



# Beyond the Basics: Advanced Analysis and Interpretation of NHSN AU Option Data

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# NHSN Antimicrobial Use Option – Beginner Analysis

## Introduces How To:

- Generate data sets with and without timeboxing
- Create and modify Antimicrobial Use (AU) analysis reports:
  - Line List
  - Rate Table
  - Bar Chart
- Export reports with and without modifications
- Use various resources for the AU Option
- Full presentation: [Antimicrobial Use \(AU\) Option - Beginner Analysis](#)

## Objectives

- At the conclusion of today's session, users will be able to:
  - Modify Standardized Antimicrobial Administration Ratio (SAAR) reports, including the SAAR percentile variable.
  - Interpret SAAR Reports to assess antimicrobial use (AU).
  - Compare SAAR values using the NHSN Statistics Calculator.
  - Develop a custom SAAR report to meet facility-specific needs.
  - Generate SAAR reports at the group level.

# SAAR Recap

## AU Option SAAR Background

Chat and Q & A features are limited to only 1000 participants.

Please refer to email Centers for Disease Control and Prevention [no-reply@emailupdates.cdc.gov](mailto:no-reply@emailupdates.cdc.gov) with subject line, "NHSN 2026 Annual Training - Day 2" for additional instructions and links.

# SAAR Background

- SAAR provides a standardized metric of antimicrobial use
- SAAR is a ratio comparing observed, or reported, antimicrobial use to antimicrobial use predicted by a referent, or baseline, population

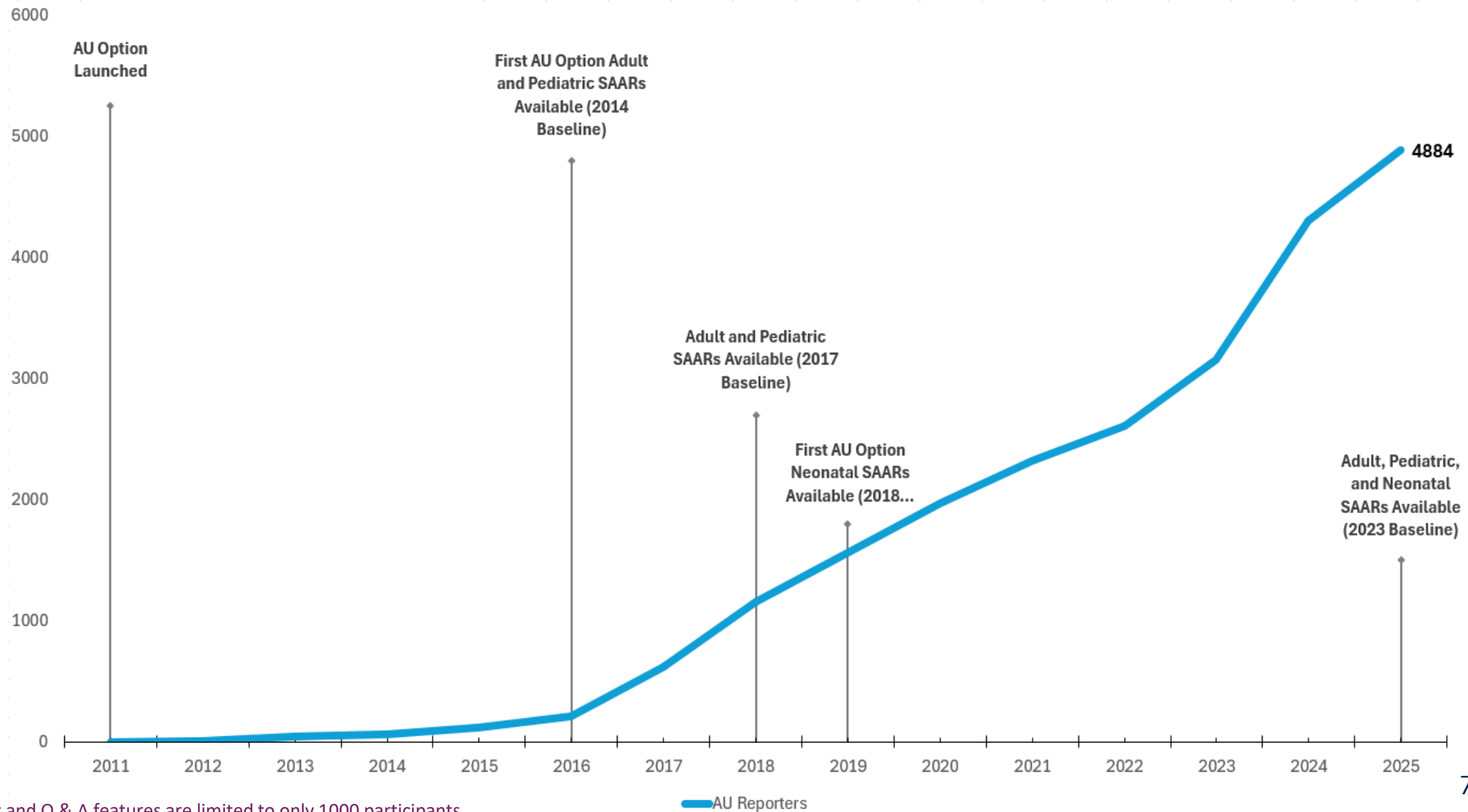
$$\text{SAAR} = \frac{\text{Observed antimicrobial days}}{\text{Predicted antimicrobial days}}$$

- Compares antimicrobial use within and across facilities to guide antimicrobial stewardship efforts

# SAAR Baselines

- “Baseline” refers to the calendar year of NHSN data used to develop SAAR Models.
- SAAR referent population is AU data aggregated from select patient care locations reporting to the AU Option during the baseline year.
- NHSN uses these aggregated AU data to develop SAAR predictive models.
- NHSN develops new models every few years (“re-baselining”).
  - Allows for assessment of AU risk in more settings
  - Updates antimicrobial groupings
  - Generates precise predicted values

