

# 2017 Nat

**Introduction:** Welcome to the 2017 National and State HAI Progress Report using the 2015 base by comparing the number of observed device days to the number of predicted devi This report is created by CDC staff with the National Healthcare Safety Network (N

**Scope of report:**

Device Days Types
Central line days (CLDs) by locations
Urinary catheter days (UCDs) by locations
Ventilator days (VDs) by locations

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# National and State HAI Progress Report

## Standardized Utilization Ratios

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<h3>Acute Care Hospitals</h3>
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eline and risk adjustment calculations. Standardized utilization ratios (SURs) are used to describe device  
ice days.  
HSN).

ACH	
National	State
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]

: utilization

## Development of the NHSN Standardized Utilization Ratio (SUR): Methodology

### **Rationale**

Traditionally, NHSN has been providing a crude measure of device utilization rate to the healthcare facilities. To make it standardized to compare with a reference baseline population as well as over time. Accordingly, CDC has developed

### **Development of SUR models**

SUR models were developed for the following measures: central line days, urinary catheter days and ventilator days in inpatient rehabilitation facilities (IRF), long-term acute care hospitals (LTACH) (and NICU for central line days).

Using the NHSN data (2017) in sync with rebaseline work, CDC has developed multivariable logistic regression models (“Extra-binomial Variation in Logistic Linear Models,” Applied Statistics, 31, 144–148.). Unit of analysis in all the SUR

### **STEPS to compute SUR at the location level**

1: First, calculate the logit scale value of  $p_{hat}$ , using parameter estimates of corresponding SUR model.

Logit  $p_{hat}$  = intercept +  $x_1$  +  $x_2$  +  $x_3$  + .....

(Risk factors are provided in appendices for individual matrix of measure and healthcare setting)

2: Then, compute the probability of device use

$p_{hat} = [e^{\text{logit}(p_{hat})}] / [1 + e^{\text{logit}(p_{hat})}]$

3: Calculate predicted device days as follows:

Predicted Device Days =  $p_{hat}$  \* In-patient days

4: Finally, derive SUR value at the location by dividing number of observed device days with number of predicted device days

$SUR = \text{Observed Device Days} / \text{Predicted Device Days}$

Note that SUR will not be calculated if Predicted Device Days is  $< 1$  due to minimum precision criteria of 1.0.

### **STEPS to compute SUR at higher level above location**

Do the same computation as in step 1, 2, 3 at location level.

Sum the observed device days and predicted device days up to the level of aggregation desired (e.g., facility-level).

Then, derive SUR value at the desired aggregate level by dividing number of observed device days with number of predicted device days

SUR Guide: <https://www.cdc.gov/nhsn/pdfs/ps-analysis-resources/nhsn-sur-guide-508.pdf>

monitor the progress of healthcare acquired infections (HAI) prevention efforts, device utilization in any healthcare  
ed statistical models to make SUR values available for different measures (e.g., central line days, urinary cathet

ys. They were available for the healthcare setting of acute care hospitals (ACH), critical access hospitals (CAH),

odels that correct over dispersion by the Williams' method (Reference: Williams, D. A. (1982),  
IR models are at the location level.

device days;

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f predicted device days.

› setting/location needs to be  
(over days) at various healthcare settings.

**2017 Annual National and State HAI Progress Report**  
**Acute Care Hospitals: Full series of tables for all national and state data**

**Table 1**                      **National standardized utilization ratios (SURs) and facility-specific summary**  
Central line days (CLDs)  
Urinary catheter days (UCDs)  
Ventilator days (VDs)

**Table 2**                      **State-specific SURs for CLDs from Acute Care Hospitals**  
2a. All locations combined  
2b. Critical care locations only  
2c. Ward (non-critical care) locations only  
2d. Neonatal critical care locations only

**Table 3**                      **State-specific SURs for UCDs from Acute Care Hospitals**  
3a. All locations combined  
3b. Critical care locations only  
3c. Ward (non-critical care) locations only

**Table 4**                      **State-specific SURs for VDs from Acute Care Hospitals**  
4a. All locations combined  
4b. Critical care locations only  
4c. Ward (non-critical care) locations only

**Table 5**                      **Changes in national SURs, 2017 compared to 2016**  
Central Line Days (CLDs)  
Urinary Catheter Days (UCDs)  
Ventilator days (VDs)

**Table 6**                      **Changes in state SURs, 2017 compared to 2016**  
6a. Central Line Days (CLDs)  
6b. Urinary Catheter Days (UCDs)  
6c. Ventilator Days (VDs)

**Appendix A**                      Factors used in NHSN risk-adjusted SUR calculation of the device utilization in

**Additional Resources**                      Technical Appendix  
HAI Progress Report Home Page  
SUR Guide: <https://www.cdc.gov/nhsn/pdfs/ps-analysis-resources/nt>

ry SURs

acute care hospitals (ACHs)

asn-sur-guide-508.pdf



Device and Patient Population	No. of Facilities	No. of I
	Reporting <sup>1</sup>	Observed
<b>Central line days, all<sup>4</sup></b>	3,701	26,342,761
<b>ICUs<sup>5</sup></b>	3,148	8,910,174
<b>Wards<sup>6</sup></b>	3,662	16,045,424
<b>NICUs<sup>7</sup></b>	1,035	1,387,163
<b>Urinary catheter days, all<sup>8</sup></b>	3,726	25,847,372
	3,145	10,282,207
<b>Wards<sup>6</sup></b>	3,692	15,565,165
<b>Ventilator days, all<sup>8</sup></b>	2,085	3,768,174
	2,028	3,581,456
	421	186,718

1. The number of reporting facilities included in the SUR calculation; SURs are not calculated w
2. Percent of facilities with at least one predicted device day that had an SUR significantly grea
3. Facility-specific percentiles are only calculated if at least 20 facilities had  $\geq 1.0$  predicted num
4. Data from all ICUs, wards (and other non-critical care locations), and NICUs. Data contained
5. Data from all ICUs; excludes wards (and other non-critical care locations), and NICUs. Data
6. Data from all wards (for this table wards also include step-down, mixed acuity, and specialty
7. Data from all NICU locations, including Level II/III and Level III nurseries.
8. Data from all ICUs and wards (and other non-critical care locations). This excludes NICUs. [

**Table 1. National standardized utilization ratios (SURs) and facility-specific summary SUR**  
**Table 1a. Central line days**

<u>Device days</u>		<u>95% CI for SUR</u>		<u>Facility-specific S</u>		
<b>Predicted</b>	<b>SUR</b>	<b>Lower</b>	<b>Upper</b>	<b>No. Facilities with ≥1 Predicted Device Days</b>	<b>No. Facilities with SUR Significantly &gt; National SUR</b>	
					<b>N</b>	<b>%<sup>2</sup></b>
28,258,127.9001	0.9322	0.9318	0.9326	3,697	1,407	38
9,181,284.5616	0.9705	0.9698	0.9711	3,144	1,246	40
17,574,460.5548	0.9130	0.9125	0.9135	3,660	1,443	39
1,502,382.7837	0.9233	0.9218	0.9249	1,033	307	30
28,738,766.1513	0.8994	0.8990	0.8997	3,724	1,699	46
10,701,905.7713	0.9608	0.9602	0.9614	3,143	1,287	41
18,036,860.3800	0.8630	0.8625	0.8634	3,691	1,762	48
3,882,309.8185	0.9706	0.9696	0.9716	2,079	741	36
3,657,494.0454	0.9792	0.9782	0.9802	2,028	745	37
224,815.7731	0.8305	0.8268	0.8343	414	138	33

When there are less than 5 reporting facilities. This may be different from those reported in the SIR tables due to the number of device days in 2017. This is only calculated if at least 10 facilities have reported a predicted number of device days in 2017. If a facility's predicted number of device days was <1.0, a facility-specific SUR is not reported in this table. Data contained in this table are reported from acute care hospitals; as such, data from CAHs, IRFs and LTACHs are excluded. Data contained in this table are reported from acute care hospitals; as such, data from CAHs, IRFs and LTACH care areas [including hematology/oncology, bone marrow transplant]). Data contained in this table are reported from acute care hospitals; as such, data from CAHs, IRFs and LTACHs are excluded.

Data contained in this table are reported from acute care hospitals; as such, data from CAHs, IRFs and LTACHs are excluded.

using device days data reported to NHSN during 2017 for acute care hospitals (ACHs), by device type and facility type (CLDs), urinary catheter days (UCDs), and ventilator days (VDs).

SURs								
No. Facilities with SUR								
Significantly < National SUR	N	5%	10%	15%	20%	25%	30%	35%
2,004	54	0.1111	0.3558	0.4694	0.5489	0.6088	0.6693	0.7179
1,550	49	0.2868	0.4207	0.5178	0.6038	0.6684	0.7265	0.7848
1,886	52	0.0979	0.3312	0.4429	0.5128	0.5802	0.6362	0.6926
604	58	0.0906	0.2054	0.3228	0.4004	0.4565	0.5142	0.5833
1,687	45	0.3923	0.5515	0.6288	0.6819	0.7256	0.7616	0.8032
1,370	44	0.4571	0.5720	0.6534	0.7168	0.7695	0.8124	0.8492
1,548	42	0.3762	0.4902	0.5742	0.6324	0.6794	0.7256	0.7641
1,079	52	0.1152	0.2923	0.4226	0.5266	0.6014	0.6665	0.7204
1,033	51	0.1795	0.3348	0.4712	0.5634	0.6358	0.6881	0.7474
237	57	0.0000	0.0000	0.0000	0.0000	0.0000	0.0171	0.0780

due to exclusion and inclusion criteria. Refer to the technical appendix for details.

and ≥ 1.0 predicted device days in 2017.

was neither calculated nor included in the distribution of facility-specific SURs.

cluded.

is are excluded.

ported from acute care hospitals; as such, data from CAHs, IRFs and LTACHs are excluded.

ACHs are excluded.

ind patient population:

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**Percentile Distribution of Facility-specific SURs<sup>3</sup>**

**Median**

<b>40%</b>	<b>45%</b>	<b>50%</b>	<b>55%</b>	<b>60%</b>	<b>65%</b>	<b>70%</b>	<b>75%</b>	<b>80%</b>	<b>85%</b>
0.7707	0.8122	0.8575	0.9009	0.9509	1.0009	1.0610	1.1245	1.2019	1.2835
0.8341	0.8762	0.9259	0.9737	1.0150	1.0606	1.1080	1.1598	1.2196	1.3077
0.7485	0.8005	0.8491	0.8984	0.9566	1.0211	1.0911	1.1728	1.2588	1.3810
0.6355	0.6874	0.7479	0.8086	0.8701	0.9148	0.9926	1.0703	1.1643	1.2907
0.8315	0.8664	0.8998	0.9358	0.9743	1.0165	1.0581	1.1094	1.1751	1.2587
0.8866	0.9207	0.9522	0.9805	1.0102	1.0405	1.0679	1.1100	1.1449	1.1834
0.8017	0.8481	0.8869	0.9345	0.9805	1.0314	1.0930	1.1665	1.2502	1.3618
0.7746	0.8265	0.8768	0.9376	0.9884	1.0527	1.1180	1.1824	1.2692	1.3617
0.7960	0.8490	0.9034	0.9580	1.0105	1.0734	1.1289	1.1869	1.2725	1.3757
0.1314	0.2589	0.3353	0.5074	0.6896	0.9243	1.1285	1.3986	1.7685	2.5080

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<b>90%</b>	<b>95%</b>
1.4529	1.7660
1.4073	1.6261
1.5765	1.9767
1.4497	1.6844
1.4085	1.6623
1.2407	1.3246
1.5539	1.9014
1.5237	1.8745
1.5208	1.8268
3.7781	5.6161

**Table 2. State-specific standardized utilization ratios (SURs) and facility-specific summary**  
**Table 2a. Central line days (CL**

State	No. of Facilities	No. of Device days			95% CI	
		Observed	Predicted	SUR	Lower	Upper
Alaska	10	38,097	34,570.1612	1.1020	1.0910	
Alabama	86	494,625	551,998.4053	0.8961	0.8936	
Arkansas	51	283,703	277,175.8423	1.0235	1.0198	
Arizona	69	538,297	527,192.3173	1.0211	1.0184	
California	342	2,787,180	2,756,668.5474	1.0111	1.0099	
Colorado	56	335,994	340,636.1284	0.9864	0.9830	
Connecticut	31	242,276	298,673.6426	0.8112	0.8079	
D.C.	8	148,139	163,368.8173	0.9068	0.9022	
Delaware	8	88,676	105,295.9222	0.8422	0.8366	
Florida	209	2,088,377	2,337,948.1169	0.8933	0.8920	
Georgia	107	846,523	882,880.2268	0.9588	0.9568	
Guam	2	.	.	.	.	.
Hawaii	17	135,857	113,654.8147	1.1953	1.1890	
Iowa	39	210,916	203,367.2282	1.0371	1.0327	
Idaho	16	74,597	75,766.1525	0.9846	0.9775	
Illinois	134	955,415	1,086,918.0412	0.8790	0.8773	
Indiana	88	563,897	564,524.8674	0.9989	0.9963	
Kansas	57	212,695	223,401.4468	0.9521	0.9480	
Kentucky	71	423,854	463,944.4518	0.9136	0.9108	
Louisiana	97	443,201	454,854.3244	0.9744	0.9715	
Massachusetts	69	565,027	638,333.2558	0.8852	0.8829	
Maryland	49	465,718	515,544.6664	0.9034	0.9007	
Maine	17	76,231	91,797.2480	0.8304	0.8246	
Michigan	99	669,403	837,964.4652	0.7988	0.7969	
Minnesota	54	353,640	343,775.8600	1.0287	1.0253	
Missouri	76	651,567	678,860.8750	0.9598	0.9575	
Mississippi	60	263,025	296,613.7643	0.8868	0.8834	
Montana	14	45,195	53,078.1141	0.8515	0.8437	
North Carolina	98	744,802	801,115.1565	0.9297	0.9276	
North Dakota	9	68,509	49,576.7301	1.3819	1.3715	
Nebraska	28	159,770	141,690.5962	1.1276	1.1221	
New Hampshire	13	72,822	77,943.1065	0.9343	0.9275	
New Jersey	71	639,202	774,959.9239	0.8248	0.8228	
New Mexico	33	118,548	128,141.0866	0.9251	0.9199	
Nevada	27	328,025	287,887.7069	1.1394	1.1355	
New York	175	1,660,388	2,121,521.0059	0.7826	0.7815	
Ohio	142	1,142,954	1,249,530.9202	0.9147	0.9130	
Oklahoma	82	411,141	320,241.4093	1.2838	1.2799	
Oregon	36	236,151	272,331.8200	0.8671	0.8636	
Pennsylvania	176	1,276,836	1,486,019.6311	0.8592	0.8577	
Puerto Rico	12	78,750	97,761.6564	0.8055	0.7999	
Rhode Island	11	79,260	87,942.4511	0.9013	0.8950	
South Carolina	61	396,944	478,441.5774	0.8297	0.8271	

South Dakota	21	68,261	63,468.5454	1.0755	1.0674
Tennessee	106	770,641	753,003.5247	1.0234	1.0211
Texas	364	2,158,033	2,227,427.3079	0.9688	0.9676
Utah	33	129,211	142,161.5201	0.9089	0.9040
Virginia	83	601,235	649,816.7399	0.9252	0.9229
Virgin Islands	2	.	.	.	.
Vermont	6	26,685	33,307.5696	0.8012	0.7916
Washington	59	536,041	474,412.7856	1.1299	1.1269
Wisconsin	73	400,616	386,721.2620	1.0359	1.0327
West Virginia	30	215,136	211,154.5294	1.0189	1.0145
Wyoming	14	14,792	16,778.9562	0.8816	0.8675
<b>All US</b>	<b>3,701</b>	<b>26,342,761</b>	<b>28,258,127.9001</b>	<b>0.9322</b>	<b>0.9318</b>

1. The number of reporting facilities included in the SUR calculation; SURs are not calculated when there a
2. Percent of facilities with at least one predicted device day that had an SUR significantly greater than or le
3. Facility-specific percentiles are only calculated if at least 20 facilities had  $\geq 1.0$  predicted number of devic
4. Data from all ICUs, wards (and other non-critical care locations), and NICUs. Data contained in this table

