

# 2016 Nat

**Introduction:** Welcome to the 2016 National and State HAI Progress Report using the new 2015 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

---

# National and State HAI Progress Report

## Standardized Utilization Ratios

---

<h3>Acute Care Hospitals</h3>
-------------------------------

---

baseline and risk adjustment calculations. Standardized utilization ratios (SURs) are used to describe discharge days. This measure is newly introduced under the 2015 baseline. (HSN).

ACH	
National	State
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

]

evice 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 standardize 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 (2016) in sync with rebaseline work, CDC has developed multivariable logistic regression models (see “Extra-binomial Variation in Logistic Linear Models,” Applied Statistics, 31, 144–148.). Unit of analysis in all the models is the patient.

### **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.

$Logit\ p_{hat} = intercept + x_1 + X_2 + X_3 + \dots$

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

2: Then, compute the probability of device use

$p_{hat} = \frac{e^{logit(p_{hat})}}{1 + e^{logit(p_{hat})}}$

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

$SUR = \frac{Observed\ Device\ Days}{Predicted\ Device\ Days}$

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.

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

They were available for the healthcare setting of acute care hospitals (ACH), critical access hospitals (CAH), and long-term care facilities (LTCF).

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

and device days;

relative to the number of predicted device days.

are setting/location needs to be  
refer days) at various healthcare settings.

4),

**2016 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, 2016 compared to 2015**  
Central Line Days (CLDs)  
Urinary Catheter Days (UCDs)  
Ventilator days (VDs)

**Table 6**                    **Changes in state SURs, 2016 compared to 2015**  
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)

1sn-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>	3,668	27,007,769
<b>ICUs<sup>5</sup></b>	3,139	9,200,804
<b>Wards<sup>6</sup></b>	3,617	16,391,381
<b>NICUs<sup>7</sup></b>	1,023	1,415,584
<b>Urinary catheter days, all<sup>8</sup></b>	3,695	26,783,956
	3,135	10,692,640
<b>Wards<sup>6</sup></b>	3,649	16,091,316
<b>Ventilator days, all<sup>8</sup></b>	2,008	3,645,249
	1,940	3,450,111
	430	195,138

1. The number of reporting facilities included in the SUR calculation. This may be different from
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
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>
27,812,327.6296	0.9711	0.9707	0.9715	3,662	1,398	38%
9,182,335.6611	1.0020	1.0014	1.0027	3,133	1,246	40%
17,149,934.4436	0.9558	0.9553	0.9562	3,611	1,411	39%
1,480,057.5249	0.9564	0.9548	0.9580	1,023	304	30%
28,447,528.7944	0.9415	0.9411	0.9419	3,692	1,706	46%
10,780,506.1906	0.9918	0.9913	0.9924	3,134	1,295	41%
17,667,022.6038	0.9108	0.9103	0.9113	3,646	1,757	48%
3,659,131.5081	0.9962	0.9952	0.9972	1,983	726	37%
3,461,372.0441	0.9967	0.9957	0.9978	1,932	729	38%
197,759.4639	0.9867	0.9824	0.9911	382	104	27%

those reported in the SIR tables due to exclusion and inclusion criteria. Refer to the technical appendix for more information on how these values were calculated. These values are reported for facilities with a predicted number of device days greater than or less than the nominal value of the national SUR. This is only calculated if at least 10 facilities have reported a predicted number of device days in 2016. 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 2016 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		5%	10%	15%	20%	25%	30%	35%
N								
1,965	54%	0.0913	0.3407	0.4946	0.5749	0.6405	0.6957	0.7514
1,501	48%	0.2784	0.4141	0.5259	0.6305	0.7004	0.7665	0.8144
1,860	52%	0.0864	0.3108	0.4588	0.5443	0.6156	0.6741	0.7277
613	60%	0.0962	0.2355	0.3325	0.4147	0.4920	0.5420	0.6027
1,642	44%	0.4396	0.5817	0.6537	0.7147	0.7564	0.8017	0.8384
1,362	43%	0.4799	0.5997	0.6859	0.7494	0.8041	0.8453	0.8882
1,533	42%	0.4035	0.5270	0.6030	0.6647	0.7109	0.7572	0.8003
1,020	51%	0.1293	0.3199	0.4524	0.5408	0.6146	0.6814	0.7438
964	50%	0.1979	0.3743	0.4874	0.5745	0.6425	0.7121	0.7715
237	62%	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0642

for details.

and ≥ 1.0 predicted device days in 2016.

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

included.

is are excluded.

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

ACHs are excluded.

ind patient population:

---

---

**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>
0.7979	0.8425	0.8907	0.9384	0.9857	1.0430	1.1007	1.1639	1.2496	1.3447
0.8695	0.9117	0.9607	1.0079	1.0505	1.0996	1.1433	1.1954	1.2587	1.3374
0.7834	0.8281	0.8876	0.9411	0.9956	1.0625	1.1317	1.2171	1.3202	1.4468
0.6458	0.7029	0.7582	0.8134	0.8950	0.9461	1.0194	1.1070	1.2155	1.3217
0.8741	0.9110	0.9477	0.9862	1.0210	1.0597	1.1083	1.1550	1.2206	1.3163
0.9204	0.9533	0.9835	1.0202	1.0500	1.0750	1.1040	1.1411	1.1741	1.2154
0.8434	0.8951	0.9377	0.9848	1.0347	1.0852	1.1459	1.2125	1.3046	1.4270
0.8029	0.8576	0.9030	0.9632	1.0205	1.0786	1.1445	1.2193	1.2903	1.3938
0.8245	0.8806	0.9288	0.9837	1.0383	1.0928	1.1582	1.2257	1.2989	1.4017
0.1253	0.2077	0.3100	0.5140	0.6476	0.8210	1.0038	1.2231	1.5694	2.1310

---

---

---

<b>90%</b>	<b>95%</b>
1.5258	1.8373
1.4502	1.6640
1.6550	2.1171
1.4949	1.7349
1.4453	1.7507
1.2730	1.3515
1.5980	2.0060
1.5435	1.8502
1.5378	1.8273
3.2433	5.6497

**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	39,825	33,312.4900	1.1955	1.1838	
Alabama	82	511,388	539,379.6584	0.9481	0.9455	
Arkansas	49	307,539	298,979.7492	1.0286	1.0250	
Arizona	67	564,522	519,750.0255	1.0861	1.0833	
California	341	2,841,475	2,744,024.0022	1.0355	1.0343	
Colorado	54	334,249	331,461.7837	1.0084	1.0050	
Connecticut	32	242,725	278,776.1273	0.8707	0.8672	
D.C.	8	155,149	156,566.4476	0.9909	0.9860	
Delaware	8	90,542	105,591.4419	0.8575	0.8519	
Florida	204	2,136,486	2,311,846.4145	0.9241	0.9229	
Georgia	105	888,635	875,008.2501	1.0156	1.0134	
Guam	1					
Hawaii	16	114,705	124,021.1639	0.9249	0.9195	
Iowa	39	215,671	205,838.8452	1.0478	1.0433	
Idaho	15	81,974	77,831.5749	1.0532	1.0460	
Illinois	133	973,285	1,083,522.1609	0.8983	0.8965	
Indiana	88	598,675	547,413.7477	1.0936	1.0909	
Kansas	55	215,013	219,703.6603	0.9787	0.9745	
Kentucky	71	430,161	439,185.7271	0.9795	0.9765	
Louisiana	94	444,720	441,428.0346	1.0075	1.0045	
Massachusetts	69	581,415	633,721.7953	0.9175	0.9151	
Maryland	49	483,852	512,238.9087	0.9446	0.9419	
Maine	17	80,048	91,266.5948	0.8771	0.8710	
Michigan	95	688,811	827,694.5446	0.8322	0.8303	
Minnesota	53	338,486	322,993.1794	1.0480	1.0444	
Missouri	75	659,767	647,542.2924	1.0189	1.0164	
Mississippi	60	277,433	286,400.9517	0.9687	0.9651	
Montana	13	47,280	52,024.2057	0.9088	0.9006	
North Carolina	95	770,442	773,925.4232	0.9955	0.9933	
North Dakota	8	66,601	56,335.1391	1.1822	1.1733	
Nebraska	27	168,330	128,074.3386	1.3143	1.3080	
New Hampshire	13	79,470	74,598.1491	1.0653	1.0579	
New Jersey	71	669,391	790,941.3554	0.8463	0.8443	
New Mexico	35	129,785	129,230.3272	1.0043	0.9988	
Nevada	22	317,383	272,567.1582	1.1644	1.1603	
New York	178	1,722,025	2,120,734.1357	0.8120	0.8108	
Ohio	141	1,123,512	1,205,417.7392	0.9321	0.9303	
Oklahoma	86	423,681	311,810.0252	1.3588	1.3547	
Oregon	36	241,730	267,666.8581	0.9031	0.8995	
Pennsylvania	172	1,329,343	1,481,436.9731	0.8973	0.8958	
Puerto Rico	13	75,687	118,225.2542	0.6402	0.6356	
Rhode Island	11	76,132	84,483.7889	0.9011	0.8948	
South Carolina	63	438,468	482,231.8334	0.9092	0.9066	

South Dakota	22	64,765	60,195.5316	1.0759	1.0677
Tennessee	107	760,211	699,732.2312	1.0864	1.0840
Texas	366	2,269,782	2,215,733.0998	1.0244	1.0231
Utah	35	129,231	139,683.9503	0.9252	0.9201
Virginia	83	612,957	617,238.9507	0.9931	0.9906
Virgin Island	2				
Vermont	6	26,850	34,213.4774	0.7848	0.7755
Washington	58	529,957	457,919.8832	1.1573	1.1542
Wisconsin	74	414,493	364,406.0121	1.1374	1.1340
West Virginia	30	203,076	196,283.1961	1.0346	1.0301
Wyoming	11	16,806	17,034.7113	0.9866	0.9717
<b>All US</b>	<b>3,668</b>	<b>27,007,769</b>	<b>27,812,327.6296</b>	<b>0.9711</b>	<b>0.9707</b>

1. The number of reporting facilities included in the SUR calculation. This may be different from those reported.
2. Percent of facilities with at least one predicted device day that had an SUR significantly greater than or less than expected.
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, wards (and other non-critical care locations), and NICUs. Data contained in this table are for all reporting facilities.

/ SURs using device days data reported to NHSN during 2016 for acute care hospitals (ACHs), by device days, 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	
			Significantly > National SUR	Significantly < National SUR		
		N	N			
1.2073	10	7	70%	3	30%	
0.9507	81	18	22%	54	67%	0.1006
1.0322	49	20	41%	26	53%	0.1844
1.0890	67	35	52%	28	42%	0.5692
1.0367	341	170	50%	136	40%	0.5655
1.0118	53	24	45%	23	43%	0.1898
0.8742	32	9	28%	21	66%	0.5246
0.9959	8					
0.8631	8					
0.9254	204	83	41%	105	51%	0.5412
1.0177	105	52	50%	47	45%	0.3656
0.9302	16	13	81%	3	19%	
1.0522	39	18	46%	21	54%	0.4235
1.0604	14	4	29%	7	50%	
0.9000	133	43	32%	78	59%	0.4963
1.0964	88	45	51%	33	38%	0.4361
0.9828	55	19	35%	33	60%	0.0390
0.9824	71	26	37%	39	55%	0.4393
1.0104	93	38	41%	48	52%	0.1303
0.9198	69	14	20%	49	71%	0.3814
0.9473	49	22	45%	23	47%	0.6171
0.8832	17	5	29%	11	65%	
0.8342	95	17	18%	74	78%	0.3693
1.0515	53	13	25%	32	60%	0.2555
1.0213	75	29	39%	40	53%	0.3380
0.9723	60	19	32%	40	67%	0.0452
0.9170	13	7	54%	5	38%	
0.9977	95	36	38%	54	57%	0.4382
1.1913	8					
1.3206	27	21	78%	4	15%	0.5006
1.0727	13	5	38%	8	62%	
0.8484	71	20	28%	46	65%	0.5290
1.0097	34	8	24%	18	53%	0.0546
1.1684	22	15	68%	6	27%	0.7391
0.8132	178	38	21%	130	73%	0.3890
0.9338	141	44	31%	79	56%	0.3930
1.3629	85	42	49%	35	41%	0.0138
0.9067	36	11	31%	19	53%	0.6561
0.8988	172	39	23%	123	72%	0.2972
0.6448	13	4	31%	9	69%	
0.9076	11	5	45%	5	45%	
0.9119	63	16	25%	43	68%	0.2912



1.0842	22	6	27%	14	64%	0.0000
1.0889	107	37	35%	61	57%	0.2622
1.0257	366	161	44%	177	48%	0.0000
0.9302	35	11	31%	20	57%	0.3738
0.9955	83	30	36%	46	55%	0.4129
0.7942	6					
1.1605	58	33	57%	18	31%	0.5639
1.1409	74	42	57%	26	35%	0.4980
1.0391	30	8	27%	20	67%	0.5167
1.0016	11	3	27%	6	55%	
<b>0.9715</b>	<b>3,662</b>	<b>1,398</b>	<b>38%</b>	<b>1,965</b>	<b>54%</b>	<b>0.3407</b>

rted in the SIR tables due to exclusion and inclusion criteria. Refer to the technical appendix for details.  
 ess than the nominal value of the national SUR. This is only calculated if at least 10 facilities had  $\geq 1.0$  pred  
 e days in 2016. If a facility's predicted number of device days was  $< 1.0$ , a facility-specific SUR was neither c  
 are 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>
0.5033	0.7723	0.9961	1.1392
0.4808	0.8466	1.1745	1.3603
0.7879	1.0147	1.3152	1.4872
0.7771	0.9985	1.2416	1.6170
0.6566	0.9436	1.1976	1.4630
0.7239	0.8124	1.0493	1.6205
0.7386	0.9346	1.1374	1.3137
0.7585	0.9986	1.2984	1.5951
0.7470	0.8897	1.2496	1.7672
0.6691	0.8675	1.0235	1.3178
0.7470	1.0148	1.3415	1.7763
0.4025	0.8099	1.2214	1.7587
0.6405	0.8506	1.2009	1.4204
0.6385	0.8711	1.1722	1.5305
0.6109	0.7709	0.9520	1.2048
0.7588	0.9464	1.2578	1.5278
0.5135	0.6528	0.8710	1.1142
0.5256	0.6975	1.0330	1.3060
0.6865	0.8844	1.1719	1.5321
0.3567	0.6884	1.0813	1.5437
0.6955	0.9083	1.1317	1.4714
1.0620	1.4596	1.7323	2.4845
0.6443	0.8406	1.0812	1.2934
0.4866	0.7744	0.9989	1.5444
0.9480	1.2354	1.5844	2.5391
0.5508	0.7192	0.9663	1.3148
0.6238	0.8486	1.0933	1.2745
0.5066	1.0608	1.5326	2.2293
0.7537	0.9018	1.1005	1.2937
0.5569	0.7676	0.9700	1.3048
0.5954	0.7649	1.0842	1.2182

0.0458	0.7513	1.1276	2.3219
0.6416	0.9042	1.1489	1.6609
0.5760	0.9246	1.2579	1.7864
0.5962	0.7429	1.1716	1.3370
0.6655	0.8898	1.1356	1.4119
.	.	.	.
0.8580	1.0974	1.3777	1.8415
0.7937	1.0780	1.3566	1.6440
0.6699	0.7915	1.0687	1.2822
.	.	.	.
<b>0.6405</b>	<b>0.8907</b>	<b>1.1639</b>	<b>1.5258</b>

lected device days in 2016.

