

2020 National and State HAI Data Report

Introduction:

Welcome to the 2020 National and State HAI Data Report using the 2015 baseline by comparing the number of observed device days to the number of predicted device days. This report is created by CDC staff with the National Healthcare Safety Network (NHSN).

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

Inpatient Rehabilitation Facilities

and risk adjustment calculations. Standardized utilization ratios (SURs) are used to describe device-assisted ventilator days.

(IHSN).

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

]

sociated HAIs

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 standardized to compare with a reference baseline population as well as over time. Accordingly, CDC has

Development of SUR models

SUR models were developed for the following measures: central line days, urinary catheter days and ventilator inpatient rehabilitation facilities (IRF), long-term acute care hospitals (LTACH) (and NICU for central line). Using the NHSN data (2020) 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 is

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

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

3: Calculate predicted device days as follows:

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

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

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

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

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).

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

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

ties. To monitor the progress of healthcare acquired infections (HAI) prevention efforts, device utilization in any l
s developed statistical models to make SUR values available for different measures (e.g., central line days, urin

tilator days. They were available for the healthcare setting of acute care hospitals (ACH), critical access hospita
days).

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

redicted device days;

1.0.

ility-level).

number of predicted device days.

healthcare setting/location needs to be
vary catheter days) at various healthcare settings.

als (CAH),

2020 Annual National and State HAI Progress Report

Inpatient Rehabilitation Facilities: 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 Inpatient rehabilitation facilities:**
All locations combined

Table 3 **State-specific SURs for UCDs from Inpatient rehabilitation facilities:**
All locations combined

Table 4 **State-specific SURs for VDs from Inpatient rehabilitation facilities**
All locations combined

Table 5 **Changes in national SURs, 2020 compared to 2019:**
Central Line Days (CLDs)
Urinary Catheter Days (UCDs)
Ventilator days (VDs)

Table 6 **Changes in state SURs, 2020 compared to 2019:**
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 i

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

ry SURs:

inpatient rehabilitation facilities (IRFs)

isn-sur-guide-508.pdf

Device and Patient Population	No. of Facilities	No. of Device days	
	Reporting ¹	Observed	Predicted
Central line days, all⁴	734	379,321	427,291.2820
ICUs⁵	137	136,811	169,084.3861
Wards⁶	597	242,510	258,206.8960
Urinary catheter days, all⁴	1,152	650,018	702,416.3034
	369	395,898	406,467.9914
Wards⁶	783	254,120	295,948.3120
Ventilator days, all⁴	34	1,478	1,560.8494
	8	977	695.2293
	26	501	865.6201

1. The number of reporting facilities included in the SUR calculation; SURs are not calculated when there are le
2. Percent of facilities with at least one predicted device day that had an SUR significantly greater than or less t
3. Facility-specific percentiles are only calculated if at least 20 facilities had ≥ 1.0 predicted number of device da
4. Data from all ICUs, wards (and other non-critical care locations). Data contained in this table are reported fro
5. Data from all ICUs; excludes wards (and other non-critical care locations). Data contained in this table are re
6. Data from all wards (for this table wards also include step-down, mixed acuity, and specialty care areas [inclu

of SURs using device days data reported to NHSN during 2020 for inpatient rehabilitation facilities (IRF), urinary catheter days (UCDs), and ventilator days (VDs).

Facilities with SUR	Percentile							
	5%	10%	15%	20%	25%	30%	35%	40%
National SUR								
47%	0.2133	0.3418	0.4136	0.4890	0.5639	0.6198	0.6757	0.7259
50%	0.2327	0.3323	0.4207	0.4842	0.5582	0.5989	0.6146	0.6619
48%	0.2078	0.3438	0.4127	0.4996	0.5641	0.6254	0.6870	0.7369
46%	0.2644	0.3739	0.4505	0.5131	0.5783	0.6362	0.6988	0.7645
47%	0.3456	0.4497	0.5465	0.6287	0.6942	0.7512	0.8153	0.8582
43%	0.2269	0.3460	0.4238	0.4855	0.5363	0.5904	0.6433	0.7077
79%	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
73%	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

selection and inclusion criteria. Refer to the technical appendix for details.
 reported device days in 2020.
 calculated nor included in the distribution of facility-specific SURs.

and.
 inpatient rehabilitation facilities.

