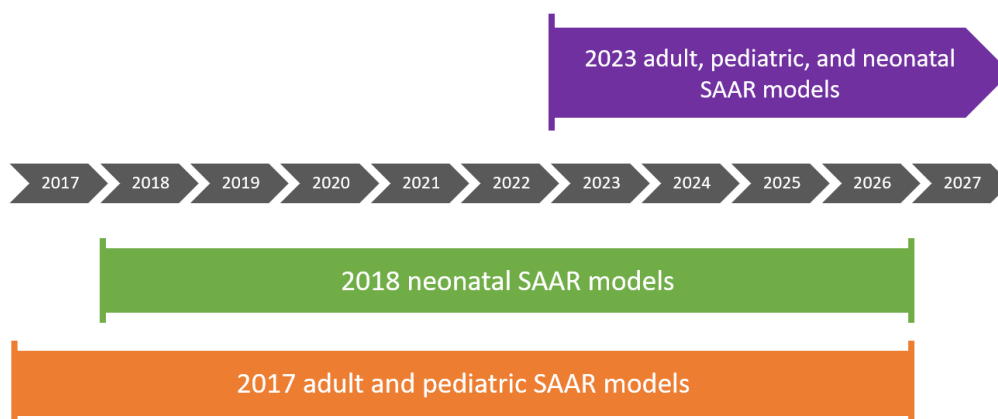


AU Option Standardized Antimicrobial Administration Ratio (SAAR) Plot

Description

The Standardized Antimicrobial Administration Ratio (SAAR) provides a standardized metric of antimicrobial use (AU). The SAAR is a ratio comparing observed, or reported, AU to the AU predicted by a referent, or baseline, population. NHSN calculates the predicted antimicrobial days using predictive models developed by CDC and applied to nationally aggregated AU data reported to NHSN from the same group of patient care location types. CDC developed separate predictive models for each antimicrobial agent category. There are four SAAR baselines currently available in the National Healthcare Safety Network (NHSN), each applicable to a select set of patient care locations and time periods. The table and graphic below provide a high-level overview of each baseline.

SAAR Baseline	Locations	Dates
2014 baseline adult and pediatric SAARs	6 adult and pediatric intensive care units (ICUs) and wards	January 1, 2014 – December 31, 2018
2017 baseline adult and pediatric SAARs	13 adult and pediatric medical, surgical, medical-surgical ICUs, wards, step down units, and oncology units	January 1, 2017 – December 31, 2026
2018 baseline neonatal SAARs	4 neonatal units, including step-down nurseries and neonatal critical care units	January 1, 2018 – December 31, 2026
2023 baseline adult, pediatric, and neonatal SAARs	26 adult, 9 pediatric, and 4 neonatal units	January 1, 2023 – present



For more information, please see the [NHSN Antimicrobial Use and Resistance \(AUR\) Module Protocol](#).



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A dot plot is a graphical display of data using dots plotted on a graph. NHSN provides several SAAR dot plots that allow facilities to visualize SAAR values for selected antimicrobial agent categories and location groups over time.

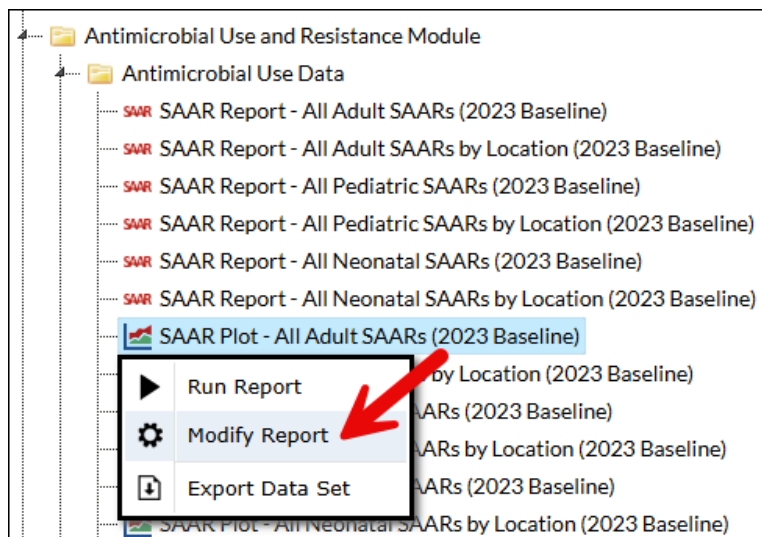
Dot plots can only be produced as HTML output; therefore, the results will appear in a pop-up window in your browser. This document explains how to visualize SAAR data for a specific antimicrobial agent category and location group over time.

