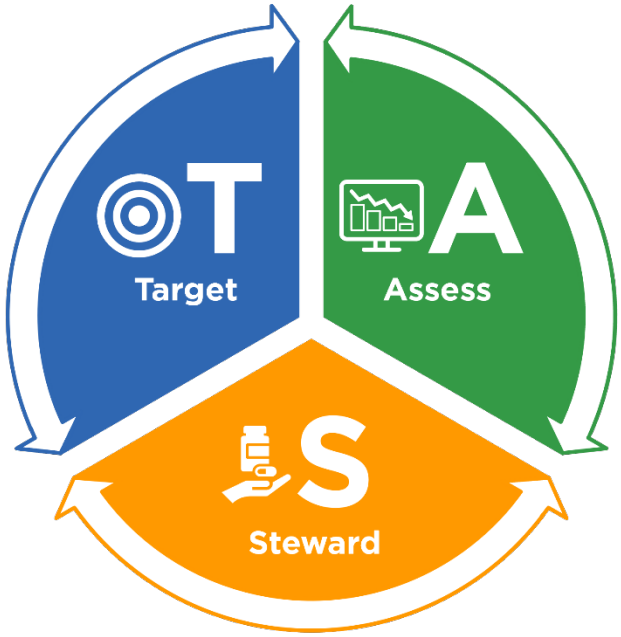
Keys to Success with TAS

TAS Overview

The Targeted Assessment for Antimicrobial Stewardship (TAS) is a framework for quality improvement that can be used to optimize antimicrobial use (AU) at facilities. A variety of TAS reports and dashboards are available to facilities reporting to NHSN as well as NHSN groups.



The TAS framework consists of three components:

1. **Target** – Run TAS reports in NHSN to identify facilities, location groups and locations for further assessment using the ranked AU cumulative attributable difference (AU-CAD).
2. **Assess** – Utilize assessment tools to identify gaps and opportunities to improve antibiotic use.
3. **Steward** – Implement antibiotic stewardship activities to address gaps and opportunities.

AU-CAD

TAS uses a metric called the AU-CAD, which represents the difference between observed antimicrobial days and a selected Standardized Antimicrobial Administration Ratio (SAAR) target. You can interpret the AU-CAD as the number of antimicrobial days needed to achieve a desired SAAR target. The AU-CAD is calculated by multiplying a numerical SAAR target value by predicted antimicrobial days and then subtracting that from observed antimicrobial days.

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

The AU-CAD can be greater than 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.

The AU-CAD is designed for ranking facilities within groups, or location groups and locations within individual facilities, to identify where stewardship efforts may have the greatest impact. However, the SAAR and AU-CAD are not definitive measures of appropriateness or judiciousness of antimicrobial use, and any value may warrant additional investigation.

Remember: You can only calculate an AU-CAD in situations when you can calculate a SAAR with the exception that NHSN can calculate AU-CADs for locations with less than one predicted antimicrobial day, provided the location has at least one observed antimicrobial day. See NHSN's TAS Guide for more information about when NHSN can and cannot generate AU-CADs (https://www.cdc.gov/nhsn/ps-analysis-resources/tas/tas-guide-508.pdf).

Setting a SAAR Target

Every facility reporting to NHSN is unique and, because the SAAR is not a definitive measure of the appropriateness or judiciousness of antimicrobial use, CDC cannot define SAAR targets for facilities or groups. There are many factors to consider when defining target SAAR values, such as the original SAAR value for a given SAAR agent category, stewardship priorities, and clinical relevance. You can use the location-level SAAR percentiles provided in the SAAR by Location reports (https://www.cdc.gov/nhsn/pdfs/ps-analysis-resources/aur/AU-QRG-SAARTables-Location.pdf) in combination with the national percentile distributions in the AU Option Report Data Tables (https://www.cdc.gov/nhsn/datastat/aur-reports.html) or median SAARs by state on the Antibiotic Resistance and Patient Safety Portal Inpatient Antibiotic Use website (https://arpsp.cdc.gov/profile/inpatient-antibiotic-use/all) to help define your SAAR targets.

