

Targeted Assessment for Stewardship (TAS) Report: Facility

Description

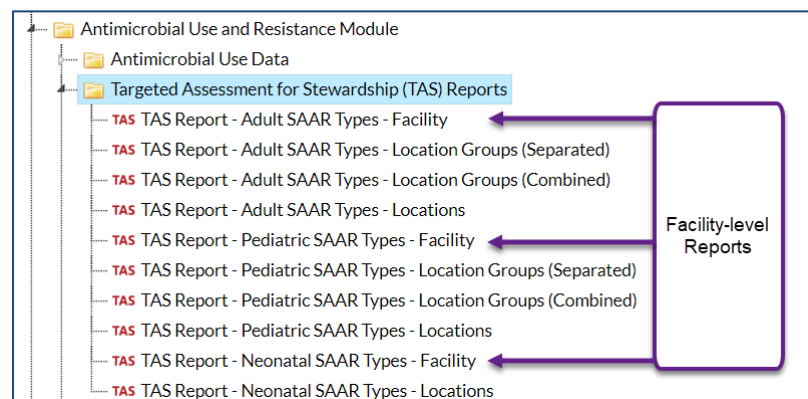
The Targeted Assessment for Stewardship (TAS) is a framework for quality improvement developed by the CDC to use NHSN AU Option data for action to optimize AU at facilities. The TAS Reports use a metric called the AU cumulative attributable difference (AU-CAD). The AU-CAD is the number of antimicrobial days needed to achieve a facility-identified Standardized Antimicrobial Administration Ratio (SAAR) target. This could be a reduction or addition of antimicrobial days depending on the facility-identified SAAR target. The TAS Reports allow users to rank location groups and locations within individual facilities or facilities within groups by the AU-CAD to prioritize stewardship efforts where they may have the greatest impact. The Facility TAS Reports use AU data reported by the facility and the facility-identified SAAR target to calculate the AU-CAD for each SAAR type and location using the following formula, rounded to the nearest whole number:

$$\text{AU-CAD} = \text{Observed antimicrobial days} - (\text{Predicted antimicrobial days} \times \text{SAAR target})$$

The AU-CAD can be greater or less than zero. A positive AU-CAD value means the SAAR target was less than the current SAAR value for that category. A positive AU-CAD value represents the number of antimicrobial days to reduce per time period to decrease the SAAR value and reach your SAAR target. A negative AU-CAD value means the SAAR target was greater than the current SAAR value for that category. A negative AU-CAD value represents the number of antimicrobial days to add per time period to increase the SAAR value and reach your SAAR target.

Note: SAAR and AU-CAD values are not definitive measures of appropriateness or judiciousness of antimicrobial use and any SAAR or AU-CAD value may warrant additional investigation. Facilities should assess the appropriateness of courses of therapy for select antimicrobials or infections to inform the clinical relevance of AU-CAD reductions or additions.

This Quick Reference Guide describes how a facility can run and interpret a facility-level TAS Report within NHSN. All TAS Reports with titles ending in “– Facility” will produce “facility-level” SAARs and AU-CAD values. Keep in mind that, while named a “facility-level” report, it does not include all the inpatient locations within your facility. Instead, it includes only those location types that can generate SAARs (see Table 5 in the [AUR Module Protocol](#) for a list of SAAR-eligible location types).



For guidance on running the other types of TAS Reports or the TAS Dashboard please see the guides here: [Analysis Quick Reference Guides](#). Prior to generating a TAS Report, we recommend reviewing the [TAS Guide](#) to learn how to set your facility-identified SAAR targets

Example 1

As a starting point, you've decided to first run the Adult SAAR Types Facility-level TAS report and set the SAAR targets at 1 for each SAAR type. Then, after assessing how your SAARs compare to 1, you'll update the SAAR target values for each SAAR type to determine where stewardship efforts may have the greatest impact.

After [generating data sets](#), click "TAS Report – Adult SAAR Types – Facility" then click "Modify Report."

Setting SAAR Targets

On the modification screen, click the Display Options tab. You're able to enter your SAAR targets on this tab. If you've set SAAR targets before via the TAS Dashboard or other TAS Reports, they will appear here. You'll notice the default GroupBy value at the top of this tab shows "Cumulative". This means the report will generate for the most recent 12 months of AU data combined. If you wanted to run the TAS reports using more granular time periods (for example, Quarter), you'd change the GroupBy selection. However, the reports will still only contain data for the most recent 12 months.

