2015 National
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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 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 methicillin-resistant *Staphylococcus aureus* (MRSA) bacteremia by facility-wide reporting	☑
Hospital-onset *Clostridium difficile* (CDI) by facility wide reporting	☑

and State HAI Data Report

t Rehabilitation Facilities

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

ilities (IRFs).

RF State
☑
☑
☑
☑

2015 Annual National and State HAI Data Report
Inpatient Rehabilitation Facilities: Full series of tables for all national and state-specific data

Table 1 National standardized infection ratios (SIRs) for the following HAIs from Inpatient Rehabilita
Central line-associated bloodstream infections (CLABSI)
Catheter-associated urinary tract infections (CAUTI)
Hospital-onset Clostridium difficile (CDI)
Hospital-onset methicillin-resistant Staphylococcus aureus (MRSA) bacteremia

Table 2 State-specific SIRs for CLABSI from IRFs, all locations combined

Table 3 State-specific SIRs for CAUTI from IRFs, all locations combined

Table 4 State-specific SIRs for Hospital-onset Clostridium difficile (CDI) from IRFs

Table 5 State-specific SIRs for hospital-onset MRSA bacteremia from IRFs

Appendix A Factors used in NHSN risk adjustment of the device-associated HAIs (CLABSI, CAUTI) neg

Appendix B Factors used in NHSN risk adjustment of the CDI and MRSA Bacteremia negative binomial

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)

gative binomial regression models from IRFs

regression models from IRFs

ta from Long-term Acute Care Hospitals (LTACHs), Critical Access Hospitals (CAHs) and Acute Care Hospitals (A

CHs).

HAI Type	No. of Facilities Reporting[1]	No. of Infections (Events)	
		Observed	Predicted
Inpatient Rehabilitation Facilities (IRFs)			
CLABSI, all[4]	662	171	173.588
CAUTI, all[4]	1,171	1,183	1,206.226
Hospital-onset MRSA bacteremia, facility-wide[5]	1151	164	166.323
Hospital-onset *Clostridium difficile* (CDI), facility-wide[5]	1,145	3,868	3,752.077

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 than th
3. Facility-specific percentiles are only calculated if at least 20 facilities had ≥1.0 predicted HAI in 2015. If a facility
4. Data from all IRF locations (or facilities). Risk factors used in the calculation of the number of predicted CLABS
5. 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

Table 1. National standardized infection ratios (SIRs) and facility-spec
Central line-associated bloodstream infections (CLABSIs), catheter-associated urinary trac

95% CI for SIR			Facility-specific SIRs			
SIR	Lower	Upper	No. Facilities with ≥1 Predicted Infection	No. Facilities with SIR Significantly > National SIR		No. Faciliti Significantly <
				N	%[2]	N
0.985	0.846	1.141	20	1	5%	0
0.981	0.926	1.038	401	17	4%	7
0.986	0.844	1.146	2	.	.	.
1.031	0.999	1.064	933	60	6%	59

ıe nominal value of the national SIR for the given HAI type. This is only calculated if at least 10 facilities had ≥
's predicted number of HAIs was <1.0, a facility-specific SIR was neither calculated nor included in the distrib
l and CAUTI are listed in Appendix A.
rehabilitation facility.
a hospital. Risk factors used in the calculation of the number of predicted CDI and MRSA bacteremia are liste

:ific summary SIRs using HAI data reported to NHSN during 2015 by HAI type:
:t infections (CAUTIs), *Clostridium difficile* (CDI), and methicillin-resistant *Staphylococcus aureus* (M

	Percent							
es with SIR < National SIR	**5%**	**10%**	**15%**	**20%**	**25%**	**30%**	**35%**	**40%**
0%	0.000	0.000	0.000	0.622	0.638	0.689	0.750	0.772
2%	0.000	0.000	0.000	0.000	0.000	0.000	0.418	0.544
.	.	.	.	.	.	.	.	.
6%	0.000	0.000	0.000	0.258	0.390	0.469	0.561	0.638

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

d in Appendix B.

lRSA) bacteremia.

ile Distribution of Facility-specific SIRs[3]									
	Median								
45%	50%	55%	60%	65%	70%	75%	80%	85%	90%
0.787	0.811	0.874	0.891	0.893	0.893	0.956	1.407	1.517	1.732
0.613	0.708	0.814	0.914	1.029	1.168	1.362	1.539	1.735	2.091
.	.	.	.	.	.	.	.	.	.
0.725	0.808	0.896	0.987	1.116	1.220	1.320	1.504	1.709	1.977