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	8,688	10,232.6742	0.8490	0.8313
Alabama	68	186,527	204,574.9020	0.9118	0.9076
Arkansas	43	103,573	105,198.6415	0.9845	0.9785
Arizona	53	193,161	175,732.6214	1.0992	1.0943
California	312	933,956	844,487.4249	1.1059	1.1037
Colorado	45	106,557	108,980.0428	0.9778	0.9719
Connecticut	28	76,415	79,469.4158	0.9616	0.9548
D.C.	8	48,623	50,637.6551	0.9602	0.9517
Delaware	8	28,939	27,962.7513	1.0349	1.0230
Florida	195	755,404	775,503.0237	0.9741	0.9719
Georgia	93	313,428	299,226.2429	1.0475	1.0438
Guam	1				
Hawaii	15	35,744	50,631.4536	0.7060	0.6987
Iowa	34	61,742	59,115.7622	1.0444	1.0362
Idaho	10	26,550	25,755.4117	1.0309	1.0185
Illinois	127	321,297	360,572.5836	0.8911	0.8880
Indiana	71	210,889	195,275.4251	1.0800	1.0753
Kansas	37	68,244	79,841.3513	0.8547	0.8483
Kentucky	65	171,257	175,027.2496	0.9785	0.9738
Louisiana	67	156,520	153,112.3497	1.0223	1.0172
Massachusetts	63	188,414	179,365.4131	1.0504	1.0457
Maryland	46	148,423	161,373.8067	0.9197	0.9151
Maine	14	22,857	25,359.1578	0.9013	0.8897
Michigan	87	284,254	294,838.2513	0.9641	0.9606
Minnesota	42	111,012	100,824.5128	1.1010	1.0946
Missouri	71	209,946	205,662.8695	1.0208	1.0164
Mississippi	44	91,221	98,418.3877	0.9269	0.9209
Montana	10	14,377	14,912.4499	0.9641	0.9484
North Carolina	86	273,988	262,400.8855	1.0442	1.0402
North Dakota	5	21,823	15,882.4125	1.3740	1.3559
Nebraska	20	47,008	39,505.6092	1.1899	1.1792
New Hampshire	13	24,379	22,529.2212	1.0821	1.0686
New Jersey	71	223,411	254,989.0481	0.8762	0.8725
New Mexico	29	49,752	46,676.7403	1.0659	1.0565
Nevada	19	121,133	106,208.5919	1.1405	1.1341
New York	163	527,036	587,516.3360	0.8971	0.8946
Ohio	125	418,779	415,414.9235	1.0081	1.0051
Oklahoma	52	145,926	112,961.5831	1.2918	1.2852
Oregon	33	74,801	79,735.4654	0.9381	0.9314
Pennsylvania	147	463,996	470,811.0726	0.9855	0.9827

Puerto Rico	13	24,061	35,818.4081	0.6717	0.6633
Rhode Island	10	22,440	20,790.2366	1.0794	1.0653
South Carolina	56	138,600	152,656.1084	0.9079	0.9031
South Dakota	11	13,572	13,114.0918	1.0349	1.0176
Tennessee	87	266,292	262,279.4125	1.0153	1.0114
Texas	267	839,481	804,612.7687	1.0433	1.0411
Utah	28	51,614	54,089.9735	0.9542	0.9460
Virginia	79	200,492	205,844.0765	0.9740	0.9698
Virgin Island	2				
Vermont	5	7,258	12,238.5234	0.5930	0.5795
Washington	50	151,278	137,427.6380	1.1008	1.0953
Wisconsin	66	136,876	126,200.2884	1.0846	1.0789
West Virginia	29	72,111	73,955.1254	0.9751	0.9680
Wyoming	9	4,350	4,718.0622	0.9220	0.8949
<b>All US</b>	<b>3,139</b>	<b>9,200,804</b>	<b>9,182,335.6611</b>	<b>1.0020</b>	<b>1.0014</b>

1. The number of reporting facilities included in the SUR calculation. This may be different from those reported.
2. Percent of facilities with at least one predicted device day that had an SUR significantly greater than or equal to 1.0.
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; excludes wards (and other non-critical care locations), and NICUs. Data contained in this table are for facilities that reported data.

by SURs using device days data reported to NHSN during 2016 for acute care hospitals (ACHs), by device critical care locations<sup>4</sup>

for SUR	Facility-specific SURs						10%
	Upper	No. Facilities with ≥1	No. Facilities with SUR		No. Facilities with SUR		
		Predicted Device Days	Significantly > National SUR	Significantly < National SUR	Significantly > National SUR	Significantly < National SUR	
		N	N	N	N		
0.8670	7						
0.9159	68	15	22%	49	72%	0.1604	
0.9906	43	14	33%	23	53%	0.1281	
1.1041	53	30	57%	17	32%	0.7367	
1.1082	312	184	59%	89	29%	0.7318	
0.9837	45	21	47%	15	33%	0.4046	
0.9684	28	9	32%	17	61%	0.5216	
0.9688	8						
1.0469	8						
0.9763	195	76	39%	90	46%	0.5983	
1.0511	93	41	44%	38	41%	0.4492	
0.7133	15	10	67%	4	27%		
1.0527	34	9	26%	20	59%	0.3638	
1.0433	10	5	50%	2	20%		
0.8942	126	33	26%	75	60%	0.4637	
1.0846	71	35	49%	26	37%	0.4423	
0.8612	37	11	30%	20	54%	0.3193	
0.9831	65	18	28%	39	60%	0.2694	
1.0274	66	28	42%	26	39%	0.5058	
1.0552	63	23	37%	33	52%	0.6015	
0.9245	46	18	39%	22	48%	0.5998	
0.9131	14	4	29%	10	71%		
0.9677	87	25	29%	51	59%	0.3086	
1.1076	42	16	38%	24	57%	0.2053	
1.0252	71	32	45%	30	42%	0.4090	
0.9329	44	13	30%	28	64%	0.2889	
0.9800	10	5	50%	5	50%		
1.0481	86	32	37%	47	55%	0.3498	
1.3924	5						
1.2007	20	13	65%	5	25%	0.8483	
1.0957	13	6	46%	5	38%		
0.8798	71	28	39%	36	51%	0.5618	
1.0753	29	11	38%	16	55%	0.1442	
1.1470	19	13	68%	3	16%		
0.8995	163	42	26%	104	64%	0.4841	
1.0112	125	47	38%	65	52%	0.4247	
1.2984	52	26	50%	22	42%	0.3062	
0.9449	33	9	27%	18	55%	0.7018	
0.9884	147	44	30%	82	56%	0.3676	

0.6803	13	3	23%	9	69%	
1.0936	10	4	40%	3	30%	
0.9127	56	15	27%	36	64%	0.3141
1.0524	11	3	27%	6	55%	
1.0192	87	27	31%	49	56%	0.3950
1.0456	264	133	50%	96	36%	0.4629
0.9625	28	10	36%	16	57%	0.3978
0.9783	79	22	28%	45	57%	0.2884
0.6068	5					
1.1063	50	26	52%	19	38%	0.7233
1.0903	66	32	48%	23	35%	0.4406
0.9822	29	9	31%	19	66%	0.2673
0.9497	8					
<b>1.0027</b>	<b>3,133</b>	<b>1,246</b>	<b>40%</b>	<b>1,501</b>	<b>48%</b>	<b>0.4141</b>

orted in the SIR tables due to exclusion and inclusion criteria. Refer to the technical appendix for details.  
less than the nominal value of the national SUR. This is only calculated if at least 10 facilities had  $\geq 1.0$  pre  
ce days in 2016. If a facility's predicted number of device days was  $<1.0$ , a facility-specific SUR was neither  
n this table are reported from acute care hospitals; as such, data from CAHs, IRFs and LTACHs are excluc

service type and patient population:

<b>Median</b>			
<b>25%</b>	<b>50%</b>	<b>75%</b>	<b>90%</b>
0.4611	0.7372	0.9639	1.1915
0.4386	0.8073	1.0848	1.3035
0.8976	1.0957	1.3741	1.5480
0.9055	1.1311	1.3307	1.6690
0.7123	1.0098	1.2191	1.4452
0.7561	0.9166	1.1141	1.6015
0.7696	0.9880	1.1769	1.3804
0.7523	1.0137	1.2465	1.4031
0.5317	0.8342	1.1084	1.3484
0.7033	0.8675	1.0644	1.2827
0.7698	1.0251	1.2995	1.5091
0.6367	0.8878	1.1816	1.7167
0.4633	0.8144	1.0573	1.2969
0.7341	0.9786	1.1679	1.2993
0.7637	0.9244	1.2076	1.3492
0.8106	0.9681	1.1580	1.5137
0.6261	0.8690	1.0460	1.2635
0.3524	0.8059	1.1435	1.2581
0.7445	0.9862	1.2426	1.4417
0.5233	0.7784	1.1465	1.3937
0.6651	0.8839	1.1596	1.4953
0.9130	1.0994	1.5072	1.8795
0.7217	0.9430	1.1214	1.3135
0.4345	0.7726	1.1219	1.8055
0.6488	0.8217	1.0707	1.2028
0.7299	0.9286	1.1626	1.3301
0.6894	1.0692	1.4994	1.7215
0.8262	0.9332	1.0873	1.3416
0.5879	0.8842	1.1323	1.3250



0.4595	0.7520	1.1193	1.1948
0.5893	0.9055	1.1754	1.4219
0.7358	1.0566	1.3069	1.6571
0.5961	0.8700	1.3631	1.7394
0.6560	0.8974	1.0630	1.3684
0.8716	1.0729	1.2877	1.7265
0.6723	1.0628	1.2542	1.6259
0.6160	0.8132	1.0889	1.3415
<b>0.7004</b>	<b>0.9607</b>	<b>1.1954</b>	<b>1.4502</b>

redicted device days in 2016.

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	28,062	20,213.1896	1.3883	1.3721
Alabama	79	290,962	301,577.1172	0.9648	0.9613
Arkansas	49	179,922	175,200.1799	1.0270	1.0222
Arizona	67	346,934	319,528.3250	1.0858	1.0822
California	341	1,752,197	1,753,708.5280	0.9991	0.9976
Colorado	51	208,723	199,363.6460	1.0469	1.0425
Connecticut	32	155,456	185,663.8320	0.8373	0.8331
D.C.	8	94,271	95,375.1882	0.9884	0.9821
Delaware	8	56,128	70,866.0093	0.7920	0.7855
Florida	199	1,291,999	1,442,940.2244	0.8954	0.8938
Georgia	103	520,755	519,889.5081	1.0017	0.9989
Guam	0	.	.	.	.
Hawaii	16	68,161	65,344.6952	1.0431	1.0353
Iowa	39	139,086	133,613.4716	1.0410	1.0355
Idaho	15	50,558	46,923.8896	1.0774	1.0681
Illinois	131	595,030	665,134.0992	0.8946	0.8923
Indiana	86	362,901	320,542.1420	1.1321	1.1285
Kansas	55	139,363	128,250.8384	1.0866	1.0809
Kentucky	70	241,209	241,372.3898	0.9993	0.9953
Louisiana	92	258,948	257,948.1913	1.0039	1.0000
Massachusetts	69	376,612	432,581.5559	0.8706	0.8678
Maryland	49	315,379	328,321.3364	0.9606	0.9572
Maine	16	54,383	62,881.9973	0.8648	0.8576
Michigan	94	361,149	489,187.1120	0.7383	0.7359
Minnesota	52	216,256	211,509.1479	1.0224	1.0181
Missouri	74	409,349	396,076.0927	1.0335	1.0303
Mississippi	60	171,857	173,368.8681	0.9913	0.9866
Montana	13	29,811	34,321.2842	0.8686	0.8588
North Carolina	95	453,017	467,881.7769	0.9682	0.9654
North Dakota	8	38,993	36,030.9316	1.0822	1.0715
Nebraska	26	117,515	80,860.1439	1.4533	1.4451
New Hampshire	13	52,989	49,556.6665	1.0693	1.0602
New Jersey	70	421,110	504,276.6989	0.8351	0.8326
New Mexico	35	72,497	77,531.0238	0.9351	0.9283
Nevada	22	175,421	151,678.9704	1.1565	1.1511
New York	176	1,114,516	1,446,184.8990	0.7707	0.7692
Ohio	139	649,194	714,834.7969	0.9082	0.9060
Oklahoma	85	253,182	182,632.0505	1.3863	1.3809
Oregon	36	158,192	177,120.3202	0.8931	0.8888
Pennsylvania	172	810,838	945,107.8420	0.8579	0.8561
Puerto Rico	13	49,704	80,704.9277	0.6159	0.6105
Rhode Island	11	50,502	57,748.3743	0.8745	0.8669
South Carolina	63	279,943	309,092.8645	0.9057	0.9024

South Dakota	22	45,768	41,787.4017	1.0953	1.0853
Tennessee	105	452,067	393,607.3209	1.1485	1.1452
Texas	352	1,266,175	1,248,557.0761	1.0141	1.0123
Utah	35	59,821	67,736.8317	0.8831	0.8761
Virginia	82	379,427	376,909.4640	1.0067	1.0035
Virgin Island	2	.	.	.	.
Vermont	6	18,418	20,954.8810	0.8789	0.8663
Washington	58	359,764	300,151.3299	1.1986	1.1947
Wisconsin	73	258,320	217,601.3727	1.1871	1.1825
West Virginia	29	124,721	114,690.8812	1.0875	1.0814
Wyoming	11	12,456	12,316.6491	1.0113	0.9937
<b>All US</b>	<b>3,617</b>	<b>16,391,381</b>	<b>17,149,934.4436</b>	<b>0.9558</b>	<b>0.9553</b>

1. The number of reporting facilities included in the SUR calculation. This may be different from those reported.
2. Percent of facilities with at least one predicted device day that had an SUR significantly greater than or less than the expected value.
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 [inpatient]).