# History of the AU Option SAAR Baselines



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# Table of SAAR Baselines

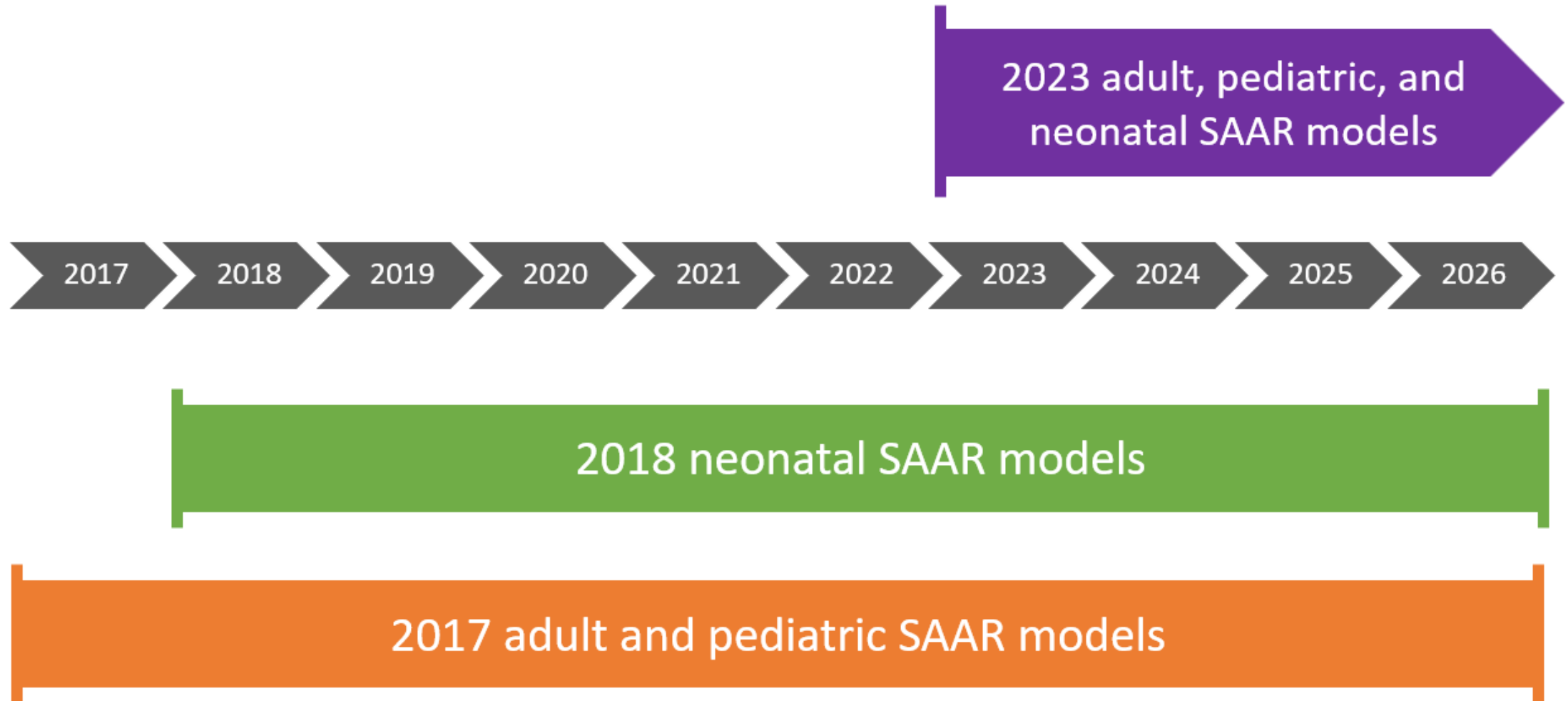
| SAAR Baselines                                    | Locations  | Antimicrobial Categories    |
|---|--|-----------------------------|
| 2014 baseline adult and pediatric SAARs           | 6 adult and pediatric ICUs and wards   | 5 antimicrobial categories  |
| 2017 baseline adult and pediatric SAARs           | 13 adult and pediatric ICUs, wards, step down units, and oncology units                  | 15 antimicrobial categories |
| 2018 baseline neonatal SAARs                      | 4 neonatal units   | 7 antimicrobial categories  |
| 2023 baseline adult, pediatric and neonatal SAARs | 39 adult, pediatric ICUs, wards, step down units, and oncology units, and neonatal units | 22 antimicrobial categories |

# Adult, Pediatric, and Neonatal – SAAR Baseline Participation Over Time

Expanded facility participation and eligible location types

- 2014 adult and pediatric
  - 154 hospitals contributing to the participation of 6 adult and pediatric location types
- 2017 adult and pediatric
  - 555 hospitals contributing to the participation of 13 adult and pediatric location types
- 2018 neonatal
  - 304 hospitals contributing to the participation of 4 neonatal location type
- 2023 adult, pediatric, and neonatal
  - 3,542 hospitals contributing to the participation of 39 adult, pediatric, and neonatal location types

# SAAR Baselines Timeline



- **The existing 2017 and 2018 baselines will continue to be included in the NHSN Application**

# 2017 vs 2023 Adult Baseline SAAR – Comparisons

| 2017 Adult SAAR Baseline - Locations   | 2023 Adult SAAR Baseline – Locations (Newly Added)  |
|--|---|
| <ul style="list-style-type: none"> <li>• Medical Critical Care</li> <li>• Surgical Critical Care</li> <li>• Medical-Surgical Critical Care</li> <li>• Surgical Ward</li> <li>• Medical Ward</li> <li>• Medical-Surgical Ward</li> <li>• Oncology General</li> <li>• Hematology-Oncology Ward</li> <li>• Adult Stepdown Unit</li> </ul> | <ul style="list-style-type: none"> <li>• Burn ICUs</li> <li>• Medical Cardiac ICUs</li> <li>• Medical Cardiac ICUs</li> <li>• Neurologic ICUs</li> <li>• Neurosurgical ICUs</li> <li>• Surgical Cardiothoracic ICUs</li> <li>• Trauma ICUs</li> <li>• Burn Wards</li> <li>• Labor &amp; Delivery Wards</li> <li>• Labor, Delivery, Recovery, Postpartum Suites</li> <li>• Neurology Wards</li> <li>• Neurosurgical Wards</li> <li>• Oncology Hematopoietic Stem Cell Transplant Wards</li> <li>• Orthopedic Trauma Wards</li> <li>• Orthopedic Wards</li> <li>• Postpartum Wards</li> <li>• Pulmonary Wards</li> <li>• Mixed Acuity Units</li> <li>• Solid Organ Transplant Special Care Areas</li> </ul> |