95%
2.390
2.559
.
2.543

Table 2. State-specific standardized infection ratios (SIRs) ar
NHSN Inpatient Rehabilitation Facilities (IR
2. Central line-associated bloodstream infections

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	5	2.734	1.829	0.670
Arkansas	Yes	Yes	13	3	2.511	1.195	0.304
Arizona	No	No	13	2	2.167	0.923	0.155
California	Yes	Yes[A]	72	15	16.909	0.887	0.515
Colorado	Yes	Yes	19	2	5.042	0.397	0.067
Connecticut	Yes	No	3	.	.	.	.
D.C.	No	No	2	.	.	.	.
Delaware	Yes	No	3	.	.	.	.
Florida	No	No	20	8	6.347	1.260	0.585
Georgia	Yes	No	17	12	4.991	2.404	1.303
Guam	No	No	0	.	.	.	.
Hawaii	No	No	0	.	.	.	.
Iowa	No	No	10	1	1.180	0.848	0.042
Idaho	No	No	1	.	.	.	
Illinois	No	No	32	8	9.433	0.848	0.394
Indiana	No	No	24	5	5.296	0.944	0.346
Kansas	No	No	9	5	1.707	2.929	1.073
Kentucky	M	No	9	2	2.910	0.687	0.115
Louisiana	No	No	18	3	2.892	1.037	0.264
Massachusetts	No	No	3	.	.	.	.
Maryland	No	No	2	.	.	.	.
Maine	No	No	4	.	.	.	.
Michigan	No	No	18	4	6.782	0.590	0.187
Minnesota	No	No	4	.	.	.	
Missouri	No	No	15	5	2.998	1.668	0.611
Mississippi	Yes	No	8	0	1.564	0.000	.
Montana	No	No	5	0	0.387	.	.
North Carolina	No	No	12	14	7.028	1.992	1.134
North Dakota	No	No	3	.	.	.	.
Nebraska	No	No	4	.	.	.	.
New Hampshire	No	No	1	.	.	.	.
New Jersey	No	No	4	.	.	.	.
New Mexico	No	No	3	.	.	.	.
Nevada	No	No	13	4	5.810	0.688	0.219
New York	No	No	43	8	8.867	0.902	0.419
Ohio	No	No	27	3	6.328	0.474	0.121
Oklahoma	No	No	12	3	3.213	0.934	0.238
Oregon	No	No	6	1	0.530	.	.
Pennsylvania	Yes	Yes	79	20	22.763	0.879	0.552
Puerto Rico	No	No	0	.	.	.	.

Rhode Island	No	No	4	.	.	.	.
South Carolina	Yes	Yes	17	1	6.455	0.155	0.008
South Dakota	No	No	2	.	.	.	.
Tennessee	No	No	11	0	2.616	0.000	.
Texas	No	No	42	13	11.774	1.104	0.614
Utah	M	No	3	.	.	.	.
Virginia	No	No	9	7	3.325	2.105	0.921
Virgin Islands	No	No	0	.	.	.	.
Vermont	No	No	1	.	.	.	.
Washington	Yes	Yes	15	3	3.071	0.977	0.248
Wisconsin	No	No	18	5	3.827	1.307	0.479
West Virginia	No	No	2	.	.	.	.
Wyoming	No	No	0	.	.	.	.
All US			**662**	**171**	**173.588**	**0.985**	**0.846**

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 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, 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 2015 CLABSI data and are included in the SIR calculation. SIRs and accomp
   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.