**SURs using device days data reported to NHSN during 2016 for acute care hospitals (ACHs), by dev (CLDs), wards<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	Significantly < National SUR	Significantly > National SUR	Significantly < National SUR	
		N	N				
1.4046	10	8	80%	2	20%	.	
0.9683	78	20	26%	48	62%	0.1175	
1.0317	49	18	37%	26	53%	0.1901	
1.0894	67	33	49%	29	43%	0.5326	
1.0006	341	160	47%	150	44%	0.4791	
1.0515	50	20	40%	23	46%	0.1984	
0.8415	32	9	28%	22	69%	0.5894	
0.9948	8	.	.	.	.	.	
0.7986	8	.	.	.	.	.	
0.8970	199	79	40%	99	50%	0.4707	
1.0044	103	51	50%	43	42%	0.3784	
.	.	.	.	.	.	.	
1.0509	16	13	81%	3	19%	.	
1.0464	39	19	49%	15	38%	0.5569	
1.0869	14	5	36%	7	50%	.	
0.8969	131	48	37%	69	53%	0.4815	
1.1359	86	45	52%	34	40%	0.4297	
1.0923	55	26	47%	25	45%	0.0390	
1.0033	70	30	43%	32	46%	0.4753	
1.0078	91	41	45%	43	47%	0.1382	
0.8734	69	11	16%	52	75%	0.2530	
0.9640	49	24	49%	21	43%	0.5263	
0.8721	16	5	31%	9	56%	.	
0.7407	94	11	12%	75	80%	0.3488	
1.0267	52	13	25%	32	62%	0.2837	
1.0367	74	28	38%	36	49%	0.4290	
0.9960	60	20	33%	37	62%	0.0452	
0.8785	13	6	46%	4	31%	.	
0.9710	95	41	43%	43	45%	0.4478	
1.0930	8	.	.	.	.	.	
1.4616	26	20	77%	4	15%	0.1504	
1.0784	13	6	46%	7	54%	.	
0.8376	70	21	30%	44	63%	0.4861	
0.9419	34	10	29%	20	59%	0.0546	
1.1619	22	17	77%	5	23%	0.7471	
0.7721	176	37	21%	124	70%	0.2977	
0.9104	139	43	31%	77	55%	0.3087	
1.3917	84	45	54%	32	38%	0.0138	
0.8975	36	13	36%	19	53%	0.5429	
0.8598	172	42	24%	121	70%	0.2634	
0.6213	13	4	31%	9	69%	.	
0.8822	11	7	64%	4	36%	.	
0.9090	63	17	27%	36	57%	0.2912	

1.1053	22	7	32%	12	55%	0.0000
1.1519	105	44	42%	49	47%	0.3213
1.0159	352	145	41%	179	51%	0.0000
0.8902	35	12	34%	17	49%	0.3677
1.0099	82	33	40%	40	49%	0.4157
.	.	.	.	.	.	.
0.8917	6	.	.	.	.	.
1.2025	58	35	60%	16	28%	0.5641
1.1917	73	44	60%	24	33%	0.4901
1.0935	29	10	34%	16	55%	0.4696
1.0292	11	4	36%	6	55%	.
<b>0.9562</b>	<b>3,611</b>	<b>1,411</b>	<b>39%</b>	<b>1,860</b>	<b>52%</b>	<b>0.3108</b>

and in the SIR tables due to exclusion and inclusion criteria. Refer to the technical appendix for details.  
 is 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 2016. 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>
.	.	.	.
0.5791	0.8054	1.0478	1.3651
0.4679	0.8324	1.1982	1.4945
0.7003	0.9567	1.3225	1.5380
0.6908	0.9698	1.2566	1.6967
0.6511	0.9405	1.2582	1.7219
0.6451	0.8145	1.0468	1.6289
.	.	.	.
.	.	.	.
0.7223	0.9242	1.1338	1.4169
0.7673	1.0135	1.4571	1.8284
.	.	.	.
.	.	.	.
0.7965	0.9953	1.3306	1.7762
.	.	.	.
0.6451	0.8860	1.1381	1.3562
0.7237	1.0304	1.4747	2.0952
0.5036	0.9021	1.2623	1.8488
0.7018	0.9560	1.3063	1.7839
0.5845	0.8727	1.3691	2.0267
0.5023	0.7004	0.9138	1.1670
0.7720	0.9596	1.3324	1.6188
.	.	.	.
0.4588	0.5894	0.8115	1.1327
0.5674	0.7074	1.0328	1.4656
0.6709	0.8968	1.1776	1.6306
0.2831	0.6854	1.2448	1.7587
.	.	.	.
0.6709	0.9354	1.2264	1.4447
.	.	.	.
1.0632	1.5293	1.7707	2.8727
.	.	.	.
0.5960	0.8271	1.0619	1.3612
0.4135	0.7410	1.1002	1.6550
1.0455	1.2878	1.7166	2.6898
0.4584	0.7038	0.9643	1.3044
0.5852	0.8326	1.0886	1.3875
0.5647	1.0915	1.7085	2.3907
0.6393	0.8814	1.2776	1.4264
0.5395	0.7575	1.0050	1.3869
.	.	.	.
.	.	.	.
0.6390	0.8140	1.1088	1.4269

0.0458	0.7968	1.2356	2.1891
0.6762	0.9414	1.2660	1.9028
0.5499	0.8907	1.3157	2.0218
0.5066	0.8799	1.1892	1.4553
0.6505	0.9267	1.1720	1.6150
.	.	.	.
.	.	.	.
0.8967	1.2077	1.5154	1.9192
0.8422	1.1403	1.5314	1.9816
0.6792	0.8461	1.1731	1.3856
.	.	.	.
<b>0.6156</b>	<b>0.8876</b>	<b>1.2171</b>	<b>1.6550</b>

cted device days in 2016.

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	1	.	.	.	.
Alabama	14	33,899	33,227.6391	1.0202	1.0094
Arkansas	9	24,044	18,580.9278	1.2940	1.2777
Arizona	17	24,427	24,489.0791	0.9975	0.9850
California	137	155,322	145,828.0493	1.0651	1.0598
Colorado	20	18,969	23,118.0949	0.8205	0.8089
Connecticut	11	10,854	13,642.8795	0.7956	0.7807
D.C.	7	12,255	10,553.6043	1.1612	1.1408
Delaware	2	.	.	.	.
Florida	60	89,083	93,403.1665	0.9537	0.9475
Georgia	37	54,452	55,892.4991	0.9742	0.9660
Guam	0	.	.	.	.
Hawaii	2	.	.	.	.
Iowa	10	14,843	13,109.6113	1.1322	1.1141
Idaho	10	4,866	5,152.2736	0.9444	0.9182
Illinois	42	56,958	57,815.4781	0.9852	0.9771
Indiana	25	24,885	31,596.1806	0.7876	0.7779
Kansas	9	7,406	11,611.4707	0.6378	0.6234
Kentucky	15	17,695	22,786.0876	0.7766	0.7652
Louisiana	29	29,252	30,367.4935	0.9633	0.9523
Massachusetts	10	16,389	21,774.8263	0.7527	0.7412
Maryland	17	20,050	22,543.7655	0.8894	0.8772
Maine	3	.	.	.	.
Michigan	20	43,408	43,669.1813	0.9940	0.9847
Minnesota	11	11,218	10,659.5187	1.0524	1.0330
Missouri	22	40,472	45,803.3302	0.8836	0.8750
Mississippi	14	14,355	14,613.6960	0.9823	0.9663
Montana	5	3,092	2,790.4716	1.1081	1.0695
North Carolina	26	43,437	43,642.7608	0.9953	0.9860
North Dakota	6	5,785	4,421.7950	1.3083	1.2749
Nebraska	5	3,807	7,708.5855	0.4939	0.4784
New Hampshire	3	.	.	.	.
New Jersey	24	24,870	31,675.6083	0.7851	0.7754
New Mexico	6	7,536	5,022.5632	1.5004	1.4668
Nevada	8	20,829	14,679.5959	1.4189	1.3998
New York	54	80,473	87,032.9007	0.9246	0.9183
Ohio	20	55,539	75,168.0188	0.7389	0.7327
Oklahoma	10	24,573	16,216.3916	1.5153	1.4965
Oregon	9	8,737	10,811.0724	0.8082	0.7913
Pennsylvania	44	54,509	65,518.0584	0.8320	0.8250
Puerto Rico	6	1,922	1,701.9185	1.1293	1.0797



Rhode Island	1	.	.	.	.
South Carolina	9	19,925	20,482.8605	0.9728	0.9593
South Dakota	3	.	.	.	.
Tennessee	26	41,852	43,845.4977	0.9545	0.9454
Texas	122	164,126	162,563.2550	1.0096	1.0047
Utah	13	17,796	17,857.1451	0.9966	0.9820
Virginia	26	33,038	34,485.4102	0.9580	0.9477
Virgin Island	2	.	.	.	.
Vermont	1	.	.	.	.
Washington	16	18,915	20,340.9153	0.9299	0.9167
Wisconsin	18	19,297	20,604.3510	0.9365	0.9234
West Virginia	6	6,244	7,637.1895	0.8176	0.7975
Wyoming	0	.	.	.	.
<b>All US</b>	<b>1,023</b>	<b>1,415,584</b>	<b>1,480,057.5249</b>	<b>0.9564</b>	<b>0.9548</b>

1. The number of reporting facilities included in the SUR calculation. This may be different from those reported.
2. Percent of facilities with at least one predicted device day that had an SUR significantly greater than or equal to 1.0.
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 NICU locations, including Level II/III and Level III nurseries.

7 SURs using device days data reported to NHSN during 2016 for acute care hospitals (ACHs), by d  
 onatal critical care unit<sup>4</sup>

for SUR	Facility-specific SURs					
	Upper	No. Facilities with ≥1 Predicted Device Days	No. Facilities with SUR Significantly > National SUR	No. Facilities with SUR Significantly < National SUR		10%
		N	N			
.	.	.	.	.	.	.
1.0311	14	5	36%	6	43%	.
1.3105	9	.	.	.	.	.
1.0100	17	5	29%	11	65%	.
1.0704	137	42	31%	75	55%	0.2610
0.8322	20	3	15%	15	75%	0.1551
0.8106	11	1	9%	10	91%	.
1.1819	7	.	.	.	.	.
.	.	.	.	.	.	.
0.9600	60	21	35%	34	57%	0.1571
0.9825	37	11	30%	19	51%	0.0797
.	.	.	.	.	.	.
.	.	.	.	.	.	.
1.1505	10	2	20%	6	60%	.
0.9713	10	2	20%	7	70%	.
0.9933	42	12	29%	26	62%	0.0962
0.7974	25	5	20%	18	72%	0.3885
0.6525	9	.	.	.	.	.
0.7881	15	1	7%	13	87%	.
0.9743	29	10	34%	13	45%	0.2824
0.7643	10	4	40%	6	60%	.
0.9018	17	2	12%	14	82%	.
.	.	.	.	.	.	.
1.0034	20	7	35%	13	65%	0.3632
1.0720	11	2	18%	8	73%	.
0.8923	22	5	23%	15	68%	0.2059
0.9985	14	3	21%	8	57%	.
1.1476	5	.	.	.	.	.
1.0047	26	5	19%	21	81%	0.0557
1.3424	6	.	.	.	.	.
0.5098	5	.	.	.	.	.
.	.	.	.	.	.	.
0.7949	24	5	21%	17	71%	0.2764
1.5346	6	.	.	.	.	.
1.4383	8	.	.	.	.	.
0.9310	54	15	28%	34	63%	0.2343
0.7450	20	5	25%	15	75%	0.3764
1.5343	10	5	50%	3	30%	.
0.8252	9	.	.	.	.	.
0.8390	44	6	14%	31	70%	0.2409
1.1806	6	.	.	.	.	.

.	.	.	.	.	.	.
0.9864	9	.	.	.	.	.
.	.	.	.	.	.	.
0.9637	26	9	35%	16	62%	0.1562
1.0145	122	39	32%	73	60%	0.2823
1.0113	13	5	38%	8	62%	.
0.9684	26	10	38%	13	50%	0.4969
.	.	.	.	.	.	.
.	.	.	.	.	.	.
0.9432	16	3	19%	11	69%	.
0.9498	18	6	33%	8	44%	.
0.8380	6	.	.	.	.	.
.	.	.	.	.	.	.
<b>0.9580</b>	<b>1,023</b>	<b>304</b>	<b>30%</b>	<b>613</b>	<b>60%</b>	<b>0.2355</b>

sorted in the SIR tables due to exclusion and inclusion criteria. Refer to the technical appendix for details.  
 r less than the nominal value of the national SUR. This is only calculated if at least 10 facilities had  $\geq 1.0$  |  
 /vice days in 2016. If a facility's predicted number of device days was  $<1.0$ , a facility-specific SUR was neit

Device type and patient population:

<b>Median</b>				
<b>25%</b>	<b>50%</b>	<b>75%</b>	<b>90%</b>	
.	.	.	.	.
.	.	.	.	.
.	.	.	.	.
.	.	.	.	.
0.4710	0.8012	1.1535	1.5407	
0.2641	0.5635	0.8229	1.0679	
.	.	.	.	.
.	.	.	.	.
.	.	.	.	.
0.3903	0.8857	1.0895	1.4283	
0.5157	0.8868	1.1075	1.4297	
.	.	.	.	.
.	.	.	.	.
.	.	.	.	.
0.3404	0.7457	1.0600	1.6050	
0.5245	0.6881	0.9833	1.1718	
.	.	.	.	.
.	.	.	.	.
0.7392	0.9375	1.1605	1.6874	
.	.	.	.	.
.	.	.	.	.
.	.	.	.	.
0.6306	0.7377	1.1533	1.7609	
.	.	.	.	.
0.3573	0.6808	0.9671	1.3185	
.	.	.	.	.
.	.	.	.	.
0.1707	0.6278	0.8327	1.4246	
.	.	.	.	.
.	.	.	.	.
.	.	.	.	.
0.4529	0.6083	0.9534	1.3962	
.	.	.	.	.
.	.	.	.	.
0.5515	0.7081	1.0454	1.2930	
0.5236	0.7655	0.9698	1.6997	
.	.	.	.	.
.	.	.	.	.
0.4011	0.6924	0.8866	1.0295	
.	.	.	.	.