CDC designed the TAS framework to be a dynamic process. You may set initial SAAR targets and assess the achievability of the targets before setting final appropriate targets. After implementing stewardship activities based on initial assessments, you may evaluate progress using the TAS reports and dashboards, and then set new targets to repeat the process as needed.

Three Highest Use Drugs within SAAR Type

The "Three highest use drugs within SAAR Type" column in the TAS reports and dashboards displays the top three antimicrobials that contributed to each SAAR antimicrobial category for the selected time period and, in parenthesis, the percent of observed antimicrobial days each antimicrobial contributed. If two or more antimicrobials contributed the same number of observed antimicrobial days, they are listed in alphabetical order by drug code. You can find the full drug names in the AU tab of the Antimicrobial Use and Resistance (AUR) Module Eligible Antimicrobial Agents spreadsheet (http://www.cdc.gov/nhsn/xls/aur/aur-eligible-antimicrobial-agents.xlsx).

SAAR Type	Summary Year/Quarter	Location Rank	Location	Location Code	AU Days Predicted	Observed Antimicrobial Days	Location AU-CAD	Three highest use drugs within SAAR Type
ALL	2022Q3	1	AD_STP_DN	IN:ACUTE:STEP	6151.626	4040	2071	VANC(87); CEFEP(0); AMOX(0);
		2	ONCGEN	IN:ACUTE:WARD:ONC_HONC	6585.151	3781	1674	VANC(85); FIDAX(0); AMP(0);
		3	MEDWARD	IN:ACUTE:WARD:M	9426.480	3553	527	VANC(83); CEFTRX(1); LNZ(0);

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
CDA-XYZ TEST FACILITY (PROD)	ALL	1	66163	AMOX(36); VANC(35); AZITH(1);	140940	233678.550	321403	0.603	0.600, 0.606
	NSBL	2	57194	AMOX(86); AMOXWC(1); PENG(1);	59109	27358.296	321403	2.161	2.143, 2.178
	GRAMPOS	3	12948	VANC(83); QUINWD(2); LNZ(2);	31286	40751.763	321403	0.768	0.759, 0.776
	BSCA	4	6071	CEFTRX(9); CEFPO(8); CEFUR(8);	8611	50803.386	321403	0.169	0.166, 0.173
	CDI	5	5451	CEFTRX(9); CEFEP(9); CEFPO(9);	8005	63852.241	321403	0.125	0.123, 0.128
	BSHO	6	4307	CEFEP(17); MERO(16); IMIPWC(16);	4307	66865.581	321403	0.063	0.061, 0.064
	ANTIFGL	7	2089	ANID(26); CASPO(26); FLUCO(25);	2584	9900.082	321403	0.261	0.251, 0.271

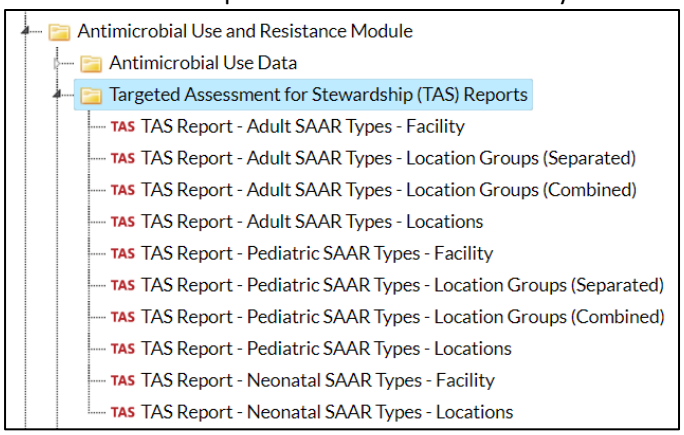
Note: Data are fictitious and for example only.