# 2017 vs 2023 Pediatric Baseline SAAR – Comparisons

| 2017 Pediatric SAAR Baseline - Locations  | 2023 Pediatric SAAR Baseline – Locations (Newly Added)   |
|---|--|
| <ul style="list-style-type: none"><li>• Pediatric Medical Critical Care</li><li>• Pediatric Medical-Surgical Critical Care</li><li>• Pediatric Medical Ward</li><li>• Pediatric Surgical Ward</li><li>• Pediatric Medical-Surgical Ward</li></ul> | <ul style="list-style-type: none"><li>• Surgical Cardiothoracic ICUs</li><li>• General Hematology-Oncology Wards</li><li>• Oncology Hematopoietic Stem Cell Transplant Wards</li><li>• Step-down Units</li></ul> |

# 2018 vs 2023 Neonatal Baseline SAAR – Comparisons

| 2018 Neonatal SAAR Baseline - Locations   | 2023 Neonatal SAAR Baseline – Locations (Newly Added)                            |
|---|--|
| <ul style="list-style-type: none"><li>• Step down Neonatal Nursery</li><li>• Neonatal Critical Care (Level II/III)</li><li>• Neonatal Critical Care (Level III)</li><li>• Neonatal Critical Care (Level IV)</li></ul> | <ul style="list-style-type: none"><li>• No new SAAR eligible locations</li></ul> |

# 2023 SAAR Baseline – Key Features

- Includes larger, more diverse referent population
- Expanded eligible location types
- More facilities are now able to generate SAARs
- Updated risk adjustment models
- Full list of antimicrobials in the AUR Protocol Module: [2026 NHSN AUR Protocol](#)

# Knowledge Check

## True or False?

2025 is the most recently updated SAAR baseline year.



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# SAAR Components:

Essential Parts of the SAAR

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# SAAR Components

- **Antimicrobial Days:** Any amount of a specific antimicrobial agent administered in a calendar day to a patient as reported in electronic medication administration record (eMAR) or bar coding medication administration (BCMA) system
- **Predicted antimicrobial days:** Calculated using predictive models developed by CDC
- **Days present:** Aggregate number of patients housed in a patient care location or facility anytime throughout the day during a calendar month
  - Used in SAAR models to calculate predicted antimicrobial days

# Interpreting a SAAR value

- Ratio comparing observed antimicrobial use to predicted antimicrobial use
  - SAAR < 1.0 indicates antimicrobial use was less than predicted
  - SAAR = 1.0 indicates antimicrobial use was equivalent to predicted use
  - SAAR > 1.0 indicates antimicrobial use was greater than predicted
- Not a definitive measure of appropriateness of antimicrobial use, and any SAAR value may warrant additional investigation
- Can only generate SAAR when the number of predicted antimicrobial days are  $\geq 1$  and total antimicrobial days do not exceed days present

# SAAR $p$ -value and 95% Confidence Interval (CI)

## SAAR $p$ -value

- Statistical measure that indicates if observed antimicrobial use is statistically different from predicted antimicrobial use
  - If  $p$ -value  $\leq 0.05$ , then observed antimicrobial days are significantly different from predicted antimicrobial days
  - If  $p$ -value  $> 0.05$ , then observed antimicrobial days are not significantly different from predicted antimicrobial days
- Due to large number of antimicrobial days recorded and included in predictive models, most SAAR  $p$ -values are statistically significant and should be interpreted with caution.

## 95% Confidence Interval

- Range of values in which true SAAR value is likely to lie (however SAAR is the most likely value)
  - If the 95% CI does not include 1, the SAAR is statistically significantly different than 1.
  - If the 95% CI includes 1, the SAAR is not statistically significantly different than 1.
- SAAR  $p$ -value and 95% CI will always indicate the same statistical significance and can be interpreted interchangeably.

# SAAR Percentile

- Percentile a SAAR falls into based on the distribution of location-specific SAARs found in the NHSN AU Option Report Data Tables
  - More recent data than used for SAAR baseline
  - 2024 AU Option Data Report
- SAARs were calculated for each SAAR location reporting nine or more months of data and percentiles are based on those location-year-level distributions.
- Interpretation example: SAAR percentile of 90 indicates 89% of SAAR values reported from similar locations are less than the SAAR and 10% of SAAR values are greater than it.
  - The 50% percentile is the median location-specific SAAR value.

# Knowledge Check - 1

How is the Standardized Antimicrobial Administration Ratio (SAAR) interpreted?

- A. SAAR < 1.0 indicates antimicrobial use was less than predicted use
- B. SAAR = 1.0 indicates antimicrobial use was equivalent to predicted use
- C. SAAR > 1.0 indicates antimicrobial use was greater than predicted use
- D. All of the above
- E. None of the above



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# Knowledge Check -1 Answer

How is the Standardized Antimicrobial Administration Ratio (SAAR) interpreted?

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- B. SAAR = 1.0 indicates antimicrobial use was equivalent to predicted use
- C. SAAR > 1.0 indicates antimicrobial use was greater than predicted use
- D. All of the above**
- E. None of the above



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# Modifying the SAAR Report

## How to Modify SAAR Reports

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# Modifying the SAAR by Location Report

**Analysis Reports**

Expand All Collapse All Search

- Folder: HAI Risk Adjusted Measure Reports (SIRs, SURs)
- Folder: HAI Detailed Reports (Line Lists, Rate Tables, etc.)
- Folder: Digital Quality Measure Reports (dQM)
- Folder: CMS Reports
- Folder: Targeted Assessment for Prevention (TAP) Reports
- Folder: Antimicrobial Use and Resistance Module
  - Folder: Antimicrobial Use Data
    - SAAR Report - All Adult SAARs (2023 Baseline)
    - SAAR Report - All Adult SAARs by Location (2023 Baseline)**
      - Run Report
      - Modify Report**
      - Export Data Set
    - SAARs (2023 Baseline)
    - SAARs by Location (2023 Baseline)
    - SAARs (2023 Baseline)
    - SAARs by Location (2023 Baseline)
    - SAAR Plot - All Adult and Pediatric SAARs (2017 Baseline)

# SAAR by Location Report – Time Period Tab

Modify "SAAR Report - All Adult SAARs by Location (2023 Baseline)"

Show descriptive variable names ([Print List](#))      Analysis Data Set: AU\_SAAR\_ADULT\_2023    Type: SAAR    Last Generated (UTC): [March 4, 2026 9:20 PM](#)

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

Time Period:

| Date Variable | Beginning | Ending |                                     |
|---------------|-----------|--------|-------------------------------------|
| Summary~Yr    | 2023      | 2023   | <a href="#">X Clear Time Period</a> |

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

[▶ Run](#)    [📄 Save...](#)    [📄 Export...](#)    [Close](#)