.	.	.	.
.	.	.	.
.	.	.	.
0.4315	0.7314	1.2482	1.3351
0.5555	0.7621	1.1575	1.6530
.	.	.	.
0.5778	0.9186	1.2915	1.6294
.	.	.	.
.	.	.	.
.	.	.	.
.	.	.	.
.	.	.	.
.	.	.	.
.	.	.	.
<b>0.4920</b>	<b>0.7582</b>	<b>1.1070</b>	<b>1.4949</b>

predicted device days in 2016.  
 er 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	38,803	46,111.9484	0.8415	0.8332	
Alabama	89	555,335	562,306.9385	0.9876	0.9850	
Arkansas	49	341,285	309,237.8990	1.1036	1.0999	
Arizona	67	504,675	547,489.8807	0.9218	0.9192	
California	338	2,958,152	2,803,921.5389	1.0550	1.0538	
Colorado	53	357,300	360,054.0121	0.9924	0.9891	
Connecticut	32	224,917	259,781.3625	0.8658	0.8622	
D.C.	8	95,284	114,491.9021	0.8322	0.8270	
Delaware	8	61,654	99,743.0893	0.6181	0.6133	
Florida	203	2,112,512	2,425,827.5568	0.8708	0.8696	
Georgia	107	842,440	872,720.1256	0.9653	0.9632	
Guam	1	.	.	.	.	.
Hawaii	16	85,240	146,440.7085	0.5821	0.5782	
Iowa	40	207,605	218,801.0528	0.9488	0.9448	
Idaho	15	98,705	85,964.1361	1.1482	1.1411	
Illinois	134	962,136	1,087,516.8086	0.8847	0.8830	
Indiana	89	545,077	612,794.7990	0.8895	0.8871	
Kansas	55	202,649	234,307.7432	0.8649	0.8611	
Kentucky	71	457,862	472,967.1041	0.9681	0.9653	
Louisiana	93	540,352	461,871.0420	1.1699	1.1668	
Massachusetts	69	553,644	593,470.6197	0.9329	0.9304	
Maryland	49	460,555	552,594.1951	0.8334	0.8310	
Maine	17	77,629	101,725.9497	0.7631	0.7578	
Michigan	96	729,660	807,635.8154	0.9035	0.9014	
Minnesota	53	283,508	305,279.4988	0.9287	0.9253	
Missouri	76	607,299	626,391.6098	0.9695	0.9671	
Mississippi	61	336,280	315,989.2381	1.0642	1.0606	
Montana	13	55,463	67,078.0785	0.8268	0.8200	
North Carolina	95	785,706	798,842.6419	0.9836	0.9814	
North Dakota	8	61,158	54,438.5743	1.1234	1.1145	
Nebraska	27	131,359	137,449.3905	0.9557	0.9505	
New Hampshire	13	100,507	89,538.4462	1.1225	1.1156	
New Jersey	71	647,315	812,186.0116	0.7970	0.7951	
New Mexico	35	150,173	148,228.4558	1.0131	1.0080	
Nevada	22	282,883	281,116.9289	1.0063	1.0026	
New York	179	1,689,547	1,944,949.1339	0.8687	0.8674	
Ohio	140	1,197,568	1,223,429.3936	0.9789	0.9771	
Oklahoma	87	406,799	359,769.1661	1.1307	1.1272	
Oregon	37	273,685	290,744.5437	0.9413	0.9378	
Pennsylvania	184	1,306,056	1,461,108.8086	0.8939	0.8923	
Puerto Rico	14	128,698	130,334.6134	0.9874	0.9821	
Rhode Island	11	66,270	87,329.7854	0.7588	0.7531	
South Carolina	63	415,219	479,454.0579	0.8660	0.8634	

South Dakota	22	63,862	59,594.0711	1.0716	1.0633
Tennessee	107	729,672	719,936.7482	1.0135	1.0112
Texas	369	2,161,670	2,285,115.6206	0.9460	0.9447
Utah	35	128,049	122,924.7202	1.0417	1.0360
Virginia	83	589,668	652,894.7908	0.9032	0.9009
Virgin Island	2	.	.	.	.
Vermont	6	37,375	39,992.8257	0.9345	0.9251
Washington	59	483,216	517,353.1998	0.9340	0.9314
Wisconsin	73	387,824	407,962.0147	0.9506	0.9477
West Virginia	30	232,939	220,081.9300	1.0584	1.0541
Wyoming	11	23,179	22,637.8739	1.0239	1.0108
<b>All US</b>	<b>3,695</b>	<b>26,783,956</b>	<b>28,447,528.7944</b>	<b>0.9415</b>	<b>0.9411</b>

1. The number of reporting facilities included in the SUR calculation. This may be different from those reported.
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 ICUs and wards (and other non-critical care locations). This excludes NICUs. Data contain only device days for which the patient was in the ICU or ward.

**SURs using device days data reported to NHSN during 2016 for acute care hospitals (ACHs), by decile (CDs), 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	Significantly > National SUR	Significantly < National SUR	
		N	N				
0.8499	10	3	30%	6	60%	.	
0.9902	89	46	52%	40	45%	0.4711	
1.1073	49	33	67%	14	29%	0.7439	
0.9244	67	27	40%	28	42%	0.5871	
1.0562	338	214	63%	97	29%	0.6980	
0.9956	52	22	42%	23	44%	0.5160	
0.8694	32	11	34%	16	50%	0.5599	
0.8375	8	.	.	.	.	.	
0.6230	8	.	.	.	.	.	
0.8720	203	81	40%	108	53%	0.5669	
0.9673	107	54	50%	46	43%	0.6072	
.	.	.	.	.	.	.	
0.5860	16	4	25%	10	63%	.	
0.9529	40	16	40%	20	50%	0.7265	
1.1554	15	12	80%	3	20%	.	
0.8865	134	51	38%	67	50%	0.6047	
0.8919	89	28	31%	52	58%	0.5380	
0.8687	55	22	40%	25	45%	0.4431	
0.9709	71	40	56%	23	32%	0.6220	
1.1730	93	66	71%	21	23%	0.7501	
0.9354	69	25	36%	41	59%	0.6621	
0.8359	49	12	24%	35	71%	0.5930	
0.7685	17	5	29%	8	47%	.	
0.9055	96	29	30%	58	60%	0.5486	
0.9321	53	20	38%	24	45%	0.6406	
0.9720	76	38	50%	34	45%	0.6113	
1.0678	61	29	48%	23	38%	0.4821	
0.8337	13	5	38%	7	54%	.	
0.9858	94	41	44%	40	43%	0.6040	
1.1324	8	.	.	.	.	.	
0.9609	27	16	59%	10	37%	0.6957	
1.1295	13	8	62%	5	38%	.	
0.7989	71	17	24%	51	72%	0.5532	
1.0182	34	12	35%	17	50%	0.4346	
1.0100	22	14	64%	8	36%	0.7199	
0.8700	179	62	35%	102	57%	0.5113	
0.9806	140	72	51%	56	40%	0.6243	
1.1342	87	56	64%	21	24%	0.6188	
0.9449	37	18	49%	16	43%	0.7129	
0.8954	184	68	37%	103	56%	0.4401	
0.9929	14	11	79%	3	21%	.	
0.7646	11	2	18%	9	82%	.	
0.8686	63	20	32%	41	65%	0.5744	



1.0799	22	11	50%	7	32%	0.3272
1.0158	107	55	51%	30	28%	0.6240
0.9472	369	193	52%	141	38%	0.5278
1.0474	35	17	49%	9	26%	0.7225
0.9055	83	38	46%	38	46%	0.6487
.	.	.	.	.	.	.
0.9441	6	.	.	.	.	.
0.9367	59	22	37%	32	54%	0.6499
0.9536	73	29	40%	37	51%	0.6002
1.0627	30	14	47%	14	47%	0.5726
1.0371	11	6	55%	2	18%	.
<b>0.9419</b>	<b>3,692</b>	<b>1,706</b>	<b>46%</b>	<b>1,642</b>	<b>44%</b>	<b>0.5817</b>

orted in the SIR tables due to exclusion and inclusion criteria. Refer to the technical appendix for details.  
less than the nominal value of the national SUR. This is only calculated if at least 10 facilities had  $\geq 1.0$  pr  
e days in 2016. If a facility's predicted number of device days was  $<1.0$ , a facility-specific SUR was neithe  
red in this table are reported from acute care hospitals; as such, data from CAHs, IRFs and LTACHs are e

service type and patient population:

Median			
25%	50%	75%	90%
.	.	.	.
0.7167	0.9955	1.1461	1.3377
0.8870	1.0829	1.2404	1.5331
0.8161	0.9351	1.0885	1.3265
0.8765	1.0644	1.2325	1.5205
0.7585	0.9392	1.2070	1.4984
0.7254	0.8951	1.0373	1.2608
.	.	.	.
.	.	.	.
0.7138	0.8782	1.0657	1.2838
0.7277	0.9923	1.1631	1.5551
.	.	.	.
.	.	.	.
0.7627	0.8770	1.1108	1.3221
.	.	.	.
0.7466	0.9042	1.0888	1.3226
0.7193	0.8575	1.0381	1.3857
0.6736	0.9226	1.1614	1.4761
0.8464	1.0297	1.1667	1.5302
0.9267	1.1984	1.5437	2.3526
0.7871	0.8742	1.0580	1.3276
0.7175	0.8448	0.9830	1.1583
.	.	.	.
0.7407	0.8892	1.0120	1.2414
0.7620	0.9270	1.1037	1.2546
0.8062	0.9609	1.1868	1.4383
0.7306	0.9760	1.2078	1.4185
.	.	.	.
0.7972	0.9458	1.0916	1.4352
.	.	.	.
0.8285	0.9881	1.1146	1.5916
.	.	.	.
0.6398	0.8241	0.9549	1.1010
0.6092	0.8824	1.0410	1.4671
0.8059	1.0302	1.1652	1.2257
0.6758	0.8671	1.0253	1.1848
0.8126	0.9637	1.1209	1.2726
0.8984	1.1363	1.4129	1.8407
0.7862	0.9337	1.2721	1.3540
0.6633	0.8423	1.0739	1.3410
.	.	.	.
.	.	.	.
0.6967	0.8343	1.0741	1.2631

0.7979	1.0434	1.1575	1.5154
0.8651	0.9775	1.2907	1.6568
0.7524	0.9972	1.2914	1.9588
0.8179	0.9687	1.2547	1.4050
0.7587	0.9318	1.1242	1.3970
.	.	.	.
.	.	.	.
0.7720	0.8895	1.0752	1.3569
0.7690	0.9190	1.1471	1.3712
0.8251	0.9096	1.1291	1.3074
.	.	.	.
<b>0.7564</b>	<b>0.9477</b>	<b>1.1550</b>	<b>1.4453</b>

redicted device days in 2016.

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

excluded.

**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	Upper
Alaska	7	9,890	13,386.0112	0.7388	0.7244	
Alabama	68	269,281	249,297.9190	1.0802	1.0761	
Arkansas	43	133,703	126,992.4226	1.0528	1.0472	
Arizona	53	209,248	207,322.9436	1.0093	1.0050	
California	312	1,050,892	999,626.4937	1.0513	1.0493	
Colorado	45	128,649	136,838.9650	0.9401	0.9350	
Connecticut	28	91,910	90,839.4254	1.0118	1.0052	
D.C.	8	47,950	47,658.9359	1.0061	0.9971	
Delaware	8	24,778	29,067.3429	0.8524	0.8419	
Florida	194	879,722	918,715.8639	0.9576	0.9555	
Georgia	93	351,030	346,614.6492	1.0127	1.0094	
Guam	1	.	.	.	.	.
Hawaii	15	32,933	66,917.8470	0.4921	0.4869	
Iowa	34	73,641	70,828.6015	1.0397	1.0322	
Idaho	10	33,315	29,859.1004	1.1157	1.1038	
Illinois	127	365,231	414,791.4273	0.8805	0.8776	
Indiana	71	232,719	248,394.5511	0.9369	0.9331	
Kansas	37	80,227	94,612.8224	0.8480	0.8421	
Kentucky	65	204,326	208,573.1729	0.9796	0.9754	
Louisiana	67	209,191	191,656.4020	1.0915	1.0868	
Massachusetts	63	219,294	196,476.4369	1.1161	1.1115	
Maryland	46	176,539	191,716.0283	0.9208	0.9166	
Maine	14	29,934	32,730.1220	0.9146	0.9042	
Michigan	87	343,070	326,648.2918	1.0503	1.0468	
Minnesota	42	118,988	115,673.2115	1.0287	1.0228	
Missouri	71	242,644	229,470.7720	1.0574	1.0532	
Mississippi	44	129,813	122,498.0181	1.0597	1.0540	
Montana	10	18,901	21,530.8644	0.8779	0.8654	
North Carolina	86	329,425	306,940.2065	1.0733	1.0696	
North Dakota	5	23,426	18,245.5157	1.2839	1.2676	
Nebraska	19	41,961	46,687.0399	0.8988	0.8902	
New Hampshire	13	33,184	28,687.3788	1.1567	1.1443	
New Jersey	71	254,201	299,921.8105	0.8476	0.8443	
New Mexico	28	60,072	60,641.6421	0.9906	0.9827	
Nevada	19	127,174	124,169.8289	1.0242	1.0186	
New York	163	625,064	642,028.6569	0.9736	0.9712	
Ohio	124	502,926	471,043.4438	1.0677	1.0647	
Oklahoma	52	158,656	140,446.2471	1.1297	1.1241	
Oregon	33	90,579	97,402.1773	0.9299	0.9239	
Pennsylvania	147	523,350	525,083.2794	0.9967	0.9940	
Puerto Rico	13	45,446	44,894.6485	1.0123	1.0030	

