20 facilities had ≥1.0 predicted MRSA bacteremia in 2016. If a facility's predicted
   was neither calculated nor included in the distribution of facility-specific SIRs.

SIR summary measures,
ıg 2016

remia, facility-wide[1]

cility-specific SIRs

			10%	25%		75%	90%
	.	.	.	.	.	.	.
	.	.	.	.	.	.	.
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ertified IRF units within a hospital.

year implementation of a mandate.

cess to 2016 NHSN data, state health department performed an
cted identified facilities.

cular HAI type. Some states without mandatory
n their jurisdiction.

nly calculated for states in which at least 5 IRFs reported MRSA

al IRF MRSA SIR of 1.169. This is only calculated if at least 10 facilities had

number of MRSA bacteremia was <1.0, a facility-specific SIR

Table 6. Changes in national standardized infection ratios (SIRs) using H
Central line-associated bloodstream infections (CLABSIs), cathete
and Clo

HAI and Patient Population	2015 SIR	2016 SIR	Percent Change
CLABSI, all locations[1]	0.985	0.911	8%
CAUTI, all locations[1]	0.981	1.067	9%
Hospital-onset MRSA bacteremia, facility-wide[2]	0.986	1.169	19%
Hospital-onset *C. difficile* infections, facility-wide[2]	1.031	0.956	-7%

* Statistically significant, p < 0.0500
1. Data from all ICUs, wards (and other non-critical care locations), and NICUs. This excludes LTAC loca
2. Hospital-onset is defined as an event detected on the 4th day (or later) after admission to an inpatient l

AI data reported from all NHSN Inpatient Rehabilitation Facilities reporting during 2016 by HAI and
r-associated urinary tract infections (CAUTIs), methicillin-resistant *Staphylococcus aureus* (MRSA
ɔ*stridium difficile* infections, 2015 compared to 2016

Direction of Change, Based on Statistical Significance	p-value
No change	0.4843
Increase	0.0378
No change	0.1073
Decrease	0.0010

tions (or facilities).
ocation within the facility.

l patient population:
A) bacteremia,

Table 7. Changes in state-specific standardized infection ratios (SIRs) between 2015 and 2016 from NHSN Inpatient Rehabilitation Facilities

7a. Central line-associated bloodstream infections (CLABSI), all locations[1]

	All Inpatient Rehabilitation Facilities Reporting to NHSN				
State[2]	2015 SIR	2016 SIR	Percent Change	Direction of Change, Based on Statistical Significance	p-value
Alaska	.	.	.	.	.
Alabama	1.829	2.231	22%	No change	0.7544
Arkansas	1.195	0.801	33%	No change	0.6922
Arizona	0.923	0.899	3%	No change	0.9802
California	0.887	1.041	17%	No change	0.6599
Colorado	0.397	0.225	43%	No change	0.6971
Connecticut	.	.	.	.	.
D.C.	.	.	.	.	.
Delaware	.	.	.	.	.
Florida	1.260	0.897	29%	No change	0.5038
Georgia	2.404	0.414	-83%	Decrease	0.0088
Guam	.	.	.	.	.
Hawaii	.	.	.	.	.
Iowa	0.848	1.764	108%	No change	0.6028
Idaho	.	.	.	.	.
Illinois	0.848	0.219	74%	No change	0.0726
Indiana	0.944	2.182	131%	No change	0.1068
Kansas	2.929	0.000	-100%	Decrease	0.0353
Kentucky	0.687	0.573	17%	No change	0.9277
Louisiana	1.037	1.207	16%	No change	0.8601
Massachusetts	0.000	.	.	.	.
Maryland	.	.	.	.	.
Maine	.	.	.	.	.
Michigan	0.590	1.497	154%	No change	0.1589
Minnesota	.	.	.	.	.
Missouri	1.668	1.430	14%	No change	0.8314
Mississippi	0.000	0.626	.	No change	0.5054
Montana	.	.	.	.	.
North Carolina	1.992	0.672	-66%	Decrease	0.0450
North Dakota	.	.	.	.	.
Nebraska	.	.	.	.	.
New Hampshire	.	.	.	.	.
New Jersey	0.000	1.264	.	No change	0.3324
New Mexico	0.962	.	.	.	.
Nevada	0.688	1.676	144%	No change	0.1624
New York	0.902	1.092	21%	No change	0.7019
Ohio	0.474	0.185	61%	No change	0.4578
Oklahoma	0.934	1.132	21%	No change	0.8211
Oregon	.	.	.	.	.
Pennsylvania	0.879	1.132	29%	No change	0.4027
Puerto Rico	.	.	.	.	.
Rhode Island	.	.	.	.	.