Fs), by device type and patient population:

ile Distribution of Facility-specific SURs³

Median									
45%	50%	55%	60%	65%	70%	75%	80%	85%	90%
0.7668	0.8208	0.8862	0.9305	0.9935	1.0563	1.1425	1.2572	1.3538	1.5601
0.6927	0.7350	0.7855	0.8509	0.8860	0.9234	0.9996	1.0808	1.2085	1.2928
0.7837	0.8516	0.9080	0.9646	1.0132	1.0824	1.1667	1.2752	1.4060	1.6144
0.8294	0.8737	0.9267	0.9828	1.0377	1.1009	1.1691	1.2638	1.3949	1.5477
0.8963	0.9393	0.9841	1.0187	1.0589	1.1423	1.2001	1.2931	1.3691	1.5304
0.7791	0.8337	0.8862	0.9488	1.0206	1.0876	1.1431	1.2524	1.4023	1.5588
0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.6181	0.8727	1.1751
0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.4102	0.8727	1.1049

95%

1.9247

1.5004

2.0733

1.8260

1.7923

1.8351

3.9508

1.1751

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

State	No. of Facilities	No. of Device days			95% CI	
		Observed	Predicted	SUR	Lower	Upper
Alabama	7	5,374	5,075.6313	1.0588	1.0308	
Alaska	2	.	.	.	.	.
Arizona	14	5,651	6,374.9013	0.8864	0.8636	
Arkansas	14	5,627	6,679.4988	0.8424	0.8206	
California	75	39,265	45,257.8333	0.8676	0.8590	
Colorado	18	10,675	11,486.5381	0.9293	0.9118	
Connecticut	4	.	.	.	.	.
Delaware	3	.	.	.	.	.
D.C.	2	.	.	.	.	.
Florida	26	21,767	24,839.7110	0.8763	0.8647	
Georgia	19	11,267	10,281.8954	1.0958	1.0757	
Guam	0	.	.	.	.	.
Hawaii	0	.	.	.	.	.
Idaho	2	.	.	.	.	.
Illinois	32	19,334	21,162.6927	0.9136	0.9008	
Indiana	29	15,877	14,802.6702	1.0726	1.0560	
Iowa	11	3,274	4,073.5448	0.8037	0.7765	
Kansas	10	4,360	2,999.7002	1.4535	1.4108	
Kentucky	7	3,489	3,873.2238	0.9008	0.8713	
Louisiana	24	7,642	8,794.6635	0.8689	0.8496	
Maine	4	.	.	.	.	.
Maryland	3	.	.	.	.	.
Massachusetts	6	2,479	2,832.3746	0.8752	0.8413	
Michigan	22	9,684	10,261.0849	0.9438	0.9251	
Minnesota	6	2,971	2,880.6783	1.0314	0.9948	
Mississippi	8	3,011	3,090.0034	0.9744	0.9401	
Missouri	17	6,310	7,817.9179	0.8071	0.7874	
Montana	3	.	.	.	.	.
Nebraska	7	2,278	2,259.1815	1.0083	0.9675	
Nevada	11	9,814	10,988.2469	0.8931	0.8756	
New Hampshire	3	.	.	.	.	.
New Jersey	5	3,522	4,424.1693	0.7961	0.7701	
New Mexico	3	.	.	.	.	.
New York	40	16,816	15,927.6691	1.0558	1.0399	
North Carolina	13	15,763	16,355.0264	0.9638	0.9488	
North Dakota	2	.	.	.	.	.
Ohio	28	12,379	12,625.2486	0.9805	0.9633	
Oklahoma	14	5,274	6,001.1904	0.8788	0.8554	
Oregon	6	1,422	2,146.0669	0.6626	0.6288	
Pennsylvania	70	48,771	57,529.9251	0.8478	0.8403	
Puerto Rico	2	.	.	.	.	.
Rhode Island	4	.	.	.	.	.
South Carolina	22	10,685	19,131.8101	0.5585	0.5480	

South Dakota	3	.	.	.	.
Tennessee	17	6,444	9,889.5488	0.6516	0.6358
Texas	67	32,155	36,723.7604	0.8756	0.8661
Utah	4	.	.	.	.
Vermont	2	.	.	.	.
Virgin Islands	0	.	.	.	.
Virginia	13	8,157	8,197.7093	0.9950	0.9736
Washington	12	3,946	4,589.4320	0.8598	0.8333
West Virginia	2	.	.	.	.
Wisconsin	16	5,940	6,181.5808	0.9609	0.9367
Wyoming	0	.	.	.	.
	734	379,321	427,291.2820	0.8877	0.8849

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 tha
3. Facility-specific percentiles are only calculated if at least 20 facilities had ≥ 1.0 predicted number of
4. Data from all ICUs and wards (and other non-critical care locations). Data contained in this table ar