# SAAR by Location Report – Filter Tab

Modify "SAAR Report - All Adult SAARs by Location (2023 Baseline)"

Show descriptive variable names ([Print List](#))      Analysis Data Set: AU\_SAAR\_ADULT\_2023    Type: SAAR    Last Generated (UTC): March 4, 2026 9:20 PM

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

Additional Filters:  Show     Clear

AND OR Add group

AND OR Add rule

Location    equal    Delete

MEDWARD - MEDICAL WARD - AU

▶ Run    💾 Save...    📄 Export...    Close

# SAAR by Location Report – Display Options Tab

Modify "SAAR Report - All Adult SAARs by Location (2023 Baseline)"

Show descriptive variable names ([Print List](#))      Analysis Data Set: AU\_SAAR\_ADULT\_2023    Type: SAAR    Last Generated (UTC): **March 4, 2026 9:20 PM**

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

SAAR Options:

Group by: **Summary Year/Month** ▼

[▶ Run](#)    [📄 Save...](#)    [📄 Export...](#)    [Close](#)

# SAAR Report Output

Results from the SAAR Modifications

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# SAAR by Location Report - Output

## National Healthcare Safety Network

### SAARs Table - All Adult Standardized Antimicrobial Administration Ratios (SAARs) High-Level Indicators and High-Value Targets by Location (2023 Baseline)

As of: March 4, 2026 at 9:45 PM UTC

Date Range: AU\_SAAR\_ADULT\_2023 summaryYr 2023 to 2023

if (((location = "MEDWARD" )))

All Antibacterial Agents used in adult medical, medical-surgical, and surgical ICUs and wards, step down units, mixed acuity units, orthopedic wards, obstetrics wards, solid organ transplant specialty care areas, oncology units, and hematopoietic stem cell transplant wards

| Facility Org ID | SAAR Type for Adult Locations 2023 Baseline | Location | Summary Year/Month | CDC Location    | Antimicrobial Days | Predicted Antimicrobial Days | Days Present | SAAR  | SAAR p-value | 95% Confidence Interval | SAAR Percentile |
|-----------------|---|----------|--------------------|-----------------|--------------------|------------------------------|--------------|-------|--------------|-------------------------|-----------------|
| 13860           | Adult_All-Antibacterial_All_2023            | MEDWARD  | 2023M01            | IN:ACUTE:WARD:M | 634                | 575.515                      | 1013         | 1.102 | 0.0171       | 1.018, 1.190            | 65              |
| 13860           | Adult_All-Antibacterial_All_2023            | MEDWARD  | 2023M02            | IN:ACUTE:WARD:M | 610                | 852.193                      | 1500         | 0.716 | 0.0000       | 0.661, 0.774            | 14              |
| 13860           | Adult_All-Antibacterial_All_2023            | MEDWARD  | 2023M03            | IN:ACUTE:WARD:M | 573                | 456.208                      | 803          | 1.256 | 0.0000       | 1.156, 1.362            | 83              |
| 13860           | Adult_All-Antibacterial_All_2023            | MEDWARD  | 2023M04            | IN:ACUTE:WARD:M | 624                | 803.334                      | 1414         | 0.777 | 0.0000       | 0.718, 0.840            | 19              |
| 13860           | Adult_All-Antibacterial_All_2023            | MEDWARD  | 2023M05            | IN:ACUTE:WARD:M | 613                | 590.286                      | 1039         | 1.038 | 0.3599       | 0.959, 1.123            | 54              |
| 13860           | Adult_All-Antibacterial_All_2023            | MEDWARD  | 2023M06            | IN:ACUTE:WARD:M | 647                | 419.279                      | 738          | 1.543 | 0.0000       | 1.428, 1.666            | 95              |
| 13860           | Adult_All-Antibacterial_All_2023            | MEDWARD  | 2023M07            | IN:ACUTE:WARD:M | 564                | 423.256                      | 745          | 1.333 | 0.0000       | 1.226, 1.446            | 89              |
| 13860           | Adult_All-Antibacterial_All_2023            | MEDWARD  | 2023M08            | IN:ACUTE:WARD:M | 632                | 604.489                      | 1064         | 1.046 | 0.2725       | 0.966, 1.129            | 55              |
| 13860           | Adult_All-Antibacterial_All_2023            | MEDWARD  | 2023M09            | IN:ACUTE:WARD:M | 3502               | 8803.727                     | 15496        | 0.398 | 0.0000       | 0.385, 0.411            | 4               |
| 13860           | Adult_All-Antibacterial_All_2023            | MEDWARD  | 2023M10            | IN:ACUTE:WARD:M | 624                | 732.886                      | 1290         | 0.851 | 0.0000       | 0.787, 0.920            | 27              |
| 13860           | Adult_All-Antibacterial_All_2023            | MEDWARD  | 2023M11            | IN:ACUTE:WARD:M | 599                | 738.568                      | 1300         | 0.811 | 0.0000       | 0.748, 0.878            | 23              |
| 13860           | Adult_All-Antibacterial_All_2023            | MEDWARD  | 2023M12            | IN:ACUTE:WARD:M | 624                | 732.886                      | 1290         | 0.851 | 0.0000       | 0.787, 0.920            | 27              |

Any reported use of Colistin will be combined with and reported as Colistimethate. Any reported use of Amikacin Liposomal will be combined with and reported as Amikacin.

Includes data for January 2023 and forward.

The SAAR is only calculated if the number of predicted antimicrobial days (numAUDaysPredicted) is >=1.

If antimicrobial days exceed days present for any SAAR categories except the All Antibacterial SAAR, a SAAR will not be calculated and data should be validated for accuracy.

Data restricted to specific location types. See NHSN AUR Module Protocol or SAAR Guide for details.

The SAAR percentile is not shown if the SAAR is not shown.

Source of aggregate data: 2023 NHSN AU Data

**Note: Data are fictitious and for example only.**

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# SAAR Report Interpretation

## How to Interpret Modified Reports

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# Example Interpretation – SAAR Type

Interpret first row of modified report as an example: SAAR data for all antibacterial agents used in medical ward in January 2023.