Example: SAAR Plot – All Adult SAARs (2023 Baseline)

Suppose you would like to create a dot plot to graphically display the SAAR for antibacterial agents predominantly used for resistant gram-positive infections (e.g., MRSA) used in adult general intensive care units (ICUs) to see how usage in your facility’s ICUs changed from April 2024 to December 2025 by quarter.

After generating datasets, click Analysis > Reports > Antimicrobial Use and Resistance Module > Antimicrobial Use Data. After selecting the dot plot you want, in this case “SAAR Plot – All Adult SAARs (2023 Baseline),” a pop-up box will appear that will allow you to **Run Report**, **Modify Report**, or **Export Data Set**. **Export Data Set** allows users to export the underlying SAAR data set used to populate the SAAR dot plots. Select **Modify Report** to customize your report.

For a general, step-by-step explanation of the NHSN modification screen, please refer to this [How to Modify a Report document](#).



Modifying the Report

When you choose to modify the report, the modification screen appears showing multiple tabs containing available modifications for the given report. The “Title/Format” tab allows you to update the report title. To filter the data by time period, choose the “Time Period” tab at the top of the modification



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screen. In this example, we will select Summary~Yr/Qtr for the Date Variable and limit the report to only include data for the second quarter of 2024 through the fourth quarter of 2025 (Beginning = 2024Q2 and Ending = 2025Q4).

Tip: For more descriptive variable labels on your report, check the box “Show descriptive variable names” that appears near the top of the modification window (recommended).

The screenshot shows the 'Modify "SAAR Plot - All Adult SAARs (2023 Baseline)"' window. At the top, there is a header bar with the title and a status bar showing 'Analysis Data Set: AU_SAAR_ADULT_2023', 'Type: Dot Plot', and 'Last Generated (UTC): May 28, 2026 3:45 PM'. Below the header, there are four tabs: 'Title/Format', 'Time Period', 'Filters', and 'Display Options'. The 'Time Period' tab is selected. A green arrow points to the 'Show descriptive variable names (Print List)' checkbox, which is checked. Below the tabs, the 'Time Period' section contains a table with columns 'Date Variable', 'Beginning', and 'Ending'. The 'Date Variable' is set to 'Summary~Yr/Qtr', 'Beginning' is '2024Q2', and 'Ending' is '2025Q4'. There is a 'Clear Time Period' button to the right of the table. Below the table, there is a checkbox labeled 'Enter Date variable/Time period at the time you click the Run button'. At the bottom right, there are four buttons: 'Run', 'Save...', 'Export...', and 'Close'.

The “Filters” tab allows you to further filter the data displayed in the report. For this example, we want to filter the report to only show the SAAR for antibacterial agents predominantly used for resistant gram-positive infections (e.g., MRSA) used in adult general ICUs SAAR type. Select the variable “SAAR Type for Adult Locations 2023 Baseline” from the drop-down menu, set the operator to “equal”, then select “Antibacterial agents predominantly used for resistant gram-positive infections (e.g., MRSA) used in adult SAAR general ICUs” from the drop-down menu that appears.

Tip: For including more than one item in each filter such as multiple SAAR types, the “in” operator can be used instead of the “equal” operator.

The screenshot shows the 'Modify "SAAR Plot - All Adult SAARs (2023 Baseline)"' window with the 'Filters' tab selected. The 'Show descriptive variable names (Print List)' checkbox is checked. Below the tabs, there is a section for 'Additional Filters' with 'Show' and 'Clear' buttons. Below this, there is a filter rule editor. It starts with 'AND OR' buttons. A rule is being added, with 'AND OR' buttons inside the rule box. The rule consists of a dropdown menu set to 'SAAR Type for Adult Locations 2023 Baseline', an operator dropdown set to 'equal', and a text input field containing 'Antibacterial agents predominantly used for resistant gram-positive infections (e.g., MRSA) used in adult SAAR general ICUs'. There are 'Add group', 'Add rule', and 'Delete' buttons to the right of the rule. At the bottom right, there are four buttons: 'Run', 'Save...', 'Export...', and 'Close'.