Rhode Island	10	25,116	25,352.9439	0.9907	0.9785
South Carolina	56	174,749	181,228.1013	0.9642	0.9598
South Dakota	11	16,571	15,386.4806	1.0770	1.0607
Tennessee	87	304,848	309,827.6258	0.9839	0.9804
Texas	267	932,683	965,614.0803	0.9659	0.9639
Utah	28	58,519	62,659.9935	0.9339	0.9264
Virginia	79	226,310	245,216.2289	0.9229	0.9191
Virgin Island	2	.	.	.	.
Vermont	5	11,515	16,517.4993	0.6971	0.6845
Washington	50	164,552	169,660.6460	0.9699	0.9652
Wisconsin	66	146,868	155,106.3177	0.9469	0.9421
West Virginia	29	97,795	88,975.8705	1.0991	1.0923
Wyoming	9	6,227	7,060.8988	0.8819	0.8602
<b>All US</b>	<b>3,135</b>	<b>10,692,640</b>	<b>10,780,506.1906</b>	<b>0.9918</b>	<b>0.9913</b>

1. The number of reporting facilities included in the SUR calculation. This may be different from those
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

ary SURs using device days data reported to NHSN during 2016 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	
0.7535	7	.	.	.	.	.	.
1.0842	68	30	44%	25	37%	0.6286	
1.0585	43	17	40%	14	33%	0.6454	
1.0136	53	26	49%	21	40%	0.6736	
1.0533	312	183	59%	91	29%	0.7358	
0.9453	45	14	31%	26	58%	0.4697	
1.0183	28	12	43%	14	50%	0.6764	
1.0152	8	.	.	.	.	.	
0.8631	8	.	.	.	.	.	
0.9596	194	88	45%	83	43%	0.6369	
1.0161	93	42	45%	38	41%	0.6306	
.	.	.	.	.	.	.	
0.4975	15	6	40%	8	53%	.	
1.0473	34	13	38%	17	50%	0.5760	
1.1278	10	6	60%	2	20%	.	
0.8834	127	41	32%	67	53%	0.6044	
0.9407	71	25	35%	36	51%	0.6039	
0.8539	37	9	24%	21	57%	0.5193	
0.9839	65	25	38%	30	46%	0.4553	
1.0962	66	35	53%	18	27%	0.7171	
1.1208	63	30	48%	22	35%	0.8041	
0.9252	46	16	35%	24	52%	0.5190	
0.9250	14	4	29%	8	57%	.	
1.0538	87	31	36%	44	51%	0.6479	
1.0345	42	12	29%	24	57%	0.4151	
1.0616	71	35	49%	25	35%	0.5773	
1.0655	44	17	39%	16	36%	0.6051	
0.8904	10	3	30%	7	70%	.	
1.0769	86	36	42%	40	47%	0.6560	
1.3004	5	.	.	.	.	.	
0.9074	19	6	32%	9	47%	.	
1.1692	13	7	54%	2	15%	.	
0.8509	71	28	39%	33	46%	0.5689	
0.9985	28	7	25%	17	61%	0.3606	
1.0298	19	11	58%	6	32%	.	
0.9760	163	60	37%	79	48%	0.6461	
1.0707	124	54	44%	44	35%	0.5815	
1.1352	52	26	50%	16	31%	0.5551	
0.9360	33	8	24%	19	58%	0.6969	
0.9994	147	54	37%	69	47%	0.5950	
1.0216	13	11	85%	2	15%	.	

1.0030	10	4	40%	5	50%	.
0.9688	56	20	36%	30	54%	0.5630
1.0934	11	4	36%	5	45%	.
0.9875	87	35	40%	35	40%	0.6431
0.9679	267	113	42%	110	41%	0.5834
0.9415	28	8	29%	16	57%	0.3634
0.9267	79	23	29%	43	54%	0.5275
.	.	.	.	.	.	.
0.7100	5	.	.	.	.	.
0.9746	50	19	38%	27	54%	0.6204
0.9517	66	16	24%	39	59%	0.5164
1.1060	29	11	38%	11	38%	0.6859
0.9040	9	.	.	.	.	.
<b>0.9924</b>	<b>3,134</b>	<b>1,295</b>	<b>41%</b>	<b>1,362</b>	<b>43%</b>	<b>0.5997</b>

reported in the SIR tables due to exclusion and inclusion criteria. Refer to the technical appendix for details on or less than the nominal value of the national SUR. This is only calculated if at least 10 facilities had ≥ 1 device days in 2016. If a facility's predicted number of device days was <1.0, a facility-specific SUR was not included in this table are reported from acute care hospitals; as such, data from CAHs, IRFs and LTACHs are excluded.

device type and patient population:

<b>Median</b>			
<b>25%</b>	<b>50%</b>	<b>75%</b>	<b>90%</b>
.	.	.	.
0.8386	1.0064	1.1606	1.2288
0.8042	1.0054	1.1555	1.2794
0.8913	1.0319	1.1619	1.2892
0.9165	1.0656	1.1840	1.3006
0.7529	0.9017	1.0758	1.1836
0.7362	0.9477	1.1854	1.3328
.	.	.	.
0.7995	0.9881	1.1208	1.2796
0.7919	1.0029	1.1650	1.2679
.	.	.	.
.	.	.	.
0.7118	0.8792	1.0811	1.2439
.	.	.	.
0.7821	0.9257	1.0599	1.2218
0.8062	0.9322	1.1177	1.2493
0.7298	0.8871	1.0390	1.1052
0.8059	0.9710	1.1210	1.2785
0.9212	1.0669	1.2129	1.3802
0.8970	1.0569	1.1755	1.2701
0.7311	0.9263	1.0939	1.2166
.	.	.	.
0.7819	0.9363	1.1644	1.3040
0.6238	0.8652	1.0549	1.2309
0.8023	1.0277	1.1689	1.2953
0.7717	1.0090	1.1952	1.2429
.	.	.	.
0.8078	0.9773	1.1374	1.3035
.	.	.	.
.	.	.	.
.	.	.	.
0.7181	0.9683	1.0978	1.2099
0.6015	0.8265	1.0742	1.2916
.	.	.	.
0.8274	0.9549	1.1377	1.2727
0.8306	1.0037	1.1419	1.2641
0.8551	1.0775	1.1979	1.2998
0.7727	0.8899	1.0138	1.1924
0.7528	0.9524	1.1224	1.2789
.	.	.	.



0.6947	0.9013	1.1043	1.2141
0.8458	1.0048	1.1459	1.2592
0.8109	0.9997	1.1537	1.3156
0.5790	0.8856	1.1004	1.2359
0.7406	0.9183	1.0654	1.1779
0.8090	0.9274	1.1402	1.2485
0.6953	0.9142	1.0399	1.2022
0.8414	1.0013	1.0978	1.3040
<b>0.8041</b>	<b>0.9835</b>	<b>1.1411</b>	<b>1.2730</b>

Is.

.0 predicted device days in 2016.

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

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

State	No. of Facilities	No. of Device days			95% CI	
		Observed	Predicted	SUR	Lower	Upper
Alaska	10	28,913	32,725.9372	0.8835	0.8734	0.9139
Alabama	89	286,054	313,009.0195	0.9139	0.9105	0.9173
Arkansas	49	207,582	182,245.4765	1.1390	1.1341	1.1439
Arizona	67	295,427	340,166.9371	0.8685	0.8653	0.8717
California	330	1,907,260	1,804,295.0453	1.0571	1.0556	1.0586
Colorado	51	228,651	223,215.0471	1.0244	1.0201	1.0287
Connecticut	32	133,007	168,941.9371	0.7873	0.7831	0.7915
D.C.	8	47,334	66,832.9662	0.7082	0.7019	0.7145
Delaware	8	36,876	70,675.7464	0.5218	0.5165	0.5271
Florida	199	1,232,790	1,507,111.6930	0.8180	0.8166	0.8194
Georgia	106	491,410	526,105.4764	0.9341	0.9315	0.9367
Guam	0	.	.	.	.	.
Hawaii	16	52,307	79,522.8615	0.6578	0.6522	0.6634
Iowa	40	133,964	147,972.4514	0.9053	0.9005	0.9101
Idaho	15	65,390	56,105.0357	1.1655	1.1566	1.1744
Illinois	133	596,905	672,725.3813	0.8873	0.8851	0.8895
Indiana	88	312,358	364,400.2478	0.8572	0.8542	0.8602
Kansas	55	122,422	139,694.9208	0.8764	0.8715	0.8813
Kentucky	70	253,536	264,393.9311	0.9589	0.9552	0.9626
Louisiana	91	331,161	270,214.6400	1.2255	1.2214	1.2296
Massachusetts	69	334,350	396,994.1828	0.8422	0.8394	0.8450
Maryland	49	284,016	360,878.1667	0.7870	0.7841	0.7899
Maine	16	47,695	68,995.8277	0.6913	0.6851	0.6975
Michigan	96	386,590	480,987.5236	0.8037	0.8012	0.8062
Minnesota	53	164,520	189,606.2873	0.8677	0.8635	0.8719
Missouri	74	364,655	396,920.8378	0.9187	0.9157	0.9217
Mississippi	61	206,467	193,491.2200	1.0671	1.0625	1.0717
Montana	13	36,562	45,547.2140	0.8027	0.7945	0.8109
North Carolina	95	456,281	491,902.4354	0.9276	0.9249	0.9303
North Dakota	8	37,732	36,193.0586	1.0425	1.0321	1.0529
Nebraska	27	89,398	90,762.3507	0.9850	0.9785	0.9915
New Hampshire	13	67,323	60,851.0674	1.1064	1.0980	1.1148
New Jersey	70	393,114	512,264.2012	0.7674	0.7650	0.7698
New Mexico	35	90,101	87,586.8137	1.0287	1.0220	1.0354
Nevada	22	155,709	156,947.1000	0.9921	0.9872	0.9970
New York	178	1,064,483	1,302,920.4770	0.8170	0.8154	0.8186
Ohio	138	694,642	752,385.9498	0.9233	0.9211	0.9255
Oklahoma	86	248,143	219,322.9189	1.1314	1.1270	1.1358
Oregon	37	183,106	193,342.3664	0.9471	0.9427	0.9515
Pennsylvania	184	782,706	936,025.5291	0.8362	0.8343	0.8381

Puerto Rico	13	83,252	85,439.9649	0.9744	0.9678
Rhode Island	11	41,154	61,976.8415	0.6640	0.6576
South Carolina	62	240,470	298,225.9566	0.8063	0.8031
South Dakota	22	47,291	44,207.5904	1.0697	1.0601
Tennessee	105	424,824	410,109.1224	1.0359	1.0328
Texas	358	1,228,987	1,319,501.5403	0.9314	0.9298
Utah	35	69,530	60,264.7267	1.1537	1.1452
Virginia	82	363,358	407,678.5619	0.8913	0.8884
Virgin Island	2	.	.	.	.
Vermont	6	25,860	23,475.3264	1.1016	1.0882
Washington	59	318,664	347,692.5539	0.9165	0.9134
Wisconsin	73	240,956	252,855.6970	0.9529	0.9491
West Virginia	29	135,144	131,106.0595	1.0308	1.0253
Wyoming	11	16,952	15,576.9751	1.0883	1.0720
<b>All US</b>	<b>3,649</b>	<b>16,091,316</b>	<b>17,667,022.6038</b>	<b>0.9108</b>	<b>0.9103</b>

1. The number of reporting facilities included in the SUR calculation. This may be different from those reported.
2. Percent of facilities with at least one predicted device day that had an SUR significantly greater than or equal to 1.0.
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 2016 for acute care hospitals (ACHs), by device type  
 ys (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	% <sup>2</sup>	N				
0.8937	10	5	50%	4	40%	.	.	
0.9172	89	44	49%	38	43%	0.4142	0.6802	
1.1439	49	35	71%	13	27%	0.7149	0.8492	
0.8716	67	31	46%	29	43%	0.5424	0.6739	
1.0586	330	212	64%	97	29%	0.5866	0.8216	
1.0286	50	25	50%	18	36%	0.4484	0.7330	
0.7915	32	8	25%	16	50%	0.5461	0.7450	
0.7147	8	.	.	.	.	.	.	
0.5271	8	.	.	.	.	.	.	
0.8194	199	75	38%	109	55%	0.4751	0.6156	
0.9367	106	53	50%	42	40%	0.5697	0.7057	
.	.	.	.	.	.	.	.	
0.6634	16	6	38%	9	56%	.	.	
0.9102	40	18	45%	13	33%	0.6733	0.8039	
1.1745	15	12	80%	3	20%	.	.	
0.8895	133	61	46%	60	45%	0.5585	0.6955	
0.8602	88	28	32%	50	57%	0.5176	0.6721	
0.8813	55	25	45%	22	40%	0.4431	0.6695	
0.9627	70	44	63%	20	29%	0.6279	0.8414	
1.2297	91	66	73%	18	20%	0.7346	0.9206	
0.8451	69	22	32%	42	61%	0.5796	0.7026	
0.7899	49	9	18%	33	67%	0.5349	0.6898	
0.6975	16	6	38%	9	56%	.	.	
0.8063	96	29	30%	52	54%	0.4294	0.6606	
0.8719	53	24	45%	22	42%	0.6435	0.7770	
0.9217	74	37	50%	30	41%	0.5702	0.7420	
1.0717	61	35	57%	21	34%	0.4821	0.7561	
0.8110	13	6	46%	7	54%	.	.	
0.9303	94	44	47%	41	44%	0.5672	0.7310	
1.0531	8	.	.	.	.	.	.	
0.9915	27	17	63%	8	30%	0.7706	0.8148	
1.1147	13	9	69%	4	31%	.	.	
0.7698	70	15	21%	52	74%	0.4773	0.5686	
1.0354	34	18	53%	13	38%	0.4936	0.7028	
0.9971	22	13	59%	9	41%	0.6507	0.6999	
0.8186	178	64	36%	99	56%	0.4385	0.6219	
0.9254	138	69	50%	50	36%	0.5539	0.7949	
1.1359	86	58	67%	19	22%	0.5353	0.8652	
0.9514	37	18	49%	16	43%	0.6430	0.7862	
0.8381	184	66	36%	98	53%	0.4075	0.6135	