## National Healthcare Safety Network SAARs Table - All Adult Standardized Antimicrobial Administration Ratios (SAARs) High-Level Indicators and High-Value Targets by Location (2023 Baseline)

As of: March 4, 2026 at 9:45 PM UTC

Date Range: AU\_SAAR\_ADULT\_2023 summaryYr 2023 to 2023

if ((location = "MEDWARD" ) )

All Antibacterial Agents used in adult medical, medical-surgical, and surgical ICUs and wards, step down units, mixed acuity units, orthopedic wards, obstetrics wards, solid organ transplant specialty care areas, oncology units, and hematopoietic stem cell transplant wards

| Facility Org ID | SAAR Type for Adult Locations 2023 Baseline | Location | Summary Year/Month | CDC Location    | Antimicrobial Days | Predicted Antimicrobial Days | Days Present | SAAR  | SAAR p-value | 95% Confidence Interval | SAAR Percentile |
|-----------------|---|----------|--------------------|-----------------|--------------------|------------------------------|--------------|-------|--------------|-------------------------|-----------------|
| 13860           | Adult_All-Antibacterial_All_2023            | MEDWARD  | 2023M01            | IN:ACUTE:WARD:M | 634                | 575.515                      | 1013         | 1.102 | 0.0171       | 1.018, 1.190            | 65              |
| 13860           | Adult_All-Antibacterial_All_2023            | MEDWARD  | 2023M02            | IN:ACUTE:WARD:M | 610                | 852.193                      | 1500         | 0.716 | 0.0000       | 0.661-0.774             | 14              |

**Note: Data are fictitious and for example only.**

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# Example Interpretation – Location

Report displays SAARs for Medical Ward (MEDWARD) location

**National Healthcare Safety Network**  
**SAARs Table - All Adult Standardized Antimicrobial Administration Ratios (SAARs) High-Level Indicators and High-Value Targets by Location (2023 Baseline)**  
 As of: March 4, 2026 at 9:45 PM UTC  
 Date Range: AU\_SAAR\_ADULT\_2023 summaryYr 2023 to 2023  
 if (((location = "MEDWARD" ) ) )

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| 13860           | Adult_All-Antibacterial_All_2023            | MEDWARD  | 2023M01            | IN:ACUTE:WARD:M | 634                | 575.515                      | 1013         | 1.102 | 0.0171       | 1.018, 1.190            | 65              |
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# Example Interpretation – Time Period

Each row in report represents one month/location combination.

**National Healthcare Safety Network  
SAARs Table - All Adult Standardized Antimicrobial Administration Ratios (SAARs) High-Level Indicators and High-Value Targets by Location (2023 Baseline)**

As of: March 4, 2026 at 9:45 PM UTC  
Date Range: AU\_SAAR\_ADULT\_2023 summaryYr 2023 to 2023  
if (((location = "MEDWARD" ) ))

**All Antibacterial Agents used in adult medical, medical-surgical, and surgical ICUs and wards, step down units, mixed acuity units, orthopedic wards, obstetrics wards, solid organ transplant specialty care areas, oncology units, and hematopoietic stem cell transplant wards**

| Facility Org ID | SAAR Type for Adult Locations 2023 Baseline | Location | Summary Year/Month | CDC Location    | Antimicrobial Days | Predicted Antimicrobial Days | Days Present | SAAR  | SAAR p-value | 95% Confidence Interval | SAAR Percentile |
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| 13860           | Adult_All-Antibacterial_All_2023            | MEDWARD  | 2023M01            | IN:ACUTE:WARD:M | 634                | 575.515                      | 1013         | 1.102 | 0.0171       | 1.018, 1.190            | 65              |
| 13860           | Adult_All-Antibacterial_All_2023            | MEDWARD  | 2023M02            | IN:ACUTE:WARD:M | 610                | 852.193                      | 1500         | 0.716 | 0.0000       | 0.661, 0.774            | 14              |

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# Example Interpretation – Antimicrobial Days & Days Present

634 antimicrobial days reported for patients contributing 1013 days present in medical ward

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 As of: March 4, 2026 at 9:45 PM UTC  
 Date Range: AU\_SAAR\_ADULT\_2023 summaryYr 2023 to 2023  
 if (((location = "MEDWARD" ) ) )

**All Antibacterial Agents used in adult medical, medical-surgical, and surgical ICUs and wards, step down units, mixed acuity units, orthopedic wards, obstetrics wards, solid organ transplant specialty care areas, oncology units, and hematopoietic stem cell transplant wards**

| Facility Org ID | SAAR Type for Adult Locations 2023 Baseline | Location | Summary Year/Month | CDC Location    | Antimicrobial Days | Predicted Antimicrobial Days | Days Present | SAAR  | SAAR p-value | 95% Confidence Interval | SAAR Percentile |
|-----------------|---|----------|--------------------|-----------------|--------------------|------------------------------|--------------|-------|--------------|-------------------------|-----------------|
| 13860           | Adult_All-Antibacterial_All_2023            | MEDWARD  | 2023M01            | IN:ACUTE:WARD:M | 634                | 575.515                      | 1013         | 1.102 | 0.0171       | 1.018, 1.190            | 65              |
| 13860           | Adult_All-Antibacterial_All_2023            | MEDWARD  | 2023M02            | IN:ACUTE:WARD:M | 610                | 852.193                      | 1500         | 0.716 | 0.0000       | 0.661, 0.774            | 14              |

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# Example Interpretation – Predicted Antimicrobial Days

SAAR model predicted 575.515 antimicrobial days for medical ward using 2023 baseline data from similar locations

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As of: March 4, 2026 at 9:45 PM UTC

Date Range: AU\_SAAAR\_ADULT\_2023 summaryYr 2023 to 2023

if (((location = "MEDWARD" ) ))

All Antibacterial Agents used in adult medical, medical-surgical, and surgical ICUs and wards, step down units, mixed acuity units, orthopedic wards, obstetrics wards, solid organ transplant specialty care areas, oncology units, and hematopoietic stem cell transplant wards

| Facility Org ID | SAAR Type for Adult Locations 2023 Baseline | Location | Summary Year/Month | CDC Location    | Antimicrobial Days | Predicted Antimicrobial Days | Days Present | SAAR  | SAAR p-value | 95% Confidence Interval | SAAR Percentile |
|-----------------|---|----------|--------------------|-----------------|--------------------|------------------------------|--------------|-------|--------------|-------------------------|-----------------|
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| 13860           | Adult_All-Antibacterial_All_2023            | MEDWARD  | 2023M02            | IN:ACUTE:WARD:M | 610                | 852.193                      | 1500         | 0.716 | 0.0000       | 0.661, 0.774            | 14              |

**Note: Data are fictitious and for example only.**

Chat and Q & A features are limited to only 1000 participants. Please refer to email Centers for Disease Control and Prevention no-reply@emailupdates.cdc.gov with subject line, "NHSN 2026 Annual Training - Day 2" for additional instructions and links.