/ SURs using device days data reported to NHSN during 2017 for acute care hospitals (ACHs), by dev  
.Ds), all locations<sup>4</sup>

for SUR	Facility-specific SURs					10%
	Upper	No. Facilities with $\geq 1$ Predicted Device Days	No. Facilities with SUR		No. Facilities with SUR	
			Significantly > National SUR	Significantly < National SUR		
		N	N			
1.1131	10	5	50	3	30	
0.8986	86	18	21	58	67	0.0939
1.0273	50	17	34	30	60	0.2141
1.0238	69	33	48	32	46	0.2920
1.0123	342	181	53	141	41	0.5420
0.9897	55	22	40	24	44	0.2766
0.8144	31	9	29	20	65	0.4843
0.9114	8	.	.	.	.	.
0.8477	8	.	.	.	.	.
0.8945	209	84	40	109	52	0.4684
0.9608	107	49	46	48	45	0.1632
.	.	.	.	.	.	.
1.2017	17	14	82	3	18	.
1.0415	39	19	49	16	41	0.5235
0.9917	16	6	38	7	44	.
0.8808	134	45	34	80	60	0.5164
1.0015	88	43	49	39	44	0.4358
0.9561	56	17	30	31	55	0.0144
0.9164	71	26	37	37	52	0.4291
0.9773	97	41	42	44	45	0.1803
0.8875	69	14	20	52	75	0.4322
0.9060	49	21	43	25	51	0.5683
0.8363	17	8	47	9	53	.
0.8008	99	18	18	78	79	0.4000
1.0321	54	16	30	33	61	0.3583
0.9621	76	29	38	42	55	0.4241
0.8902	60	19	32	38	63	0.0000
0.8594	14	7	50	7	50	.
0.9318	98	30	31	50	51	0.4694
1.3923	9	.	.	.	.	.
1.1332	28	19	68	8	29	0.2340
0.9411	13	5	38	6	46	.
0.8269	71	24	34	45	63	0.4678
0.9304	32	11	34	18	56	0.3787
1.1433	27	16	59	8	30	0.2823
0.7838	175	40	23	127	73	0.3880
0.9164	142	54	38	74	52	0.3656
1.2878	82	43	52	34	41	0.0918
0.8706	36	9	25	23	64	0.5996
0.8607	176	36	20	126	72	0.1940
0.8112	12	5	42	7	58	.
0.9075	11	4	36	6	55	.
0.8322	61	14	23	41	67	0.2599



1.0836	21	6	29	12	57	0.0000
1.0257	106	36	34	60	57	0.1694
0.9701	364	146	40	195	54	0.0669
0.9139	33	11	33	21	64	0.4568
0.9276	83	32	39	47	57	0.4779
.	.	.	.	.	.	.
0.8108	6	.	.	.	.	.
1.1329	59	40	68	12	20	0.6804
1.0391	73	34	47	35	48	0.4641
1.0232	30	11	37	16	53	0.5048
0.8959	14	2	14	11	79	.
<b>0.9326</b>	<b>3,697</b>	<b>1,407</b>	<b>38</b>	<b>2,004</b>	<b>54</b>	<b>0.3558</b>

are less than 5 reporting facilities. This may be different from those reported in the SIR tables due to exclusions less than the nominal value of the national SUR. This is only calculated if at least 10 facilities had  $\geq 1.0$  predicted days in 2017. If a facility's predicted number of device days was  $< 1.0$ , a facility-specific SUR was neither calculated nor reported from acute care hospitals; as such, data from CAHs, IRFs and LTACHs are excluded.

vice type and patient population:

<b>Median</b>			
<b>25%</b>	<b>50%</b>	<b>75%</b>	<b>90%</b>
0.4651	0.7597	0.9366	1.1379
0.4575	0.8072	1.0946	1.3070
0.6857	0.9768	1.2644	1.4788
0.7683	0.9949	1.2221	1.5211
0.6518	0.8911	1.2620	1.5693
0.6558	0.8070	1.0657	1.7162
.	.	.	.
.	.	.	.
0.7199	0.8914	1.0877	1.3070
0.7020	0.9468	1.2250	1.3784
.	.	.	.
.	.	.	.
0.6833	0.9601	1.2044	1.5933
.	.	.	.
0.6920	0.8617	1.0021	1.2672
0.6205	0.9428	1.3251	1.7139
0.3627	0.7869	1.1109	1.8855
0.6248	0.8884	1.0511	1.4080
0.5699	0.8847	1.1860	1.5177
0.5653	0.7457	0.8811	1.2203
0.6992	0.9009	1.1914	1.5589
.	.	.	.
0.5249	0.6594	0.7925	1.0886
0.5217	0.7703	1.0819	1.3995
0.6750	0.8720	1.1704	1.3572
0.3468	0.6912	1.1156	1.8746
.	.	.	.
0.6653	0.8812	1.0253	1.2726
.	.	.	.
0.7066	1.0375	1.5628	2.4371
.	.	.	.
0.5837	0.8220	1.0223	1.3079
0.4976	0.7951	1.1576	1.5205
0.8236	1.1045	1.4529	2.7527
0.5207	0.6811	0.9459	1.1362
0.6055	0.8449	1.1244	1.3911
0.5727	1.0818	1.5049	2.0575
0.6775	0.8333	0.9816	1.3212
0.5504	0.7489	0.9204	1.2239
.	.	.	.
.	.	.	.
0.5321	0.7403	0.9477	1.1400

0.1800	0.5872	1.1374	2.0548
0.5276	0.8209	1.1563	1.5606
0.5533	0.8583	1.1879	1.5740
0.5571	0.7831	1.1103	1.3425
0.6040	0.8681	1.0779	1.3798
.	.	.	.
.	.	.	.
0.9255	1.1032	1.4108	1.8594
0.7514	0.9206	1.2559	1.4831
0.6693	0.8665	1.0605	1.2018
.	.	.	.
<b>0.6088</b>	<b>0.8575</b>	<b>1.1245</b>	<b>1.4529</b>

on and inclusion criteria. Refer to the technical appendix for details.  
 icted device days in 2017.  
 :calculated nor included in the distribution of facility-specific SURs.

**Table 2. State-specific standardized utilization ratios (SURs) and facility-specific summary**  
**Table 2b. Central line days (CLDs),**

State	No. of Facilities	No. of Device days			95% CI
		Observed	Predicted	SUR	Lower
Alaska	7	8,140	10,396.4616	0.7830	0.7661
Alabama	70	181,399	208,422.4096	0.8703	0.8663
Arkansas	43	96,662	96,700.2756	0.9996	0.9933
Arizona	54	180,206	174,065.1823	1.0353	1.0305
California	315	905,702	838,156.2958	1.0806	1.0784
Colorado	46	104,856	112,890.6650	0.9288	0.9232
Connecticut	27	78,736	84,020.8698	0.9371	0.9306
D.C.	8	45,909	52,435.7084	0.8755	0.8675
Delaware	8	28,031	27,987.5420	1.0016	0.9899
Florida	198	730,951	776,842.6263	0.9409	0.9388
Georgia	92	296,711	295,818.4215	1.0030	0.9994
Guam	2	.	.	.	.
Hawaii	15	37,310	34,214.6130	1.0905	1.0795
Iowa	35	59,414	58,967.3573	1.0076	0.9995
Idaho	11	25,585	24,785.2006	1.0323	1.0197
Illinois	127	312,830	358,277.1614	0.8732	0.8701
Indiana	72	199,647	199,787.5227	0.9993	0.9950
Kansas	39	68,545	82,012.1692	0.8358	0.8295
Kentucky	64	171,071	184,135.4955	0.9290	0.9247
Louisiana	69	152,250	153,205.2192	0.9938	0.9888
Massachusetts	64	186,039	179,821.3145	1.0346	1.0299
Maryland	44	140,515	157,392.6164	0.8928	0.8881
Maine	14	21,839	24,921.1630	0.8763	0.8648
Michigan	89	275,994	296,960.1254	0.9294	0.9259
Minnesota	41	110,142	102,159.0205	1.0781	1.0718
Missouri	72	204,002	209,738.5334	0.9726	0.9684
Mississippi	43	84,273	97,366.5119	0.8655	0.8597
Montana	10	13,703	14,517.5760	0.9439	0.9282
North Carolina	86	263,765	269,411.0556	0.9790	0.9753
North Dakota	6	20,986	13,677.2306	1.5344	1.5138
Nebraska	20	46,876	44,073.6789	1.0636	1.0540
New Hampshire	13	23,100	21,550.6498	1.0719	1.0581
New Jersey	71	212,427	231,931.0945	0.9159	0.9120
New Mexico	27	45,095	45,422.4934	0.9928	0.9837
Nevada	21	124,045	110,160.1498	1.1260	1.1198
New York	161	504,808	578,200.2917	0.8731	0.8706
Ohio	126	423,102	427,065.1042	0.9907	0.9877
Oklahoma	51	142,988	115,586.8974	1.2371	1.2306
Oregon	33	71,228	78,965.3241	0.9020	0.8954
Pennsylvania	150	440,150	467,119.6495	0.9423	0.9395
Puerto Rico	10	20,517	25,084.4175	0.8179	0.8068
Rhode Island	10	24,580	22,726.9111	1.0815	1.0681

South Carolina	54	128,665	147,884.6314	0.8700	0.8653
South Dakota	11	12,939	13,331.4669	0.9706	0.9539
Tennessee	88	256,699	263,341.5443	0.9748	0.9710
Texas	266	808,366	817,827.7785	0.9884	0.9863
Utah	27	52,506	57,290.9433	0.9165	0.9087
Virginia	78	192,473	209,273.6585	0.9197	0.9156
Virgin Islands	2	.	.	.	.
Vermont	4	.	.	.	.
Washington	49	151,449	139,838.5779	1.0830	1.0776
Wisconsin	66	135,167	130,285.2900	1.0375	1.0320
West Virginia	29	74,456	76,918.6139	0.9680	0.9610
Wyoming	10	3,808	4,709.1188	0.8086	0.7833
<b>All US</b>	<b>3,148</b>	<b>8,910,174</b>	<b>9,181,284.5616</b>	<b>0.9705</b>	<b>0.9698</b>

1. The number of reporting facilities included in the SUR calculation; SURs are not calculated when there
2. Percent of facilities with at least one predicted device day that had an SUR significantly greater than or
3. Facility-specific percentiles are only calculated if at least 20 facilities had  $\geq 1.0$  predicted number of devi
4. Data from all ICUs; excludes wards (and other non-critical care locations), and NICUs. Data contained i

y SURs using device days data reported to NHSN during 2017 for acute care hospitals (ACHs), by de critical care locations<sup>4</sup>

for SUR	Facility-specific SURs						10%
	Upper	No. Facilities with ≥1 Predicted Device Days	No. Facilities with SUR		No. Facilities with SUR		
			Significantly > National SUR N	Significantly < National SUR N			
0.8001	7	.	.	.	.	.	
0.8744	70	15	21	49	70	0.2127	
1.0059	43	13	30	25	58	0.2041	
1.0401	54	26	48	20	37	0.4821	
1.0828	314	193	61	86	27	0.6918	
0.9344	45	22	49	17	38	0.4513	
0.9437	27	9	33	12	44	0.4209	
0.8836	8	.	.	.	.	.	
1.0133	8	.	.	.	.	.	
0.9431	198	81	41	95	48	0.5669	
1.0066	92	38	41	43	47	0.3929	
.	.	.	.	.	.	.	
1.1016	15	10	67	2	13	.	
1.0157	35	9	26	19	54	0.3457	
1.0450	11	6	55	4	36	.	
0.8762	127	32	25	76	60	0.4351	
1.0037	72	36	50	29	40	0.4052	
0.8421	38	11	29	23	61	0.3211	
0.9335	64	19	30	39	61	0.2124	
0.9988	69	28	41	29	42	0.4970	
1.0393	64	25	39	29	45	0.5205	
0.8974	44	19	43	21	48	0.5621	
0.8880	14	5	36	6	43	.	
0.9329	89	24	27	58	65	0.3781	
1.0845	41	11	27	25	61	0.2138	
0.9768	72	30	42	34	47	0.2896	
0.8714	43	12	28	27	63	0.3384	
0.9598	10	5	50	5	50	.	
0.9828	86	26	30	53	62	0.3993	
1.5552	6	.	.	.	.	.	
1.0732	20	10	50	7	35	0.6359	
1.0858	13	7	54	6	46	.	
0.9198	71	26	37	37	52	0.5077	
1.0020	27	9	33	15	56	0.3505	
1.1323	21	14	67	6	29	0.6411	
0.8755	161	47	29	104	65	0.4823	
0.9937	126	49	39	60	48	0.4452	
1.2435	51	28	55	19	37	0.3272	
0.9086	33	8	24	22	67	0.6272	
0.9451	150	42	28	90	60	0.3999	
0.8292	10	3	30	7	70	.	
1.0951	10	6	60	2	20	.	

0.8748	54	15	28	35	65	0.3275
0.9874	11	3	27	7	64	.
0.9786	88	32	36	48	55	0.3003
0.9906	265	120	45	112	42	0.4538
0.9243	27	9	33	15	56	0.3652
0.9239	78	25	32	47	60	0.3103
.	.	.	.	.	.	.
.	.	.	.	.	.	.
1.0885	49	30	61	14	29	0.7050
1.0430	66	32	48	27	41	0.4441
0.9750	29	9	31	17	59	0.3219
0.8347	10	1	10	8	80	.
<b>0.9711</b>	<b>3,144</b>	<b>1,246</b>	<b>40</b>	<b>1,550</b>	<b>49</b>	<b>0.4207</b>

are less than 5 reporting facilities. This may be different from those reported in the SIR tables due to exclusions less than the nominal value of the national SUR. This is only calculated if at least 10 facilities had  $\geq 1.0$  predicted device days in 2017. If a facility's predicted number of device days was  $< 1.0$ , a facility-specific SUR was neither reported from acute care hospitals; as such, data from CAHs, IRFs and LTACHs are excluded

service type and patient population:

<b>Median</b>			
<b>25%</b>	<b>50%</b>	<b>75%</b>	<b>90%</b>
.	.	.	.
0.5054	0.7498	0.9821	1.1141
0.4429	0.7937	1.0387	1.3879
0.7486	1.0238	1.3260	1.6023
0.9035	1.0973	1.3327	1.6030
0.7394	1.0186	1.1896	1.4479
0.7111	0.9512	1.0933	1.3683
.	.	.	.
.	.	.	.
0.7498	0.9370	1.1485	1.4063
0.6630	0.9388	1.1784	1.3695
.	.	.	.
.	.	.	.
0.4828	0.8749	1.0050	1.2005
.	.	.	.
0.6569	0.8552	1.0280	1.2521
0.6668	0.9980	1.2940	1.4775
0.5197	0.7593	1.0958	1.5465
0.5182	0.7827	1.0439	1.3684
0.6727	0.9684	1.1674	1.4447
0.7552	0.9540	1.1350	1.3996
0.7419	0.9608	1.0908	1.4354
.	.	.	.
0.5415	0.8354	1.0667	1.2825
0.3020	0.7582	1.0485	1.2719
0.7237	0.9585	1.1489	1.3985
0.5053	0.7592	1.1655	1.2530
.	.	.	.
0.5741	0.8070	1.0868	1.3077
.	.	.	.
0.8059	1.0444	1.2368	2.0095
.	.	.	.
0.7128	0.8985	1.0609	1.2096
0.4380	0.8485	1.2324	1.3889
0.9444	1.0676	1.3334	1.5659
0.6227	0.7891	1.0434	1.1863
0.6879	0.9530	1.1737	1.3495
0.7157	1.0743	1.4602	2.1594
0.7563	0.8518	0.9914	1.3575
0.6012	0.8350	1.0541	1.2174
.	.	.	.
.	.	.	.