The “Display Options” tab allows you to pick how the plot is displayed in your final report, such as viewing SAARs by month, quarter, half-year, or year for the time period selected.

Modify "SAAR Plot - All Adult SAARs (2023 Baseline)"

☒ Show descriptive variable names ([Print List](#)) Analysis Data Set: AU_SAAR_ADULT_2023 Type: Dot Plot Last Generated (UTC): May 28, 2026 3:45 PM

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

Dot Plot Options:

1 Chart Variable
Location SAAR

2 Group by
Summary~Yr/Qtr

3 ☒ Display Confidence Interval
☒ Display Charted Value
☒ Reference Line with value = 1.0

Run Save... Export... Close

1) The "Chart Variable" is the variable being graphed on the dot plot and is represented by the dots; in this case, the variable is Location SAAR. Although you have the option to change the Chart Variable, you must use "Location SAAR" in order to view the SAARs.

2) In this example, we will use Summary Year/Quarter to show quarterly SAARs for drugs predominantly used for resistant gram-positive infections. Under Group by, select "Summary~Yr/Qtr." Please note that if the Time Period is not specified on the "Time Period" tab of the modification screen, the default SAAR dot plot will display the most recent 12 time periods (if available) corresponding to the Group by value (e.g., months, quarters, half-years, or years).

3) You can adjust how the plots display. By default, the SAAR 95% confidence interval will display around the dot for the SAAR (which is called the charted value), and the reference line is set to 1.0. The 95% confidence interval is a range of values in which we have a high degree of confidence that the true SAAR lies, though the SAAR is the most likely value. You can change the reference line value by typing in a number other than 1.0 in the text box beside "Reference Line with value." Deselect the "Display Confidence Interval" checkbox if you do not want the confidence interval to be displayed around the SAAR, deselect the "Display Charted Value" if you do not want the SAAR to be displayed, and/or deselect "Reference Line with value" if you do not want a reference line displayed.