# Example Interpretation – SAAR

SAAR (ratio of observed to predicted antimicrobial use) was 1.102

## National Healthcare Safety Network

### SAARs Table - All Adult Standardized Antimicrobial Administration Ratios (SAARs) High-Level Indicators and High-Value Targets by Location (2023 Baseline)

As of: March 4, 2026 at 9:45 PM UTC

Date Range: AU\_SAAAR\_ADULT\_2023 summaryYr 2023 to 2023

if (((location = "MEDWARD" ) ))

**All Antibacterial Agents used in adult medical, medical-surgical, and surgical ICUs and wards, step down units, mixed acuity units, orthopedic wards, obstetrics wards, solid organ transplant specialty care areas, oncology units, and hematopoietic stem cell transplant wards**

| Facility Org ID | SAAR Type for Adult Locations 2023 Baseline | Location | Summary Year/Month | CDC Location    | Antimicrobial Days | Predicted Antimicrobial Days | Days Present | SAAR  | SAAR p-value | 95% Confidence Interval | SAAR Percentile |
|-----------------|---|----------|--------------------|-----------------|--------------------|------------------------------|--------------|-------|--------------|-------------------------|-----------------|
| 13860           | Adult_All-Antibacterial_All_2023            | MEDWARD  | 2023M01            | IN:ACUTE:WARD:M | 634                | 575.515                      | 1013         | 1.102 | 0.0171       | 1.018, 1.190            | 65              |
| 13860           | Adult_All-Antibacterial_2023                | MEDWARD  | 2023M02            | IN:ACUTE:WARD:M | 610                | 852.193                      | 1500         | 0.716 | 0.0000       | 0.661, 0.774            | 14              |

**Note: Data are fictitious and for example only.**

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# Example Interpretation – SAAR p-value

Observed antimicrobial use was significantly different from predicted use (or SAAR was significantly different from 1).

**National Healthcare Safety Network**  
**SAARs Table - All Adult Standardized Antimicrobial Administration Ratios (SAARs) High-Level Indicators and High-Value Targets by Location (2023 Baseline)**  
 As of: March 4, 2026 at 9:45 PM UTC  
 Date Range: AU\_SAAAR\_ADULT\_2023 summaryYr 2023 to 2023  
 if (((location = "MEDWARD" ) ))

**All Antibacterial Agents used in adult medical, medical-surgical, and surgical ICUs and wards, step down units, mixed acuity units, orthopedic wards, obstetrics wards, solid organ transplant specialty care areas, oncology units, and hematopoietic stem cell transplant wards**

| Facility Org ID | SAAR Type for Adult Locations 2023 Baseline | Location | Summary Year/Month | CDC Location    | Antimicrobial Days | Predicted Antimicrobial Days | Days Present | SAAR  | SAAR p-value | 95% Confidence Interval | SAAR Percentile |
|-----------------|---|----------|--------------------|-----------------|--------------------|------------------------------|--------------|-------|--------------|-------------------------|-----------------|
| 13860           | Adult_All-Antibacterial_All_2023            | MEDWARD  | 2023M01            | IN:ACUTE:WARD:M | 634                | 575.515                      | 1013         | 1.102 | 0.0171       | 1.018, 1.190            | 65              |
| 13860           | Adult_All-Antibacterial_All_2023            | MEDWARD  | 2023M02            | IN:ACUTE:WARD:M | 610                | 852.193                      | 1500         | 0.716 | 0.0000       | 0.661, 0.774            | 14              |

**Note: Data are fictitious and for example only.**

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# Example Interpretation – 95% CI

High degree of confidence true SAAR between 1.018 and 1.190; 1.102 is most likely SAAR value

**National Healthcare Safety Network**  
**SAARs Table - All Adult Standardized Antimicrobial Administration Ratios (SAARs) High-Level Indicators and High-Value Targets by Location (2023 Baseline)**  
 As of: March 4, 2026 at 9:45 PM UTC  
 Date Range: AU\_SAAAR\_ADULT\_2023 summaryYr 2023 to 2023  
 if (((location = "MEDWARD" ) ))

**All Antibacterial Agents used in adult medical, medical-surgical, and surgical ICUs and wards, step down units, mixed acuity units, orthopedic wards, obstetrics wards, solid organ transplant specialty care areas, oncology units, and hematopoietic stem cell transplant wards**

| Facility Org ID | SAAR Type for Adult Locations 2023 Baseline | Location | Summary Year/Month | CDC Location    | Antimicrobial Days | Predicted Antimicrobial Days | Days Present | SAAR  | SAAR p-value | 95% Confidence Interval | SAAR Percentile |
|-----------------|---|----------|--------------------|-----------------|--------------------|------------------------------|--------------|-------|--------------|-------------------------|-----------------|
| 13860           | Adult_All-Antibacterial_All_2023            | MEDWARD  | 2023M01            | IN:ACUTE:WARD:M | 634                | 575.515                      | 1013         | 1.102 | 0.0171       | 1.018, 1.190            | 65              |
| 13860           | Adult_All-Antibacterial_All_2023            | MEDWARD  | 2023M02            | IN:ACUTE:WARD:M | 610                | 852.193                      | 1500         | 0.716 | 0.0000       | 0.661, 0.774            | 14              |

**Note: Data are fictitious and for example only.**

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# Example Interpretation – SAAR Percentile

SAAR was in the 65% of SAARs reported from similar locations;

64% of SAAR values were less than 35% were greater than 1.102.

**National Healthcare Safety Network**  
**SAARs Table - All Adult Standardized Antimicrobial Administration Ratios (SAARs) High-Level Indicators and High-Value Targets by Location (2023 Baseline)**  
 As of: March 4, 2026 at 9:45 PM UTC  
 Date Range: AU\_SAAR\_ADULT\_2023 summaryYr 2023 to 2023  
 if (((location = "MEDWARD" ) ))

**All Antibacterial Agents used in adult medical, medical-surgical, and surgical ICUs and wards, step down units, mixed acuity units, orthopedic wards, obstetrics wards, solid organ transplant specialty care areas, oncology units, and hematopoietic stem cell transplant wards**

| Facility Org ID | SAAR Type for Adult Locations 2023 Baseline | Location | Summary Year/Month | CDC Location    | Antimicrobial Days | Predicted Antimicrobial Days | Days Present | SAAR  | SAAR p-value | 95% Confidence Interval | SAAR Percentile |
|-----------------|---|----------|--------------------|-----------------|--------------------|------------------------------|--------------|-------|--------------|-------------------------|-----------------|
| 13860           | Adult_All-Antibacterial_All_2023            | MEDWARD  | 2023M01            | IN:ACUTE:WARD:M | 634                | 575.515                      | 1013         | 1.102 | 0.0171       | 1.018, 1.190            | 65              |
| 13860           | Adult_All-Antibacterial_All_2023            | MEDWARD  | 2023M02            | IN:ACUTE:WARD:M | 610                | 852.193                      | 1500         | 0.716 | 0.0000       | 0.661, 0.774            | 14              |

**Note: Data are fictitious and for example only.**

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# Comparing SAARs

When and How to Compare SAARs

Chat and Q & A features are limited to only 1000 participants.