0.4735	0.8314	1.0426	1.1383
.	.	.	.
0.5745	0.8554	1.1045	1.3723
0.7453	0.9898	1.2510	1.5805
0.5495	0.8041	1.1479	1.4558
0.6377	0.8625	1.0858	1.2103
.	.	.	.
.	.	.	.
0.8395	1.0764	1.2614	1.4810
0.7138	0.9921	1.2338	1.5063
0.5854	0.8304	1.1234	1.3279
.	.	.	.
<b>0.6684</b>	<b>0.9259</b>	<b>1.1598</b>	<b>1.4073</b>

sion and inclusion criteria. Refer to the technical appendix for details.  
 edicted device days in 2017.  
 r calculated nor included in the distribution of facility-specific SURs.  
 led.

**Table 2. State-specific standardized utilization ratios (SURs) and facility-specific summary statistics**  
**Table 2c. Central line days**

State	No. of Facilities	No. of Device days			95% CI
		Observed	Predicted	SUR	Lower
Alaska	10	26,656	21,226.4550	1.2558	1.2408
Alabama	84	283,998	311,473.8648	0.9118	0.9084
Arkansas	51	162,921	160,585.2144	1.0145	1.0096
Arizona	69	334,915	327,925.7255	1.0213	1.0179
California	342	1,733,660	1,774,963.1994	0.9767	0.9753
Colorado	54	213,875	203,076.3882	1.0532	1.0487
Connecticut	31	154,093	200,275.4765	0.7694	0.7656
D.C.	8	89,213	99,078.3196	0.9004	0.8946
Delaware	8	55,506	71,965.0629	0.7713	0.7649
Florida	204	1,265,350	1,462,278.3464	0.8653	0.8638
Georgia	107	497,111	530,498.2180	0.9371	0.9345
Guam	1	.	.	.	.
Hawaii	17	87,534	71,647.7359	1.2217	1.2137
Iowa	39	135,524	131,272.6280	1.0324	1.0269
Idaho	16	43,654	45,164.9090	0.9665	0.9575
Illinois	133	589,321	673,137.2250	0.8755	0.8733
Indiana	86	341,422	332,840.8103	1.0258	1.0223
Kansas	56	135,475	128,852.5957	1.0514	1.0458
Kentucky	70	236,100	257,607.2539	0.9165	0.9128
Louisiana	97	259,687	269,378.6705	0.9640	0.9603
Massachusetts	69	362,848	437,912.2328	0.8286	0.8259
Maryland	49	302,134	334,704.1520	0.9027	0.8995
Maine	16	52,045	63,932.6549	0.8141	0.8071
Michigan	99	353,546	495,645.9657	0.7133	0.7109
Minnesota	54	231,646	230,221.4661	1.0062	1.0021
Missouri	75	410,153	422,860.9622	0.9699	0.9670
Mississippi	60	165,762	184,278.0078	0.8995	0.8952
Montana	14	29,114	35,440.5834	0.8215	0.8121
North Carolina	98	437,358	486,177.6034	0.8996	0.8969
North Dakota	9	41,916	31,830.0497	1.3169	1.3043
Nebraska	27	109,167	90,408.3624	1.2075	1.2003
New Hampshire	13	47,035	53,880.6119	0.8729	0.8651
New Jersey	70	402,673	510,612.6491	0.7886	0.7862
New Mexico	33	67,001	77,503.2382	0.8645	0.8580
Nevada	27	183,556	162,256.6512	1.1313	1.1261
New York	174	1,072,804	1,452,530.3960	0.7386	0.7372
Ohio	140	663,902	745,225.1263	0.8909	0.8887
Oklahoma	81	243,765	186,867.5290	1.3045	1.2993
Oregon	36	156,227	182,379.9336	0.8566	0.8524
Pennsylvania	176	782,956	950,277.8490	0.8239	0.8221
Puerto Rico	12	57,176	71,844.3048	0.7958	0.7893
Rhode Island	11	51,261	58,902.1814	0.8703	0.8628
South Carolina	61	246,975	309,114.4217	0.7990	0.7958

South Dakota	21	49,870	44,427.2342	1.1225	1.1127
Tennessee	105	474,683	448,912.5022	1.0574	1.0544
Texas	351	1,190,250	1,247,191.4567	0.9543	0.9526
Utah	33	60,036	67,271.7200	0.8924	0.8853
Virginia	82	375,219	407,622.4007	0.9205	0.9176
Virgin Islands	2	.	.	.	.
Vermont	6	18,612	21,047.1128	0.8843	0.8717
Washington	59	364,394	312,810.7478	1.1649	1.1611
Wisconsin	73	247,558	235,323.0621	1.0520	1.0479
West Virginia	29	133,797	126,292.1038	1.0594	1.0538
Wyoming	14	10,984	12,069.8374	0.9100	0.8931
<b>All US</b>	<b>3,662</b>	<b>16,045,424</b>	<b>17,574,460.5548</b>	<b>0.9130</b>	<b>0.9125</b>

1. The number of reporting facilities included in the SUR calculation; SURs are not calculated when there are
2. Percent of facilities with at least one predicted device day that had an SUR significantly greater than or less
3. Facility-specific percentiles are only calculated if at least 20 facilities had  $\geq 1.0$  predicted number of device (
4. Data from all wards (for this table wards also include step-down, mixed acuity, and specialty care areas [in

**SURs using device days data reported to NHSN during 2017 for acute care hospitals (ACHs), by dev (CLDs), wards<sup>4</sup>**

for SUR	Facility-specific SURs					10%
	Upper	No. Facilities with $\geq 1$ Predicted Device Days	No. Facilities with SUR		No. Facilities with SUR	
			Significantly > National SUR	Significantly < National SUR		
		N	N			
1.2709	10	7	70	2	20	.
0.9152	84	25	30	50	60	0.0881
1.0195	50	16	32	29	58	0.1671
1.0248	69	31	45	34	49	0.3697
0.9782	342	161	47	148	43	0.4882
1.0577	54	24	44	21	39	0.3716
0.7732	31	9	29	20	65	0.5270
0.9064	8	.	.	.	.	.
0.7777	8	.	.	.	.	.
0.8668	204	84	41	106	52	0.4720
0.9397	107	52	49	47	44	0.1861
.	.	.	.	.	.	.
1.2299	17	14	82	3	18	.
1.0379	39	23	59	13	33	0.5431
0.9757	16	6	38	7	44	.
0.8777	133	54	41	67	50	0.4908
1.0292	86	42	49	34	40	0.4244
1.0570	56	21	38	27	48	0.0144
0.9202	70	28	40	33	47	0.4626
0.9677	97	43	44	41	42	0.1803
0.8313	69	11	16	54	78	0.3363
0.9059	49	24	49	23	47	0.5168
0.8211	16	8	50	8	50	.
0.7156	99	12	12	76	77	0.3504
1.0103	54	18	33	32	59	0.3585
0.9729	75	31	41	36	48	0.4216
0.9038	60	21	35	37	62	0.0000
0.8310	14	7	50	7	50	.
0.9023	98	43	44	47	48	0.5315
1.3295	9	.	.	.	.	.
1.2146	27	16	59	8	30	0.2340
0.8809	13	3	23	6	46	.
0.7910	70	22	31	46	66	0.4349
0.8710	32	12	38	17	53	0.3475
1.1364	27	16	59	8	30	0.3711
0.7400	174	39	22	123	71	0.3229
0.8930	140	49	35	74	53	0.3976
1.3096	81	42	52	29	36	0.0918
0.8609	36	12	33	18	50	0.4756
0.8258	176	41	23	122	69	0.1940
0.8024	12	5	42	7	58	.
0.8778	11	5	45	5	45	.
0.8021	61	18	30	39	64	0.3162

1.1324	21	8	38	11	52	0.0000
1.0604	105	42	40	55	52	0.2289
0.9561	351	144	41	180	51	0.0592
0.8996	33	13	39	16	48	0.4322
0.9235	82	33	40	42	51	0.4131
.	.	.	.	.	.	.
0.8971	6	.	.	.	.	.
1.1687	59	42	71	13	22	0.6342
1.0561	73	37	51	30	41	0.3933
1.0651	29	12	41	10	34	0.4158
0.9272	14	3	21	10	71	.
<b>0.9135</b>	<b>3,660</b>	<b>1,443</b>	<b>39</b>	<b>1,886</b>	<b>52</b>	<b>0.3312</b>

less than 5 reporting facilities. This may be different from those reported in the SIR tables due to exclusions less than the nominal value of the national SUR. This is only calculated if at least 10 facilities had  $\geq 1.0$  predicted days in 2017. If a facility's predicted number of device days was  $<1.0$ , a facility-specific SUR was neither calculated (including hematology/oncology, bone marrow transplant]). Data contained in this table are reported from actual

rice type and patient population:

<b>Median</b>			
<b>25%</b>	<b>50%</b>	<b>75%</b>	<b>90%</b>
.	.	.	.
0.4953	0.7859	1.0141	1.2512
0.3865	0.7106	1.1367	1.4102
0.6299	0.8829	1.2505	1.6660
0.6635	0.9378	1.2389	1.6609
0.6518	0.8932	1.2831	1.7552
0.6377	0.7961	1.0756	1.7729
.	.	.	.
.	.	.	.
0.6797	0.8736	1.1067	1.3717
0.6472	0.9371	1.2820	1.6204
.	.	.	.
.	.	.	.
0.7353	1.0424	1.3226	1.7053
.	.	.	.
0.6422	0.8538	1.0663	1.4232
0.6631	0.9735	1.4591	1.9766
0.4143	0.8745	1.1916	2.0097
0.6316	0.8973	1.1548	1.5407
0.5880	0.9109	1.2348	2.1135
0.4811	0.6345	0.8615	1.1313
0.6641	0.9257	1.2476	1.8365
.	.	.	.
0.4615	0.5959	0.8567	1.1000
0.5748	0.7419	1.0819	1.4522
0.6606	0.8708	1.1979	1.5676
0.2808	0.7591	1.1840	1.8172
.	.	.	.
0.6633	0.8913	1.1265	1.3691
.	.	.	.
0.6527	1.2220	1.5434	2.9517
.	.	.	.
0.5328	0.7671	1.0180	1.3120
0.4837	0.7609	1.2208	1.6033
0.7269	1.1742	1.6723	3.0556
0.4464	0.6446	0.9264	1.1700
0.5768	0.8114	1.1638	1.4203
0.5758	1.0750	1.5974	2.3443
0.6336	0.8027	1.0815	1.4988
0.4918	0.6956	0.9585	1.2301
.	.	.	.
.	.	.	.
0.5614	0.7515	1.0356	1.2367

0.1800	0.6359	1.3064	2.0548
0.5716	0.8043	1.2650	1.6504
0.4962	0.8456	1.1868	1.6869
0.5055	0.8441	1.2378	1.6440
0.6374	0.8621	1.1162	1.4297
.	.	.	.
.	.	.	.
0.9068	1.1446	1.6299	2.0615
0.7300	0.9815	1.3458	1.7617
0.8203	0.9333	1.1324	1.3353
.	.	.	.
<b>0.5802</b>	<b>0.8491</b>	<b>1.1728</b>	<b>1.5765</b>

n and inclusion criteria. Refer to the technical appendix for details.  
 cted device days in 2017.  
 alculated nor included in the distribution of facility-specific SURs.  
 ite care hospitals; as such, data from CAHs, IRFs and LTACHs are excluded.

**Table 2. State-specific standardized utilization ratios (SURs) and facility-specific summary**  
**Table 2d. Central line days (CLDs), n**

State	No. of Facilities	No. of Device days			95% CI
		Observed	Predicted	SUR	Lower
Alaska	2	.	.	.	.
Alabama	15	29,228	32,102.1309	0.9105	0.9001
Arkansas	9	24,120	19,890.3523	1.2126	1.1974
Arizona	17	23,176	25,201.4096	0.9196	0.9079
California	133	147,818	143,549.0522	1.0297	1.0245
Colorado	21	17,263	24,669.0753	0.6998	0.6894
Connecticut	11	9,447	14,377.2963	0.6571	0.6439
D.C.	7	13,017	11,854.7894	1.0980	1.0793
Delaware	2	.	.	.	.
Florida	62	92,076	98,827.1442	0.9317	0.9257
Georgia	36	52,701	56,563.5873	0.9317	0.9238
Guam	1	.	.	.	.
Hawaii	2	.	.	.	.
Iowa	10	15,978	13,127.2428	1.2172	1.1984
Idaho	11	5,358	5,816.0430	0.9212	0.8968
Illinois	41	53,264	55,503.6548	0.9596	0.9515
Indiana	26	22,828	31,896.5344	0.7157	0.7065
Kansas	9	8,675	12,536.6819	0.6920	0.6775
Kentucky	15	16,683	22,201.7023	0.7514	0.7401
Louisiana	29	31,264	32,270.4347	0.9688	0.9581
Massachusetts	11	16,140	20,599.7085	0.7835	0.7715
Maryland	17	23,069	23,447.8981	0.9838	0.9712
Maine	3	.	.	.	.
Michigan	20	39,863	45,358.3742	0.8788	0.8702
Minnesota	11	11,852	11,395.3735	1.0401	1.0215
Missouri	22	37,412	46,261.3794	0.8087	0.8006
Mississippi	15	12,990	14,969.2447	0.8678	0.8530
Montana	5	2,378	3,119.9547	0.7622	0.7320
North Carolina	25	43,679	45,526.4975	0.9594	0.9504
North Dakota	7	5,607	4,069.4498	1.3778	1.3421
Nebraska	6	3,727	7,208.5549	0.5170	0.5006
New Hampshire	3	.	.	.	.
New Jersey	24	24,102	32,416.1803	0.7435	0.7342
New Mexico	5	6,452	5,215.3550	1.2371	1.2072
Nevada	8	20,424	15,470.9059	1.3202	1.3022
New York	54	82,776	90,790.3181	0.9117	0.9056
Ohio	20	55,950	77,240.6897	0.7244	0.7184
Oklahoma	11	24,388	17,786.9829	1.3711	1.3540
Oregon	9	8,696	10,986.5623	0.7915	0.7750
Pennsylvania	46	53,730	68,622.1325	0.7830	0.7764
Puerto Rico	6	1,057	832.9340	1.2690	1.1942



Rhode Island	1	.	.	.	.
South Carolina	9	21,304	21,442.5243	0.9935	0.9802
South Dakota	3	.	.	.	.
Tennessee	26	39,259	40,749.4782	0.9634	0.9539
Texas	127	159,417	162,408.0727	0.9816	0.9768
Utah	13	16,669	17,598.8567	0.9472	0.9328
Virginia	26	33,543	32,920.6806	1.0189	1.0080
Virgin Islands	2	.	.	.	.
Vermont	1	.	.	.	.
Washington	16	20,198	21,763.4599	0.9281	0.9153
Wisconsin	18	17,891	21,112.9098	0.8474	0.8350
West Virginia	6	6,883	7,943.8117	0.8665	0.8462
Wyoming	0	.	.	.	.
<b>All US</b>	<b>1,035</b>	<b>1,387,163</b>	<b>1,502,382.7837</b>	<b>0.9233</b>	<b>0.9218</b>

1. The number of reporting facilities included in the SUR calculation; SURs are not calculated when there
2. Percent of facilities with at least one predicted device day that had an SUR significantly greater than or
3. Facility-specific percentiles are only calculated if at least 20 facilities had  $\geq 1.0$  predicted number of dev
4. Data from all NICU locations, including Level II/III and Level III nurseries.

per SURs using device days data reported to NHSN during 2017 for acute care hospitals (ACHs), by departmental neonatal critical care unit<sup>4</sup>

for SUR	Facility-specific SURs					10%
	Upper	No. Facilities with ≥1 Predicted Device Days	No. Facilities with SUR Significantly > National SUR	No. Facilities with SUR Significantly < National SUR		
		N	N	N		
.	.	.	.	.	.	.
0.9210	15	5	33	6	40	.
1.2280	9	.	.	.	.	.
0.9315	17	5	29	11	65	.
1.0350	133	48	36	71	53	0.1410
0.7103	21	1	5	19	90	0.1777
0.6704	11	0	0	11	100	.
1.1170	7	.	.	.	.	.
.	.	.	.	.	.	.
0.9377	62	22	35	29	47	0.1718
0.9397	36	13	36	17	47	0.1061
.	.	.	.	.	.	.
.	.	.	.	.	.	.
1.2361	10	2	20	4	40	.
0.9462	11	2	18	8	73	.
0.9678	41	12	29	25	61	0.2054
0.7250	26	2	8	23	88	0.3014
0.7066	9	.	.	.	.	.
0.7629	15	1	7	12	80	.
0.9796	29	11	38	12	41	0.2291
0.7957	11	2	18	6	55	.
0.9966	17	5	29	12	71	.
.	.	.	.	.	.	.
0.8875	20	6	30	10	50	0.3594
1.0589	11	2	18	9	82	.
0.8169	22	4	18	16	73	0.1808
0.8828	14	4	29	8	57	.
0.7933	5	.	.	.	.	.
0.9685	25	4	16	19	76	0.0889
1.4142	7	.	.	.	.	.
0.5338	6	.	.	.	.	.
.	.	.	.	.	.	.
0.7529	24	4	17	18	75	0.2562
1.2676	5	.	.	.	.	.
1.3384	8	.	.	.	.	.
0.9180	54	16	30	36	67	0.3545
0.7304	20	5	25	12	60	0.2076
1.3884	11	4	36	5	45	.
0.8083	9	.	.	.	.	.
0.7896	46	7	15	36	78	0.0886
1.3473	6	.	.	.	.	.