ıd facility-specific SIR summary measures,
:Fs) reporting during 2015
(CLABSIs) in IRFs, all locations[1]

for SIR		Facility-specific SIRs			Facility-specific SIRs at Key Percer			
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%	
.	.	.	.	.	.	.	.	
4.053	1	.	.	.	.	.	.	
3.251	1	.	.	.	.	.	.	
3.049	0	.	.	.	.	.	.	
1.430	2	.	.	.	.	.	.	
1.311	0	.	.	.	.	.	.	
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.	.	.	.	.	.	.	.	
2.393	1	.	.	.	.	.	.	
4.088	0	.	.	.	.	.	.	
.	.	.	.	.	.	.	.	
.	.	.	.	.	.	.	.	
4.181	0	.	.	.	.	.	.	
	.	.	.	.	.	.	.	
1.611	0	.	.	.	.	.	.	
2.092	0	.	.	.	.	.	.	
6.493	1	.	.	.	.	.	.	
2.271	1	.	.	.	.	.	.	
2.823	0	.	.	.	.	.	.	
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1.423	2	.	.	.	.	.	.	
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3.696	0	.	.	.	.	.	.	
1.915	0	.	.	.	.	.	.	
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3.263	2	.	.					
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1.661	0	.	.	.	.	.	.	
1.713	0	.	.					
1.290	0	.	.	.	.	.	.	
2.541	1	.	.	.	.	.	.	
.	.	.	.	.	.	.	.	
1.333	3	.	.					
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0.764	1	.	.	.	.	.	.
.	.	.	.	.	.	.	.
1.145	0	.	.	.	.	.	.
1.841	2	.	.	.	.	.	.
.	.	.	.	.	.	.	.
4.164	0	.	.	.	.	.	.
.	.	.	.	.	.	.	.
.	.	.	.	.	.	.	.
2.659	1	.	.	.	.	.	.
2.896	1	.	.	.	.	.	.
.	.	.	.	.	.	.	.
.	.	.	.	.	.	.	.
1.141	**20**	**5%**	**0%**	**0.000**	**0.638**	**0.811**	**0.956**

Also includes data from CMS-certified IRF units within a hosptial.
2015. M indicates midyear implementation of a mandate.

state health department had access to 2015 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.
anying statistics are only calculated for states in which at least 5 IRFs reported CLABSI data

lue of the 2015 national IRF CLABSI SIR of 1.435. This is only calculated if at least 10 facilities had

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

ntiles[6]
90%

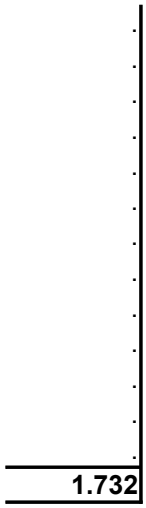
1.732

Table 3. State-specific standardized infection
NHSN Inpatient Rehabilitati
3. Catheter-associated urinary t

State				No. of Events		
				Observed	Predicted	SIR
Alaska	No	No	2	.	.	.
Alabama	No	No	14	9	18.595	0.484
Arkansas	Yes	Yes	25	12	19.371	0.619
Arizona	No	No	23	15	22.147	0.677
California	No	No	74	67	82.651	0.811
Colorado	No	No	19	20	18.187	1.100
Connecticut	Yes	No	9	5	4.753	1.052
D.C.	No	No	2	.	.	.
Delaware	Yes	No	3	.	.	.
Florida	No	No	53	52	80.860	0.643
Georgia	Yes	No	30	18	29.865	0.603
Guam	No	No	0	.	.	.
Hawaii	Yes	Yes	1	.	.	.
Iowa	No	No	15	14	10.563	1.325
Idaho	No	No	6	5	4.202	1.190
Illinois	No	No	48	56	53.756	1.042
Indiana	No	No	38	41	34.004	1.206
Kansas	No	Yes	20	30	13.567	2.211
Kentucky	M	No	17	18	16.778	1.073
Louisiana	No	No	48	40	38.630	1.035
Massachusetts	No	No	10	21	23.211	0.905
Maryland	No	No	3	.	.	.
Maine	No	Yes	5	7	4.334	1.615
Michigan	No	No	41	39	38.103	1.024
Minnesota	No	No	14	13	11.549	1.126
Missouri	No	No	30	39	28.597	1.364
Mississippi	Yes	No	11	10	10.604	0.943
Montana	No	No	6	1	1.946	0.514
North Carolina	Yes	Yes	28	35	31.201	1.122
North Dakota	No	No	7	3	2.948	1.018
Nebraska	No	No	9	12	11.814	1.016
New Hampshire	No	No	8	7	7.411	0.945
New Jersey	No	No	17	47	37.818	1.243
New Mexico	No	No	8	7	6.924	1.011
Nevada	No	No	13	18	17.792	1.012
New York	No	No	59	50	52.856	0.946
Ohio	No	No	50	44	48.972	0.898
Oklahoma	No	No	23	27	16.140	1.673
Oregon	Yes	Yes	8	4	4.995	0.801
Pennsylvania	Yes	Yes	80	114	80.316	1.419

