

How to Run and Interpret SUR Reports in NHSN

Patient Safety Component Device-Associated Module

August 2021

This guide will provide instructions on how to generate new datasets for analysis, run Standardized Utilization Ratios (SURs) reports and interpret the results in NHSN.

Overview

Standardized Utilization Ratios (SURs) are used to compare the number of observed device days (the numerator) to the number of predicted device days (the denominator). The number of predicted device days is calculated using a logistic regression model. Because each SUR is based on a logistic regression model, each SUR is risk-adjusted and comparable across different locations and facilities.

Instructions

1. Prior to running any of the NHSN output reports, generate a new dataset to ensure all data are included in the analyses. A new dataset can be generated by clicking *Analysis > Generate Data Sets > Generate Reporting Data Sets*.

Generate Data Sets (Patient Safety)

Reporting Data Sets

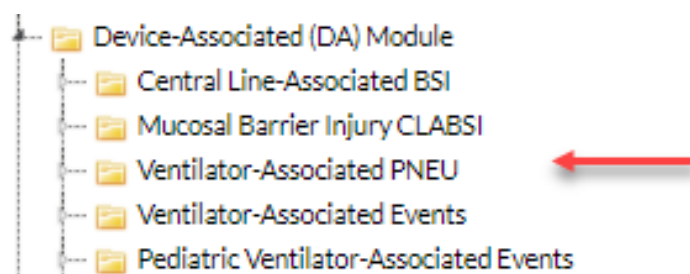
Include data for the following time period:

Beginning: 01/2019 Ending: mm/yyyy

Generate Reporting Data Sets

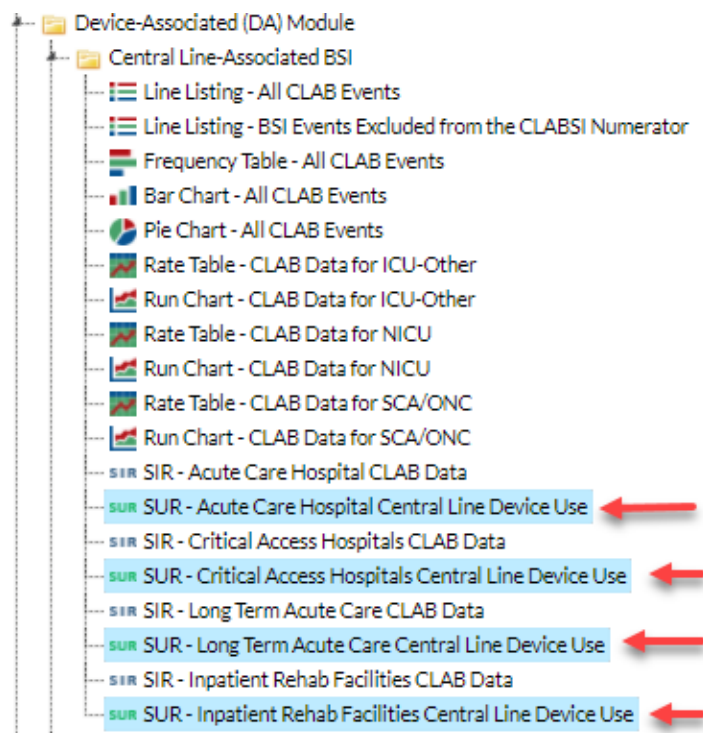
Last Generated: March 9, 2021 10:21 AM to include data beginning 01/2019

2. Once a new dataset has been generated, navigate to: *Analysis > Reports > Device-Associated (DA) Module*. Because there is a different SUR Report for each device (i.e. ventilator, central line, urinary catheter), SUR reports are located in the event-related folders: Central Line-Associated BSI, Ventilator-Associated Events, and Urinary Catheter-Associated UTI.

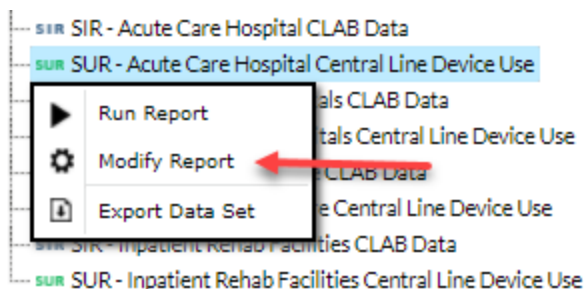


- The SUR reports are separated even further by facility type (i.e. Acute Care Hospital [ACH], Critical Access Hospital [CAH], Long-term Acute Care Hospital [LTACH], and Inpatient Rehabilitation Facility [IRF]).

IMPORTANT: If you have an IRF location within your NHSN ACH, CAH, or LTACH, you should click on the IRF SUR Report to run the SUR for that specific location. IRF unit data will not show up in the ACH, CAH, or LTACH SUR Reports.



- Click on the device folder that you're interested in calculating an SUR for, such as "SUR-Acute Care Hospital Central Line Device Use". To modify your SUR, click on "Modify Report".