South Carolina	0.155	0.000	100%	No change	0.5425
South Dakota	.	.	.	.	.
Tennessee	0.000	0.000	.		.
Texas	1.104	0.373	-66%	Decrease	0.0487
Utah	.	.	.	.	.
Virginia	2.105	1.111	47%	No change	0.3209
Virgin Islands	.	.	.	.	.
Vermont	.	.	.	.	.
Washington	0.977	0.384	61%	No change	0.4628
Wisconsin	1.307	1.093	16%	No change	0.8038
West Virginia	.	.	.	.	.
Wyoming	.	.	.	.	.
All US	**0.985**	**0.911**	**8%**	**No change**	**0.4843**

* Statistically significant, $p < 0.0500$

1. Data from all ICUs, wards (and other non-critical care locations), and NICUs.
2. States without SIR either in 2015 and/or 2016 and therefore subsequent data not calculated

Table 7. Changes in state-specific standardized infection ratios (SIRs) between 2015 and 2016 from NHSN Inpatient Rehabilitation Facilities

7b. Catheter-associated urinary tract infections (CAUTI), all locations[1]

	All Inpatient Rehabilitation Facilities Reporting to NHSN				
	2015 SIR	2016 SIR	Percent Change	Direction of Change, Based on Statistical Significance	p-value
Alaska	.	.	.	.	.
Alabama	0.484	1.138	135%	Increase	0.0280
Arkansas	0.619	0.807	30%	No change	0.4916
Arizona	0.677	0.701	4%	No change	0.9274
California	0.811	0.686	15%	No change	0.3717
Colorado	1.100	0.896	19%	No change	0.5548
Connecticut	1.052	1.117	6%	No change	0.9224
D.C.	.	.	.	.	.
Delaware	.	.	.	.	.
Florida	0.643	0.772	20%	No change	0.3292
Georgia	0.603	0.950	58%	No change	0.1353
Guam	.	.	.	.	.
Hawaii	.	.	.	.	.
Iowa	1.325	1.731	31%	No change	0.4845
Idaho	1.190	1.654	39%	No change	0.5737
Illinois	1.042	1.614	55%	Increase	0.0111
Indiana	1.206	0.853	29%	No change	0.1542
Kansas	2.211	1.263	43%	No change	0.0633
Kentucky	1.073	1.716	60%	No change	0.1263
Louisiana	1.035	1.132	9%	No change	0.6923
Massachusetts	0.905	0.846	7%	No change	0.8364
Maryland	.	.	.	.	.
Maine	1.615	0.443	73%	No change	0.0973
Michigan	1.024	1.621	58%	Increase	0.0262
Minnesota	1.126	1.554	38%	No change	0.3816
Missouri	1.364	1.196	12%	No change	0.5733
Mississippi	0.943	0.442	53%	No change	0.2017
Montana	0.514	0.000	100%	No change	0.6118
North Carolina	1.122	1.716	53%	No change	0.0568
North Dakota	1.018	2.653	161%	No change	0.1829
Nebraska	1.016	1.528	50%	No change	0.2901
New Hampshire	0.945	3.096	228%	Increase	0.0040
New Jersey	1.243	1.114	10%	No change	0.5966
New Mexico	1.011	0.700	31%	No change	0.5199
Nevada	1.012	0.824	19%	No change	0.5639
New York	0.946	1.239	31%	No change	0.1519
Ohio	0.898	0.751	16%	No change	0.4235
Oklahoma	1.673	1.678	0%	No change	0.9917
Oregon	0.801	1.207	51%	No change	0.5330
Pennsylvania	1.419	1.281	10%	No change	0.4534
Puerto Rico	.	.	.	.	.
Rhode Island	1.056	1.014	4%	No change	0.9470

South Carolina	1.033	0.828	20%	No change	0.5968
South Dakota	.	.	.	.	.
Tennessee	1.414	1.169	17%	No change	0.4327
Texas	0.784	0.915	17%	No change	0.2019
Utah	1.559	1.602	3%	No change	0.9413
Virginia	0.945	0.803	15%	No change	0.5653
Virgin Islands	.	.	.	.	.
Vermont	.	.	.	.	.
Washington	0.734	1.053	43%	No change	0.2516
Wisconsin	1.301	0.826	37%	No change	0.2100
West Virginia	0.303	1.169	286%	No change	0.0737
Wyoming	.	.	.	.	.
All US	**0.981**	**1.067**	**9%**	**Increase**	**0.0378**

* Statistically significant, $p < 0.0500$

1. Data from all ICUs, wards (and other non-critical care locations), and NICUs.
2. States without SIR either in 2015 and/or 2016 and therefore subsequent data not calculated

Table 7. Changes in state-specific standardized infection ratios (SIRs) between 2015 and 2016 from NHSN Inpatient Rehabilitation Facilities