1.0069	9	.	.	.	.	.
0.9730	26	9	35	15	58	0.1361
0.9864	126	37	29	74	59	0.2604
0.9616	13	3	23	8	62	.
1.0298	26	12	46	9	35	0.3345
.	.	.	.	.	.	.
0.9409	16	3	19	11	69	.
0.8599	18	5	28	7	39	.
0.8871	6	.	.	.	.	.
.	.	.	.	.	.	.
<b>0.9249</b>	<b>1,033</b>	<b>307</b>	<b>30</b>	<b>604</b>	<b>58</b>	<b>0.2054</b>

are less than 5 reporting facilities. This may be different from those reported in the SIR tables due to exclusion of facilities with device days less than the nominal value of the national SUR. This is only calculated if at least 10 facilities had  $\geq 1.0$  device days in 2017. If a facility's predicted number of device days was  $<1.0$ , a facility-specific SUR was neither

Device type and patient population:

<b>Median</b>			
<b>25%</b>	<b>50%</b>	<b>75%</b>	<b>90%</b>
.	.	.	.
.	.	.	.
.	.	.	.
.	.	.	.
0.4551	0.8086	1.1130	1.4995
0.2791	0.6162	0.7483	0.8612
.	.	.	.
.	.	.	.
.	.	.	.
0.3221	0.8824	1.1165	1.3551
0.4806	0.8915	1.1648	1.3746
.	.	.	.
.	.	.	.
.	.	.	.
0.4286	0.6767	1.0006	1.4901
0.4346	0.6302	0.7572	0.8474
.	.	.	.
.	.	.	.
0.6183	0.8820	1.1889	1.7709
.	.	.	.
.	.	.	.
0.4248	0.8902	1.0633	1.4795
.	.	.	.
0.4709	0.6727	0.9991	1.3789
.	.	.	.
.	.	.	.
0.2949	0.5359	0.8545	1.6018
.	.	.	.
.	.	.	.
0.3626	0.6010	0.8717	1.1807
.	.	.	.
.	.	.	.
0.5394	0.7756	1.0133	1.4046
0.4348	0.7372	0.9807	1.6584
.	.	.	.
.	.	.	.
0.2983	0.5281	0.7290	1.0377
.	.	.	.

.	.	.	.
.	.	.	.
.	.	.	.
0.3434	0.6986	1.2730	1.4213
0.4889	0.7301	1.1637	1.5166
.	.	.	.
0.7395	0.9593	1.4243	1.5582
.	.	.	.
.	.	.	.
.	.	.	.
.	.	.	.
.	.	.	.
.	.	.	.
<b>0.4565</b>	<b>0.7479</b>	<b>1.0703</b>	<b>1.4497</b>

clusion and inclusion criteria. Refer to the technical appendix for details.  
 predicted device days in 2017.  
 ner calculated nor included in the distribution of facility-specific SURs.

**Table 3. State-specific standardized utilization ratios (SURs) and facility-specific summary**

**Table 3a. Urinary catheter days**

State	No. of Facilities	No. of Device days			95% CI	
		Observed	Predicted	SUR	Lower	Upper
Alaska	10	36,400	47,306.9080	0.7694	0.7616	
Alabama	91	542,355	573,937.7358	0.9450	0.9425	
Arkansas	51	318,643	295,825.9912	1.0771	1.0734	
Arizona	69	486,243	548,906.9549	0.8858	0.8833	
California	339	2,803,906	2,853,763.4395	0.9825	0.9814	
Colorado	56	354,091	363,243.6054	0.9748	0.9716	
Connecticut	31	225,455	270,013.8027	0.8350	0.8315	
D.C	8	98,479	119,247.0046	0.8258	0.8207	
Delaware	8	59,690	99,930.0202	0.5973	0.5926	
Florida	208	2,006,888	2,418,249.7107	0.8299	0.8288	
Georgia	109	799,661	894,982.2777	0.8935	0.8916	
Guam	2	.	.	.	.	.
Hawaii	17	93,680	120,720.3945	0.7760	0.7710	
Iowa	41	207,103	217,662.3511	0.9515	0.9474	
Idaho	16	90,855	87,110.7961	1.0430	1.0362	
Illinois	135	919,992	1,094,722.6565	0.8404	0.8387	
Indiana	88	540,359	630,598.1214	0.8569	0.8546	
Kansas	57	202,136	236,063.5485	0.8563	0.8526	
Kentucky	71	439,694	488,062.5193	0.9009	0.8982	
Louisiana	97	516,571	459,518.8062	1.1242	1.1211	
Massachusetts	69	537,880	600,218.9717	0.8961	0.8938	
Maryland	49	422,314	548,214.7257	0.7703	0.7680	
Maine	17	74,218	100,912.5294	0.7355	0.7302	
Michigan	99	708,052	810,489.8561	0.8736	0.8716	
Minnesota	54	303,030	325,657.8713	0.9305	0.9272	
Missouri	77	624,324	658,055.7344	0.9487	0.9464	
Mississippi	60	324,120	322,909.8365	1.0037	1.0003	
Montana	14	55,124	64,961.2420	0.8486	0.8415	
North Carolina	98	766,039	808,861.1539	0.9471	0.9450	
North Dakota	9	61,247	54,537.2681	1.1230	1.1141	
Nebraska	27	128,582	144,927.0648	0.8872	0.8824	
New Hampshire	13	94,828	93,028.1932	1.0193	1.0129	
New Jersey	71	596,668	779,290.5416	0.7657	0.7637	
New Mexico	32	145,897	150,541.7587	0.9691	0.9642	
Nevada	27	304,262	308,278.1941	0.9870	0.9835	
New York	175	1,572,232	1,928,975.7831	0.8151	0.8138	
Ohio	142	1,195,167	1,236,460.9436	0.9666	0.9649	
Oklahoma	83	394,136	363,299.1415	1.0849	1.0815	
Oregon	36	260,745	292,890.2556	0.8902	0.8869	
Pennsylvania	189	1,252,171	1,451,964.9592	0.8624	0.8609	
Puerto Rico	13	131,002	119,347.8832	1.0976	1.0917	
Rhode Island	11	64,280	89,782.3467	0.7160	0.7104	
South Carolina	61	397,358	480,200.1504	0.8275	0.8249	

South Dakota	21	64,726	64,843.1353	0.9982	0.9905
Tennessee	106	715,251	778,593.0594	0.9186	0.9165
Texas	368	2,041,372	2,289,220.5678	0.8917	0.8905
Utah	33	121,225	126,037.9017	0.9618	0.9564
Virginia	83	593,403	698,310.9677	0.8498	0.8476
Virgin Islands	2	.	.	.	.
Vermont	6	36,142	38,860.6770	0.9300	0.9205
Washington	60	476,466	513,910.5476	0.9271	0.9245
Wisconsin	73	370,736	411,044.2960	0.9019	0.8991
West Virginia	30	241,941	231,103.8131	1.0469	1.0427
Wyoming	14	20,787	23,780.3108	0.8741	0.8623
<b>All US</b>	<b>3,726</b>	<b>25,847,372</b>	<b>28,738,766.1513</b>	<b>0.8994</b>	<b>0.8990</b>

1. The number of reporting facilities included in the SUR calculation; SURs are not calculated when there are no predicted device days.
2. Percent of facilities with at least one predicted device day that had an SUR significantly greater than or less than the expected SUR.
3. Facility-specific percentiles are only calculated if at least 20 facilities had  $\geq 1.0$  predicted number of device days.
4. Data from all ICUs and wards (and other non-critical care locations). This excludes NICUs. Data contain only predicted device days.

**SURs using device days data reported to NHSN during 2017 for acute care hospitals (ACHs), by de (CDs), all locations<sup>4</sup>**

for SUR	Facility-specific SURs						10%
	Upper	No. Facilities with ≥1 Predicted Device Days	No. Facilities with SUR		No. Facilities with SUR	No. Facilities with SUR	
			Significantly > National SUR	Significantly < National SUR			
		N	N				
0.7774	10	2	20	8	80	.	
0.9475	91	44	48	39	43	0.5202	
1.0809	50	32	64	14	28	0.7003	
0.8884	69	32	46	29	42	0.5804	
0.9837	339	206	61	96	28	0.6855	
0.9780	56	26	46	25	45	0.3584	
0.8384	31	11	35	18	58	0.5284	
0.8310	8	.	.	.	.	.	
0.6021	8	.	.	.	.	.	
0.8310	208	75	36	121	58	0.5140	
0.8954	109	54	50	50	46	0.5017	
.	.	.	.	.	.	.	
0.7810	17	4	24	11	65	.	
0.9556	41	16	39	18	44	0.7164	
1.0498	16	9	56	4	25	.	
0.8421	135	51	38	69	51	0.5882	
0.8592	88	33	38	45	51	0.5194	
0.8600	56	22	39	28	50	0.2617	
0.9036	71	41	58	24	34	0.5574	
1.1272	97	74	76	20	21	0.7213	
0.8985	69	20	29	43	62	0.5743	
0.7727	49	10	20	31	63	0.5377	
0.7408	17	4	24	10	59	.	
0.8757	99	32	32	59	60	0.5830	
0.9338	54	26	48	24	44	0.6763	
0.9511	77	38	49	29	38	0.4802	
1.0072	60	30	50	26	43	0.3821	
0.8557	14	5	36	8	57	.	
0.9492	98	41	42	46	47	0.5828	
1.1320	9	.	.	.	.	.	
0.8921	27	14	52	12	44	0.4908	
1.0259	13	6	46	6	46	.	
0.7676	71	15	21	52	73	0.5325	
0.9741	32	15	47	12	38	0.4910	
0.9905	27	15	56	12	44	0.0500	
0.8163	175	58	33	103	59	0.5032	
0.9683	142	76	54	58	41	0.6123	
1.0883	83	55	66	21	25	0.4236	
0.8937	36	15	42	17	47	0.6465	
0.8639	189	70	37	102	54	0.3660	
1.1036	13	10	77	2	15	.	
0.7215	11	1	9	9	82	.	
0.8300	61	21	34	36	59	0.5958	



1.0059	21	8	38	9	43	0.2113
0.9208	106	52	49	40	38	0.5980
0.8930	368	186	51	144	39	0.4663
0.9673	33	14	42	14	42	0.6937
0.8519	83	35	42	45	54	0.6219
.	.	.	.	.	.	.
0.9397	6	.	.	.	.	.
0.9298	60	28	47	28	47	0.6523
0.9048	73	31	42	35	48	0.5799
1.0511	30	16	53	11	37	0.5136
0.8861	14	5	36	8	57	.
<b>0.8997</b>	<b>3,724</b>	<b>1,699</b>	<b>46</b>	<b>1,687</b>	<b>45</b>	<b>0.5515</b>

are less than 5 reporting facilities. This may be different from those reported in the SIR tables due to exclusion of facilities with a predicted number of device days less than the nominal value of the national SUR. This is only calculated if at least 10 facilities had  $\geq 1.0$  predicted device days in 2017. If a facility's predicted number of device days was  $< 1.0$ , a facility-specific SUR was neither calculated nor reported in this table. Data from acute care hospitals; as such, data from CAHs, IRFs and LTACHs are excluded.

service type and patient population:

<b>Median</b>			
<b>25%</b>	<b>50%</b>	<b>75%</b>	<b>90%</b>
.	.	.	.
0.7002	0.9198	1.1022	1.2411
0.8147	1.0365	1.1928	1.4996
0.7558	0.9159	1.0663	1.3266
0.8384	0.9889	1.1793	1.4425
0.7375	0.8816	1.0620	1.3297
0.6724	0.8073	1.0312	1.3145
.	.	.	.
.	.	.	.
0.6745	0.8358	1.0041	1.1805
0.6710	0.9221	1.1083	1.5162
.	.	.	.
.	.	.	.
0.7869	0.8925	1.1036	1.4251
.	.	.	.
0.7159	0.8669	1.0400	1.3156
0.7169	0.8580	1.0315	1.3364
0.6317	0.8281	1.0957	1.5583
0.7488	0.9694	1.1798	1.3842
0.9315	1.1949	1.6664	2.7357
0.7189	0.8173	0.9984	1.1289
0.6630	0.7790	0.9121	1.2420
.	.	.	.
0.6947	0.8461	0.9932	1.1790
0.7786	0.9358	1.1683	1.3704
0.7589	0.9282	1.0868	1.3375
0.6667	0.9425	1.1434	1.3499
.	.	.	.
0.6975	0.8962	1.0667	1.3371
.	.	.	.
0.7523	0.9296	1.1020	1.8985
.	.	.	.
0.6024	0.7570	0.8801	0.9983
0.7490	0.9366	1.0557	1.2406
0.7196	0.9478	1.0549	1.4308
0.6693	0.8284	0.9759	1.1162
0.7643	0.9509	1.1074	1.3018
0.8284	1.1240	1.3608	1.7958
0.7428	0.8907	1.0787	1.3077
0.6176	0.8264	1.0627	1.3785
.	.	.	.
.	.	.	.
0.6873	0.8318	1.0263	1.2209

0.7124	0.8917	1.1003	1.4720
0.7704	0.9439	1.2412	1.5342
0.7472	0.9452	1.2170	1.7995
0.7622	0.8787	1.2316	1.4417
0.7076	0.8468	1.1861	1.3955
.	.	.	.
.	.	.	.
0.7836	0.9058	1.0881	1.3294
0.7102	0.8650	1.0785	1.2325
0.8204	0.9661	1.1593	1.3760
.	.	.	.
<b>0.7256</b>	<b>0.8998</b>	<b>1.1094</b>	<b>1.4085</b>

sion and inclusion criteria. Refer to the technical appendix for details.  
 edicted device days in 2017.  
 r calculated nor included in the distribution of facility-specific SURs.  
 xcluded.