Puerto Rico	No	No	4	.	.	.
Rhode Island	No	No	6	3	2.841	1.056
South Carolina	No	No	19	13	12.587	1.033
South Dakota	No	No	3	.	.	.
Tennessee	Yes	Yes	32	39	27.586	1.414
Texas	No	No	139	133	169.750	0.784
Utah	Yes	Yes	11	14	8.979	1.559
Virginia	No	No	26	28	29.614	0.945
Virgin Island	No	No	0	.	.	.
Vermont	No	No	2	.	.	.
Washington	No	No	17	16	21.794	0.734
Wisconsin	No	Yes	25	19	14.603	1.301
West Virginia	Yes	Yes	8	2	6.604	0.303
Wyoming	No	No	2	.	.	.
All US			**1,171**	**1,183**	**1,206.226**	**0.981**

1. Includes data reported from all locations (i.e., adult and pediatric rehabilitation wards) within free-s
2. Yes indicates the presence of a state mandate to report facility-wide CAUTI data to NHSN at the l
   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 IRFs that reported 2015 CAUTI data and are included in the SIR calculation. SIRs
   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.

ı ratios (SIRs) and facility-specific SIR summary measures,
ion Facilities (IRFs) reporting during 2015
ract infections (CAUTIs) in IRFs, all locations[1]

95% CI for SIR		Facility-specific SIRs				
Lower	Upper	No. of facs with at least 1 predicted CAUTI			10%	25%
.	.	.	.	.	.	.
0.236	0.888	8	.	.	.	.
0.336	1.053	7	.	.	.	.
0.394	1.092	10	10%	0%	.	.
0.633	1.023	30	0%	3%	0.000	0.000
0.691	1.668	8	.	.	.	.
0.385	2.332	1	.	.	.	.
.	.	.	.	.	.	.
.	.	.	.	.	.	.
0.485	0.837	32	3%	0%	0.000	0.000
0.368	0.934	16	0%	0%	.	.
.	.	.	.	.	.	.
.	.	.	.	.	.	.
0.754	2.171	3	.	.	.	.
0.436	2.637	2	.	.	.	.
0.794	1.343	14	0%	0%	.	.
0.877	1.620	11	9%	0%	.	.
1.519	3.117	4	.	.	.	.
0.656	1.663	3	.	.	.	.
0.750	1.396	9	.	.	.	.
0.575	1.359	6	.	.	.	.
.	.	.	.	.	.	.
0.706	3.195	2	.	.	.	.
0.738	1.385	12	0%	0%	.	.
0.626	1.877	4	.	.	.	.
0.983	1.846	8	.	.	.	.
0.479	1.681	2	.	.	.	.
0.026	2.534	0	.	.	.	.
0.794	1.543	10	0%	0%	.	.
0.259	2.770	1	.	.	.	.
0.550	1.727	2	.	.	.	.
0.413	1.868	3	.	.	.	.
0.924	1.639	13	0%	0%	.	.
0.442	2.000	3	.	.	.	.
0.618	1.568	9	.	.	.	.
0.710	1.237	16	6%	6%	.	.
0.661	1.195	18	6%	0%	.	.
1.125	2.400	5	.	.	.	.
0.254	1.932	0	.	.	.	.
1.176	1.699	23	9%	0%	0.000	0.501

.	.	.	.	.	.	.
0.269	2.874	0	.	.	.	.
0.574	1.722	3	.	.	.	.
.	.	.	.	.	.	.
1.019	1.913	12	0%	0%	.	.
0.659	0.925	56	4%	5%	0.000	0.000
0.888	2.554	5	.	.	.	.
0.641	1.348	11	0%	0%	.	.
.	.	.	.	.	.	.
.	.	.	.	.	.	.
0.435	1.167	5	.	.	.	.
0.807	1.994	3	.	.	.	.
0.051	1.001	3	.	.	.	.
.	.	.	.	.	.	.
0.926	**1.038**	**401**	**4%**	**2%**	**0.000**	**0.000**

standing IRFs. Also includes data from CMS-certified IRF units within a hosptial.
beginning of 2015. M indicates midyear implementation of a mandate.