Rs using device days data reported to NHSN during 2020 for inpatient rehabilitation facilities (IRFs) (Ds), all locations⁴

for SUR	Facility-specific SURs					10%
	No. Facilities with ≥1 Predicted Device Days	No. Facilities with SUR Significantly > National SUR N	No. Facilities with SUR Significantly < National SUR	No. Facilities with SUR	No. Facilities with SUR	
1.0874	7	.	.	.	.	.
.
0.9098	14	6	43%	6	43%	.
0.8646	14	4	29%	8	57%	.
0.8762	75	23	31%	41	55%	0.3810
0.9471	18	8	44%	6	33%	.
.
.
0.8880	26	10	38%	12	46%	0.3418
1.1162	19	13	68%	5	26%	.
.
.
0.9265	32	13	41%	12	38%	0.2908
1.0894	29	13	45%	11	38%	0.4741
0.8316	11	4	36%	5	45%	.
1.4971	10	6	60%	3	30%	.
0.9311	7	.	.	.	.	.
0.8886	24	8	33%	12	50%	0.3531
.
.
0.9102	6	.	.	.	.	.
0.9627	22	7	32%	11	50%	0.0389
1.0689	6	.	.	.	.	.
1.0097	8	.	.	.	.	.
0.8272	17	5	29%	7	41%	.
.
1.0504	7	.	.	.	.	.
0.9109	11	3	27%	5	45%	.
.
0.8227	5	.	.	.	.	.
.
1.0718	40	15	38%	23	58%	0.2660
0.9790	13	6	46%	5	38%	.
.
0.9979	28	14	50%	10	36%	0.4090
0.9028	14	3	21%	9	64%	.
0.6977	6	.	.	.	.	.
0.8553	70	27	39%	32	46%	0.3504
.
.
0.5692	22	2	9%	16	73%	0.3618

0.6677	17	3	18%	10	59%	
0.8852	67	23	34%	33	49%	0.2800
1.0168	13	7	54%	4	31%	
0.8870	12	3	25%	7	58%	
0.9856	16	3	19%	5	31%	
0.8906	734	258	35%	346	47%	0.3418

There are less than 5 reporting facilities. This may be different from those reported in the SIR tables due to n or less than the nominal value of the national SUR. This is only calculated if at least 10 facilities had ≥ device days in 2020. If a facility's predicted number of device days was <1.0, a facility-specific SUR was reported from inpatient rehabilitation facilities.

s), by device type and patient population:

Median			
25%	50%	75%	90%
.	.	.	.
.	.	.	.
.	.	.	.
.	.	.	.
0.4890	0.7750	1.0673	1.4084
.	.	.	.
.	.	.	.
.	.	.	.
0.7201	0.8553	1.0089	1.2731
.	.	.	.
.	.	.	.
.	.	.	.
0.6293	0.8826	1.3296	1.5572
0.6503	0.9305	1.7619	2.3686
.	.	.	.
.	.	.	.
0.5017	0.8395	1.1770	2.0962
.	.	.	.
.	.	.	.
0.4057	0.8091	1.0462	1.3997
.	.	.	.
.	.	.	.
.	.	.	.
.	.	.	.
.	.	.	.
.	.	.	.
0.3957	0.6569	1.6506	2.2680
.	.	.	.
.	.	.	.
0.6935	0.9635	1.2519	1.5703
.	.	.	.
.	.	.	.
0.5780	0.8468	1.1404	1.3767
.	.	.	.
.	.	.	.
0.4267	0.5748	0.8472	0.9806

.	.	.	.
.	.	.	.
0.6388	0.8124	1.1147	1.4620
.	.	.	.
.	.	.	.
.	.	.	.
.	.	.	.
.	.	.	.
.	.	.	.
.	.	.	.
0.5639	0.8208	1.1425	1.5601

| exclusion and inclusion criteria. Refer to the technical appendix for details.
 | 1.0 predicted device days in 2020.
 | neither calculated nor included in the distribution of facility-specific SURs.

|

Table 3. State-specific standardized utilization ratios (SURs) and facility-specific summary SUR
Table 3. Urinary catheter days (L