Since you selected the Adult SAAR Types TAS Report, you'll see the population defaults to Adult and all Adult SAAR Types are listed. Enter a value of 1 for each SAAR type then click Save (see right screenshot). You'll see a message that confirms you've successfully saved your SAAR targets.

Click Run to generate the report.

The screenshot shows the 'Modify "TAS Report - Adult SAAR Types - Facility"' window. It has a header with a checkmark for 'Show descriptive variable names (Print List)', 'Type: TAS', and 'Last Generated: July 25, 2022 1:15 PM'. Below the header are four tabs: 'Title/Format', 'Time Period', 'Filters', and 'Display Options' (which is highlighted in green). Under 'TAS Options', there is a 'Group by:' dropdown menu set to 'Cumulative' and a 'Population:' dropdown menu set to 'Adult'. Below these are seven rows of SAAR types, each with a text input field containing the number '1': 'All Antibacterials', 'BSHO', 'BSCA', 'GramPos', 'NSBL', 'CDI', and 'Antifungal'. At the bottom left of the form area are 'Reset' and 'Save' buttons. A purple callout box with an arrow points to the 'Save' button, containing the text 'Click Save here to save the newly entered SAAR Targets'. At the bottom right of the window are four buttons: 'Run', 'Save...', 'Export...', and 'Close'.

Interpreting the Report

Note: This example uses fictitious data for illustrative purposes only.

**National Healthcare Safety Network
TAS Report - Adult SAAR Types - Facility**

Adult SAAR Types Ranked by AU-CAD

Facility Identified SAAR Targets: All antibacterials = (1); BSHO = (1); BSCA = (1); GramPos = (1); NSBL = (1); CDI = (1); Antifungal = (1)

As of: July 29, 2022 at 11:00 AM
Date Range: All AU_TAS
if (((population = "ADULT")))

Facility Org ID	Facility Name	SAARTypeCat	AU-CAD Rank	Facility AU-CAD (Rounded)	Three highest use drugs within SAAR Type (Percentage)	Antimicrobial Days	Predicted Antimicrobial Days	Days Present	Location SAAR	95% Confidence Interval
13860	CDA-XYZ_QA_TEST FACILITY	NSBL	1	1244	AMOX(8); CEFOX(8); AMOXWC(7);	5706	4462.067	52759	1.279	1.246, 1.312
		ANTIFGL	2	-229	CASPO(26); ANID(26); FLUCO(25);	1665	1893.515	52759	0.879	0.838, 0.922
		BSCA	3	-2958	ERTA(8); GEMIF(8); MOXI(8);	5371	8328.744	52759	0.645	0.628, 0.662
		GRAMPOS	4	-2987	QUINWD(13); CEFTAR(12); TELAV(12);	3385	6372.250	52759	0.531	0.514, 0.549
		CDI	5	-5368	CEFTAZ(9); GEMIF(9); MOXI(9);	5037	10404.835	52759	0.484	0.471, 0.498
		BSHO	6	-7964	CEFTAZ(17); CEFEP(16); IMIPWC(16);	2757	10720.680	52759	0.257	0.248, 0.267
		ALL	7	-11376	AMOX(2); CEFTAZ(2); MINO(2);	25893	37269.485	52759	0.695	0.686, 0.703

- Tables include the most recent 12 months of reported data from locations for which SAARs are generated. If SAAR Type-level AU-CADs are the same, their ranks are tied.
- AU-CAD = Observed Antimicrobial Days - (Predicted Antimicrobial Days * Facility Identified SAAR Target)
- When selecting a SAAR Target, consider the lower bound of the SAAR Confidence Interval. See the TAS User Guide for further details.
- A negative AU-CAD value means the SAAR Target was greater than the current SAAR value for that category. To increase your SAAR value, the negative AU-CAD value represents the number of antimicrobial days to add per time period to reach your SAAR Target.
- The drug code and full drug name can be found here: <http://www.cdc.gov/nhsn/xls/aur/aur-eligible-antimicrobial-agents.xlsx>.
- If the observed antimicrobial days exceed days present for a specific SAAR category, neither the SAAR nor the AU-CAD will be calculated, and data should be validated for accuracy.