Selecting a TAS Report Type

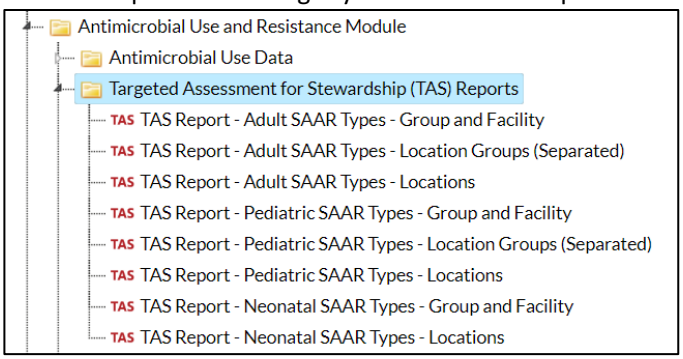
NHSN provides TAS dashboards for both NHSN facilities and groups, as well as 10 TAS reports for facilities and 8 TAS reports for groups. Most reports are available for all SAAR populations, however, the location group TAS reports are not available for the neonatal population. The TAS dashboard is located on the NHSN Patient Safety Component Home Page and can also be accessed by navigating to Dashboard and then TAS Dashboard from the left-hand menu in NHSN for both facilities and groups.

To find the TAS reports, navigate to the Analysis Reports page by clicking Analysis, then Reports on the left-hand navigation bar. You'll notice the TAS Reports have their own subfolder within the Antimicrobial Use and Resistance Module folder.

Here are the TAS reports available within a facility:

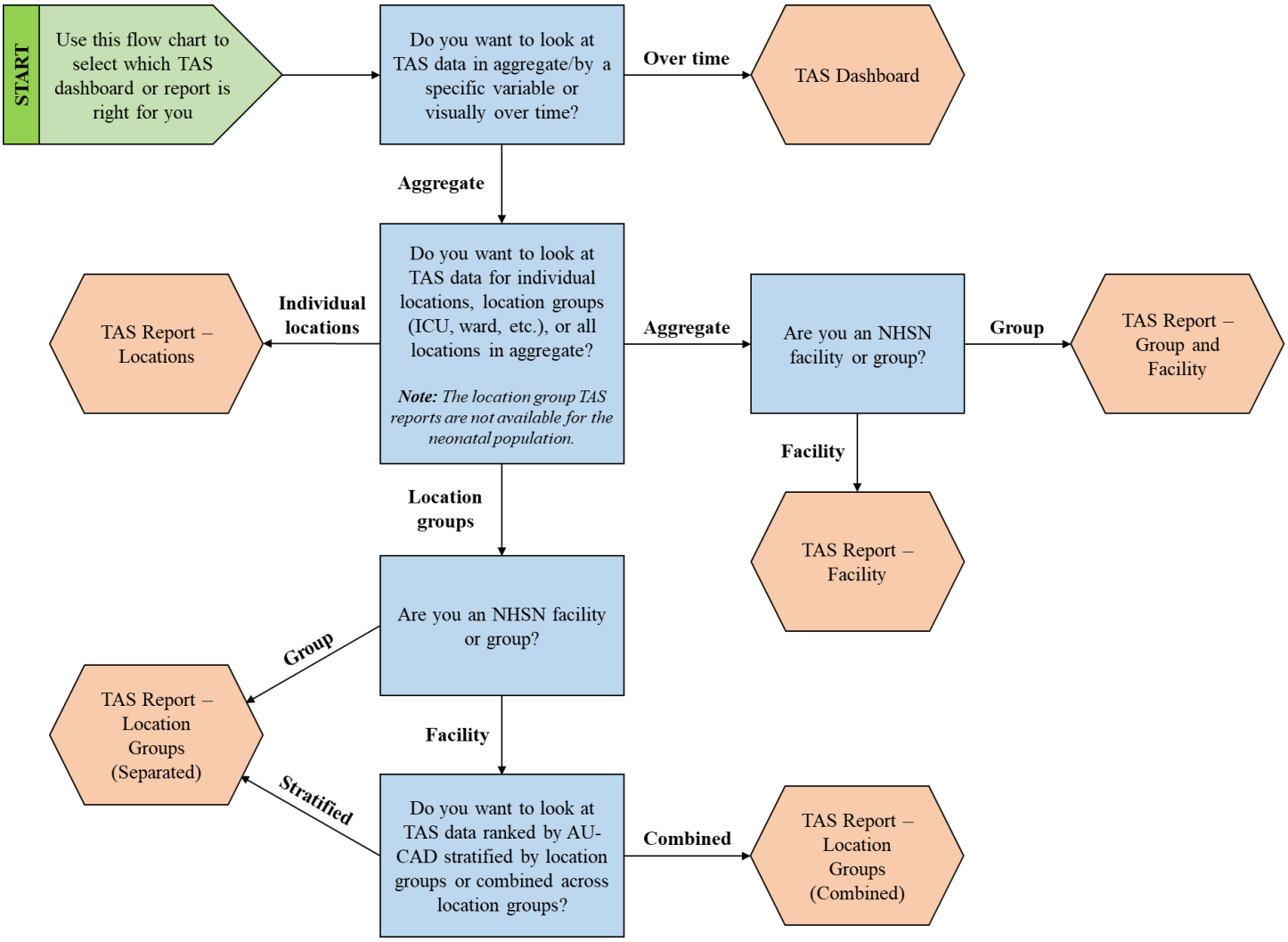


NHSN Groups will see a slightly different set of reports:



The NHSN TAS Guide (https://www.cdc.gov/nhsn/ps-analysis-resources/tas/tas-guide-508.pdf) provides in-depth information about TAS and the intricacies of each TAS dashboard and report type. The TAS quick reference guides (https://www.cdc.gov/nhsn/ps-analysis-resources/reference-guides.html) provide practical information on how to run, modify, and interpret each TAS dashboard and report.

Choosing how to view your TAS data with so many options may seem overwhelming. Follow this flow chart or questions below to help you choose which report type fits your needs. Then, you can read more about it in the quick reference guides linked below.



Ask yourself these questions to select which TAS dashboard or report is right for you:

1. Do you want to look at TAS data in aggregate/by a specific variable or visually over time?
    - If you want to look at TAS data visually over time, use the TAS Dashboard.
    - If you want to look at TAS data in aggregate or by a specific variable, proceed to question 2.
2. Do you want to look at TAS data for individual locations, location groups (ICU, ward, etc.), or all locations in aggregate? Note: The location group TAS reports are not available for the neonatal population.
    - If you want to look at TAS data for individual locations, use the TAS Report – Locations.
    - If you want to look at TAS data for location groups, proceed to question 3a-3b.
    - If you want to look at TAS data for all locations in aggregate, proceed to question 3c-3d.
3. Are you an NHSN facility or a group?
    a. If you are an NHSN group, use the TAS Report – Location Groups (Separated).
    b. If you are an NHSN facility, proceed to question 4.
    c. If you are an NHSN group, use the TAS Report – Group and Facility.
    d. If you are an NHSN facility, use the TAS Report –Facility.
4. Do you want to look at TAS data ranked by AU-CAD stratified by location groups or combined across location groups?
    - If you want to look at TAS data ranked by AU-CAD stratified by location groups, use the TAS Report – Location Groups (Separated).
    - If you want to look at TAS data ranked by AU-CAD combined across location groups, use the TAS Report – Location Groups (Combined).