State	No. of Facilities	No. of Device days			95% CI
		Observed	Predicted	SUR	Lower
Alabama	18	19,029	17,386.9828	1.0944	1.0789
Alaska	2	.	.	.	.
Arizona	27	17,507	17,294.9507	1.0123	0.9973
Arkansas	26	15,059	14,488.6730	1.0394	1.0228
California	75	32,586	40,644.8948	0.8017	0.7931
Colorado	18	8,606	9,782.8352	0.8797	0.8613
Connecticut	7	1,215	2,766.7910	0.4391	0.4150
D.C.	4	.	.	.	.
Delaware	2	.	.	.	.
Florida	56	49,493	53,394.9860	0.9269	0.9188
Georgia	28	14,373	16,081.4336	0.8938	0.8792
Guam	0	.	.	.	.
Hawaii	1	.	.	.	.
Idaho	6	2,272	2,769.3561	0.8204	0.7872
Illinois	40	23,545	26,991.9722	0.8723	0.8612
Indiana	38	17,673	18,430.3494	0.9589	0.9449
Iowa	17	5,097	5,181.7771	0.9836	0.9569
Kansas	20	8,222	8,827.6141	0.9314	0.9114
Kentucky	16	11,643	12,685.4978	0.9178	0.9013
Louisiana	51	17,339	17,232.1451	1.0062	0.9913
Maine	5	2,601	3,029.5176	0.8586	0.8261
Maryland	4	.	.	.	.
Massachusetts	12	15,788	15,608.9921	1.0115	0.9958
Michigan	39	13,541	17,750.1362	0.7629	0.7501
Minnesota	11	3,890	4,981.5453	0.7809	0.7566
Mississippi	11	3,746	6,062.0667	0.6179	0.5984
Missouri	29	16,299	18,774.3036	0.8682	0.8549
Montana	4	.	.	.	.
Nebraska	10	4,592	5,043.8068	0.9104	0.8844
Nevada	13	12,792	11,026.2783	1.1601	1.1402
New Hampshire	8	3,693	5,476.9948	0.6743	0.6528
New Jersey	18	21,432	19,382.3836	1.1057	1.0910
New Mexico	9	5,021	4,645.5195	1.0808	1.0513
New York	48	14,555	23,341.2383	0.6236	0.6135
North Carolina	25	11,028	18,384.6443	0.5998	0.5887
North Dakota	4	.	.	.	.
Ohio	47	27,863	26,599.3592	1.0475	1.0352
Oklahoma	23	9,027	10,319.4038	0.8748	0.8569
Oregon	8	1,425	2,602.8590	0.5475	0.5196
Pennsylvania	70	43,588	48,002.7944	0.9080	0.8995
Puerto Rico	6	1,349	3,348.9092	0.4028	0.3817
Rhode Island	5	1,580	1,516.6632	1.0418	0.9913
South Carolina	23	10,847	15,633.7102	0.6938	0.6809

South Dakota	4	.	.	.	.
Tennessee	29	16,967	19,509.3940	0.8697	0.8567
Texas	151	112,728	97,644.5987	1.1545	1.1478
Utah	10	3,540	4,633.7046	0.7640	0.7391
Vermont	2	.	.	.	.
Virgin Islands	0	.	.	.	.
Virginia	29	14,042	17,860.5902	0.7862	0.7733
Washington	14	10,384	6,766.2984	1.5347	1.5054
West Virginia	8	6,569	6,464.7069	1.0161	0.9918
Wisconsin	19	5,540	6,710.1775	0.8256	0.8041
Wyoming	2	.	.	.	.
All US	1,152	650,018	702,416.3034	0.9254	0.9232

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 ≥ 1.0 predicted number of device days.
4. Data from all ICUs and wards (and other non-critical care locations). Data contained in this table are reported as of 12/31/2019.

Rs using device days data reported to NHSN during 2020 inpatient rehabilitation facilities (IRFs), by JCDs), all locations⁴

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				
1.1101	18	10	56%	5	28%	.	
.	
1.0274	27	13	48%	9	33%	0.4320	
1.0561	26	15	58%	6	23%	0.5719	
0.8105	75	24	32%	43	57%	0.3119	
0.8984	18	7	39%	10	56%	.	
0.4644	7	.	.	.	.	.
.	
0.9351	56	19	34%	28	50%	0.4855	
0.9085	28	12	43%	12	43%	0.4064	
.	
0.8547	6	.	.	.	.	.
0.8835	40	11	28%	18	45%	0.3995	
0.9731	38	17	45%	15	39%	0.3881	
1.0110	17	6	35%	7	41%	.	
0.9517	20	5	25%	9	45%	0.5481	
0.9346	16	9	56%	7	44%	.	
1.0213	51	21	41%	20	39%	0.3624	
0.8920	5	.	.	.	.	.
.	
1.0274	12	6	50%	6	50%	.	
0.7758	39	8	21%	21	54%	0.4396	
0.8057	11	1	9%	8	73%	.	
0.6380	11	2	18%	7	64%	.	
0.8816	29	8	28%	17	59%	0.3390	
.	
0.9370	10	3	30%	7	70%	.	
1.1804	13	7	54%	5	38%	.	
0.6963	8	.	.	.	.	.
1.1206	18	10	56%	5	28%	.	
1.1110	9	.	.	.	.	.
0.6338	48	10	21%	28	58%	0.2518	
0.6111	25	3	12%	19	76%	0.2472	
.	
1.0599	47	20	43%	12	26%	0.4277	
0.8930	23	7	30%	13	57%	0.2531	
0.5765	8	.	.	.	.	.
0.9166	70	25	36%	29	41%	0.3881	
0.4248	6	.	.	.	.	.
1.0941	5	.	.	.	.	.
0.7070	23	3	13%	15	65%	0.4251	