Please refer to email Centers for Disease Control and Prevention [no-reply@emailupdates.cdc.gov](mailto:no-reply@emailupdates.cdc.gov) with subject line, "NHSN 2026 Annual Training - Day 2" for additional instructions and links.

# Advanced SAAR Comparisons

- **Ways to Compare SAARs**
  - Compare SAARs to 1.0.
  - Compare SAARs to a benchmark other than 1.0.
  - Compare two SAAR values directly.
  - Use the NHSN Statistics Calculator, a tool within the NHSN application, to test for statistical differences.
- **Guidelines for Comparing Two SAAR Values**
  - ✔ Compare SAARs of the same population, SAAR agent category, and baseline model.
  - ✘ Do not compare or pool across different patient populations or different SAAR agent categories.
  - ✘ Do not compare SAAR values calculated under different baselines.
- For more information, see the [2023 SAAR Guide](#) under “Comparing two SAAR values in a meaningful way.”

# Using SAAR Benchmarks Beyond 1.0

- NHSN defaults to comparing SAAR values to 1.0.
  - A SAAR of 1.0 does not necessarily indicate optimal AU.
- Facilities may choose alternative benchmarks that better align with stewardship goals.
  - For example, our adult All Antibacterials SAAR value for February 2023 was 0.716. If the goal is to maintain or reduce current AU, 1.0 may not be appropriate.
  - Could consider using national median of 0.7, for example, as an alternative benchmark.
- Guidance on defining SAAR benchmarks is available in the [2023 SAAR Guide](#) under “Defining your benchmark.”


# Navigating the NHSN Statistics Calculator

The screenshot displays the NHSN Patient Safety Component Home Page. The page has a dark blue header with the text "NHSN - National Healthcare Safety Network". Below the header is a navigation menu on the left and a main content area on the right. The navigation menu includes items such as Alerts, Dashboard, Reporting Plan, Patient, Event, Procedure, Summary Data, Hospital Respiratory Data, Infectious Diseases of Public Health Concern, Patient Safety Structural Measure, Import/Export, Surveys, Analysis (marked with a pink circle '1'), Users, Facility, and Group. The main content area is titled "NHSN Patient Safety Component Home Page" and contains several dashboard links: TAP Strategy Dashboard, TAS Dashboard, HAI Pathogen Dashboard, and Survey Data Quality Dashboard. Below these is an "Action Items" section. A dropdown menu is open from the "Analysis" item, showing options: Generate Data Sets, Reports, Statistics Calculator (highlighted with a red box and a pink circle '2'), and Preferences.


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# Comparing SAAR to a Nominal Value



## Statistics Calculator




- Compare Two Proportions
- Compare Two Incidence Density Rates
- Compare Single Proportion to a Benchmark

The options below can be applied to the following standardized ratios: standardized infection ratios (SIRs), standardized utilization ratios (SURs), standardized antimicrobial administration ratios (SAARs), pathogen-specific standardized infection ratios (pSIRs), and standardized resistant infection ratios (SRIRs).

- Compare Single Standardized Ratio (for example, SIR) to Nominal Value
- Compare Single Standardized Ratio (for example, SIR) to 1
- Compare Two Standardized Ratios (for example, SIRs)

# Comparing SAAR to a Nominal Value (continued)



## Compare Single Standardized Ratio (for example, SIR) to Nominal Value

When comparing a standardized ratio to a nominal value, the hypothesis is that the ratio is not different from the nominal value. To perform a hypothesis test and calculate a p-value, first select the type of ratio you wish to analyze. Then, enter the values for the appropriate number observed and number predicted. The standardized ratio will be displayed automatically. Enter the nominal value you wish to use for the comparison, and click Calculate.

Type of ratio: SAAR - standardized antimicrobial administration ratio ▼

Data Source

Number Observed Antimicrobial Days of Therapy:

Number Predicted Antimicrobial Days of Therapy:

Standardized Antimicrobial Administration Ratio:

Nominal Value:

Title:

# Inputting Data into the NHSN Statistics Calculator

**National Healthcare Safety Network**  
**SAARs Table - All Adult Standardized Antimicrobial Administration Ratios (SAARs) High-Level Indicators and High-Value Targets by Location (2023 Baseline)**  
 As of: March 4, 2026 at 5:06 PM UTC  
 Date Range: AU\_SAAR\_ADULT\_2023 summaryYr 2023 to 2023  
 if (((location = "MEDWARD" ) ))  
**All Antibacterial Agents used in adult medical, medical-surgical, and surgical ICUs and wards, step down units, mixed acuity units, orthopedic wards, obstetrics wards, solid organ transplant specialty care areas, oncology units, and hematopoietic stem cell transplant wards**

| Facility Org ID | SAAR Type for Adult Locations 2023 Baseline | Location | Summary Year/Month | CDC Location    | Antimicrobial Days | Predicted Antimicrobial Days | Days Present | SAAR  | SAAR p-value | 95% Confidence Interval | SAAR Percentile |
|-----------------|---|----------|--------------------|-----------------|--------------------|------------------------------|--------------|-------|--------------|-------------------------|-----------------|
| 13880           | Adult_All-Antibacterial_All_2023            | MEDWARD  | 2023M02            | IN-ACUTE-WARD-M | 610                | 852.193                      | 1500         | 0.716 | 0.0000       | 0.681, 0.774            | 14              |
| 13880           | All-  | MEDWARD  | 2023M02            | IN-ACUTE-WARD-M | 610                | 852.193                      | 1500         | 0.716 | 0.0000       | 0.681, 0.774            | 14              |

**Data Source**

Number Observed Antimicrobial Days of Therapy:

Number Predicted Antimicrobial Days of Therapy:

Standardized Antimicrobial Administration Ratio:


Nominal Value:

Title:

**Note: Data are fictitious and for example only.**

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# Customizing a Benchmark and Report Title



## Compare Single Standardized Ratio (for example, SIR) to Nominal Value

When comparing a standardized ratio to a nominal value, the hypothesis is that the ratio is not different from the nominal value. To perform a hypothesis test and calculate a p-value, first select the type of ratio you wish to analyze. Then, enter the values for the appropriate number observed and number predicted. The standardized ratio will be displayed automatically. Enter the nominal value you wish to use for the comparison, and click Calculate.