7c. Hospital-onset *Clostridium difficile* infection (CDI), facility-wide[1]

	All Inpatient Rehabilitation Facilities Reporting to NHSN				
	2015 SIR	2016 SIR	Percent Change	Direction of Change, Based on Statistical Significance	p-value
Alaska	.	.	.	.	.
Alabama	1.111	1.212	9%	No Change	0.5450
Arkansas	0.903	0.827	8%	No Change	0.6380
Arizona	1.273	1.514	19%	No Change	0.2010
California	0.906	0.945	4%	No Change	0.6660
Colorado	0.654	0.722	10%	No Change	0.6930
Connecticut	1.123	0.492	56%	No Change	0.0640
D.C.	.	.	.	.	.
Delaware	.	.	.	.	.
Florida	1.146	0.962	-16%	Decrease	0.0400
Georgia	1.049	0.981	7%	No Change	0.6620
Guam	.	.	.	.	.
Hawaii	.	.	.	.	.
Iowa	1.174	1.107	6%	No Change	0.8300
Idaho	0.565	1.126	99%	No Change	0.1620
Illinois	1.104	0.818	-26%	Decrease	0.0040
Indiana	0.975	0.809	17%	No Change	0.1940
Kansas	1.035	0.551	-47%	Decrease	0.0030
Kentucky	0.904	0.931	3%	No Change	0.8760
Louisiana	1.112	0.878	21%	No Change	0.1440
Massachusetts	1.006	0.721	28%	No Change	0.0690
Maryland	.	.	.	.	.
Maine	0.453	1.180	161%	Increase	0.0130
Michigan	1.054	0.772	-27%	Decrease	0.0170
Minnesota	1.146	0.799	30%	No Change	0.1600
Missouri	1.251	0.900	-28%	Decrease	0.0200
Mississippi	0.937	0.794	15%	No Change	0.5630
Montana	0.816	1.005	23%	No Change	0.7240
North Carolina	0.918	0.847	8%	No Change	0.5830
North Dakota	1.185	1.705	44%	No Change	0.4710
Nebraska	0.732	1.066	46%	No Change	0.2220
New Hampshire	1.461	1.089	26%	No Change	0.2300
New Jersey	1.031	0.965	6%	No Change	0.5980
New Mexico	2.590	2.302	11%	No Change	0.4940
Nevada	2.126	2.225	5%	No Change	0.7010
New York	0.959	0.982	2%	No Change	0.8160
Ohio	0.808	0.920	14%	No Change	0.3100
Oklahoma	1.070	0.908	15%	No Change	0.4360
Oregon	0.639	0.190	70%	No Change	0.0610
Pennsylvania	0.884	0.896	1%	No Change	0.8750
Puerto Rico	.	.	.	.	.
Rhode Island	1.892	1.094	42%	No Change	0.1430

South Carolina	0.780	0.698	11%	No Change	0.5760
South Dakota	.	.	.	.	.
Tennessee	0.773	0.617	20%	No Change	0.1860
Texas	1.086	0.986	9%	No Change	0.1350
Utah	0.974	1.216	25%	No Change	0.4080
Virginia	0.910	0.993	9%	No Change	0.5420
Virgin Islands	.	.	.	.	.
Vermont	.	.	.	.	.
Washington	0.696	0.836	20%	No Change	0.4960
Wisconsin	0.875	0.994	14%	No Change	0.5390
West Virginia	1.270	1.589	25%	No Change	0.3350
Wyoming	.	.	.	.	.
All US	**0.993**	**0.956**	**-4%**	**Decrease**	**0.0220**

* Statistically significant, $p < 0.0500$

1. Data from all ICUs, wards (and other non-critical care locations), and NICUs.
2. States without SIR either in 2015 and/or 2016 and therefore subsequent data not calculated

Table 7. Changes in state-specific standardized infection ratios (SIRs) between 2015 and 2016 from NHSN Inpatient Rehabilitation Facilities

7d. Hospital-onset methicillin-resistant *Staphylococcus aureus* (MRSA) bacteremia, facility-wide inpatient[1]