0.9811	13	10	77%	3	23%	.	.
0.6705	11	1	9%	9	82%	.	.
0.8096	62	23	37%	34	55%	0.5251	0.6683
1.0794	22	10	45%	6	27%	0.3272	0.7639
1.0390	105	60	57%	32	30%	0.5747	0.8155
0.9330	358	192	54%	136	38%	0.4672	0.7174
1.1623	35	24	69%	5	14%	0.7155	0.9006
0.8942	82	40	49%	33	40%	0.5780	0.7633
.	.	.	.	.	.	.	.
1.1151	6	.	.	.	.	.	.
0.9197	59	25	42%	25	42%	0.6414	0.7924
0.9568	73	34	47%	30	41%	0.5558	0.7345
1.0363	29	14	48%	11	38%	0.4808	0.7630
1.1048	11	9	82%	1	9%	.	.
<b>0.9113</b>	<b>3,646</b>	<b>1,757</b>	<b>48%</b>	<b>1,533</b>	<b>42%</b>	<b>0.5270</b>	<b>0.7109</b>

orted in the SIR tables due to exclusion and inclusion criteria. Refer to the technical appendix for details.  
less than the nominal value of the national SUR. This is only calculated if at least 10 facilities had  $\geq 1.0$  predicted  
ce days in 2016. If a facility's predicted number of device days was  $<1.0$ , a facility-specific SUR was neither calcula  
[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>
.	.	.
0.9545	1.2184	1.4717
1.1966	1.3785	1.7158
0.9315	1.1012	1.3556
1.0766	1.3315	1.6719
0.9660	1.3687	1.7842
0.8691	0.9670	1.3154
.	.	.
.	.	.
0.8407	1.0830	1.3899
0.9368	1.2205	1.7140
.	.	.
.	.	.
0.9537	1.1836	1.3820
.	.	.
0.9285	1.1476	1.4680
0.8343	1.0463	1.5850
0.9600	1.3061	1.6888
1.0311	1.3056	1.7236
1.2661	1.6922	2.5245
0.8036	1.0360	1.2384
0.7784	0.9218	1.1779
.	.	.
0.8463	1.0859	1.3056
0.9519	1.1723	1.5401
0.9421	1.3014	1.5514
1.0614	1.2823	1.5023
.	.	.
0.9167	1.1763	1.5293
.	.	.
1.0256	1.2515	1.5916
.	.	.
0.7375	0.9006	1.0850
0.9771	1.0686	1.7475
1.0462	1.2041	1.4396
0.8361	1.0353	1.2053
0.9523	1.1692	1.5478
1.2044	1.5406	2.1996
0.9543	1.3034	1.6970
0.8207	1.0684	1.3726

.	.	.
0.8141	1.1022	1.2240
0.9712	1.2819	1.6449
1.0717	1.4377	1.9395
1.0052	1.3821	2.0889
1.0604	1.3958	1.8973
0.9437	1.1851	1.5861
.	.	.
0.9236	1.1318	1.5131
0.9475	1.2797	1.5331
0.9673	1.0972	1.5099
.	.	.
<b>0.9377</b>	<b>1.2125</b>	<b>1.5980</b>

device days in 2016.

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

are 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	8	8,169	4,764.8089	1.7144	1.6775
Alabama	42	76,028	77,097.9692	0.9861	0.9791
Arkansas	24	27,745	31,964.4746	0.8680	0.8578
Arizona	31	58,993	53,663.3750	1.0993	1.0905
California	170	350,463	299,243.6308	1.1712	1.1673
Colorado	36	54,658	57,437.8976	0.9516	0.9437
Connecticut	16	33,700	29,025.7420	1.1610	1.1487
D.C.	3	.	.	.	.
Delaware	3	.	.	.	.
Florida	113	284,639	314,115.8659	0.9062	0.9028
Georgia	68	149,250	134,474.1397	1.1099	1.1042
Guam	0	.	.	.	.
Hawaii	6	6,914	5,079.4751	1.3612	1.3294
Iowa	14	8,862	9,053.2211	0.9789	0.9587
Idaho	7	9,658	9,894.6134	0.9761	0.9568
Illinois	61	76,816	94,721.8216	0.8110	0.8052
Indiana	67	113,562	105,263.7129	1.0788	1.0726
Kansas	31	25,106	38,106.3057	0.6588	0.6507
Kentucky	41	44,574	52,244.6894	0.8532	0.8453
Louisiana	36	34,699	38,005.6721	0.9130	0.9034
Massachusetts	23	34,487	34,513.8433	0.9992	0.9887
Maryland	25	46,209	46,975.4315	0.9837	0.9748
Maine	12	14,377	15,133.3419	0.9500	0.9346
Michigan	74	176,918	162,688.5977	1.0875	1.0824
Minnesota	10	19,736	15,068.8118	1.3097	1.2916
Missouri	37	71,776	74,354.5598	0.9653	0.9583
Mississippi	26	25,681	27,479.6340	0.9345	0.9232
Montana	4	.	.	.	.
North Carolina	41	67,961	68,397.5996	0.9936	0.9862
North Dakota	1	.	.	.	.
Nebraska	12	16,151	13,140.4474	1.2291	1.2102
New Hampshire	10	7,119	6,162.4567	1.1552	1.1287
New Jersey	47	106,677	108,839.5744	0.9801	0.9743
New Mexico	19	14,410	14,955.8244	0.9635	0.9479
Nevada	19	67,907	61,646.2172	1.1016	1.0933
New York	136	363,340	312,341.1664	1.1633	1.1595
Ohio	81	152,279	174,063.7468	0.8748	0.8705
Oklahoma	36	46,941	45,898.3754	1.0227	1.0135
Oregon	24	26,447	31,845.9645	0.8305	0.8205
Pennsylvania	141	313,184	320,906.0108	0.9759	0.9725



Puerto Rico	7	15,016	20,435.5675	0.7348	0.7231
Rhode Island	9	11,888	13,123.8667	0.9058	0.8897
South Carolina	55	100,680	104,125.5738	0.9669	0.9609
South Dakota	6	3,357	3,437.2696	0.9766	0.9440
Tennessee	53	93,313	108,748.9595	0.8581	0.8526
Texas	139	222,717	242,827.4695	0.9172	0.9134
Utah	7	3,103	3,443.1276	0.9012	0.8699
Virginia	64	113,277	128,776.2006	0.8796	0.8745
Virgin Island	1	.	.	.	.
Vermont	0	.	.	.	.
Washington	31	38,329	39,094.1335	0.9804	0.9707
Wisconsin	57	53,645	56,328.7226	0.9524	0.9443
West Virginia	19	21,795	23,090.4611	0.9439	0.9314
Wyoming	5	1,541	1,572.4519	0.9800	0.9320
<b>All US</b>	<b>2008</b>	<b>3,645,249</b>	<b>3,659,131.5081</b>	<b>0.9962</b>	<b>0.9952</b>

1. The number of reporting facilities included in the SUR calculation. This may be different from those re
2. Percent of facilities with at least one predicted device day that had an SUR significantly greater than c
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 and wards (and other non-critical care locations). This excludes NICUs. Data cont

**SURs using device days data reported to NHSN during 2016 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				
1.7519	6	.	.	.	.	.	.	
0.9932	42	14	33%	23	55%	0.0771	0.4708	
0.8782	24	5	21%	14	58%	0.0000	0.4326	
1.1082	30	14	47%	11	37%	0.4104	0.7047	
1.1751	170	105	62%	44	26%	0.7728	0.9112	
0.9596	36	9	25%	20	56%	0.4419	0.5647	
1.1735	16	11	69%	2	13%	.	.	
.	.	.	.	.	.	.	.	
.	.	.	.	.	.	.	.	
0.9095	113	34	30%	69	61%	0.5238	0.6833	
1.1155	68	29	43%	29	43%	0.1823	0.7152	
.	.	.	.	.	.	.	.	
1.3935	6	.	.	.	.	.	.	
0.9994	14	7	50%	3	21%	.	.	
0.9957	7	.	.	.	.	.	.	
0.8167	60	15	25%	40	67%	0.2819	0.5500	
1.0851	66	24	36%	32	48%	0.1216	0.5710	
0.6670	30	7	23%	20	67%	0.1257	0.3216	
0.8611	41	9	22%	26	63%	0.1899	0.4592	
0.9226	33	11	33%	18	55%	0.0000	0.4101	
1.0098	23	7	30%	10	43%	0.4212	0.7148	
0.9927	25	13	52%	10	40%	0.5071	0.8181	
0.9657	12	4	33%	7	58%	.	.	
1.0926	74	33	45%	36	49%	0.4044	0.7036	
1.3281	8	.	.	.	.	.	.	
0.9724	37	12	32%	19	51%	0.1950	0.6778	
0.9460	26	10	38%	12	46%	0.3259	0.6136	
.	.	.	.	.	.	.	.	
1.0011	41	13	32%	25	61%	0.2966	0.4794	
.	.	.	.	.	.	.	.	
1.2482	11	4	36%	3	27%	.	.	
1.1823	10	6	60%	3	30%	.	.	
0.9861	47	17	36%	24	51%	0.4904	0.7243	
0.9793	19	3	16%	14	74%	.	.	
1.1098	19	14	74%	5	26%	.	.	
1.1671	136	79	58%	51	38%	0.5422	0.7750	
0.8793	80	20	25%	52	65%	0.1876	0.5613	
1.0320	36	11	31%	18	50%	0.2254	0.5005	
0.8405	23	7	30%	14	61%	0.4991	0.6485	
0.9794	140	41	29%	81	58%	0.3051	0.5410	

0.7466	7	.	.	.	.	.	.	.
0.9222	9	.	.	.	.	.	.	.
0.9729	54	14	26%	29	54%	0.3417	0.5841	.
1.0101	6	.	.	.	.	.	.	.
0.8636	53	12	23%	38	72%	0.1413	0.4268	.
0.9210	130	32	25%	82	63%	0.0630	0.5306	.
0.9333	7	.	.	.	.	.	.	.
0.8848	64	16	25%	46	72%	0.3370	0.5012	.
.	.	.	.	.	.	.	.	.
.	.	.	.	.	.	.	.	.
0.9903	31	11	35%	12	39%	0.4304	0.6168	.
0.9605	57	18	32%	29	51%	0.3829	0.6047	.
0.9565	19	5	26%	14	74%	.	.	.
1.0299	5	.	.	.	.	.	.	.
<b>0.9972</b>	<b>1983</b>	<b>726</b>	<b>37%</b>	<b>1020</b>	<b>51%</b>	<b>0.3199</b>	<b>0.6146</b>	.

ported in the SIR tables due to exclusion and inclusion criteria. Refer to the technical appendix for details.  
or less than the nominal value of the national SUR. This is only calculated if at least 10 facilities had  $\geq 1.0$  predicted  
vice days in 2016. If a facility's predicted number of device days was  $<1.0$ , a facility-specific SUR was neither calcula  
ained in this table are reported 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>
.	.	.
0.8914	1.1627	1.3510
0.7909	1.0074	1.3749
0.9764	1.3078	1.5205
1.1727	1.5290	2.1114
0.8092	1.0187	1.3888
.	.	.
.	.	.
.	.	.
0.8773	1.1299	1.3351
0.9917	1.2973	1.6787
.	.	.
.	.	.
.	.	.
0.8017	1.0396	1.2115
0.9311	1.2888	1.8395
0.5704	0.9814	1.2146
0.7618	1.0210	1.2258
0.7395	1.1929	1.3257
0.9125	1.1382	1.4113
1.0499	1.3307	1.8689
.	.	.
0.9838	1.3750	1.7851
.	.	.
0.9289	1.1413	1.6187
0.9774	1.1849	1.6816
.	.	.
0.8672	1.1493	1.3193
.	.	.
.	.	.
.	.	.
0.9402	1.1906	1.4705
.	.	.
.	.	.
1.1085	1.4170	2.1075
0.7796	1.0550	1.3557
0.8866	1.2189	1.5853
0.7969	1.1909	1.7769
0.8234	1.1444	1.3694

.	.	.
0.8327	1.0794	1.4227
.	.	.
0.7467	0.9542	1.3800
0.8155	1.0660	1.3301
.	.	.
0.8090	1.0461	1.2530
.	.	.
1.0205	1.2666	1.4897
0.8360	1.1931	1.8810
.	.	.
.	.	.
<b>0.9030</b>	<b>1.2193</b>	<b>1.5435</b>

d device days in 2016.