0.8829	29	9	31%	15	52%	0.4483
1.1612	151	78	52%	47	31%	0.5372
0.7894	10	3	30%	6	60%	.
.
0.7993	29	5	17%	17	59%	0.4733
1.5644	14	6	43%	5	36%	.
1.0409	8	.	.	.	.	.
0.8476	19	5	26%	8	42%	.
.
0.9276	1,152	413	36%	529	46%	0.3739

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 ≥ 1.0 predicted days in 2020. If a facility's predicted number of device days was <1.0 , a facility-specific SUR was neither reported from inpatient rehabilitation facilities.

/ device type and patient population:

Median			
25%	50%	75%	90%
.	.	.	.
.	.	.	.
0.7543	1.0184	1.3450	1.4277
0.8810	1.0657	1.3019	1.4960
0.4957	0.7752	1.0566	1.4099
.	.	.	.
.	.	.	.
.	.	.	.
.	.	.	.
0.6554	0.8647	1.1205	1.4751
0.5809	0.8797	1.1095	1.2313
.	.	.	.
.	.	.	.
.	.	.	.
0.5571	0.8837	1.0651	1.1742
0.6365	0.9377	1.4739	1.8240
.	.	.	.
0.6535	0.8807	1.0968	1.3523
.	.	.	.
0.4784	0.9543	1.6000	1.9271
.	.	.	.
.	.	.	.
.	.	.	.
0.5224	0.8038	1.0758	1.4358
.	.	.	.
.	.	.	.
0.5487	0.7073	1.0382	1.6858
.	.	.	.
.	.	.	.
.	.	.	.
.	.	.	.
0.4160	0.6460	0.9320	1.4750
0.3484	0.5617	0.8304	1.1098
.	.	.	.
0.8427	1.0547	1.3151	1.6656
0.5498	0.7018	1.3618	1.5385
.	.	.	.
0.6178	0.9076	1.1291	1.3824
.	.	.	.
.	.	.	.
0.4862	0.6851	0.8840	1.0579

.	.	.	.
0.5293	0.8442	1.1238	1.3644
0.7327	1.0215	1.3185	1.7923
.	.	.	.
.	.	.	.
0.5812	0.7028	0.9758	1.2001
.	.	.	.
.	.	.	.
.	.	.	.
.	.	.	.
0.5783	0.8737	1.1691	1.5477

ion and inclusion criteria. Refer to the technical appendix for details.
dicted device days in 2020.
calculated nor included in the distribution of facility-specific SURs.

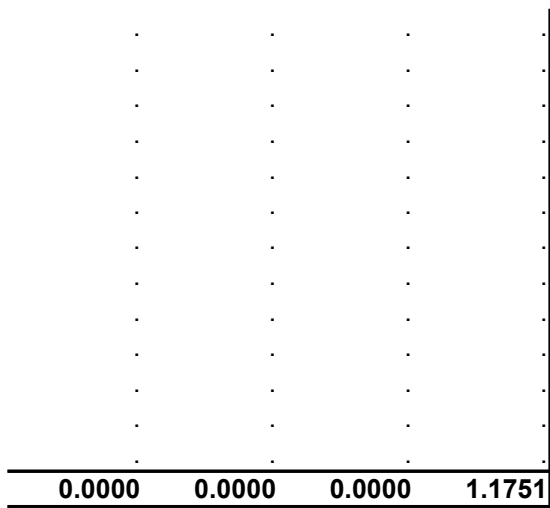
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Table 3. State-specific standardized utilization ratios (SURs) and facility-specific summary SUR
Table 3. Ventilator days (VD:

State	No. of Facilities	No. of Device days			95% CI
		Observed	Predicted	SUR	Lower
Alabama	0	.	.	.	.
Alaska	0	.	.	.	.
Arizona	0	.	.	.	.
Arkansas	0	.	.	.	.
California	6	385	334.9751	1.1493	1.0388
Colorado	0	.	.	.	.
Connecticut	0	.	.	.	.
D.C.	0	.	.	.	.
Delaware	0	.	.	.	.
Florida	0	.	.	.	.
Georgia	1	.	.	.	.
Guam	0	.	.	.	.
Hawaii	0	.	.	.	.
Idaho	0	.	.	.	.
Illinois	1	.	.	.	.
Indiana	1	.	.	.	.
Iowa	0	.	.	.	.
Kansas	0	.	.	.	.
Kentucky	0	.	.	.	.
Louisiana	3	.	.	.	.
Maine	0	.	.	.	.
Maryland	0	.	.	.	.
Massachusetts	2	.	.	.	.
Michigan	0	.	.	.	.
Minnesota	0	.	.	.	.
Mississippi	0	.	.	.	.
Missouri	0	.	.	.	.
Montana	0	.	.	.	.
Nebraska	0	.	.	.	.
Nevada	2	.	.	.	.
New Hampshire	0	.	.	.	.
New Jersey	0	.	.	.	.
New Mexico	0	.	.	.	.
New York	4	.	.	.	.
North Carolina	0	.	.	.	.
North Dakota	0	.	.	.	.
Ohio	2	.	.	.	.
Oklahoma	1	.	.	.	.
Oregon	0	.	.	.	.
Pennsylvania	6	982	454.7870	2.1593	2.0273
Puerto Rico	1	.	.	.	.

Rhode Island	0	.	.	.	.
South Carolina	1	.	.	.	.
South Dakota	0	.	.	.	.
Tennessee	1	.	.	.	.
Texas	2	.	.	.	.
Utah	0	.	.	.	.
Vermont	0	.	.	.	.
Virgin Islands	0	.	.	.	.
Virginia	0	.	.	.	.
Washington	0	.	.	.	.
West Virginia	0	.	.	.	.
Wisconsin	0	.	.	.	.
Wyoming	0	.	.	.	.
All US	34	1,478	1,560.8494	0.9469	0.8996

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 ≥ 1.0 predicted number of device d
4. Data from all ICUs and wards (and other non-critical care locations). Data contained in this table are repor



on and inclusion criteria. Refer to the technical appendix for details.
 icted device days in 2020.
 calculated nor included in the distribution of facility-specific SURs.

|

Table 5. Changes in national standardized utilization ratios (SURs) using HAI data reported from all NHSN inpatient rehabilitation facilities reporting during 2020 by HAI and patient population: Central line days (CLDs), urinary catheter days (UCDs), and ventilator days (VDs), 2020 compared to 2019

	2019 SUR	2020 SUR	Percent Change	Direction of Change, Based on Statistical Significance	p-value
Central line days, all locations¹	0.8334	0.8877	7%	Increase	0.0000
ICU ²	0.7451	0.8091	9%	Increase	0.0000
Ward ³	0.8853	0.9392	6%	Increase	0.0000
UCDs, all locations¹	0.7915	0.9254	17%	Increase	0.0000
	0.8317	0.9740	17%	Increase	0.0000
	0.7410	0.8587	16%	Increase	0.0000
Ventilator days, all locations¹	0.7784	0.9469	22%	Increase	0.0000
ICUs ²	1.5630	1.4053	-10%	Decrease	0.0176
Wards ³	0.2541	0.5788	128%	Increase	0.0000

* Statistically significant, $p < 0.0500$. Statistical significance based on two-tailed p -value < 0.05 , reflected in the relative percent change in magnitude

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

2. Data from all ICUs; excludes wards (and other non-critical care locations).

3. Data from all wards (for this table wards also include step-down and specialty care areas [including hematology/oncology, bone marrow transpla

le.

nt].

Table 6. Changes in state-specific standardized infection ratios (SURs) between 2019 and 2020 from NHSN Inpatient Rehabilitation Facilities
6a. Central line days (CLDs), all locations¹