TAS Quick Reference Guides

TAS Report – Facility-level quick reference guide: https://www.cdc.gov/nhsn/ps-analysis-resources/tas/facility-level-508.pdf

TAS Report – Location group-level quick reference guide: https://www.cdc.gov/nhsn/ps-analysis-resources/tas/location-group-level-508.pdf

TAS Report – Location-level quick reference guide: https://www.cdc.gov/nhsn/ps-analysis-resources/tas/location-level-508.pdf

TAS Report – Group-level quick reference guide: https://www.cdc.gov/nhsn/ps-analysis-resources/tas/group-level-508.pdf

TAS Dashboard – Facility quick reference guide: https://www.cdc.gov/nhsn/ps-analysis-resources/tas/facility-508.pdf

TAS Dashboard – Group quick reference guide: https://www.cdc.gov/nhsn/ps-analysis-resources/tas/group-508.pdf

Troubleshooting

Are you getting an error message when you try to generate the TAS reports or dashboard? Try the quick fixes below to get TAS up and running.

Set SAAR targets

Before running the TAS Reports you will first need to enter your SAAR target values for each SAAR type and population. If you try to use the TAS dashboard without setting your own SAAR targets, it will display the error message "No SAAR targets set." If you run the TAS reports without setting your own SAAR targets, the application will default to a SAAR target of 0 for all populations and SAAR Types, which is not an appropriate target value.

Generate data sets

Newly uploaded data aren't available in analysis reports until you generate new data sets within NHSN. Be sure to check the "timeboxing" and generate new data sets after uploading data into NHSN. Remember, the TAS Reports will only include the most recent 12 months of AU data. The TAS Dashboards will display the most recent four completed quarters of AU data. See the Generating Datasets Guide (https://www.cdc.gov/nhsn/pdfs/ps-analysis-resources/generatedatasets-psc-508.pdf) for more information.

Check your rights

NHSN uses SAAR data to calculate AU-CADs. Just like for the SAAR, you need access to the Patient Safety Annual Facility Survey to view TAS data. Review and correct your user rights with your NHSN Facility Administrator or Group Administrator and then generate new data sets. Facility and group users can refer to the guidance document that outlines minimum AU rights (https://www.cdc.gov/nhsn/pdfs/ps-analysis-resources/nhsn-au-user-rights.pdf). Group Administrators can also refer to the NHSN Group Function for AUR training (https://www.cdc.gov/nhsn/pdfs/training/2022/AUR-508.pdf) to set up their Confer Rights Template to receive SAAR data.

Check the location type

While NHSN encourages facilities to submit AU data from all NHSN-defined inpatient locations, facility-wide inpatient (FacWideIN), and select outpatient acute-care settings (specifically, Emergency Department, Pediatric Emergency Department and 24-hour Observation Area), you can only generate AU-CADs for the specific locations included in each SAAR baseline. You can find a list of the locations you can generate 2017 or 2018 baseline SAARs for in Table 5 of the AUR Module Protocol (https://www.cdc.gov/nhsn/pdfs/pscmanual/11pscaurcurrent.pdf).

Email the NHSN Helpdesk

If you tried all the options above and still can't use the TAS reports or dashboards, please email the NHSN Helpdesk at nhsn@cdc.gov.

Additional Resources

AUR Module Website: https://www.cdc.gov/nhsn/psc/aur/index.html

AUR Module Protocol: http://www.cdc.gov/nhsn/pdfs/pscmanual/11pscaurcurrent.pdf/

NHSN TAS Guide: https://www.cdc.gov/nhsn/ps-analysis-resources/tas/tas-guide-508.pdf

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

NHSN Targeted Assessment for Antimicrobial Stewardship Kick-Off: https://www.cdc.gov/nhsn/pdfs/training/2022/nhsn-au-option-tas-webinar-508.pdf

Antimicrobial Use Option Reports: https://www.cdc.gov/nhsn/datastat/aur-reports.html

Antibiotic Resistance and Patient Safety Portal Inpatient Antibiotic Use: https://arpsp.cdc.gov/profile/inpatient-antibiotic-use/all