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	5,185	4,746.7695	1.0923	1.0629
Alabama	41	75,866	74,538.3020	1.0178	1.0106
Arkansas	24	27,644	31,941.2110	0.8655	0.8553
Arizona	25	58,420	53,386.9264	1.0943	1.0854
California	167	333,267	287,575.6697	1.1589	1.1550
Colorado	36	53,129	56,898.0819	0.9338	0.9259
Connecticut	16	33,231	26,795.2187	1.2402	1.2269
D.C.	3	.	.	.	.
Delaware	3	.	.	.	.
Florida	113	275,943	304,580.9573	0.9060	0.9026
Georgia	67	148,048	133,049.5375	1.1127	1.1071
Guam	0	.	.	.	.
Hawaii	6	6,444	4,814.6031	1.3384	1.3061
Iowa	14	8,849	9,031.4201	0.9798	0.9595
Idaho	7	9,658	9,875.3479	0.9780	0.9586
Illinois	60	73,694	89,372.6577	0.8246	0.8186
Indiana	61	110,814	104,828.6316	1.0571	1.0509
Kansas	30	24,878	37,310.3098	0.6668	0.6585
Kentucky	40	44,482	52,077.9188	0.8541	0.8462
Louisiana	30	33,810	36,981.2318	0.9142	0.9045
Massachusetts	22	33,422	33,839.8090	0.9877	0.9771
Maryland	24	41,874	43,638.5649	0.9596	0.9504
Maine	12	13,989	15,133.3419	0.9244	0.9091
Michigan	73	166,262	159,176.2737	1.0445	1.0395
Minnesota	7	17,914	14,390.6440	1.2448	1.2267
Missouri	37	70,841	71,533.6492	0.9903	0.9831
Mississippi	25	23,481	27,431.0378	0.8560	0.8451
Montana	4	.	.	.	.
North Carolina	41	63,020	63,427.9014	0.9936	0.9858
North Dakota	1	.	.	.	.
Nebraska	10	13,302	12,086.1202	1.1006	1.0820
New Hampshire	10	7,102	6,015.9072	1.1805	1.1533
New Jersey	47	100,048	101,715.4301	0.9836	0.9775
New Mexico	19	14,410	14,912.7002	0.9663	0.9506
Nevada	18	65,175	57,698.2289	1.1296	1.1209
New York	134	297,120	264,934.7792	1.1215	1.1175
Ohio	75	145,756	157,844.7151	0.9234	0.9187
Oklahoma	35	46,941	45,895.4678	1.0228	1.0136
Oregon	23	24,986	29,852.1274	0.8370	0.8266
Pennsylvania	138	296,899	294,519.5449	1.0081	1.0044

Puerto Rico	7	12,772	14,947.2032	0.8545	0.8397
Rhode Island	9	10,851	11,317.6849	0.9588	0.9409
South Carolina	54	98,314	98,940.6551	0.9937	0.9875
South Dakota	6	3,058	3,200.2646	0.9555	0.9221
Tennessee	52	88,165	97,478.8880	0.9045	0.8985
Texas	127	219,075	239,490.8719	0.9148	0.9109
Utah	7	3,103	3,443.1276	0.9012	0.8699
Virginia	64	107,068	118,732.0767	0.9018	0.8964
Virgin Island	1	.	.	.	.
Vermont	0	.	.	.	.
Washington	30	38,034	38,194.6024	0.9958	0.9858
Wisconsin	56	52,044	55,242.0793	0.9421	0.9340
West Virginia	19	21,729	22,851.9345	0.9509	0.9383
Wyoming	5	1,541	1,572.4519	0.9800	0.9320
<b>All US</b>	<b>1940</b>	<b>3,450,111</b>	<b>3,461,372.0441</b>	<b>0.9967</b>	<b>0.9957</b>

1. The number of reporting facilities included in the SUR calculation. This may be different from those reported.
2. Percent of facilities with at least one predicted device day that had an SUR significantly greater than 0.
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; excludes wards (and other non-critical care locations), and NICUs. Data contained in this table are for facilities that reported data.

**SURs using device days data reported to NHSN during 2016 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 $\geq 1$ 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				
1.1224	5	.	.	.	.	.	.	
1.0251	41	14	34%	22	54%	0.1620	0.5195	
0.8757	23	5	22%	15	65%	0.1799	0.4666	
1.1032	25	13	52%	10	40%	0.5623	0.7094	
1.1628	167	108	65%	39	23%	0.7767	0.9361	
0.9417	36	9	25%	20	56%	0.4527	0.6169	
1.2536	16	13	81%	1	6%	.	.	
.	.	.	.	.	.	.	.	
.	.	.	.	.	.	.	.	
0.9094	113	35	31%	68	60%	0.5286	0.6833	
1.1184	67	29	43%	26	39%	0.2535	0.7293	
.	.	.	.	.	.	.	.	
1.3714	6	.	.	.	.	.	.	
1.0004	14	7	50%	3	21%	.	.	
0.9977	7	.	.	.	.	.	.	
0.8305	59	14	24%	39	66%	0.3312	0.5505	
1.0634	61	24	39%	29	48%	0.3770	0.6752	
0.6751	30	7	23%	19	63%	0.1257	0.3216	
0.8621	40	9	23%	25	63%	0.2309	0.4890	
0.9240	29	11	38%	15	52%	0.3732	0.5384	
0.9983	22	7	32%	9	41%	0.5573	0.7989	
0.9688	24	11	46%	9	38%	0.5071	0.7823	
0.9398	12	4	33%	7	58%	.	.	
1.0495	73	32	44%	36	49%	0.4742	0.7036	
1.2632	7	.	.	.	.	.	.	
0.9976	37	12	32%	18	49%	0.1950	0.6778	
0.8670	25	9	36%	12	48%	0.3259	0.6136	
.	.	.	.	.	.	.	.	
1.0013	41	12	29%	26	63%	0.2966	0.4794	
.	.	.	.	.	.	.	.	
1.1194	10	4	40%	3	30%	.	.	
1.2082	10	6	60%	2	20%	.	.	
0.9897	47	19	40%	23	49%	0.5011	0.7735	
0.9821	19	3	16%	13	68%	.	.	
1.1383	18	13	72%	5	28%	.	.	
1.1255	134	76	57%	46	34%	0.6231	0.8489	
0.9281	75	23	31%	45	60%	0.4403	0.6218	
1.0321	35	11	31%	18	51%	0.3748	0.5127	
0.8474	23	7	30%	14	61%	0.4991	0.6485	
1.0117	138	44	32%	79	57%	0.3155	0.5668	



0.8694	7	.	.	.	.	.	.	.
0.9770	9	.	.	.	.	.	.	.
0.9999	53	14	26%	27	51%	0.3726	0.6454	.
0.9899	6	.	.	.	.	.	.	.
0.9104	52	13	25%	35	67%	0.2663	0.4576	.
0.9186	123	34	28%	77	63%	0.2571	0.6179	.
0.9333	7	.	.	.	.	.	.	.
0.9072	64	14	22%	43	67%	0.3370	0.5172	.
.	.	.	.	.	.	.	.	.
.	.	.	.	.	.	.	.	.
1.0059	30	11	37%	11	37%	0.4194	0.6658	.
0.9502	56	17	30%	30	54%	0.3829	0.6002	.
0.9636	19	5	26%	14	74%	.	.	.
1.0299	5	.	.	.	.	.	.	.
<b>0.9978</b>	<b>1932</b>	<b>729</b>	<b>38%</b>	<b>964</b>	<b>50%</b>	<b>0.3743</b>	<b>0.6425</b>	.

ported in the SIR tables due to exclusion and inclusion criteria. Refer to the technical appendix for details.  
or less than the nominal value of the national SUR. This is only calculated if at least 10 facilities had  $\geq 1.0$  predicted  
vice days in 2016. If a facility's predicted number of device days was  $<1.0$ , a facility-specific SUR was neither calcula  
d in this table are reported 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>
.	.	.
0.9022	1.1627	1.3510
0.7969	1.0378	1.3749
1.0593	1.3232	1.4913
1.1804	1.4892	2.1066
0.8092	1.0111	1.4788
.	.	.
.	.	.
.	.	.
0.8720	1.1299	1.3351
1.0309	1.3061	1.6845
.	.	.
.	.	.
.	.	.
0.8050	1.0601	1.2208
0.9999	1.2888	1.8395
0.5704	0.9856	1.2146
0.7633	1.0448	1.2401
0.9003	1.1948	1.3656
0.9478	1.1076	1.4113
1.0426	1.3756	1.8584
.	.	.
0.9696	1.3426	1.5493
.	.	.
0.9430	1.1413	1.6187
0.9672	1.1489	1.3511
.	.	.
0.8760	1.1493	1.4593
.	.	.
.	.	.
.	.	.
0.9565	1.2351	1.5342
.	.	.
.	.	.
1.0931	1.3433	1.7423
0.8686	1.1496	1.3606
0.9145	1.2205	1.5853
0.7969	1.3528	1.7769
0.8480	1.1990	1.3832

.	.	.
0.8835	1.0794	1.4194
.	.	.
0.7833	1.0103	1.3699
0.8384	1.1179	1.3236
.	.	.
0.8164	1.0047	1.2150
.	.	.
1.0128	1.2666	1.6093
0.8346	1.1569	1.5378
.	.	.
.	.	.
<b>0.9288</b>	<b>1.2257</b>	<b>1.5378</b>

d device days in 2016.

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	4	.	.	.	.
Alabama	5	162	2,559.6672	0.0633	0.0541
Arkansas	3	.	.	.	.
Arizona	10	573	276.4486	2.0727	1.9081
California	37	17,196	11,667.9612	1.4738	1.4519
Colorado	8	1,529	539.8157	2.8324	2.6932
Connecticut	3	.	.	.	.
D.C.	0	.	.	.	.
Delaware	1	.	.	.	.
Florida	18	8,696	9,534.9086	0.9120	0.8930
Georgia	7	1,202	1,424.6022	0.8437	0.7970
Guam	0	.	.	.	.
Hawaii	1	.	.	.	.
Iowa	1	.	.	.	.
Idaho	1	.	.	.	.
Illinois	12	3,122	5,349.1639	0.5836	0.5634
Indiana	14	2,748	435.0814	6.3161	6.0831
Kansas	3	.	.	.	.
Kentucky	4	.	.	.	.
Louisiana	10	889	1,024.4402	0.8678	0.8122
Massachusetts	4	.	.	.	.
Maryland	8	4,335	3,336.8666	1.2991	1.2609
Maine	1	.	.	.	.
Michigan	9	10,656	3,512.3240	3.0339	2.9767
Minnesota	4	.	.	.	.
Missouri	5	935	2,820.9105	0.3315	0.3107
Mississippi	1	.	.	.	.
Montana	0	.	.	.	.
North Carolina	7	4,941	4,969.6982	0.9942	0.9668
North Dakota	0	.	.	.	.
Nebraska	4	.	.	.	.
New Hampshire	2	.	.	.	.
New Jersey	11	6,629	7,124.1443	0.9305	0.9083
New Mexico	3	.	.	.	.
Nevada	8	2,732	3,947.9883	0.6920	0.6664
New York	51	66,220	47,406.3871	1.3969	1.3862
Ohio	32	6,523	16,219.0317	0.4022	0.3925
Oklahoma	2	.	.	.	.
Oregon	4	.	.	.	.
Pennsylvania	50	16,285	26,386.4660	0.6172	0.6077

Puerto Rico	5	2,244	5,488.3643	0.4089	0.3922
Rhode Island	1	.	.	.	.
South Carolina	10	2,366	5,184.9187	0.4563	0.4382
South Dakota	2	.	.	.	.
Tennessee	10	5,148	11,270.0715	0.4568	0.4444
Texas	28	3,642	3,336.5976	1.0915	1.0565
Utah	0	.	.	.	.
Virginia	13	6,209	10,044.1239	0.6182	0.6029
Virgin Island	0	.	.	.	.
Vermont	0	.	.	.	.
Washington	4	.	.	.	.
Wisconsin	7	1,601	1,086.6433	1.4733	1.4025
West Virginia	2	.	.	.	.
Wyoming	0	.	.	.	.
<b>All US</b>	<b>430</b>	<b>195,138</b>	<b>197,759.4639</b>	<b>0.9867</b>	<b>0.9824</b>

1. The number of reporting facilities included in the SUR calculation. This may be different from those reported in the table.
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).

SURs using device days data reported to NHSN during 2016 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	Significantly < National SUR					
		N	N					
0.0736	5	.	.	.	.	.	.	
2.2477	8	.	.	.	.	.	.	
1.4959	34	12	35%	18	53%	0.0000	0.2077	
2.9772	6	.	.	.	.	.	.	
0.9313	14	4	29%	9	64%	.	.	
0.8925	5	.	.	.	.	.	.	
0.6044	12	2	17%	9	75%	.	.	
6.5555	10	3	30%	6	60%	.	.	
0.9263	7	.	.	.	.	.	.	
1.3383	6	.	.	.	.	.	.	
3.0918	8	.	.	.	.	.	.	
0.3532	5	.	.	.	.	.	.	
1.0222	7	.	.	.	.	.	.	
0.9531	11	4	36%	7	64%	.	.	
0.7183	8	.	.	.	.	.	.	
1.4075	51	30	59%	20	39%	0.1911	0.3192	
0.4120	29	3	10%	22	76%	0.0000	0.0000	
0.6267	48	9	19%	33	69%	0.0000	0.0000	

0.4261	5	.	.	.	.	.	.
.	.	.	.	.	.	.	.
0.4750	10	1	10%	8	80%	.	.
.	.	.	.	.	.	.	.
0.4694	10	3	30%	6	60%	.	.
1.1274	20	1	5%	14	70%	0.0000	0.0000
.	.	.	.	.	.	.	.
0.6337	13	4	31%	8	62%	.	.
.	.	.	.	.	.	.	.
.	.	.	.	.	.	.	.
1.5469	5	.	.	.	.	.	.
.	.	.	.	.	.	.	.
.	.	.	.	.	.	.	.
<b>0.9911</b>	<b>382</b>	<b>104</b>	<b>27%</b>	<b>237</b>	<b>62%</b>	<b>0.0000</b>	<b>0.0000</b>

ported in the SIR tables due to exclusion and inclusion criteria. Refer to the technical appendix for details.  
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 2016. 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>
.	.	.
.	.	.
.	.	.
0.8073	1.8603	5.6640
.	.	.
.	.	.
.	.	.
.	.	.
.	.	.
.	.	.
.	.	.
.	.	.
.	.	.
.	.	.
.	.	.
.	.	.
.	.	.
.	.	.
.	.	.
.	.	.
.	.	.
.	.	.
.	.	.
.	.	.
.	.	.
.	.	.
1.3408	3.1906	5.3841
0.0939	0.6523	1.1470
.	.	.
.	.	.
0.1840	0.9305	1.6547



.	.	.
.	.	.
.	.	.
.	.	.
0.0000	0.1836	0.6550
.	.	.
.	.	.
.	.	.
.	.	.
.	.	.
.	.	.
.	.	.
.	.	.
.	.	.
<b>0.3100</b>	<b>1.2231</b>	<b>3.2433</b>

device days in 2016.  
 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 2016 by HAI and patient population: Central line days (CLDs), urinary catheter days (UCDs), and ventilator days (VDs), 2016 compared to 2015**