**Table 3. State-specific standardized utilization ratios (SURs) and facility-specific summa**  
**Table 3b. Urinary catheter days (CDs)**

State	No. of Facilities	No. of Device days			95% CI
		Observed	Predicted	SUR	Lower
Alaska	7	10,096	13,406.4154	0.7531	0.7385
Alabama	70	260,382	252,921.6759	1.0295	1.0255
Arkansas	43	127,019	120,286.1522	1.0560	1.0502
Arizona	54	197,311	204,707.3987	0.9639	0.9596
California	315	992,854	987,537.7948	1.0054	1.0034
Colorado	46	129,814	139,931.7984	0.9277	0.9226
Connecticut	27	94,607	95,272.7853	0.9930	0.9867
D.C	8	49,324	48,475.3035	1.0175	1.0085
Delaware	8	23,604	29,587.6358	0.7978	0.7876
Florida	197	841,028	908,640.1004	0.9256	0.9236
Georgia	92	327,012	344,531.7994	0.9491	0.9459
Guam	2	.	.	.	.
Hawaii	15	34,240	43,657.3961	0.7843	0.7760
Iowa	35	73,605	71,223.0963	1.0334	1.0260
Idaho	11	32,951	29,614.4222	1.1127	1.1007
Illinois	127	351,984	410,202.8527	0.8581	0.8552
Indiana	72	222,935	254,124.7708	0.8773	0.8736
Kansas	39	79,965	96,542.6219	0.8283	0.8226
Kentucky	64	197,794	211,658.9592	0.9345	0.9304
Louisiana	69	195,158	180,892.5118	1.0789	1.0741
Massachusetts	64	216,508	196,613.0677	1.1012	1.0965
Maryland	44	159,606	185,730.1321	0.8593	0.8551
Maine	14	28,813	31,513.5172	0.9143	0.9038
Michigan	89	333,053	328,534.3408	1.0138	1.0103
Minnesota	41	117,796	116,068.4399	1.0149	1.0091
Missouri	72	242,506	234,048.9298	1.0361	1.0320
Mississippi	43	120,828	122,579.3360	0.9857	0.9802
Montana	10	18,348	20,273.1728	0.9050	0.8920
North Carolina	86	318,639	310,314.9890	1.0268	1.0233
North Dakota	6	22,466	17,627.7669	1.2745	1.2579
Nebraska	19	42,768	51,053.7427	0.8377	0.8298
New Hampshire	13	30,913	28,021.4703	1.1032	1.0909
New Jersey	70	233,938	267,941.2317	0.8731	0.8696
New Mexico	26	57,838	58,295.5201	0.9922	0.9841
Nevada	21	135,917	130,881.6841	1.0385	1.0329
New York	161	582,132	629,854.3211	0.9242	0.9218
Ohio	126	500,393	476,706.9153	1.0497	1.0468
Oklahoma	51	160,862	142,631.9249	1.1278	1.1223
Oregon	33	86,489	96,132.1110	0.8997	0.8937
Pennsylvania	150	495,887	518,906.5368	0.9556	0.9530
Puerto Rico	11	39,564	32,728.5134	1.2089	1.1970

Rhode Island	10	25,447	27,823.6972	0.9146	0.9034
South Carolina	54	165,594	176,621.2416	0.9376	0.9330
South Dakota	11	16,635	15,502.3500	1.0731	1.0568
Tennessee	88	293,513	312,674.1176	0.9387	0.9353
Texas	266	891,226	973,517.9649	0.9155	0.9135
Utah	27	57,570	66,114.0568	0.8708	0.8637
Virginia	78	221,537	249,027.4124	0.8896	0.8859
Virgin Islands	2	.	.	.	.
Vermont	4	.	.	.	.
Washington	49	161,388	167,402.7897	0.9641	0.9594
Wisconsin	66	142,612	156,508.9877	0.9112	0.9065
West Virginia	29	98,384	91,157.3698	1.0793	1.0726
Wyoming	10	6,120	7,457.5422	0.8206	0.8003
<b>All US</b>	<b>3,145</b>	<b>10,282,207</b>	<b>10,701,905.7713</b>	<b>0.9608</b>	<b>0.9602</b>

1. The number of reporting facilities included in the SUR calculation; SURs are not calculated when th
2. Percent of facilities with at least one predicted device day that had an SUR significantly greater than
3. Facility-specific percentiles are only calculated if at least 20 facilities had  $\geq 1.0$  predicted number of
4. Data from all ICUs; excludes wards (and other non-critical care locations), and NICUs. Data contain

ry SURs using device days data reported to NHSN during 2017 for acute care hospitals (ACHs), by  
, critical care locations<sup>4</sup>

for SUR	Facility-specific SURs					10%
	Upper	No. Facilities with ≥1 Predicted Device Days	No. Facilities with SUR Significantly > National SUR	No. Facilities with SUR Significantly < National SUR		
		N	N	N	N	
0.7679	7	.	.	.	.	.
1.0334	70	28	40	23	33	0.5641
1.0618	43	19	44	17	40	0.6419
0.9681	54	25	46	19	35	0.5996
1.0074	315	174	55	94	30	0.6990
0.9327	46	14	30	24	52	0.5385
0.9994	27	12	44	11	41	0.5300
1.0265	8	.	.	.	.	.
0.8080	8	.	.	.	.	.
0.9275	197	85	43	87	44	0.6061
0.9524	92	35	38	45	49	0.5035
.	.	.	.	.	.	.
0.7926	15	7	47	7	47	.
1.0410	35	13	37	18	51	0.4802
1.1248	11	8	73	2	18	.
0.8609	127	38	30	60	47	0.5780
0.8809	72	23	32	35	49	0.5527
0.8341	38	10	26	22	58	0.3055
0.9386	64	22	34	30	47	0.4854
1.0837	69	38	55	15	22	0.6792
1.1058	64	33	52	23	36	0.7233
0.8636	44	14	32	21	48	0.5591
0.9249	14	6	43	6	43	.
1.0172	89	36	40	40	45	0.6235
1.0207	41	15	37	22	54	0.4447
1.0403	72	37	51	28	39	0.5444
0.9913	43	19	44	19	44	0.6037
0.9182	10	3	30	6	60	.
1.0304	86	35	41	40	47	0.5993
1.2912	6	.	.	.	.	.
0.8457	19	2	11	13	68	.
1.1155	13	4	31	4	31	.
0.8766	70	20	29	41	59	0.5292
1.0003	26	8	31	12	46	0.4837
1.0440	21	11	52	7	33	0.4435
0.9266	161	56	35	73	45	0.5677
1.0526	126	57	45	53	42	0.5464
1.1333	51	30	59	11	22	0.7469
0.9057	33	10	30	19	58	0.6240
0.9583	150	59	39	74	49	0.5469
1.2208	11	10	91	0	0	.

0.9259	10	2	20	6	60	.
0.9421	54	20	37	26	48	0.5473
1.0895	11	4	36	5	45	.
0.9421	88	42	48	36	41	0.6097
0.9173	265	104	39	121	46	0.6050
0.8779	27	7	26	20	74	0.3627
0.8933	78	21	27	44	56	0.6007
.	.	.	.	.	.	.
.	.	.	.	.	.	.
0.9688	49	20	41	19	39	0.6345
0.9159	66	19	29	39	59	0.4840
1.0861	29	13	45	10	34	0.5169
0.8414	10	1	10	6	60	.
<b>0.9614</b>	<b>3,143</b>	<b>1,287</b>	<b>41</b>	<b>1,370</b>	<b>44</b>	<b>0.5720</b>

ere are less than 5 reporting facilities. This may be different from those reported in the SIR tables due to e  
n or less than the nominal value of the national SUR. This is only calculated if at least 10 facilities had ≥ 1  
device days in 2017. If a facility's predicted number of device days was <1.0, a facility-specific SUR was n  
ned in this table are reported from acute care hospitals; as such, data from CAHs, IRFs and LTACHs are e

device type and patient population:

<b>Median</b>			
<b>25%</b>	<b>50%</b>	<b>75%</b>	<b>90%</b>
.	.	.	.
0.8070	0.9832	1.1200	1.2061
0.8120	0.9780	1.1301	1.2180
0.8213	0.9864	1.1269	1.2413
0.8517	1.0307	1.1519	1.2641
0.6480	0.8563	1.0477	1.1464
0.7346	0.9538	1.1427	1.3101
.	.	.	.
.	.	.	.
0.7700	0.9644	1.0944	1.2154
0.6937	0.9435	1.1113	1.2741
.	.	.	.
.	.	.	.
0.6812	0.8901	1.0588	1.1656
.	.	.	.
0.7433	0.9251	1.0467	1.2049
0.8065	0.9184	1.0552	1.2086
0.6713	0.8544	0.9941	1.1927
0.8006	0.9353	1.0764	1.1973
0.9073	1.0280	1.2389	1.3473
0.8531	1.0195	1.1579	1.2993
0.7444	0.9213	1.0340	1.1532
.	.	.	.
0.7783	0.9525	1.1114	1.2619
0.6347	0.8783	1.0960	1.2176
0.7400	1.0176	1.1461	1.2736
0.7027	0.9694	1.1735	1.2521
.	.	.	.
0.7284	0.9528	1.0791	1.2079
.	.	.	.
.	.	.	.
.	.	.	.
0.6806	0.8710	1.0011	1.2178
0.7494	0.9296	1.0404	1.2229
0.9064	0.9836	1.1831	1.2457
0.7479	0.9377	1.0644	1.1781
0.8238	0.9686	1.1420	1.2833
0.9100	1.0851	1.2384	1.3400
0.7207	0.8412	1.0673	1.1664
0.7349	0.9254	1.0852	1.2233
.	.	.	.



0.7460	0.9349	1.0252	1.1276
0.7761	0.9872	1.1138	1.2382
0.7928	0.9467	1.0999	1.2432
0.5029	0.7672	1.0490	1.2131
0.7395	0.8925	1.0362	1.1503
0.8027	0.9456	1.1156	1.3044
0.6655	0.8760	1.0464	1.1705
0.8337	0.9827	1.0794	1.2118
<b>0.7695</b>	<b>0.9522</b>	<b>1.1100</b>	<b>1.2407</b>

exclusion and inclusion criteria. Refer to the technical appendix for details on predicted device days in 2017.

either calculated nor included in the distribution of facility-specific SURs excluded.

**Table 3. State-specific standardized utilization ratios (SURs) and facility-specific summary S**  
**Table 3c. Urinary catheter da**

State	No. of Facilities	No. of Device days			95% CI
		Observed	Predicted	SUR	Lower
Alaska	10	26,304	33,900.4926	0.7759	0.7666
Alabama	91	281,973	321,016.0599	0.8784	0.8751
Arkansas	51	191,624	175,539.8390	1.0916	1.0867
Arizona	69	288,932	344,199.5561	0.8394	0.8364
California	335	1,811,052	1,866,225.6447	0.9704	0.9690
Colorado	55	224,277	223,311.8069	1.0043	1.0002
Connecticut	31	130,848	174,741.0175	0.7488	0.7448
D.C	8	49,155	70,771.7010	0.6946	0.6884
Delaware	8	36,086	70,342.3844	0.5130	0.5077
Florida	204	1,165,860	1,509,609.6103	0.7723	0.7709
Georgia	109	472,649	550,450.4783	0.8587	0.8562
Guam	1	.	.	.	.
Hawaii	17	59,440	77,062.9983	0.7713	0.7651
Iowa	41	133,498	146,439.2548	0.9116	0.9067
Idaho	16	57,904	57,496.3739	1.0071	0.9989
Illinois	134	568,008	684,519.8038	0.8298	0.8276
Indiana	87	317,424	376,473.3506	0.8432	0.8402
Kansas	56	122,171	139,520.9266	0.8756	0.8707
Kentucky	70	241,900	276,403.5601	0.8752	0.8717
Louisiana	97	321,413	278,626.2944	1.1536	1.1496
Massachusetts	69	321,372	403,605.9040	0.7963	0.7935
Maryland	49	262,708	362,484.5936	0.7247	0.7220
Maine	16	45,405	69,399.0122	0.6543	0.6483
Michigan	99	374,999	481,955.5152	0.7781	0.7756
Minnesota	54	185,234	209,589.4314	0.8838	0.8798
Missouri	75	381,818	424,006.8046	0.9005	0.8976
Mississippi	60	203,292	200,330.5005	1.0148	1.0104
Montana	14	36,776	44,688.0692	0.8229	0.8146
North Carolina	98	447,400	498,546.1649	0.8974	0.8948
North Dakota	9	38,781	36,909.5012	1.0507	1.0403
Nebraska	27	85,814	93,873.3221	0.9141	0.9081
New Hampshire	13	63,915	65,006.7229	0.9832	0.9756
New Jersey	70	362,730	511,349.3099	0.7094	0.7070
New Mexico	32	88,059	92,246.2386	0.9546	0.9483
Nevada	27	168,345	177,396.5100	0.9490	0.9444
New York	174	990,100	1,299,121.4620	0.7621	0.7606
Ohio	141	694,774	759,754.0283	0.9145	0.9123
Oklahoma	82	233,274	220,667.2166	1.0571	1.0529
Oregon	36	174,256	196,758.1446	0.8856	0.8815
Pennsylvania	189	756,284	933,058.4224	0.8105	0.8087

Puerto Rico	13	91,438	86,619.3699	1.0556	1.0488
Rhode Island	11	38,833	61,958.6495	0.6268	0.6205
South Carolina	61	231,764	303,578.9088	0.7634	0.7603
South Dakota	21	48,091	49,340.7853	0.9747	0.9660
Tennessee	105	421,738	465,918.9418	0.9052	0.9024
Texas	358	1,150,146	1,315,702.6030	0.8742	0.8726
Utah	33	63,655	59,923.8450	1.0623	1.0540
Virginia	82	371,866	449,283.5553	0.8277	0.8250
Virgin Islands	2	.	.	.	.
Vermont	6	24,945	23,957.7314	1.0412	1.0283
Washington	60	315,078	346,507.7579	0.9093	0.9061
Wisconsin	73	228,124	254,535.3082	0.8962	0.8926
West Virginia	29	143,557	139,946.4433	1.0258	1.0205
Wyoming	14	14,667	16,322.7687	0.8986	0.8841
<b>All US</b>	<b>3,692</b>	<b>15,565,165</b>	<b>18,036,860.3800</b>	<b>0.8630</b>	<b>0.8625</b>

1. The number of reporting facilities included in the SUR calculation; SURs are not calculated when there are no reported device days.
2. Percent of facilities with at least one predicted device day that had an SUR significantly greater than or less than the predicted number of device days.
3. Facility-specific percentiles are only calculated if at least 20 facilities had  $\geq 1.0$  predicted number of device days.
4. Data from all wards (for this table wards also include step-down, mixed acuity, and specialty care areas [i.e., intensive care unit, cardiac care unit, etc.]).

URs using device days data reported to NHSN during 2017 for acute care hospitals (ACHs), by device types (CDs), wards<sup>4</sup>

for SUR	Facility-specific SURs						10%	25%
	Upper	No. Facilities with ≥1 Predicted Device Days	No. Facilities with SUR		No. Facilities with SUR			
			Significantly > National SUR	Significantly < National SUR	Significantly > National SUR	Significantly < National SUR		
			N	N	N	N		
0.7854	10	4	40	4	40	.	.	
0.8816	91	47	52	32	35	0.4328	0.6958	
1.0965	50	33	66	12	24	0.6868	0.8012	
0.8425	69	34	49	31	45	0.4866	0.6768	
0.9718	335	209	62	98	29	0.6229	0.7968	
1.0085	55	28	51	16	29	0.4397	0.7600	
0.7529	31	8	26	17	55	0.5569	0.6360	
0.7007	8	.	.	.	.	.	.	
0.5183	8	.	.	.	.	.	.	
0.7737	204	71	35	115	56	0.4361	0.5945	
0.8611	109	53	49	46	42	0.4713	0.6608	
.	.	.	.	.	.	.	.	
0.7775	17	4	24	11	65	.	.	
0.9165	41	22	54	14	34	0.7070	0.7640	
1.0153	16	12	75	4	25	.	.	
0.8319	134	62	46	60	45	0.5278	0.6692	
0.8461	87	37	43	37	43	0.4548	0.6749	
0.8806	56	24	43	25	45	0.2617	0.6088	
0.8787	70	42	60	22	31	0.6003	0.7152	
1.1576	97	75	77	18	19	0.6717	0.9408	
0.7990	69	18	26	44	64	0.5294	0.6253	
0.7275	49	9	18	34	69	0.4704	0.6477	
0.6603	16	4	25	9	56	.	.	
0.7806	99	32	32	56	57	0.4415	0.5919	
0.8878	54	31	57	19	35	0.6317	0.7483	
0.9033	75	37	49	29	39	0.4931	0.7376	
1.0192	60	34	57	21	35	0.4291	0.5910	
0.8314	14	5	36	8	57	.	.	
0.9000	98	42	43	48	49	0.5566	0.6421	
1.0612	9	.	.	.	.	.	.	
0.9203	27	14	52	11	41	0.5371	0.7544	
0.9908	13	7	54	6	46	.	.	
0.7117	70	17	24	51	73	0.4402	0.5521	
0.9609	32	16	50	7	22	0.4910	0.7748	
0.9535	27	12	44	14	52	0.0500	0.5990	
0.7636	174	59	34	100	57	0.4206	0.6007	
0.9166	141	76	54	47	33	0.5928	0.7832	
1.0614	82	54	66	22	27	0.3923	0.7743	
0.8898	36	17	47	13	36	0.6019	0.7191	
0.8124	189	69	37	97	51	0.4218	0.5641	