ation activities: state health department had access to 2015 NHSN data, state health department perform
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.
and accompanying statistics are only calculated for states in which at least 5 IRFs reported CAUTI data

e nominal value of the 2015 national IRF CAUTI SIR of 0.910. This is only calculated if at least 10 faciliti

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

	75%	90%
.	.	.
.	.	.
.	.	.
.	.	.
0.515	1.069	2.119
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.	.	.
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.	.	.
0.366	0.701	1.604
.	.	.
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1.331	1.923	2.224

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0.611	1.068	1.777
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0.708	**1.362**	**2.091**

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Table 3. State-specific standardized infection ratios (SIRs) a
NHSN Inpatient Rehabilitation Facilities (IR
Hospital-onset *Clostridium difficile*

State				No. of Events			95% CI
				Observed	Predicted	SIR	Lower
Alaska	No	No	2	.	.	.	.
Alabama	No	No	14	89	80.144	1.111	0.897
Arkansas	Yes	Yes	23	58	64.207	0.903	0.692
Arizona	No	No	23	96	75.401	1.273	1.037
California	Yes	Yes	70	206	227.275	0.906	0.789
Colorado	No	No	18	31	47.370	0.654	0.453
Connecticut	Yes	No	9	16	14.244	1.123	0.665
D.C.	No	No	2	.	.	.	.
Delaware	Yes	No	3	.	.	.	.
Florida	No	No	52	293	255.641	1.146	1.020
Georgia	Yes	No	30	79	75.282	1.049	0.836
Guam	No	No	0	.	.	.	.
Hawaii	Yes	Yes	1	.	.	.	.
Iowa	No	No	15	29	24.708	1.174	0.801
Idaho	No	No	6	6	10.625	0.565	0.229
Illinois	Yes	Yes[A]	47	222	201.164	1.104	0.965
Indiana	No	No	38	108	110.785	0.975	0.804
Kansas	No	Yes	20	58	56.024	1.035	0.793
Kentucky	M	No	16	54	59.742	0.904	0.686
Louisiana	No	No	47	81	72.826	1.112	0.889
Massachusetts	No	No	10	64	63.610	1.006	0.781
Maryland	No	No	3	.	.	.	.
Maine	No	Yes	5	9	19.856	0.453	0.221
Michigan	No	No	40	130	123.316	1.054	0.884
Minnesota	No	No	13	37	32.295	1.146	0.819
Missouri	No	No	30	121	96.749	1.251	1.042
Mississippi	Yes	No	11	27	28.804	0.937	0.630
Montana	No	No	6	6	7.356	0.816	0.331
North Carolina	Yes	Yes	27	95	103.498	0.918	0.747
North Dakota	No	No	5	7	5.910	1.185	0.518
Nebraska	Yes	Yes	9	18	24.594	0.732	0.447
New Hampshire	No	No	8	37	25.321	1.461	1.044
New Jersey	No	No	17	140	135.758	1.031	0.871
New Mexico	No	No	8	74	28.573	2.590	2.048
Nevada	No	No	13	134	63.024	2.126	1.788
New York	Yes		59	184	191.906	0.959	0.828
Ohio	No	No	49	111	137.426	0.808	0.668
Oklahoma	No	No	23	50	46.715	1.070	0.803
Oregon	Yes	Yes	7	9	14.080	0.639	0.312
Pennsylvania	Yes	Yes	79	250	282.783	0.884	0.779
Puerto Rico	No	No	4	.	.	.	.
Rhode Island	No	No	6	18	9.515	1.892	1.156
South Carolina	Yes	Yes	19	52	66.642	0.780	0.589
South Dakota	No	No	2	.	.	.	.