State ²	All Inpatient Rehabilitation Facilities Reporting to NHSN				
	2019 SUR	2020 SUR	Percent Change ³	Direction of Change, Based on Statistical Significance	p-value
Alabama	1.2098	1.0588	-12%	Decrease	0.0000
Alaska	.	.	.	.	.
Arizona	0.9299	0.8864	-5%	Decrease	0.0102
Arkansas	0.6677	0.8424	26%	Increase	0.0000
California	0.7618	0.8676	14%	Increase	0.0000
Colorado	0.9021	0.9293	3%	Increase	0.0370
Connecticut	.	.	.	.	.
D.C.	.	.	.	.	.
Delaware	.	.	.	.	.
Florida	0.7551	0.8763	16%	Increase	0.0000
Georgia	1.1351	1.0958	-3%	Decrease	0.0081
Guam	.	.	.	.	.
Hawaii	.	.	.	.	.
Idaho	.	.	.	.	.
Illinois	0.8638	0.9136	6%	Increase	0.0000
Indiana	1.0368	1.0726	3%	Increase	0.0055
Iowa	0.8436	0.8037	-5%	Decrease	0.0457
Kansas	1.2792	1.4535	14%	Increase	0.0000
Kentucky	0.8703	0.9008	4%	No change	0.1506
Louisiana	0.8825	0.8689	2%	No change	0.3531
Maine	.	.	.	.	.
Maryland	.	.	.	.	.
Massachusetts	.	.	.	.	.
Michigan	0.9330	0.9438	1%	No change	0.4120
Minnesota	0.9258	1.0314	11%	Increase	0.0001
Mississippi	0.9282	0.9744	5%	No change	0.0703
Missouri	0.8449	0.8071	-4%	Decrease	0.0099
Montana	0.2113	0.3331	58%	Increase	0.0000
Nebraska	0.9288	1.0083	9%	Increase	0.0065
Nevada	0.7639	0.8931	17%	Increase	0.0000
New Hampshire	.	.	.	.	.
New Jersey	0.7345	0.7961	8%	Increase	0.0004
New Mexico	0.4298	0.7447	73%	Increase	0.0000
New York	0.8340	1.0558	27%	Increase	0.0000
North Carolina	0.8382	0.9638	15%	Increase	0.0000
North Dakota	.	.	.	.	.
Ohio	0.8860	0.9805	11%	Increase	0.0000
Oklahoma	0.8998	0.8788	2%	No change	0.2220
Oregon	0.6617	0.6626	0%	No change	0.9706
Pennsylvania	0.8318	0.8478	2%	Increase	0.0034
Puerto Rico	.	.	.	.	.
Rhode Island	.	.	.	.	.
South Carolina	0.5720	0.5585	2%	No change	0.0833
South Dakota	.	.	.	.	.
Tennessee	0.7156	0.6516	-9%	Decrease	0.0000
Texas	0.7961	0.8756	10%	Increase	0.0000
Utah	.	.	.	.	.
Vermont	.	.	.	.	.
Virgin Islands	.	.	.	.	.
Virginia	1.0194	0.9950	2%	No change	0.1194
Washington	0.8498	0.8598	1%	No change	0.5732
West Virginia	.	.	.	.	.
Wisconsin	1.0263	0.9609	-6%	Decrease	0.0003
Wyoming	.	.	.	.	.
All US	0.8334	0.8877	7%	Increase	0.0000

* Statistically significant, p < 0.0500. Statistical significance based on two-tailed p-value < 0.05, reflected in the relative percent change in magnitude.

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

2. States without SUR either in 2019 and/or 2020 and therefore subsequent data not calculated

3. For states with <100% or >100% value in the percent change field, the p-value cannot be estimated due to sparse data reported within the facility type.

The p-value is indicated as inestimable when the denominator of percent change (2019 SUR) = 0.