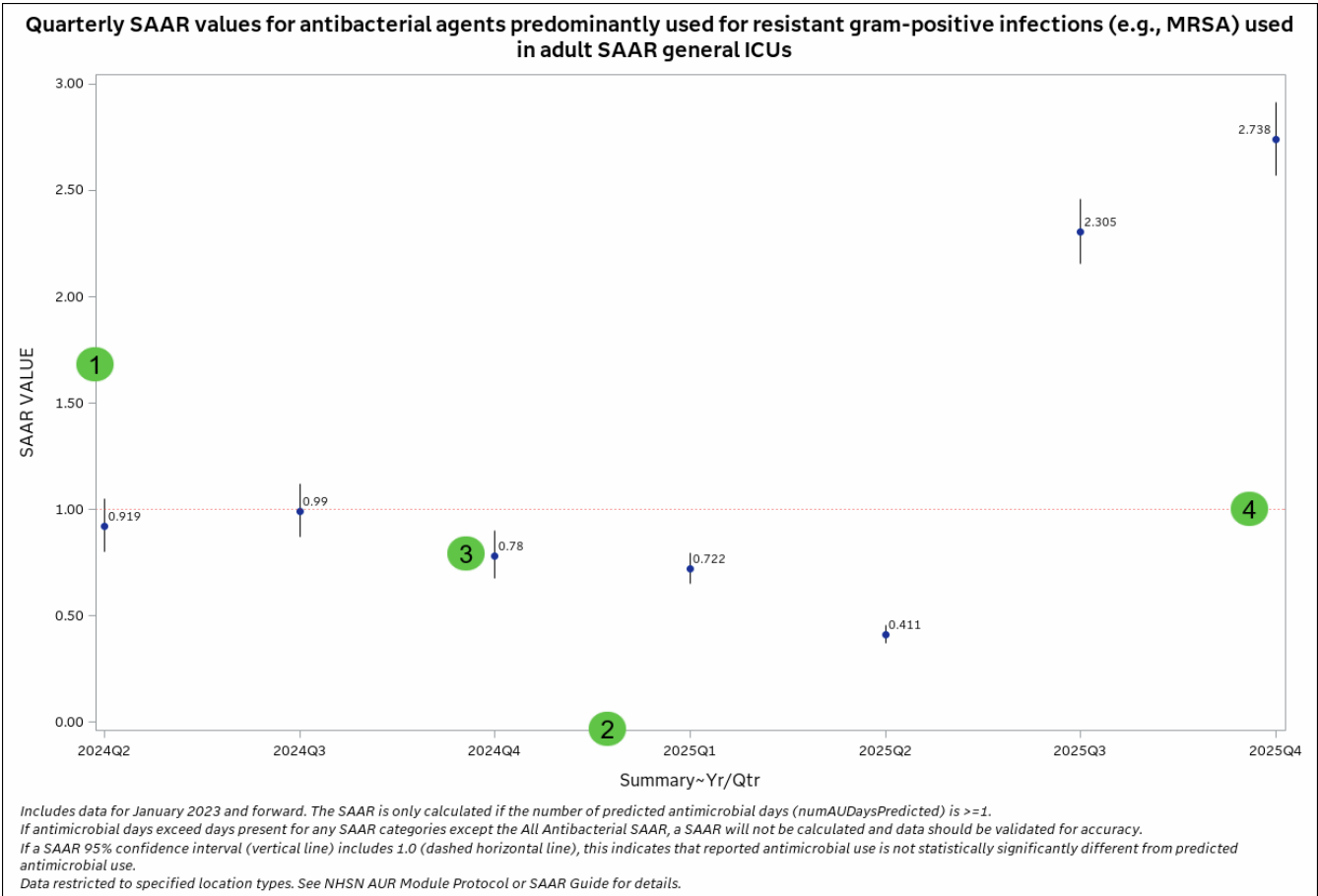
Final Report

The default report will contain one plot for each SAAR type aggregated for the locations included in the grouping. In this example, because we specified a single SAAR type of interest, we will see only one plot. The dot plot below is the result of the modifications shown in this document and displays SAARs for antibacterial agents predominantly used for resistant gram-positive organisms used in adult general ICUs from 2024Q2 to 2025Q4.

Note: Tracking antimicrobial use over time using SAARs should be limited to comparing two SAAR values across two points in time. NHSN does not recommend using SAARs for trend analyses, where SAAR values are simultaneously compared across many points in time to determine whether there is a

statistically significant change in antimicrobial use, as this is not statistically appropriate. Please refer to the [NHSN's Guide to the SAAR](#) for more information.

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



1. The y-axis is the SAAR value. One dot is displayed for each SAAR value. Because we asked NHSN to display the “Charted Value” in the Display Options tab, the SAAR value (rounded to 3 decimal places) is displayed beside the dot. In the example, the SAAR for antibacterial agents predominantly used for resistant gram-positive organisms used in adult general ICUs in 2024Q2 was 0.919.
2. The x-axis is the designated Group by variable and in this example it’s Summary Year/Quarter. The SAARs are displayed for each quarter beginning with 2024Q2 through 2025Q4. In the first five quarters of our selected time period, the SAAR value was below 1.0 meaning less antimicrobial use was reported than predicted, while for the last two quarters, the SAAR value was above 1.0 meaning more antimicrobial use was reported than predicted.
3. The SAAR 95% confidence interval is displayed as vertical lines around the SAAR value. The bigger the range of the confidence interval, the longer the lines will display on the plot. For example, the SAAR value for 2024Q4 was 0.780. The SAAR 95% confidence interval (0.674,

0.899) is very wide, in other words, the lines extending above and below the charted SAAR value are long. If a SAAR 95% confidence interval includes 1.0, this indicates that reported antimicrobial use is not statistically significantly different from predicted antimicrobial use.

4. The reference line (1.0) is displayed as a red dashed horizontal line.

Additional Resources

- [How to Export Data from NHSN](#)
- [AUR Module Protocol](#)
- [Surveillance for AU and AR Options](#)
- [AUR Training](#)
- [NHSN 2023 AU SAAR Rebaseline](#)
- [Keys to Success with the SAAR](#)
- [NHSN's Guide to the SAAR](#)
- [NHSN Analysis Quick Reference Guides](#)



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