Tennessee	Yes	Yes	31	75	96.996	0.773	0.613
Texas	No	No	134	475	437.272	1.086	0.992
Utah	Yes	Yes	11	26	26.690	0.974	0.650
Virginia	No	No	27	101	111.010	0.910	0.745
Virgin Island	No	No	0	.	.	.	.
Vermont	No	No	1	.	.	.	.
Washington	Yes	Yes	17	28	40.216	0.696	0.472
Wisconsin	No	Yes	25	48	54.888	0.875	0.652
West Virginia	Yes	Yes	8	33	25.983	1.270	0.889
Wyoming	No	No	2	.	.	.	.
All US			**1,145**	**3,868**	**3,752.077**	**1.031**	**0.999**

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 r 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 2015 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, 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 2015 CDI data and are included in the SIR calculation. SIRs and accompanyi data in 2015.
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 2015.
6. Facility-specific key percentiles were only calculated if at least 20 facilities had ≥1.0 predicted CDI in 2015. If a fa was neither calculated nor included in the distribution of facility-specific SIRs.

nd facility-specific SIR summary measures,
RFs) reporting during 2015
(CDI), facility-wide[1]

for SIR		Facility-specific SIRs					
Upper	No. of facs with at least 1 predicted CDI			10%	25%		75%
.	.	.	.	.	.	.	.
1.360	14	0%	21%	.	.	.	.
1.160	16	0%	25%	.	.	.	.
1.548	20	5%	15%	0.000	0.152	0.549	0.781
1.037	64	0%	25%	0.000	0.082	0.399	0.783
0.918	16	0%	25%	.	.	.	.
1.785	6	.	.	.	.	.	.
.	2	.	.	.	.	.	.
.	3	.	.	.	.	.	.
1.283	49	0%	25%	0.110	0.299	0.594	0.862
1.301	26	0%	12%	0.000	0.244	0.497	0.767
.	.	.	.	.	.	.	.
.	1	.	.	.	.	.	.
1.664	10	0%	10%	.	.	.	.
1.175	4			.	.	.	.
1.256	41	2%	20%	0.160	0.337	0.564	1.065
1.172	31	3%	29%	0.000	0.000	0.502	0.760
1.329	14	0%	7%	.	.	.	.
1.171	14	0%	36%	.	.	.	.
1.375	28	7%	4%	0.000	0.000	0.384	0.781
1.276	10	20%	60%	.	.	.	.
.	3	.	.	.	.	.	.
0.832	4	.	.	.	.	.	.
1.248	33	0%	15%	0.000	0.282	0.493	0.773
1.563	12	0%	17%	.	.	.	.
1.489	25	4%	8%	0.000	0.401	0.670	0.914
1.345	10	0%	20%	.	.	.	.
1.697	3	.	.	.	.	.	.
1.117	21	0%	24%	0.000	0.000	0.406	0.717
2.343	3	.	.	.	.	.	.
1.134	6	.	.	.	.	.	.
1.993	8	.	.	.	.	.	.
1.213	16	0%	38%	.	.	.	.
3.233	6	.	.	.	.	.	.
2.510	11	9%	9%	.	.	.	.
1.105	46	0%	28%	0.000	0.201	0.535	0.743
0.969	38	0%	34%	0.000	0.198	0.436	0.665
1.400	15	0%	33%	.	.	.	.
1.173	5	.	.	.	.	.	.
0.999	59	2%	32%	0.000	0.000	0.312	0.637
.	4	.	.	.	.	.	.
2.932	5	.	.	.	.	.	.
1.015	16	0%	38%	.	.	.	.
.	2	.	.	.	.	.	.

0.964	21	5%	38%	0.000	0.000	0.368	0.669
1.187	121	3%	26%	0.000	0.136	0.474	0.861
1.407	9	.	.	.	.	.	.
1.101	23	0%	30%	0.000	0.099	0.332	0.932
.		.	.	.	.	.	.
.	1	.	.	.	.	.	.
0.993	12	0%	33%	.	.	.	.
1.150	17	0%	24%	.	.	.	.
1.763	5	.	.	.	.	.	.
.	2	.	.	.	.	.	.
1.064	**933**	**6%**	**6%**	**0.000**	**0.390**	**0.808**	**1.320**

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

state health department had access to 2015 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.
ng statistics are only calculated for states in which at least 5 IRFs reported CDI

of the 2015 national IRF CDI SIR of 1.031. This is only calculated if at least 10 facilities had

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

90%
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1.242
1.122
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1.101
1.289
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1.381
1.113
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1.592
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.
1.362
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1.379
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1.124
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.
0.939
1.002
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0.880
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1.077
1.355
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1.073
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1.977

Table 4. State-specific standardized infection ratios (SIRs) a
NHSN Inpatient Rehabilitation Facilities (IF
4. Hospital-onset methicillin-resistant *Staphylococcus a*