Table 6. Changes in state-specific standardized utilization ratios (SURs) between 2019 and 2020 from NHSN Inpatient Rehabilitation Facilities					
6b. Urinary Catheter Days (UCDs), all locations ¹					
All Inpatient Rehabilitation Facilities Reporting to NHSN					
	2019 SUR	2020 SUR	Direction of Change, Based on Statistical Significance		p-value
Alabama	0.9625	1.0944	14%	Increase	0.0000
Alaska	.	.	.	.	.
Arizona	0.9725	1.0123	4%	Increase	0.0002
Arkansas	0.9279	1.0394	12%	Increase	0.0000
California	0.6659	0.8017	20%	Increase	0.0000
Colorado	0.7684	0.8797	14%	Increase	0.0000
Connecticut	0.5224	0.4391	-16%	Decrease	0.0000
D.C.	.	.	.	.	.
Delaware	.	.	.	.	.
Florida	0.8042	0.9269	15%	Increase	0.0000
Georgia	0.8113	0.8938	10%	Increase	0.0000
Guam	.	.	.	.	.
Hawaii	.	.	.	.	.
Idaho	0.8190	0.8204	0%	No change	0.9569
Illinois	0.7615	0.8723	15%	Increase	0.0000
Indiana	0.8473	0.9589	13%	Increase	0.0000
Iowa	0.9129	0.9836	8%	Increase	0.0003
Kansas	0.7541	0.9314	24%	Increase	0.0000
Kentucky	0.8789	0.9178	4%	Increase	0.0010
Louisiana	0.8669	1.0062	16%	Increase	0.0000
Maine	0.7676	0.8586	12%	Increase	0.0001
Maryland	.	.	.	.	.
Massachusetts	0.8457	1.0115	20%	Increase	0.0000
Michigan	0.6577	0.7629	16%	Increase	0.0000
Minnesota	0.8908	0.7809	-12%	Decrease	0.0000
Mississippi	0.5646	0.6179	9%	Increase	0.0002
Missouri	0.8484	0.8682	2%	Increase	0.0390
Montana	0.7022	0.7040	0%	No change	0.9610
Nebraska	0.8697	0.9104	5%	Increase	0.0295
Nevada	0.9169	1.1601	27%	Increase	0.0000
New Hampshire	0.6399	0.6743	5%	Increase	0.0260
New Jersey	0.8322	1.1057	33%	Increase	0.0000
New Mexico	0.9433	1.0808	15%	Increase	0.0000
New York	0.5146	0.6236	21%	Increase	0.0000
North Carolina	0.5285	0.5998	14%	Increase	0.0000
North Dakota	.	.	.	.	.
Ohio	0.8560	1.0475	22%	Increase	0.0000
Oklahoma	0.7565	0.8748	16%	Increase	0.0000
Oregon	0.5057	0.5475	8%	Increase	0.0351
Pennsylvania	0.7812	0.9080	16%	Increase	0.0000
Puerto Rico	0.4059	0.4028	1%	No change	0.8414
Rhode Island	0.6970	1.0418	49%	Increase	0.0000
South Carolina	0.5541	0.6938	25%	Increase	0.0000
South Dakota	.	.	.	.	.
Tennessee	0.7135	0.8697	22%	Increase	0.0000
Texas	0.9693	1.1545	19%	Increase	0.0000
Utah	0.7236	0.7640	6%	Increase	0.0249
Vermont	.	.	.	.	.
Virgin Islands	.	.	.	.	.
Virginia	0.6556	0.7862	20%	Increase	0.0000
Washington	1.2517	1.5347	23%	Increase	0.0000
West Virginia	0.8832	1.0161	15%	Increase	0.0000
Wisconsin	0.7380	0.8256	12%	Increase	0.0000
Wyoming	.	.	.	.	.
All US	0.7915	0.9254	17%	Increase	0.0000

* Statistically significant, p < 0.0500. Statistical significance based on two-tailed p-value < 0.05, reflected in the relative percent change in magnitude.

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

2. States without SUR either in 2019 and/or 2020 and therefore subsequent data not calculated

3. For states with <100% or >100% value in the percent change field, the p-value cannot be estimated due to sparse data reported within the facility type.

The p-value is indicated as inestimable when the denominator of percent change (2019 SUR) = 0.

Table 6. Changes in state-specific standardized utilization ratios (SURs) between 2019 and 2020 from NHSN Inpatient Rehabilitation Facilities
6c. Ventilator days (VDs), all locations¹

	All Inpatient Rehabilitation Facilities Reporting to NHSN				
	2019 SUR	2020 SUR	Direction of Change, Based on Statistical Significance		p-value
Alabama
Alaska
Arizona
Arkansas
California	.	1.1493	.	.	.
Colorado
Connecticut
D.C.
Delaware
Florida
Georgia
Guam
Hawaii
Idaho
Illinois
Indiana
Iowa
Kansas
Kentucky
Louisiana
Maine
Maryland
Massachusetts
Michigan
Minnesota
Mississippi
Missouri
Montana
Nebraska
Nevada
New Hampshire
New Jersey
New Mexico
New York	0.0427	.	.	.	.
North Carolina
North Dakota
Ohio
Oklahoma
Oregon
Pennsylvania	2.4802	2.1593	-13%	Decrease	0.0020
Puerto Rico
Rhode Island
South Carolina
South Dakota
Tennessee
Texas
Utah
Vermont
Virgin Islands
Virginia
Washington
West Virginia
Wisconsin
Wyoming
All US	0.7784	0.9469	22%	Increase	0.0000

* Statistically significant, p < 0.0500. Statistical significance based on two-tailed p-value < 0.05, reflected in the relative percent change in magnitude.

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

2. States without SUR either in 2019 and/or 2020 and therefore subsequent data not calculated

3. For states with <100% or >100% value in the percent change field, the p-value cannot be estimated due to sparse data reported within the facility type.

The p-value is indicated as inestimable when the denominator of percent change (2019 SUR) = 0.

Appendix A. Factors used in NHSN risk adjusted standard utilization ratios (SUR) calculation of the device utilization in inpatient rehabilitation facilities (IRFs).

Device Type	Validated Parameters for Risk Model
CLDs (non-NICU)	Intercept Facility bed size* Primary diagnosis of stroke admission (in percentile) Primary diagnosis of ortho admission (in percentile)
UCDs	Intercept Proportion of stroke admission (in percentile)
VAE	Intercept only

* 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 fo

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

und at the above website.