	2015 SUR	2016 SUR	Percent Change	Direction of Change, Based on Statistical Significance	p-value
<b>CLDs, all locations<sup>1</sup></b>	1.0016	0.9711	-3%	DECREASE	0.0000
ICU <sup>2</sup>	1.0202	1.0020	-2%	DECREASE	0.0000
Ward <sup>3</sup>	0.9921	0.9558	-4%	DECREASE	0.0000
NICU <sup>4</sup>	0.9927	0.9564	-4%	DECREASE	0.0000
<b>UCDs, all locations<sup>5</sup></b>	1.0040	0.9420	-6%	DECREASE	0.0000
	1.0210	0.9920	-3%	DECREASE	0.0000
	0.9930	0.9110	-8%	DECREASE	0.0000
<b>VDs, all<sup>5</sup></b>	1.0005	0.9962	0%	DECREASE	0.0000
ICUs <sup>2</sup>	1.0087	0.9967	-1%	DECREASE	0.0000
Wards <sup>3</sup>	0.8752	0.9867	13%	INCREASE	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 2015 and 2016 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				
	2015 SUR	2016 SUR	Percent Change	Direction of Change, Based on Statistical Significance	p-value
Alaska	1.3642	1.1955	-12%	DECREASE	0.0000
Alabama	0.9639	0.9481	-2%	DECREASE	0.0000
Arkansas	1.1151	1.0286	-8%	DECREASE	0.0000
Arizona	1.0677	1.0861	2%	INCREASE	0.0000
California	1.0651	1.0355	-3%	DECREASE	0.0000
Colorado	1.0338	1.0084	-2%	DECREASE	0.0000
Connecticut	0.8892	0.8707	-2%	DECREASE	0.0000
D.C.	0.9494	0.9909	4%	INCREASE	0.0000
Delaware	0.8993	0.8575	-5%	DECREASE	0.0000
Florida	0.9535	0.9241	-3%	DECREASE	0.0000
Georgia	1.0505	1.0156	-3%	DECREASE	0.0000
Guam	.	.	.	.	.
Hawaii	0.9367	0.9249	-1%	DECREASE	0.0025
Iowa	1.0718	1.0478	-2%	DECREASE	0.0000
Idaho	1.1087	1.0532	-5%	DECREASE	0.0000
Illinois	0.9157	0.8983	-2%	DECREASE	0.0000
Indiana	1.1143	1.0936	-2%	DECREASE	0.0000
Kansas	1.0011	0.9787	-2%	DECREASE	0.0000
Kentucky	1.0105	0.9795	-3%	DECREASE	0.0000
Louisiana	1.0258	1.0075	-2%	DECREASE	0.0000
Massachusetts	0.9261	0.9175	-1%	DECREASE	0.0000
Maryland	0.9456	0.9446	0%	NO CHANGE	0.5895
Maine	0.9142	0.8771	-4%	DECREASE	0.0000
Michigan	0.8761	0.8322	-5%	DECREASE	0.0000
Minnesota	1.0608	1.0480	-1%	DECREASE	0.0000
Missouri	1.0713	1.0189	-5%	DECREASE	0.0000
Mississippi	1.0173	0.9687	-5%	DECREASE	0.0000
Montana	1.0815	0.9088	-16%	DECREASE	0.0000
North Carolina	1.0200	0.9955	-2%	DECREASE	0.0000
North Dakota	1.2194	1.1822	-3%	DECREASE	0.0000
Nebraska	1.3843	1.3143	-5%	DECREASE	0.0000
New Hampshire	1.1436	1.0653	-7%	DECREASE	0.0000
New Jersey	0.9077	0.8463	-7%	DECREASE	0.0000
New Mexico	0.9991	1.0043	1%	NO CHANGE	0.1812
Nevada	1.1679	1.1644	0%	NO CHANGE	0.2363
New York	0.8303	0.8120	-2%	DECREASE	0.0000
Ohio	0.9862	0.9321	-5%	DECREASE	0.0000
Oklahoma	1.3887	1.3588	-2%	DECREASE	0.0000
Oregon	0.9406	0.9031	-4%	DECREASE	0.0000
Pennsylvania	0.9402	0.8973	-5%	DECREASE	0.0000
Puerto Rico	0.6603	0.6402	-3%	DECREASE	0.0000
Rhode Island	0.8881	0.9011	1%	INCREASE	0.0040
South Carolina	0.9640	0.9092	-6%	DECREASE	0.0000
South Dakota	1.2427	1.0759	-13%	DECREASE	0.0000
Tennessee	1.1153	1.0864	-3%	DECREASE	0.0000
Texas	1.0596	1.0244	-3%	DECREASE	0.0000
Utah	0.9173	0.9252	1%	INCREASE	0.0307
Virginia	1.0364	0.9931	-4%	DECREASE	0.0000
Virgin Island	.	.	.	.	.
Vermont	0.8766	0.7848	-10%	DECREASE	0.0000
Washington	1.2025	1.1573	-4%	DECREASE	0.0000
Wisconsin	1.1505	1.1374	-1%	DECREASE	0.0000
West Virginia	1.0202	1.0346	1%	INCREASE	0.0000
Wyoming	1.1404	0.9866	-13%	DECREASE	0.0000
<b>All US</b>	<b>1.0016</b>	<b>0.9711</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), and NICUs.

2. States without SUR either in 2015 and/or 2016 and therefore subsequent data not calculated

**Table 6. Changes in state-specific standardized utilization ratios (SURs) between 2015 and 2016 from NHSN Acute Care Hospitals**  
**6b. Urinary catheter days (UCDs), all locations<sup>1</sup>**

	All Acute Care Hospitals Reporting to NHSN				
	2015 SUR	2016 SUR	Percent Change	Direction of Change, Based on Statistical Significance	p-value
Alaska	1.0163	0.8415	-17%	DECREASE	0.0000
Alabama	1.0553	0.9876	-6%	DECREASE	0.0000
Arkansas	1.2146	1.1036	-9%	DECREASE	0.0000
Arizona	0.9156	0.9218	1%	INCREASE	0.0008
California	1.1438	1.0550	-8%	DECREASE	0.0000
Colorado	1.1245	0.9924	-12%	DECREASE	0.0000
Connecticut	0.8621	0.8658	0%	NO CHANGE	0.1445
D.C.	0.7176	0.8322	16%	INCREASE	0.0000
Delaware	0.6251	0.6181	1%	NO CHANGE	0.0501
Florida	0.9371	0.8708	-7%	DECREASE	0.0000
Georgia	1.0303	0.9653	-6%	DECREASE	0.0000
Guam	.	.	.	.	.
Hawaii	0.6176	0.5821	-6%	DECREASE	0.0000
Iowa	1.0239	0.9488	-7%	DECREASE	0.0000
Idaho	1.2475	1.1482	-8%	DECREASE	0.0000
Illinois	0.9386	0.8847	-6%	DECREASE	0.0000
Indiana	0.9374	0.8895	-5%	DECREASE	0.0000
Kansas	0.9099	0.8649	-5%	DECREASE	0.0000
Kentucky	1.0621	0.9681	-9%	DECREASE	0.0000
Louisiana	1.2016	1.1699	-3%	DECREASE	0.0000
Massachusetts	0.9927	0.9329	-6%	DECREASE	0.0000
Maryland	0.8739	0.8334	-5%	DECREASE	0.0000
Maine	0.8570	0.7631	-11%	DECREASE	0.0000
Michigan	0.8893	0.9035	2%	INCREASE	0.0000
Minnesota	0.9332	0.9287	0%	NO CHANGE	0.0667
Missouri	1.0324	0.9695	-6%	DECREASE	0.0000
Mississippi	1.1402	1.0642	-7%	DECREASE	0.0000
Montana	1.0813	0.8268	-24%	DECREASE	0.0000
North Carolina	0.9976	0.9836	-1%	DECREASE	0.0000
North Dakota	1.1218	1.1234	0%	NO CHANGE	0.7906
Nebraska	1.0635	0.9557	-10%	DECREASE	0.0000
New Hampshire	1.2246	1.1225	-8%	DECREASE	0.0000
New Jersey	0.9028	0.7970	-12%	DECREASE	0.0000
New Mexico	1.0733	1.0131	-6%	DECREASE	0.0000
Nevada	1.0400	1.0063	-3%	DECREASE	0.0000
New York	0.8973	0.8687	-3%	DECREASE	0.0000
Ohio	1.0372	0.9789	-6%	DECREASE	0.0000
Oklahoma	1.2210	1.1307	-7%	DECREASE	0.0000
Oregon	0.9827	0.9413	-4%	DECREASE	0.0000
Pennsylvania	0.9084	0.8939	-2%	DECREASE	0.0000
Puerto Rico	1.0320	0.9874	-4%	DECREASE	0.0000
Rhode Island	0.8156	0.7588	-7%	DECREASE	0.0000
South Carolina	0.9145	0.8660	-5%	DECREASE	0.0000
South Dakota	1.2085	1.0716	-11%	DECREASE	0.0000
Tennessee	1.0850	1.0135	-7%	DECREASE	0.0000
Texas	1.0917	0.9460	-13%	DECREASE	0.0000
Utah	1.0966	1.0417	-5%	DECREASE	0.0000
Virginia	1.0166	0.9032	-11%	DECREASE	0.0000
Virgin Island	.	.	.	.	.
Vermont	0.9877	0.9345	-5%	DECREASE	0.0000
Washington	1.0104	0.9340	-8%	DECREASE	0.0000
Wisconsin	1.0417	0.9506	-9%	DECREASE	0.0000
West Virginia	1.0639	1.0584	1%	NO CHANGE	0.0754
Wyoming	1.1853	1.0239	-14%	DECREASE	0.0000
<b>All US</b>	<b>1.0040</b>	<b>0.9420</b>	<b>-6%</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 2015 and/or 2016 and therefore subsequent data not calculated

**Table 6. Changes in state-specific standardized utilization ratios (SURs) between 2015 and 2016 from NHSN Acute Care Hospitals**  
**6c. Ventilator days (VDs), all locations<sup>1</sup>**

	All Acute Care Hospitals Reporting to NHSN				
	2015 SUR	2016 SUR	Percent Change	Direction of Change, Based on Statistical Significance	p-value
Alaska	1.4767	1.7144	16%	INCREASE	0.0000
Alabama	0.9973	0.9861	-1%	DECREASE	0.0438
Arkansas	0.9769	0.8680	-11%	DECREASE	0.0000
Arizona	1.0415	1.0993	6%	INCREASE	0.0000
California	1.1573	1.1712	1%	INCREASE	0.0000
Colorado	0.9636	0.9516	1%	NO CHANGE	0.0507
Connecticut	1.0704	1.1610	8%	INCREASE	0.0000
D.C.	.	.	.	.	.
Delaware	.	.	.	.	.
Florida	0.8259	0.9062	10%	INCREASE	0.0000
Georgia	1.0904	1.1099	2%	INCREASE	0.0000
Guam	.	.	.	.	.
Hawaii	1.5278	1.3612	-11%	DECREASE	0.0000
Iowa	0.9388	0.9789	4%	INCREASE	0.0097
Idaho	0.9355	0.9761	4%	INCREASE	0.0039
Illinois	0.8401	0.8110	-3%	DECREASE	0.0000
Indiana	1.0638	1.0788	1%	INCREASE	0.0009
Kansas	0.6340	0.6588	4%	INCREASE	0.0000
Kentucky	1.0117	0.8532	-16%	DECREASE	0.0000
Louisiana	0.9461	0.9130	-3%	DECREASE	0.0000
Massachusetts	1.2224	0.9992	-18%	DECREASE	0.0000
Maryland	0.8737	0.9837	13%	INCREASE	0.0000
Maine	0.8619	0.9500	10%	INCREASE	0.0000
Michigan	1.0775	1.0875	1%	INCREASE	0.0101
Minnesota	1.1422	1.3097	15%	INCREASE	0.0000
Missouri	0.9561	0.9653	1%	NO CHANGE	0.1160
Mississippi	0.9569	0.9345	-2%	DECREASE	0.0101
Montana	.	.	.	.	.
North Carolina	0.9351	0.9936	6%	INCREASE	0.0000
North Dakota	.	.	.	.	.
Nebraska	1.2408	1.2291	1%	NO CHANGE	0.4063
New Hampshire	1.1346	1.1552	2%	NO CHANGE	0.3031
New Jersey	1.0947	0.9801	-10%	DECREASE	0.0000
New Mexico	0.9935	0.9635	-3%	DECREASE	0.0074
Nevada	1.0894	1.1016	1%	INCREASE	0.0401
New York	1.1505	1.1633	1%	INCREASE	0.0000
Ohio	0.8531	0.8748	3%	INCREASE	0.0000
Oklahoma	1.1465	1.0227	-11%	DECREASE	0.0000
Oregon	0.8457	0.8305	-2%	DECREASE	0.0379
Pennsylvania	0.9674	0.9759	1%	INCREASE	0.0005
Puerto Rico	0.8031	0.7348	-9%	DECREASE	0.0000
Rhode Island	1.2496	0.9058	-28%	DECREASE	0.0000
South Carolina	0.9740	0.9669	1%	NO CHANGE	0.1037
South Dakota	1.1694	0.9766	-16%	DECREASE	0.0000
Tennessee	0.8493	0.8581	1%	INCREASE	0.0277
Texas	1.0470	0.9172	-12%	DECREASE	0.0000
Utah	0.9660	0.9012	-7%	DECREASE	0.0050
Virginia	0.8827	0.8796	0%	NO CHANGE	0.4194
Virgin Island	.	.	.	.	.
Vermont	.	.	.	.	.
Washington	1.0235	0.9804	-4%	DECREASE	0.0000
Wisconsin	1.0330	0.9524	-8%	DECREASE	0.0000
West Virginia	1.0271	0.9439	-8%	DECREASE	0.0000
Wyoming	0.7057	0.9800	39%	INCREASE	0.0000
<b>All US</b>	<b>1.0005</b>	<b>0.9962</b>	<b>0%</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 2015 and/or 2016 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.*