State				No. of Events			95% CI
				Observed	Predicted	SIR	Lower
Alaska	No	No	2	.	.	.	
Alabama	No	No	14	5	3.680	1.359	0.498
Arkansas	Yes	Yes	24	4	3.072	1.302	0.414
Arizona	No	No	23	2	3.690	0.542	0.091
California	Yes	Yes	70	7	9.358	0.748	0.327
Colorado	No	No	18	1	2.026	0.494	0.025
Connecticut	Yes	No	9	0	0.630	.	.
D.C.	No	No	2	.	.	.	.
Delaware	Yes	No	3	.	.	.	.
Florida	No	No	52	17	12.007	1.416	0.852
Georgia	Yes	No	30	5	3.252	1.538	0.563
Guam	No	No	0	.	.	.	.
Hawaii	Yes	Yes	1	.	.	.	.
Iowa	No	No	15	0	0.944	.	.
Idaho	No	No	6	0	0.463	.	.
Illinois	Yes	Yes	47	10	7.525	1.329	0.675
Indiana	No	No	38	3	4.387	0.684	0.174
Kansas	No	Yes	20	1	2.267	0.441	0.022
Kentucky	M	No	16	4	2.873	1.392	0.442
Louisiana	No	No	46	5	3.602	1.388	0.509
Massachusetts	No	No	10	0	3.592	0	.
Maryland	No	No	3	.	.	.	.
Maine	No	Yes	5	0	0.842	.	.
Michigan	No	No	40	7	4.433	1.579	0.691
Minnesota	No	No	14	2	1.254	1.594	0.267
Missouri	No	No	30	6	4.133	1.452	0.588
Mississippi	Yes	No	11	2	1.399	1.43	0.24
Montana	No	No	6	0	0.288	.	
North Carolina	Yes	Yes	27	4	4.286	0.933	0.297
North Dakota	No	No	5	0	0.272	.	.
Nebraska	Yes	Yes	9	0	1.071	0	.
New Hampshire	No	No	8	1	1.322	0.757	0.038
New Jersey	No	No	17	2	5.793	0.345	0.058
New Mexico	No	No	8	1	1.234	0.81	0.041
Nevada	No	No	13	1	2.676	0.374	0.019
New York	No	No	59	8	8.017	0.998	0.463
Ohio	No	No	50	3	5.938	0.505	0.129
Oklahoma	No	No	23	4	2.137	1.872	0.595
Oregon	Yes	Yes	7	0	0.527	.	.
Pennsylvania	Yes	Yes	79	14	12.953	1.081	0.615
Puerto Rico	No	No	4	.	.	.	.
Rhode Island	No	No	6	0	0.437	.	.
South Carolina	Yes	Yes	19	5	3.409	1.467	0.537
South Dakota	No	No	2	.	.	.	.

Tennessee	Yes	Yes	32	8	4.331	1.847	0.858
Texas	No	No	136	23	21.012	1.095	0.711
Utah	Yes	Yes	11	0	1.224	0	.
Virginia	No	No	27	5	4.683	1.068	0.391
Virgin Island	No	No	0	.	.	.	.
Vermont	No	No	2	.	.	.	.
Washington	No	No	17	1	1.609	0.622	0.031
Wisconsin	No	Yes	25	1	2.327	0.43	0.021
West Virginia	Yes	Yes	8	1	1.420	0.704	0.035
Wyoming	No	No	2	.	.	.	.
All US			**1,151**	**164**	**166.323**	**0.986**	**0.844**

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 r 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 MRSA bacteremia data to NHSN at the beg 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, 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 voluntari
4. The number of IRFs that reported 2015 MRSA bacteremia data and are included in the SIR calculation. SIRs an bacteremia data from at least one location in 2015.
5. Percent of facilities with ≥1.0 predicted MRSA bacteremia that had an SIR significantly greater or less than the n ≥ 1.0 predicted MRSA bacteremia in 2015.
6. Facility-specific key percentiles were only calculated if at least 20 facilities had ≥1.0 predicted MRSA bacteremia was neither calculated nor included in the distribution of facility-specific SIRs.