1.0625	13	10	77	3	23	.	.
0.6330	11	1	9	9	82	.	.
0.7665	61	25	41	33	54	0.4941	0.6340
0.9834	21	8	38	8	38	0.2113	0.6314
0.9079	105	57	54	41	39	0.5142	0.7223
0.8757	358	187	52	133	37	0.4238	0.6967
1.0705	33	21	64	6	18	0.7786	0.8318
0.8303	82	35	43	36	44	0.5667	0.6834
.	.	.	.	.	.	.	.
1.0542	6	.	.	.	.	.	.
0.9125	60	29	48	22	37	0.6452	0.7756
0.8999	73	36	49	28	38	0.5720	0.7162
1.0311	29	17	59	10	34	0.3327	0.7493
0.9132	14	7	50	4	29	.	.
<b>0.8634</b>	<b>3,691</b>	<b>1,762</b>	<b>48</b>	<b>1,548</b>	<b>42</b>	<b>0.4902</b>	<b>0.6794</b>

re less than 5 reporting facilities. This may be different from those reported in the SIR tables due to exclusion and i  
ss than the nominal value of the national SUR. This is only calculated if at least 10 facilities had  $\geq 1.0$  predicted d  
e days in 2017. If a facility's predicted number of device days was  $< 1.0$ , a facility-specific SUR was neither calculat  
ncluding hematology/oncology, bone marrow transplant]). Data contained in this table are reported from acute care

and patient population:

<b>Median</b>		
<b>50%</b>	<b>75%</b>	<b>90%</b>
.	.	.
0.9214	1.1782	1.3356
1.0641	1.2929	1.8729
0.8858	1.1329	1.3266
0.9898	1.2669	1.6091
0.9149	1.1418	1.5304
0.7475	0.9148	1.4087
.	.	.
.	.	.
0.7515	0.9826	1.1977
0.9003	1.2044	1.6368
.	.	.
.	.	.
0.9624	1.1388	1.4984
.	.	.
0.8725	1.0665	1.3959
0.8574	1.0620	1.5922
0.8587	1.1843	1.8467
0.9947	1.2325	1.7806
1.2555	1.7837	2.7357
0.7533	0.9334	1.1175
0.7195	0.8535	1.2420
.	.	.
0.7944	1.0954	1.2693
0.9985	1.2539	1.5263
0.8682	1.1385	1.5966
0.9893	1.1837	1.4450
.	.	.
0.8505	1.1679	1.5440
.	.	.
0.9279	1.1940	1.8985
.	.	.
0.6778	0.8492	0.9510
0.9269	1.1292	1.3796
0.8065	1.1386	1.6230
0.7906	0.9708	1.1940
0.9317	1.1986	1.4174
1.2202	1.4700	2.0645
0.9044	1.2286	1.4771
0.8072	1.0583	1.4714

.	.	.
0.7980	1.0640	1.3129
0.9067	1.1833	1.4972
0.9745	1.3252	1.8292
0.9497	1.3072	1.9653
0.9873	1.3381	1.6240
0.8550	1.2678	1.7149
.	.	.
0.9049	1.1449	1.4336
0.8956	1.1717	1.3849
0.9550	1.2072	1.9907
.	.	.
<b>0.8869</b>	<b>1.1665</b>	<b>1.5539</b>

inclusion criteria. Refer to the technical appendix for details.

ervice days in 2017.

ed nor included in the distribution of facility-specific SURs.

e hospitals; as such, data from CAHs, IRFs and LTACHs are excluded.

**Table 4. State-specific standardized utilization ratios (SURs) and facility-specific summary**  
**Table 4a. Ventilator days (VD)**

State	No. of Facilities	No. of Device days			95% CI
		Observed	Predicted	SUR	Lower
Alaska	6	3,634	3,329.8279	1.0913	1.0563
Alabama	47	80,095	82,088.8041	0.9757	0.9690
Arkansas	21	28,958	33,175.4901	0.8729	0.8629
Arizona	33	52,738	50,735.0199	1.0395	1.0306
California	182	373,135	330,039.0245	1.1306	1.1270
Colorado	38	57,845	63,516.7431	0.9107	0.9033
Connecticut	13	31,049	27,699.7430	1.1209	1.1085
D.C.	3	.	.	.	.
Delaware	3	.	.	.	.
Florida	120	283,542	304,304.4101	0.9318	0.9283
Georgia	72	162,630	143,707.9044	1.1317	1.1262
Guam	1	.	.	.	.
Hawaii	7	13,925	13,301.2499	1.0469	1.0296
Iowa	14	12,856	14,678.4066	0.8758	0.8608
Idaho	7	9,212	9,791.7228	0.9408	0.9217
Illinois	67	84,761	97,913.2771	0.8657	0.8599
Indiana	70	116,303	120,443.5193	0.9656	0.9601
Kansas	33	25,970	40,500.1785	0.6412	0.6335
Kentucky	44	61,991	70,548.1458	0.8787	0.8718
Louisiana	39	44,998	53,891.9087	0.8350	0.8273
Massachusetts	22	27,110	29,576.1806	0.9166	0.9058
Maryland	25	54,069	48,413.0803	1.1168	1.1074
Maine	14	12,496	15,049.4504	0.8303	0.8159
Michigan	78	168,787	157,978.5513	1.0684	1.0633
Minnesota	8	16,923	14,185.5661	1.1930	1.1751
Missouri	43	90,687	94,090.9453	0.9638	0.9576
Mississippi	26	22,652	23,717.8273	0.9551	0.9427
Montana	4	.	.	.	.
North Carolina	43	72,066	73,322.2422	0.9829	0.9757
North Dakota	2	.	.	.	.
Nebraska	13	19,428	17,634.6132	1.1017	1.0863
New Hampshire	11	9,347	8,138.8198	1.1484	1.1254
New Jersey	50	110,270	102,623.3097	1.0745	1.0682
New Mexico	20	14,038	13,070.3494	1.0740	1.0564
Nevada	22	88,772	80,888.0981	1.0975	1.0902
New York	134	356,126	321,972.2071	1.1061	1.1025
Ohio	88	161,694	185,460.7697	0.8719	0.8676
Oklahoma	31	32,511	34,458.2757	0.9435	0.9333
Oregon	25	24,671	30,452.0630	0.8102	0.8001
Pennsylvania	144	296,552	317,677.4881	0.9335	0.9301



Puerto Rico	9	15,789	15,734.3176	1.0035	0.9879
Rhode Island	9	13,808	16,360.2942	0.8440	0.8300
South Carolina	53	94,859	100,828.1561	0.9408	0.9348
South Dakota	6	3,769	3,480.7057	1.0828	1.0487
Tennessee	54	103,731	129,806.3299	0.7991	0.7943
Texas	144	258,177	299,257.0731	0.8627	0.8594
Utah	8	2,547	3,629.7844	0.7017	0.6748
Virginia	66	112,079	131,545.0402	0.8520	0.8470
Virgin Islands	1	.	.	.	.
Vermont	0	.	.	.	.
Washington	29	35,650	37,664.1340	0.9465	0.9368
Wisconsin	57	55,991	63,390.6354	0.8833	0.8760
West Virginia	18	17,300	23,512.9617	0.7358	0.7249
Wyoming	8	1,128	1,069.9326	1.0543	0.9941
<b>All US</b>	<b>2,085</b>	<b>3,768,174</b>	<b>3,882,309.82</b>	<b>0.9706</b>	<b>0.9696</b>

1. The number of reporting facilities included in the SUR calculation; SURs are not calculated when there are no reported device days.
2. Percent of facilities with at least one predicted device day that had an SUR significantly greater than the facility-specific percentile.
3. Facility-specific percentiles are only calculated if at least 20 facilities had  $\geq 1.0$  predicted number of device days.
4. Data from all ICUs and wards (and other non-critical care locations). This excludes NICUs. Data contained in this table are not necessarily representative of all facilities.

**SURs using device days data reported to NHSN during 2017 for acute care hospitals (ACHs), by device type(s), all locations<sup>4</sup>**

for SUR	Facility-specific SURs						10%	25%
	Upper	No. Facilities with ≥1 Predicted Device Days	No. Facilities with SUR		No. Facilities with SUR			
			Significantly > National SUR	Significantly < National SUR	Significantly > National SUR	Significantly < National SUR		
			N	N	N	N		
1.1273	6	.	.	.	.	.	.	
0.9825	47	15	32	25	53	0.0360	0.2610	
0.8830	21	5	24	12	57	0.5222	0.6235	
1.0484	33	11	33	18	55	0.0411	0.5155	
1.1342	182	103	57	59	32	0.5750	0.8214	
0.9182	38	10	26	24	63	0.4059	0.5519	
1.1334	13	8	62	3	23	.	.	
.	.	.	.	.	.	.	.	
0.9352	120	36	30	72	60	0.4544	0.6482	
1.1372	72	35	49	31	43	0.2102	0.5200	
.	.	.	.	.	.	.	.	
1.0644	7	.	.	.	.	.	.	
0.8911	14	3	21	6	43	.	.	
0.9601	7	.	.	.	.	.	.	
0.8715	67	21	31	39	58	0.2434	0.6014	
0.9712	70	23	33	38	54	0.2445	0.6320	
0.6491	32	4	13	23	72	0.0850	0.2306	
0.8856	44	13	30	25	57	0.1510	0.4877	
0.8427	39	11	28	24	62	0.0000	0.4893	
0.9276	22	8	36	13	59	0.3565	0.6148	
1.1263	25	16	64	7	28	0.7622	0.9108	
0.8450	14	3	21	9	64	.	.	
1.0736	78	32	41	38	49	0.3326	0.6806	
1.2111	8	.	.	.	.	.	.	
0.9701	43	14	33	25	58	0.1982	0.5103	
0.9676	26	8	31	12	46	0.2419	0.6164	
.	.	.	.	.	.	.	.	
0.9901	43	14	33	22	51	0.3043	0.5276	
.	.	.	.	.	.	.	.	
1.1173	13	6	46	5	38	.	.	
1.1719	11	7	64	3	27	.	.	
1.0809	50	22	44	20	40	0.6632	0.8244	
1.0919	19	5	26	12	63	.	.	
1.1047	22	15	68	6	27	0.8147	0.9100	
1.1097	134	67	50	47	35	0.4289	0.8124	
0.8761	88	27	31	53	60	0.2049	0.5279	
0.9538	31	12	39	17	55	0.3771	0.5453	
0.8203	25	7	28	15	60	0.4052	0.5756	
0.9368	144	38	26	86	60	0.2115	0.5545	

1.0192	9	.	.	.	.	.	.	.
0.8582	9	.	.	.	.	.	.	.
0.9468	53	11	21	31	58	0.3269	0.6404	.
1.1178	6	.	.	.	.	.	.	.
0.8040	54	8	15	39	72	0.1457	0.3743	.
0.8661	143	43	30	85	59	0.1698	0.5763	.
0.7293	8	.	.	.	.	.	.	.
0.8570	66	13	20	43	65	0.3879	0.5789	.
.	.	.	.	.	.	.	.	.
0.9564	28	11	39	15	54	0.3385	0.7522	.
0.8906	57	18	32	28	49	0.3484	0.6557	.
0.7468	18	3	17	13	72	.	.	.
1.1172	6	.	.	.	.	.	.	.
<b>0.9716</b>	<b>2,079</b>	<b>741</b>	<b>36</b>	<b>1,079</b>	<b>52</b>	<b>0.2923</b>	<b>0.6014</b>	.

are less than 5 reporting facilities. This may be different from those reported in the SIR tables due to exclusion of facilities with a predicted number of device days less than the nominal value of the national SUR. This is only calculated if at least 10 facilities had  $\geq 1.0$  predicted device days in 2017. If a facility's predicted number of device days was  $< 1.0$ , a facility-specific SUR was neither calculated nor reported. Data from acute care hospitals; as such, data from CAHs, IRFs and LTACHs are excluded.

**e and patient population:**

<b>Median</b>		
<b>50%</b>	<b>75%</b>	<b>90%</b>
.	.	.
0.8913	1.0976	1.3405
0.8289	1.0896	1.4072
0.8530	1.2973	1.5854
1.1260	1.4538	1.9548
0.7811	1.1033	1.3485
.	.	.
.	.	.
.	.	.
0.8540	1.0745	1.3629
1.0114	1.2756	1.6592
.	.	.
.	.	.
.	.	.
0.8241	1.0928	1.4135
0.8636	1.2834	1.7013
0.5823	0.9084	1.1568
0.7844	1.1633	1.2645
0.7309	1.0882	1.4769
0.8408	1.2930	1.6105
1.1180	1.1975	1.7873
.	.	.
0.9461	1.2681	1.8340
.	.	.
0.8140	1.1006	1.5034
0.8856	1.0810	1.3781
.	.	.
0.7766	1.1283	1.2281
.	.	.
.	.	.
1.0042	1.2790	1.5443
.	.	.
1.1071	1.4626	1.8249
1.0407	1.3031	1.8270
0.7639	1.0988	1.3231
0.8129	1.2076	1.3319
0.7542	1.2332	1.9886
0.7727	1.0537	1.2839

.	.	.
0.8595	1.0304	1.3328
.	.	.
0.7207	0.9037	1.1329
0.7956	1.1302	1.5016
.	.	.
0.7197	0.9615	1.2830
.	.	.
0.8866	1.2167	1.6751
0.8402	1.1280	1.4744
.	.	.
.	.	.
<b>0.8768</b>	<b>1.1824</b>	<b>1.5237</b>

and inclusion criteria. Refer to the technical appendix for detailed device days in 2017.  
 related nor included in the distribution of facility-specific SUR.  
 ed.

**Table 4. State-specific standardized utilization ratios (SURs) and facility-specific summary**  
**Table 4b. Ventilator days (VDs), c)**

State	No. of Facilities	No. of Device days			95% CI
		Observed	Predicted	SUR	Lower
Alaska	5	3,634	3,306.3042	1.0991	1.0638
Alabama	46	79,682	79,207.2020	1.0060	0.9990
Arkansas	21	28,958	33,175.4901	0.8729	0.8629
Arizona	28	52,634	50,631.1454	1.0396	1.0307
California	178	354,104	314,520.4889	1.1259	1.1221
Colorado	38	56,498	62,951.8973	0.8975	0.8901
Connecticut	13	30,814	26,316.1518	1.1709	1.1579
D.C.	3	.	.	.	.
Delaware	3	.	.	.	.
Florida	120	273,706	297,080.8101	0.9213	0.9179
Georgia	69	160,483	141,436.4138	1.1347	1.1291
Guam	1	.	.	.	.
Hawaii	7	11,870	11,660.8502	1.0179	0.9998
Iowa	14	12,856	14,630.9043	0.8787	0.8636
Idaho	7	9,212	9,791.7228	0.9408	0.9217
Illinois	66	80,694	92,016.8669	0.8769	0.8709
Indiana	66	114,955	119,883.2929	0.9589	0.9534
Kansas	31	25,872	39,685.4307	0.6519	0.6440
Kentucky	43	61,844	70,492.5805	0.8773	0.8704
Louisiana	34	43,543	51,855.8333	0.8397	0.8318
Massachusetts	21	26,727	28,964.1335	0.9228	0.9117
Maryland	24	49,306	45,281.7448	1.0889	1.0793
Maine	13	12,487	15,028.6777	0.8309	0.8164
Michigan	77	160,560	155,117.1853	1.0351	1.0300
Minnesota	7	16,787	13,618.1905	1.2327	1.2141
Missouri	43	88,367	90,084.1010	0.9809	0.9745
Mississippi	25	21,040	23,465.8030	0.8966	0.8846
Montana	4	.	.	.	.
North Carolina	42	66,734	68,202.4780	0.9785	0.9711
North Dakota	2	.	.	.	.
Nebraska	12	16,820	16,743.2154	1.0046	0.9895
New Hampshire	11	9,264	8,052.4773	1.1505	1.1272
New Jersey	50	101,892	95,694.1790	1.0648	1.0583
New Mexico	19	14,038	13,035.9994	1.0769	1.0592
Nevada	21	78,301	68,751.7717	1.1389	1.1309
New York	132	298,118	277,155.6114	1.0756	1.0718
Ohio	83	156,043	164,315.9521	0.9497	0.9449
Oklahoma	31	32,511	34,320.4330	0.9473	0.9370
Oregon	25	23,714	28,925.5554	0.8198	0.8094
Pennsylvania	142	285,234	291,323.0199	0.9791	0.9755