	All Inpatient Rehabilitation Facilities Reporting to NHSN				
	2015 SIR	2016 SIR	Percent Change	Direction of Change, Based on Statistical Significance	p-value
Alaska	.	.	.	.	.
Alabama	1.359	1.065	22%	No Change	0.7311
Arkansas	1.302	0.626	52%	No Change	0.4265
Arizona	0.542	1.043	92%	No Change	0.4806
California	0.748	0.849	14%	No Change	0.8147
Colorado	0.494	0.000	100%	No Change	0.4916
Connecticut	.	.	.	.	.
D.C.	.	.	.	.	.
Delaware	.	.	.	.	.
Florida	1.416	1.351	5%	No Change	0.8924
Georgia	1.538	1.606	4%	No Change	0.9507
Guam	.	.	.	.	.
Hawaii	.	.	.	.	.
Iowa	.	.	.	.	.
Idaho	.	.	.	.	.
Illinois	1.329	1.365	3%	No Change	0.9532
Indiana	0.684	1.606	135%	No Change	0.2228
Kansas	0.441	0.843	91%	No Change	0.6505
Kentucky	1.392	1.732	24%	No Change	0.7589
Louisiana	1.388	1.846	33%	No Change	0.6419
Massachusetts	0.000	0.531	> 100%	No Change	0.2621
Maryland	.	.	.	.	.
Maine	.	.	.	.	.
Michigan	1.579	1.592	1%	No Change	0.9923
Minnesota	1.594	3.317	108%	No Change	0.4260
Missouri	1.452	1.159	20%	No Change	0.7221
Mississippi	1.430	0.717	50%	No Change	0.6268
Montana	.	.	.	.	.
North Carolina	0.933	2.122	127%	No Change	0.1737
North Dakota	.	.	.	.	.
Nebraska	0.000	1.000	> 100%	No Change	0.4829
New Hampshire	0.757	0.000	100%	No Change	0.4997
New Jersey	0.345	0.000	100%	No Change	0.2572
New Mexico	0.810	0.878	8%	No Change	0.9598
Nevada	0.374	1.520	306%	No Change	0.2123
New York	0.998	1.394	40%	No Change	0.4824
Ohio	0.505	0.611	21%	No Change	0.8223
Oklahoma	1.872	2.892	54%	No Change	0.5190
Oregon	.	.	.	.	.
Pennsylvania	1.081	0.833	23%	No Change	0.5252
Puerto Rico	.	.	.	.	.

Rhode Island	.	.	.	.	.
South Carolina	1.467	1.791	22%	No Change	0.7529
South Dakota	.	.	.	.	.
Tennessee	1.847	2.257	22%	No Change	0.6820
Texas	1.095	1.345	23%	No Change	0.4647
Utah	0.000	0.000	0%	.	.
Virginia	1.068	1.217	14%	No Change	0.8402
Virgin Islands	.	.	.	.	.
Vermont	.	.	.	.	.
Washington	0.622	0.000	100%	No Change	0.5533
Wisconsin	0.430	1.125	162%	No Change	0.4816
West Virginia	0.704	0.000	100%	No Change	0.4960
Wyoming	.	.	.	.	.
All US	**0.986**	**1.169**	**19%**	**No Change**	**0.1073**

* Statistically significant, $p < 0.0500$

1. Data from all ICUs, wards (and other non-critical care locations), and NICUs.
2. States without SIR either in 2015 and/or 2016 and therefore subsequent data not calculated

Appendix A. Factors used in NHSN risk adjustment of the device-associated HAIs (CLABSI, CAUTI) negative binomial regression models[1] from Inpatient Rehabilitation Facilities

HAI Type	Validated Parameters for Risk Model
CLABSI	Intercept*
CAUTI	Intercept Setting‡ Proportion of Admissions- Traumatic and Non-Traumatic Spinal Cord Dysfunction combined** Proportion of Admissions- Stroke**

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 CLABSI in IRFs. Free-standing IRFs and CMS-certified IRF units within a hospital will have the predicted number of events calculated using the 2016 national IRF CLABSI pooled mean (i.e., intercept-only model).

** Proportion of annual admissions with primary diagnoses are taken from the Annual IRF Survey and

‡IRF Setting is taken from the Annual IRF Survey and NHSN enrollment/location mapping data.

Appendix B. Factors used
regression models[1] from

HAI Type
CDI
MRSA bacteremia

* None of the variables inve
units within a hospital will

d in NHSN risk adjustment of the CDI and MRSA Bacteremia negative binomial
Inpatient Rehabilitation Facilities

Validated Parameters for Risk Model	
Intercept	
CDI Test	
Type	Type of IRF (free-
standing or unit)	
Community Onset CDI events	
Percentage of Admissions- Orthopedic Conditions	
Percentage of Admissions- Stroke	
Percentage of Admissions- Traumatic and Non-Traumatic Spinal Cord Dysfunction	
Intercept*	

estigated were statistically significantly associated with hospital-onset MRSA bacteremia in IRFs. Free-standing
have the predicted number of events calculated using the 2016 national IRF MRSA bacteremia incidence rate (i

IRFs and CMS-certified IRF
.e., intercept-only model).

Additional Resources

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

Technical Appendix (2016 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 Executive Summary and previous reports, can be found at the above wel

ɔsite.