- On the modification screen, click on the Time Period tab to change the report to match the time period you're interested in seeing.

Modify "SUR - Acute Care Hospital Central Line Device Use"

☐ Show descriptive variable names ([Print List](#)) Analysis Data Set: bs2_CLAB_RatesICU

Title/Format **Time Period** **Filters** **Display Options**

Time Period:

Date Variable: Beginning: Ending: [Clear Time Period](#)

☐ Enter Date variable/Time period at the time you click the Run button

6. You can filter your report by certain variables in the Filters tab

Title/Format **Time Period** **Filters** **Display Options**

Additional Filters: [Show](#) [Clear](#)

AND OR [Add group](#)

AND OR [Add rule](#)

location equal 5G - CARDIAC ICU [Delete](#)

7. Finally, you can change the 'group by' option in the Display Options tab. This will change the way your SUR is compiled

Title/Format **Time Period** **Filters** **Display Options**

SUR Options:

Group by: summaryYH [Delete](#)

8. Click Run > and view the modified output. Similar to the SIRs, the SUR report will provide multiple levels of granularity. Facilities will receive the following tables: Overall, By Location Type, By CDC Location, and By Location. This example shows the output by OrgID and by OrgID/Location Type.

National Healthcare Safety Network
SUR for Central Line Device Use for Acute Care Hospitals (2015 baseline) - By OrgID

As of: July 8, 2021 at 10:51 AM
 Date Range: All B&I CLAB_RATE&ALL

orgID=10018 medType=G

orgID	ccn	summaryYH	numCLDays	numPatDays	numPredDDays	SUR	SUR_pval	SUR95CI	SUR_pctl
10018	66666	2019H1	2974	3530	776.379	3.831	0.0000	3.695, 3.970	100
10018	66666	2019H2	961	1529	284.308	3.380	0.0000	3.172, 3.599	100

- This report includes central line utilization data from acute care hospitals for 2015 and forward.
- The SUR is only calculated if number of predicted device days (numPredDDays) is >= 1. Lower bound of 95% Confidence Interval only calculated when number of observed device days > 0.
- The predicted device utilization days is calculated based on national aggregate NHSN data from 2015. It is risk adjusted for CDC location, hospital beds, medical school affiliation type, and facility type.



Centers for Disease Control and Prevention
 National Center for Emerging and Zoonotic Infectious Diseases

orgID=10018 medType=G

orgID	ccn	locationType	summaryYH	numCLDays	numPatDays	numPredDDays	SUR	SUR_pval	SUR95CI	SUR_pctl
10018	66666	CC	2019H1	2357	2550	586.666	4.016	0.0000	3.857, 4.181	100
10018	66666	CC	2019H2	711	950	207.943	3.419	0.0000	3.175, 3.678	100
10018	66666	CC_N	2019H1	338	585	105.227	3.212	0.0000	2.893, 3.569	100
10018	66666	CC_N	2019H2	48	127	14.776	3.249	0.0000	2.422, 4.271	100
10018	66666	CC_ONC	2019H1	41	75	17.261	2.375	0.0000	1.727, 3.191	97
10018	66666	CC_ONC	2019H2	175	210	48.330	3.621	0.0000	3.114, 4.188	100
10018	66666	WARD	2019H1	88	120	0.196	-	-	-	-
10018	66666	WARD	2019H2	27	242	13.259	2.036	0.0009	1.369, 2.922	95
10018	66666	WARD_ONC	2019H1	150	200	66.829	2.245	0.0000	1.906, 2.626	97

1. This report includes central line utilization data from acute care hospitals for 2015 and forward.

2. The SUR is only calculated if number of predicted device days (numPredDDays) is ≥ 1 . Lower bound of 95% Confidence Interval only calculated when number of observed device days > 0 .

3. The predicted device utilization days is calculated based on national aggregate NHSN data from 2015. It is risk adjusted for CDC location, hospital beds, medical school affiliation type, and facility type.

The SUR reports show the number of observed device days, the number of predicted device days, the calculated SUR, a p-value, and a 95% confidence interval (CI). The SUR can be interpreted in a manner similar to the SIRs:

- If the SUR is greater than 1, the number of observed device days is greater than the number of predicted device days.
- If the SUR is equal to 1, the number of observed device days is the same as the number of predicted device days.
- If the SUR is less than 1, the number of observed device days is less than the number of predicted device days.

Just like in the SIR report, the p-value and 95% CI indicate if the SUR is statistically significant when compared to the nominal value of 1. A p-value less than .05 indicates a statistically significant SUR. A 95% CI that does not include 1.000 indicates a statistically significant SUR.

The footnotes of an SUR report specify which time period the SURs can be calculated for, when an SUR cannot be calculated, and the variables included in the SUR model.

Additional Resources

Patient Safety Analysis Quick Reference Guides: <https://www.cdc.gov/nhsn/ps-analysis-resources/reference-guides.html>

How to Modify a Report: <https://www.cdc.gov/nhsn/pdfs/ps-analysis-resources/howtomodifyreport.pdf>