nd facility-specific SIR summary measures,
RFs) reporting during 2015
***ureus* (MRSA) bacteremia, facility-wide[1]**

for SIR	Facility-specific SIRs						
Upper	No. of facs with at least 1 predicted MRSA			10%	25%		75%
.	.	.	.	.	.	.	.
3.011	0	.	.	.	.	.	.
3.141	0	.	.	.	.	.	.
1.791	0	.	.	.	.	.	.
1.48	0	.	.	.	.	.	.
2.434	0	.	.	.	.	.	.
.	0	.	.	.	.	.	.
.	.	.	.	.	.	.	.
.	.	.	.	.	.	.	.
2.221	0	.	.	.	.	.	.
3.408	0	.	.	.	.	.	.
.	.	.	.	.	.	.	.
.	.	.	.	.	.	.	.
.	0	.	.	.	.	.	.
.	0	.	.	.	.	.	.
2.369	1	.	.	.	.	.	.
1.861	0	.	.	.	.	.	.
2.175	0	.	.	.	.	.	.
3.358	0	.	.	.	.	.	.
3.077	0	.	.	.	.	.	.
0.834	0	.	.	.	.	.	.
.	.	.	.	.	.	.	.
.	0	.	.	.	.	.	.
3.124	0	.	.	.	.	.	.
5.268	0	.	.	.	.	.	.
3.02	0	.	.	.	.	.	.
4.724	0	.	.	.	.	.	.
.	0	.	.	.	.	.	.
2.251	0	.	.	.	.	.	.
.	0	.	.	.	.	.	.
2.797	0	.	.	.	.	.	.
3.732	0	.	.	.	.	.	.
1.141	1	.	.	.	.	.	.
3.996	0	.	.	.	.	.	.
1.843	0	.	.	.	.	.	.
1.895	0	.	.	.	.	.	.
1.375	0	.	.	.	.	.	.
4.515	0	.	.	.	.	.	.
.	0	.	.	.	.	.	.
1.771	0	.	.	.	.	.	.
.	.	.	.	.	.	.	.
.	0	.	.	.	.	.	.
3.251	0	.	.	.	.	.	.
.	.	.	.	.	.	.	.

3.507	0	.	.	.	.	.	.
1.616	0	.	.	.	.	.	.
2.448	0	.	.	.	.	.	.
2.367	.	.	.	.	.	.	.
.	0	.	.	.	.	.	.
.	.	.	.	.	.	.	.
3.066	0	.	.	.	.	.	.
2.119	0	.	.	.	.	.	.
3.473	0	.	.	.	.	.	.
.	.	.	.	.	.	.	.
1.146	**2**	**.**	**.**	**.**	**.**	**.**	**.**

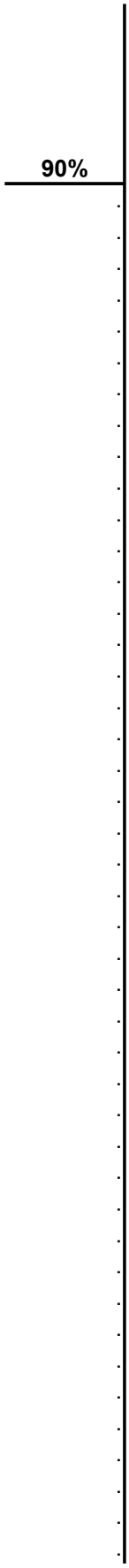
Also includes data from CMS-certified IRF units within a hospital.
ehabilitation facility.
hospital.
inning of 2015. M indicates midyear implementation of a mandate.

state health department had access to 2015 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
ly shared with them by facilities in their jurisdiction.
d accompanying statistics are only calculated for states in which at least 5 IRFs reported MRSA

ominal value of the 2015 national IRF MRSA SIR of 0.986. This is only calculated if at least 10 facilities had

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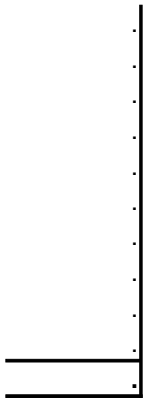

Appendix A Factors used in NHSN risk adjustment of the device-associated HAIs (CLABSI, CAUTI) negative binomial regression models[1] from Inpatient Rehabilitation Facilities

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 2015 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 are calculated as : # of admissions with the primary diagnosis (traumatic or non-traumatic spinal cord dysfunct

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

ion) / total # of annual admissions

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 2015 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 (2015 Report): http://www.cdc.gov/hai/progress-report/index.html
Explains the methodology used to produce the 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 we

bsite.