Source of aggregate data: 2017 NHSN SAAR Data

- Report header:** At the top of the report, you'll see the report title along with the SAAR target values you entered on the modification screen and any other modifications you made to the report. In this example, we entered a target value of 1 for each adult SAAR type (see above screenshot).
- AU-CAD Rank:** The SAAR types are displayed according to their rank with the highest Facility AU-CAD value being ranked #1. In this example, the Narrow spectrum beta-lactam agents (NSBL) SAAR type is ranked #1. If the AU-CAD values are tied, the ranks will also be tied.
- Facility AU-CAD:** The Facility AU-CAD is calculated for each SAAR type using the observed antimicrobial days, predicted antimicrobial days and facility-identified SAAR target. The value is rounded to the nearest whole number. The NSBL SAAR has a Facility AU-CAD value of 1244.

$$\begin{aligned}\text{AU-CAD} &= \text{Observed antimicrobial days} - (\text{Predicted antimicrobial days} \times \text{SAAR target}) \\ &= 5706 - (4462.067 \times 1.0) \\ &\approx 1244\end{aligned}$$

This facility needed to decrease the antimicrobial days by 1,244 over the course of those twelve months if they wanted to decrease the NSBL SAAR value from the current value of 1.279 to the target value of 1.0. If a SAAR cannot be calculated due to data quality issues, the Facility AU-CAD value will also be suppressed.

4. **Three highest use drugs within SAAR Type (Percentage):** This column shows the three highest use drugs and their percentage of use within each SAAR type. For the NSBL SAAR, AMOX (amoxicillin), CEFOX (cefoxitin) and AMOXWC (amoxicillin/clavulanate) were the three highest use drugs over the course of the last twelve months making up 8%, 8%, and 7% of NSBL use, respectively. The drugs are abbreviated using the NHSN drug codes to save space. Refer to the [List of Antimicrobial Agents Eligible for AUR Module](#) for the full drug name.
5. **Antimicrobial Days & Predicted Antimicrobial Days:** These columns indicate the observed (or reported) antimicrobial days and predicted antimicrobial days, respectively, for antimicrobials included in the selected SAAR type. These values are used to calculate the AU-CAD for each SAAR type. For the NSBL SAAR, all adult SAAR locations for this facility reported a combined 5,706 antimicrobial days, whereas 4,462.067 antimicrobial days were predicted based on the SAAR model.
6. **Days Present:** These are the total days present for all locations included in the TAS Report. As a reminder, for the report “TAS Report – Adult SAAR Types – Facility”, this would be all adult locations that can generate SAARs. In this case the total days present for all adult SAAR locations over the last twelve months was 52,759.
7. **Location SAAR:** The SAAR value displayed on this report uses the antimicrobial days and predicted antimicrobial days from all adult locations that can generate SAARs. For the NSBL SAAR type, the SAAR value was 1.279.
8. **95% Confidence Interval:** The 95% Confidence Interval (CI) is a range of values in which we have a high degree of confidence that the true SAAR lies; however, the SAAR reported under the SAAR column is the most likely value. If the confidence interval includes the value of 1, then the SAAR is not statistically significant (the observed usage is not statistically significantly different from predicted usage). In this example, the NSBL SAAR 95% CI is 1.246, 1.312 and does not include 1.0 which means this SAAR is statistically different than a value of 1.0.

Example 2

Note: This example uses fictitious data for illustrative purposes only

Now that we have an idea of the facility-level SAAR values, we can use that baseline information to update the SAAR targets to values that may be more appropriate for our facility. For example, the facility-level NSBL SAAR was the highest, but we'd like to encourage use of the drugs in that SAAR type. Because of that, we're going to set the SAAR target as 1.4 which is above the current SAAR value (1.279). Also, since the other facility-level SAARs were all already below 1.0, we're going to lower those targets to be just below the current SAAR value. Facilities can also use the annual [AU Data Report](#) or the [Antibiotic Resistance & Patient Safety Portal](#) to review distributions of SAAR values within the nation or your state to serve as a guide for setting SAAR targets.

Once the new SAAR targets have been added, click Save (see right screenshot). Then click Run to generate the report.

Interpreting the Report

Now that the SAAR target values have been updated, we can see that the Facility AU-CAD values have been updated, which resulted in a new ranking (see below screenshot). The All

Antibacterial SAAR type is now ranked first with a Facility AU-CAD value of 922 (A). This means to move the facility-level All Antibacterial SAAR from the current value of 0.695 to the SAAR target value of 0.67, 922 antimicrobial days would have needed to be reduced over the last 12 months.