Puerto Rico	9	12,920	11,941.4794	1.0819	1.0634
Rhode Island	9	12,608	14,064.4391	0.8964	0.8809
South Carolina	52	93,307	95,667.4562	0.9753	0.9691
South Dakota	6	3,506	3,237.0523	1.0831	1.0477
Tennessee	54	98,153	113,471.4353	0.8650	0.8596
Texas	138	255,115	290,379.8777	0.8786	0.8752
Utah	8	2,547	3,629.7844	0.7017	0.6748
Virginia	66	106,494	121,107.2816	0.8793	0.8741
Virgin Islands	1	.	.	.	.
Vermont	0	.	.	.	.
Washington	27	35,390	36,747.6614	0.9631	0.9531
Wisconsin	57	54,949	62,337.6741	0.8815	0.8741
West Virginia	18	17,299	20,901.6763	0.8276	0.8154
Wyoming	6	1,128	1,064.2724	1.0599	0.9994
<b>All US</b>	<b>2,028</b>	<b>3,581,456</b>	<b>3,657,494.0454</b>	<b>0.9792</b>	<b>0.9782</b>

1. The number of reporting facilities included in the SUR calculation; SURs are not calculated when there
2. Percent of facilities with at least one predicted device day that had an SUR significantly greater than o
3. Facility-specific percentiles are only calculated if at least 20 facilities had  $\geq 1.0$  predicted number of de
4. Data from all ICUs; excludes wards (and other non-critical care locations), and NICUs. Data contained

**SURs using device days data reported to NHSN during 2017 for acute care hospitals (ACHs), by device type and critical care locations<sup>4</sup>**

for SUR	Facility-specific SURs						10%	25%
	Upper	No. Facilities with ≥1 Predicted Device Days	No. Facilities with SUR		No. Facilities with SUR			
			Significantly > National SUR	Significantly < National SUR	Significantly > National SUR	Significantly < National SUR		
			N	N	N	N		
1.1353	5	.	.	.	.	.	.	
1.0130	46	15	33	26	57	0.0768	0.4535	
0.8830	21	5	24	13	62	0.5222	0.6235	
1.0485	28	10	36	15	54	0.0516	0.5565	
1.1295	178	106	60	51	29	0.5954	0.8665	
0.9049	38	9	24	25	66	0.4348	0.5519	
1.1841	13	10	77	3	23	.	.	
.	.	.	.	.	.	.	.	
0.9248	120	36	30	70	58	0.4747	0.6504	
1.1403	69	34	49	29	42	0.2335	0.6443	
.	.	.	.	.	.	.	.	
1.0364	7	.	.	.	.	.	.	
0.8940	14	3	21	6	43	.	.	
0.9601	7	.	.	.	.	.	.	
0.8830	66	20	30	37	56	0.3413	0.6121	
0.9644	66	22	33	35	53	0.3187	0.6399	
0.6599	31	4	13	22	71	0.1025	0.2419	
0.8842	43	12	28	25	58	0.1510	0.4887	
0.8476	34	11	32	21	62	0.3923	0.6713	
0.9339	21	8	38	12	57	0.4704	0.6513	
1.0985	24	15	63	7	29	0.7622	0.8795	
0.8456	13	3	23	8	62	.	.	
1.0401	77	30	39	38	49	0.3326	0.7303	
1.2515	7	.	.	.	.	.	.	
0.9874	43	14	33	24	56	0.1982	0.5103	
0.9088	25	7	28	13	52	0.2419	0.6164	
.	.	.	.	.	.	.	.	
0.9859	42	12	29	23	55	0.3043	0.5276	
.	.	.	.	.	.	.	.	
1.0199	12	5	42	5	42	.	.	
1.1741	11	7	64	3	27	.	.	
1.0713	50	22	44	20	40	0.7019	0.8548	
1.0948	19	5	26	11	58	.	.	
1.1469	21	15	71	4	19	0.7568	0.9776	
1.0795	132	70	53	44	33	0.5109	0.8488	
0.9544	83	29	35	45	54	0.3326	0.6248	
0.9576	31	13	42	16	52	0.3771	0.5453	
0.8303	25	8	32	15	60	0.4052	0.5756	
0.9827	142	41	29	83	58	0.2115	0.5794	



1.1007	9	.	.	.	.	.	.	.
0.9122	9	.	.	.	.	.	.	.
0.9816	52	12	23	28	54	0.4680	0.6449	.
1.1194	6	.	.	.	.	.	.	.
0.8704	54	8	15	42	78	0.1457	0.3743	.
0.8820	138	45	33	83	60	0.2119	0.5810	.
0.7293	8	.	.	.	.	.	.	.
0.8846	66	11	17	44	67	0.3879	0.5961	.
.	.	.	.	.	.	.	.	.
0.9732	27	11	41	14	52	0.4814	0.7806	.
0.8889	57	19	33	28	49	0.3484	0.6475	.
0.8400	18	3	17	12	67	.	.	.
1.1231	6	.	.	.	.	.	.	.
<b>0.9802</b>	<b>2,028</b>	<b>745</b>	<b>37</b>	<b>1,033</b>	<b>51</b>	<b>0.3348</b>	<b>0.6358</b>	.

are less than 5 reporting facilities. This may be different from those reported in the SIR tables due to exclusion of facilities with a predicted number of device days less than the nominal value of the national SUR. This is only calculated if at least 10 facilities had  $\geq 1.0$  predicted device days in 2017. If a facility's predicted number of device days was  $< 1.0$ , a facility-specific SUR was neither calculated nor reported in this table. Data from acute care hospitals; as such, data from CAHs, IRFs and LTACHs are excluded.

**e and patient population:**

<b>Median</b>		
<b>50%</b>	<b>75%</b>	<b>90%</b>
.	.	.
0.8930	1.0976	1.3463
0.8289	1.0896	1.4072
0.8768	1.3045	1.5854
1.1250	1.4494	1.9548
0.7618	1.0744	1.4844
.	.	.
.	.	.
.	.	.
0.8540	1.0995	1.3431
1.0258	1.2798	1.6865
.	.	.
.	.	.
.	.	.
.	.	.
0.8637	1.0928	1.4135
0.8790	1.2834	1.7945
0.6221	0.9457	1.1568
0.7714	1.1536	1.2531
0.7739	1.1575	1.4769
0.8309	1.2930	1.6105
1.1190	1.1903	1.7326
.	.	.
0.9306	1.2188	1.6646
.	.	.
0.8140	1.1006	1.5034
0.8479	1.0395	1.3135
.	.	.
0.7613	1.1240	1.2883
.	.	.
.	.	.
.	.	.
1.0042	1.2270	1.5205
.	.	.
1.1812	1.4756	1.8249
1.0539	1.2722	1.5821
0.8511	1.1454	1.3432
0.8129	1.2076	1.3319
0.7542	1.3034	1.9886
0.8171	1.1043	1.3151

.	.	.
0.9008	1.0477	1.4963
.	.	.
0.7335	0.9216	1.2367
0.8078	1.1587	1.5016
.	.	.
0.7526	0.9575	1.4174
.	.	.
0.8898	1.2450	1.8775
0.8402	1.1280	1.4901
.	.	.
.	.	.
<b>0.9034</b>	<b>1.1869</b>	<b>1.5208</b>

and inclusion criteria. Refer to the technical appendix for detailed device days in 2017.  
 related nor included in the distribution of facility-specific SURs

**Table 4. State-specific standardized utilization ratios (SURs) and facility-specific summary S**  
**Table 4c. Ventilator days (**

State	No. of Facilities	No. of Device days			95% CI
		Observed	Predicted	SUR	Lower
Alaska	1	.	.	.	.
Alabama	8	413	2,881.6020	0.1433	0.1300
Arkansas	0	.	.	.	.
Arizona	6	104	103.8746	1.0012	0.8222
California	42	19,031	15,518.5355	1.2263	1.2090
Colorado	7	1,347	564.8458	2.3847	2.2599
Connecticut	3	.	.	.	.
D.C	0	.	.	.	.
Delaware	1	.	.	.	.
Florida	16	9,836	7,223.5999	1.3616	1.3349
Georgia	12	2,147	2,271.4906	0.9452	0.9058
Guam	0	.	.	.	.
Hawaii	2	.	.	.	.
Iowa	1	.	.	.	.
Idaho	0	.	.	.	.
Illinois	14	4,067	5,896.4101	0.6897	0.6688
Indiana	11	1,348	560.2264	2.4062	2.2803
Kansas	4	.	.	.	.
Kentucky	3	.	.	.	.
Louisiana	10	1,455	2,036.0754	0.7146	0.6786
Massachusetts	3	.	.	.	.
Maryland	6	4,763	3,131.3356	1.5211	1.4783
Maine	1	.	.	.	.
Michigan	9	8,227	2,861.3659	2.8752	2.8137
Minnesota	3	.	.	.	.
Missouri	6	2,320	4,006.8443	0.5790	0.5558
Mississippi	2	.	.	.	.
Montana	0	.	.	.	.
North Carolina	8	5,332	5,119.7642	1.0415	1.0138
North Dakota	0	.	.	.	.
Nebraska	3	.	.	.	.
New Hampshire	1	.	.	.	.
New Jersey	14	8,378	6,929.1306	1.2091	1.1834
New Mexico	3	.	.	.	.
Nevada	12	10,471	12,136.3264	0.8628	0.8464
New York	52	58,008	44,816.5957	1.2943	1.2839
Ohio	32	5,651	21,144.8176	0.2673	0.2604
Oklahoma	2	.	.	.	.
Oregon	2	.	.	.	.
Pennsylvania	43	11,318	26,354.4681	0.4295	0.4216

Puerto Rico	5	2,869	3,792.8381	0.7564	0.7291
Rhode Island	1	.	.	.	.
South Carolina	11	1,552	5,160.6999	0.3007	0.2861
South Dakota	2	.	.	.	.
Tennessee	11	5,578	16,334.8946	0.3415	0.3326
Texas	21	3,062	8,877.1954	0.3449	0.3329
Utah	0	.	.	.	.
Virginia	13	5,585	10,437.7586	0.5351	0.5212
Virgin Islands	0	.	.	.	.
Vermont	0	.	.	.	.
Washington	5	260	916.4726	0.2837	0.2508
Wisconsin	3	.	.	.	.
West Virginia	3	.	.	.	.
Wyoming	3	.	.	.	.
<b>All US</b>	<b>421</b>	<b>186,718</b>	<b>224,815.7731</b>	<b>0.8305</b>	<b>0.8268</b>

1. The number of reporting facilities included in the SUR calculation; SURs are not calculated when there are no reported device days.
2. Percent of facilities with at least one predicted device day that had an SUR significantly greater than or less than the facility-specific percentile.
3. Facility-specific percentiles are only calculated if at least 20 facilities had  $\geq 1.0$  predicted number of device days.
4. Data from all wards (for this table wards also include step-down, mixed acuity, and specialty care areas).

SURs using device days data reported to NHSN during 2017 for acute care hospitals (ACHs), by device type (VDs), wards<sup>4</sup>

for SUR	Facility-specific SURs					10%	25%
	Upper	No. Facilities with ≥1 Predicted Device Days	No. Facilities with SUR		No. Facilities with SUR		
			Significantly > National SUR N	Significantly < National SUR N			
.	.	.	.	.	.	.	.
0.1577	8	.	.	.	.	.	.
.	.	.	.	.	.	.	.
1.2081	6	.	.	.	.	.	.
1.2439	42	20	48	19	45	0.0000	0.2573
2.5146	7	.	.	.	.	.	.
.	.	.	.	.	.	.	.
.	.	.	.	.	.	.	.
1.3888	16	7	44	7	44	.	.
0.9858	12	2	17	8	67	.	.
.	.	.	.	.	.	.	.
.	.	.	.	.	.	.	.
0.7112	14	3	21	9	64	.	.
2.5372	11	3	27	7	64	.	.
.	.	.	.	.	.	.	.
.	.	.	.	.	.	.	.
0.7521	10	1	10	6	60	.	.
.	.	.	.	.	.	.	.
1.5648	6	.	.	.	.	.	.
.	.	.	.	.	.	.	.
2.9379	9	.	.	.	.	.	.
.	.	.	.	.	.	.	.
0.6029	6	.	.	.	.	.	.
.	.	.	.	.	.	.	.
.	.	.	.	.	.	.	.
1.0697	8	.	.	.	.	.	.
.	.	.	.	.	.	.	.
.	.	.	.	.	.	.	.
1.2352	14	7	50	5	36	.	.
.	.	.	.	.	.	.	.
0.8794	12	4	33	5	42	.	.
1.3049	52	28	54	21	40	0.1314	0.4002
0.2743	31	5	16	22	71	0.0000	0.0000
.	.	.	.	.	.	.	.
.	.	.	.	.	.	.	.
0.4374	43	9	21	30	70	0.0000	0.0000

0.7845	5	.	.	.	.	.	.
.	.	.	.	.	.	.	.
0.3160	11	3	27	8	73	.	.
.	.	.	.	.	.	.	.
0.3505	11	5	45	6	55	.	.
0.3573	20	2	10	13	65	0.0000	0.0000
.	.	.	.	.	.	.	.
0.5493	13	4	31	8	62	.	.
.	.	.	.	.	.	.	.
0.3198	4	.	.	.	.	.	.
.	.	.	.	.	.	.	.
.	.	.	.	.	.	.	.
<b>0.8343</b>	<b>414</b>	<b>138</b>	<b>33</b>	<b>237</b>	<b>57</b>	<b>0.0000</b>	<b>0.0000</b>

are less than 5 reporting facilities. This may be different from those reported in the SIR tables due to exclusion and less than the nominal value of the national SUR. This is only calculated if at least 10 facilities had  $\geq 1.0$  predicted device days in 2017. If a facility's predicted number of device days was  $<1.0$ , a facility-specific SUR was neither calculated [including hematology/oncology, bone marrow transplant]. Data contained in this table are reported from acute ca

and patient population:

<b>Median</b>			
<b>50%</b>	<b>75%</b>	<b>90%</b>	
.	.	.	.
.	.	.	.
.	.	.	.
0.8925	2.1898	4.0767	.
.	.	.	.
.	.	.	.
.	.	.	.
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.	.	.	.
.	.	.	.
.	.	.	.
.	.	.	.
1.0887	3.2911	4.4224	.
0.0839	0.6056	1.1737	.
.	.	.	.
.	.	.	.
0.2127	0.8874	1.4786	.



.	.	.
.	.	.
.	.	.
.	.	.
0.0801	0.3755	1.2154
.	.	.
.	.	.
.	.	.
.	.	.
.	.	.
.	.	.
<b>0.3353</b>	<b>1.3986</b>	<b>3.7781</b>

l inclusion criteria. Refer to the technical appendix for details.  
device days in 2017.  
ated nor included in the distribution of facility-specific SURs.  
ire hospitals; as such, data from CAHs, IRFs and LTACHs are excluded.

**Table 5. Changes in national standardized utilization ratios (SURs) using HAI data reported from all NHSN acute care hospitals reporting during 2017 by HAI and patient population: Central line days (CLDs), urinary catheter days (UCDs), and ventilator days (VDs), 2017 compared to 2016**

	2016 SUR	2017 SUR	Percent Change	Direction of Change, Based on Statistical Significance	p-value
<b>CLDs, all locations<sup>1</sup></b>	0.9711	0.9322	-4%	DECREASE	0.0000
ICU <sup>2</sup>	1.0020	0.9705	-3%	DECREASE	0.0000
Ward <sup>3</sup>	0.9558	0.9130	-4%	DECREASE	0.0000
NICU <sup>4</sup>	0.9564	0.9233	-3%	DECREASE	0.0000
<b>UCDs, all locations<sup>5</sup></b>	0.9415	0.8994	-4%	DECREASE	0.0000
	0.9918	0.9608	-3%	DECREASE	0.0000
	0.9108	0.8630	-5%	DECREASE	0.0000
<b>VDs, all<sup>5</sup></b>	0.9962	0.9706	-3%	DECREASE	0.0000
ICUs <sup>2</sup>	0.9967	0.9792	-2%	DECREASE	0.0000
Wards <sup>3</sup>	0.9867	0.8305	-16%	DECREASE	0.0000

\* Statistically significant,  $p < 0.0500$

1. Data from all ICUs, wards (and other non-critical care locations), and NICUs. This excludes LTAC locations (or facilities) and IRF locations (or facilities).
2. Data from all ICUs; excludes wards (and other non-critical care locations), NICUs, LTAC locations (or facilities), and IRF locations (or facilities).
3. Data from all wards (for this table wards also include step-down and specialty care areas [including hematology/oncology, bone marrow transplant]).
4. Data from all NICU locations, including Level II/III and Level III nurseries.
5. Data from all ICUs and wards (and other non-critical care locations). This excludes NICUs, LTAC locations (or facilities) and IRF locations (or facilities).

ilities).

nt]. This excludes LTAC locations [or facilities] and IRF locations [or facilities]).

ilities).

**Table 6. Changes in state-specific standardized utilization ratios (SURs) between 2016 and 2017 from NHSN Acute Care Hospitals**

**6a. Central line days (CLDs), all locations<sup>1</sup>**

State <sup>2</sup>	All Acute Care Hospitals Reporting to NHSN				
	2016 SUR	2017 SUR	Percent Change	Direction of Change, Based on Statistical Significance	p-value
Alaska	1.1955	1.1020	-8%	DECREASE	0.0000
Alabama	0.9481	0.8961	-5%	DECREASE	0.0000
Arkansas	1.0286	1.0235	0%	NO CHANGE	0.0572
Arizona	1.0861	1.0211	-6%	DECREASE	0.0000
California	1.0355	1.0111	-2%	DECREASE	0.0000
Colorado	1.0084	0.9864	-2%	DECREASE	0.0000
Connecticut	0.8707	0.8112	-7%	DECREASE	0.0000
D.C.	0.9909	0.9068	-8%	DECREASE	0.0000
Delaware	0.8575	0.8422	-2%	DECREASE	0.0001
Florida	0.9241	0.8933	-3%	DECREASE	0.0000
Georgia	1.0156	0.9588	-6%	DECREASE	0.0000
Guam	.	.	.	.	.
Hawaii	0.9249	1.1953	29%	INCREASE	0.0000
Iowa	1.0478	1.0371	-1%	DECREASE	0.0009
Idaho	1.0532	0.9846	-7%	DECREASE	0.0000
Illinois	0.8983	0.8790	-2%	DECREASE	0.0000
Indiana	1.0936	0.9989	-9%	DECREASE	0.0000
Kansas	0.9787	0.9521	-3%	DECREASE	0.0000
Kentucky	0.9795	0.9136	-7%	DECREASE	0.0000
Louisiana	1.0075	0.9744	-3%	DECREASE	0.0000
Massachusetts	0.9175	0.8852	-4%	DECREASE	0.0000
Maryland	0.9446	0.9034	-4%	DECREASE	0.0000
Maine	0.8771	0.8304	-5%	DECREASE	0.0000
Michigan	0.8322	0.7988	-4%	DECREASE	0.0000
Minnesota	1.0480	1.0287	-2%	DECREASE	0.0000
Missouri	1.0189	0.9598	-6%	DECREASE	0.0000
Mississippi	0.9687	0.8868	-8%	DECREASE	0.0000
Montana	0.9088	0.8515	-6%	DECREASE	0.0000
North Carolina	0.9955	0.9297	-7%	DECREASE	0.0000
North Dakota	1.1822	1.3819	17%	INCREASE	0.0000
Nebraska	1.3143	1.1276	-14%	DECREASE	0.0000
New Hampshire	1.0653	0.9343	-12%	DECREASE	0.0000
New Jersey	0.8463	0.8248	-3%	DECREASE	0.0000
New Mexico	1.0043	0.9251	-8%	DECREASE	0.0000
Nevada	1.1644	1.1394	-2%	DECREASE	0.0000
New York	0.8120	0.7826	-4%	DECREASE	0.0000
Ohio	0.9321	0.9147	-2%	DECREASE	0.0000
Oklahoma	1.3588	1.2838	-6%	DECREASE	0.0000
Oregon	0.9031	0.8671	-4%	DECREASE	0.0000
Pennsylvania	0.8973	0.8592	-4%	DECREASE	0.0000
Puerto Rico	0.6402	0.8055	26%	INCREASE	0.0000
Rhode Island	0.9011	0.9013	0%	NO CHANGE	0.9777
South Carolina	0.9092	0.8297	-9%	DECREASE	0.0000
South Dakota	1.0759	1.0755	0%	NO CHANGE	0.9458
Tennessee	1.0864	1.0234	-6%	DECREASE	0.0000
Texas	1.0244	0.9688	-5%	DECREASE	0.0000
Utah	0.9252	0.9089	-2%	DECREASE	0.0000
Virginia	0.9931	0.9252	-7%	DECREASE	0.0000
Virgin Islands	.	.	.	.	.
Vermont	0.7848	0.8012	2%	INCREASE	0.0168
Washington	1.1573	1.1299	-2%	DECREASE	0.0000
Wisconsin	1.1374	1.0359	-9%	DECREASE	0.0000
West Virginia	1.0346	1.0189	-2%	DECREASE	0.0000
Wyoming	0.9866	0.8816	-11%	DECREASE	0.0000
<b>All US</b>	<b>0.9711</b>	<b>0.9322</b>	<b>-4%</b>	<b>DECREASE</b>	<b>0.0000</b>

\* Statistically significant, p < 0.0500

1. Data from all ICUs, wards (and other non-critical care locations), and NICUs.

2. States without SUR either in 2016 and/or 2017 and therefore subsequent data not calculated

**Table 6. Changes in state-specific standardized utilization ratios (SURs) between 2016 and 2017 from NHSN Acute Care Hospitals**  
**6b. Urinary catheter days (UCDs), all locations<sup>1</sup>**

	All Acute Care Hospitals Reporting to NHSN				
	2016 SUR	2017 SUR	Percent Change	Direction of Change, Based on Statistical Significance	p-value
Alaska	0.8415	0.7694	-9%	DECREASE	0.0000
Alabama	0.9876	0.9450	-4%	DECREASE	0.0000
Arkansas	1.1036	1.0771	-2%	DECREASE	0.0000
Arizona	0.9218	0.8858	-4%	DECREASE	0.0000
California	1.0550	0.9825	-7%	DECREASE	0.0000
Colorado	0.9924	0.9748	-2%	DECREASE	0.0000
Connecticut	0.8658	0.8350	-4%	DECREASE	0.0000
D.C	0.8322	0.8258	1%	NO CHANGE	0.0897
Delaware	0.6181	0.5973	-3%	DECREASE	0.0000
Florida	0.8708	0.8299	-5%	DECREASE	0.0000
Georgia	0.9653	0.8935	-7%	DECREASE	0.0000
Guam	.	.	.	.	.
Hawaii	0.5821	0.7760	33%	INCREASE	0.0000
Iowa	0.9488	0.9515	0%	NO CHANGE	0.3678
Idaho	1.1482	1.0430	-9%	DECREASE	0.0000
Illinois	0.8847	0.8404	-5%	DECREASE	0.0000
Indiana	0.8895	0.8569	-4%	DECREASE	0.0000
Kansas	0.8649	0.8563	-1%	DECREASE	0.0015
Kentucky	0.9681	0.9009	-7%	DECREASE	0.0000
Louisiana	1.1699	1.1242	-4%	DECREASE	0.0000
Massachusetts	0.9329	0.8961	-4%	DECREASE	0.0000
Maryland	0.8334	0.7703	-8%	DECREASE	0.0000
Maine	0.7631	0.7355	-4%	DECREASE	0.0000
Michigan	0.9035	0.8736	-3%	DECREASE	0.0000
Minnesota	0.9287	0.9305	0%	NO CHANGE	0.4505
Missouri	0.9695	0.9487	-2%	DECREASE	0.0000
Mississippi	1.0642	1.0037	-6%	DECREASE	0.0000
Montana	0.8268	0.8486	3%	INCREASE	0.0000
North Carolina	0.9836	0.9471	-4%	DECREASE	0.0000
North Dakota	1.1234	1.1230	0%	NO CHANGE	0.9502
Nebraska	0.9557	0.8872	-7%	DECREASE	0.0000
New Hampshire	1.1225	1.0193	-9%	DECREASE	0.0000
New Jersey	0.7970	0.7657	-4%	DECREASE	0.0000
New Mexico	1.0131	0.9691	-4%	DECREASE	0.0000
Nevada	1.0063	0.9870	-2%	DECREASE	0.0000
New York	0.8687	0.8151	-6%	DECREASE	0.0000
Ohio	0.9789	0.9666	-1%	DECREASE	0.0000
Oklahoma	1.1307	1.0849	-4%	DECREASE	0.0000
Oregon	0.9413	0.8902	-5%	DECREASE	0.0000
Pennsylvania	0.8939	0.8624	-4%	DECREASE	0.0000
Puerto Rico	0.9874	1.0976	11%	INCREASE	0.0000
Rhode Island	0.7588	0.7160	-6%	DECREASE	0.0000
South Carolina	0.8660	0.8275	-4%	DECREASE	0.0000
South Dakota	1.0716	0.9982	-7%	DECREASE	0.0000
Tennessee	1.0135	0.9186	-9%	DECREASE	0.0000
Texas	0.9460	0.8917	-6%	DECREASE	0.0000
Utah	1.0417	0.9618	-8%	DECREASE	0.0000
Virginia	0.9032	0.8498	-6%	DECREASE	0.0000
Virgin Islands	.	.	.	.	.
Vermont	0.9345	0.9300	0%	NO CHANGE	0.5127
Washington	0.9340	0.9271	-1%	DECREASE	0.0003
Wisconsin	0.9506	0.9019	-5%	DECREASE	0.0000
West Virginia	1.0584	1.0469	-1%	DECREASE	0.0002
Wyoming	1.0239	0.8741	-15%	DECREASE	0.0000
<b>All US</b>	<b>0.9415</b>	<b>0.8994</b>	<b>-4%</b>	<b>DECREASE</b>	<b>0.0000</b>

\* Statistically significant, p < 0.0500

1. Data from all ICUs, wards (and other non-critical care locations).
2. States without SUR either in 2016 and/or 2017 and therefore subsequent data not calculated

**Table 6. Changes in state-specific standardized utilization ratios (SURs) between 2016 and 2017 from NHSN Acute Care Hospitals**  
**6c. Ventilator days (VDs), all locations<sup>1</sup>**

	All Acute Care Hospitals Reporting to NHSN				
	2016 SUR	2017 SUR	Percent Change	Direction of Change, Based on Statistical Significance	p-value
Alaska	1.7144	1.0913	-36%	DECREASE	0.0000
Alabama	0.9861	0.9757	-1%	DECREASE	0.0361
Arkansas	0.8680	0.8729	1%	NO CHANGE	0.5047
Arizona	1.0993	1.0395	-5%	DECREASE	0.0000
California	1.1712	1.1306	-3%	DECREASE	0.0000
Colorado	0.9516	0.9107	-4%	DECREASE	0.0000
Connecticut	1.1610	1.1209	-3%	DECREASE	0.0000
D.C.	.	.	.	.	.
Delaware	.	.	.	.	.
Florida	0.9062	0.9318	3%	INCREASE	0.0000
Georgia	1.1099	1.1317	2%	INCREASE	0.0000
Guam	.	.	.	.	.
Hawaii	1.3612	1.0469	-23%	DECREASE	0.0000
Iowa	0.9789	0.8758	-11%	DECREASE	0.0000
Idaho	0.9761	0.9408	-4%	DECREASE	0.0114
Illinois	0.8110	0.8657	7%	INCREASE	0.0000
Indiana	1.0788	0.9656	-10%	DECREASE	0.0000
Kansas	0.6588	0.6412	-3%	DECREASE	0.0022
Kentucky	0.8532	0.8787	3%	INCREASE	0.0000
Louisiana	0.9130	0.8350	-9%	DECREASE	0.0000
Massachusetts	0.9992	0.9166	-8%	DECREASE	0.0000
Maryland	0.9837	1.1168	14%	INCREASE	0.0000
Maine	0.9500	0.8303	-13%	DECREASE	0.0000
Michigan	1.0875	1.0684	-2%	DECREASE	0.0000
Minnesota	1.3097	1.1930	-9%	DECREASE	0.0000
Missouri	0.9653	0.9638	0%	NO CHANGE	0.7559
Mississippi	0.9345	0.9551	2%	INCREASE	0.0172
Montana	.	.	.	.	.
North Carolina	0.9936	0.9829	-1%	DECREASE	0.0419
North Dakota	.	.	.	.	.
Nebraska	1.2291	1.1017	-10%	DECREASE	0.0000
New Hampshire	1.1552	1.1484	1%	NO CHANGE	0.7083
New Jersey	0.9801	1.0745	10%	INCREASE	0.0000
New Mexico	0.9635	1.0740	11%	INCREASE	0.0000
Nevada	1.1016	1.0975	0%	NO CHANGE	0.4652
New York	1.1633	1.1061	-5%	DECREASE	0.0000
Ohio	0.8748	0.8719	0%	NO CHANGE	0.3367
Oklahoma	1.0227	0.9435	-8%	DECREASE	0.0000
Oregon	0.8305	0.8102	-2%	DECREASE	0.0052
Pennsylvania	0.9759	0.9335	-4%	DECREASE	0.0000
Puerto Rico	0.7348	1.0035	37%	INCREASE	0.0000
Rhode Island	0.9058	0.8440	-7%	DECREASE	0.0000
South Carolina	0.9669	0.9408	-3%	DECREASE	0.0000
South Dakota	0.9766	1.0828	11%	INCREASE	0.0000
Tennessee	0.8581	0.7991	-7%	DECREASE	0.0000
Texas	0.9172	0.8627	-6%	DECREASE	0.0000
Utah	0.9012	0.7017	-22%	DECREASE	0.0000
Virginia	0.8796	0.8520	-3%	DECREASE	0.0000
Virgin Islands	.	.	.	.	.
Vermont	.	.	.	.	.
Washington	0.9804	0.9465	-3%	DECREASE	0.0000
Wisconsin	0.9524	0.8833	-7%	DECREASE	0.0000
West Virginia	0.9439	0.7358	-22%	DECREASE	0.0000
Wyoming	0.9800	1.0543	8%	NO CHANGE	0.0627
<b>All US</b>	<b>0.9962</b>	<b>0.9706</b>	<b>-3%</b>	<b>DECREASE</b>	<b>0.0000</b>

\* Statistically significant, p < 0.0500

1. Data from all ICUs, wards (and other non-critical care locations).

2. States without SUR either in 2016 and/or 2017 and therefore subsequent data not calculated

Appendix A. Factors used in NHSN risk adjusted standard utilization ratios (SUR) calculation of the device utilization in Acute Care Hospitals (ACHs).

Device Type	Validated Parameters for Risk Model
CLDs (non-NICU)	Intercept Location type Facility bed size* Facility type* Medical school type*
CLDs (NICU)	Intercept Birthweight type size* type* school type*  Location Facility bed Facility Medical
UCDs	Intercept Location type Facility bed size* Facility type* Medical school type*
VDs	Intercept type size* type* school type*  Location Facility bed Facility Medical

\* Facility bed size, facility type and medical school type are taken from the Annual Hospital Survey

Additional Resources

**Technical Appendix:** <http://www.cdc.gov/hai/pdfs/progress-report/tech-appendix.pdf>

*Explains the methodology used to procedure the HAI Progress Report.*

**HAI Progress Report Home Page:** <http://www.cdc.gov/hai/progress-report/index.html>

*The complete HAI Progress Report, including state-specific fact sheets and the Executive Summary, can be found*

The new SUR Guide:<https://www.cdc.gov/nhsn/pdfs/ps-analysis-resources/nhsn-sur-guide-508.pdf>



*at the above website.*