In contrast, the NSBL SAAR is now ranked last among the adult SAAR types with a Facility AU-CAD value of -541 (B). A negative AU-CAD value means the SAAR target is greater than the current SAAR value and to move closer to the SAAR target, antimicrobial days would need to be increased among that group of drugs. In this case, to move the NSBL SAAR from the current value of 1.279 to the SAAR target value of 1.4, we would have needed to add 541 antimicrobial days over the last 12 months.

Modify "TAS Report - Adult SAAR Types - Facility"

Show descriptive variable names ([Print List](#)) Type: TAS Last Generated: July 25, 2022 1:15 PM

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

TAS Options:

Group by: Cumulative

Population: Adult

All Antibacterials 0.67

BSHO 0.23

BSCA 0.61

GramPos 0.5

NSBL 1.4

CDI 0.46

Antifungal 0.82

Reset Save

Run Save... Export... Close

**National Healthcare Safety Network
TAS Report - Adult SAAR Types - Facility
Adult SAAR Types Ranked by AU-CAD**

Facility Identified SAAR Targets: All antibacterials = (0.67); BSHO = (0.23); BSCA = (0.61); GramPos = (0.5); NSBL = (1.4); CDI = (0.46); Antifungal = (0.82)

As of: August 3, 2022 at 3:49 PM
Date Range: All AU_TAS
if (((population = "ADULT")))

Facility Org ID	Facility Name	SAARTypeCat	AU-CAD Rank	Facility AU-CAD (Rounded)	Three highest use drugs within SAAR Type (Percentage)	Antimicrobial Days	Predicted Antimicrobial Days	Days Present	Location SAAR	95% Confidence Interval
13860	CDA-XYZ_QA_TES FACILITY	ALL	1	922	AMOX(2); CEFTAZ(2); MINO(2);	25893	37269.485	52759	0.695	0.686, 0.703
		BSHO	2	291	CEFTAZ(17); CEFEP(16); IMPW(16);	2757	10720.680	52759	0.257	0.248, 0.267
		BSCA	3	290	ERTA(8); GEMIF(8); MOXI(8);	5371	8328.744	52759	0.645	0.628, 0.662
		CDI	4	251	CEFTAZ(9); GEMIF(9); MOXI(9);	5037	10404.835	52759	0.484	0.471, 0.498
		GRAMPOS	5	199	QUINWD(13); CEFTAR(12); TELAV(12);	3385	6372.250	52759	0.531	0.514, 0.549
		ANTIFGL	6	112	CASPO(26); ANID(26); FLUCO(25);	1665	1893.515	52759	0.879	0.838, 0.922
		NSBL	7	-541	AMOX(8); CEFOX(8); AMOXWC(7);	5706	4462.067	52759	1.279	1.246, 1.312

Now that we've completed the "Target" portion of the TAS Strategy, we can take this information and move onto the "Assess" portion as outlined in the [TAS Guide](#). Or we could run a [Location-group](#) and/or [Location-specific](#) TAS report to get a more granular look at how SAARs and location AU-CAD values vary across locations.

Additional Resources

Antimicrobial Use and Resistance (AUR) Module Eligible Antimicrobial Agents: <http://www.cdc.gov/nhsn/xls/aur/aur-eligible-antimicrobial-agents.xlsx>

AUR Module website: <https://www.cdc.gov/nhsn/psc/aur/index.html>

National Healthcare Safety Network (NHSN) AUR Module Protocol: <http://www.cdc.gov/nhsn/pdfs/psmanual/11pscaurcurrent.pdf>

NHSN AUR Module Training: <https://www.cdc.gov/nhsn/training/patient-safety-component/aur.html>

NHSN's Guide to TAS: <https://www.cdc.gov/nhsn/ps-analysis-resources/tas/tas-guide-508.pdf>

TAS Report – Location group level QRG: <https://www.cdc.gov/nhsn/ps-analysis-resources/tas/location-group-level-508.pdf>

TAS Report – Location level QRG: <https://www.cdc.gov/nhsn/ps-analysis-resources/tas/location-level-508.pdf>

Facility TAS Dashboard QRG: <https://www.cdc.gov/nhsn/ps-analysis-resources/tas/facility-508.pdf>

Group TAS Report QRG: <https://www.cdc.gov/nhsn/ps-analysis-resources/tas/group-level-508.pdf>

Group TAS Dashboard QRG: <https://www.cdc.gov/nhsn/ps-analysis-resources/tas/group-508.pdf>