Type of ratio: SAAR - standardized antimicrobial administration ratio ▼

Data Source

Number Observed Antimicrobial Days of Therapy: 610

Number Predicted Antimicrobial Days of Therapy: 852.193

Standardized Antimicrobial Administration Ratio: 0.716

Nominal Value: 0.7

Title: Compare SAAR value to 0.7

**Note: Data are fictitious and for example only.**

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Please refer to email Centers for Disease Control and Prevention no-reply@emailupdates.cdc.gov with subject line, "NHSN 2026 Annual Training - Day 2" for additional instructions and links.

# Interpreting Output for SAAR Comparison to a Nominal Value

## National Healthcare Safety Network

### Compare SAAR value to 0.7

As of: March 4, 2026 at 5:39 PM

| Number Observed Antimicrobial Days of Therapy | Number Predicted Antimicrobial Days of Therapy | SAAR  | p-value as Compared to 0.7 |
|---|--|-------|----------------------------|
| 610   | 852.193  | 0.716 | 0.5921                     |

- The  $p$ -value is 0.5921, which is  $> 0.05$ .
- Our SAAR value of 0.716 is not statistically significantly different from the national median of 0.7.
- Interpret results in the context of clinical factors and stewardship goals.

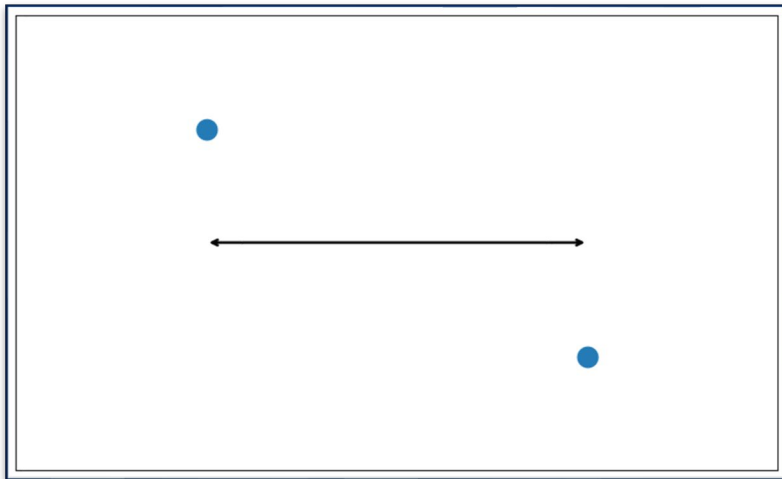
**Note: Data are fictitious and for example only.**

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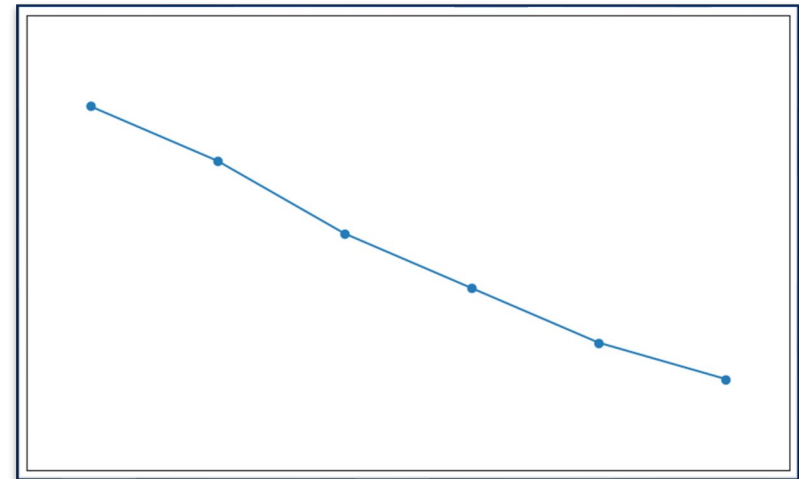
# Comparing SAARs Over Time



- Tracking AU over time using SAARs should be limited to comparing two SAAR values across two points in time.




- Do not use SAARs for trend analyses.
  - For trend analyses using SAAR-like values, consider using crude rates and risk-adjust for factors included in the SAAR models with guidance from a statistician.




- See the [2023 SAAR Guide](#), “Tracking over time,” for additional guidance.
- Use NHSN SAAR plots to visualize SAARs over time. The steps for running and interpreting this type of report are in the [SAAR Plot Analysis Quick Reference Guide](#).

# Comparing Two SAARs Over Time



## Statistics Calculator




- Compare Two Proportions
- Compare Two Incidence Density Rates
- Compare Single Proportion to a Benchmark

The options below can be applied to the following standardized ratios: standardized infection ratios (SIRs), standardized utilization ratios (SURs), standardized antimicrobial administration ratios (SAARs), pathogen-specific standardized infection ratios (pSIRs), and standardized resistant infection ratios (SRIRs).

- Compare Single Standardized Ratio (for example, SIR) to Nominal Value
- Compare Single Standardized Ratio (for example, SIR) to 1
- Compare Two Standardized Ratios (for example, SIRs)

# Comparing Two SAARs Over Time (continued)



## Compare Two Standardized Ratios (for example, SIRs)

When comparing two standardized ratios, the hypothesis is that the two ratios are not different from each other. To perform a hypothesis test and calculate a p-value, first select the type of ratio you wish to analyze. Then, enter the values for the appropriate number observed and number predicted. The standardized ratios for each data source will be displayed automatically. Click Calculate

Type of ratio: SAAR - standardized antimicrobial administration ratio ▾

|  | Data Source #1       | Data Source #2       |
|--|----------------------|----------------------|
| Group Labels:                                    | <input type="text"/> | <input type="text"/> |
| Number Observed Antimicrobial Days of Therapy:   | <input type="text"/> | <input type="text"/> |
| Number Predicted Antimicrobial Days of Therapy:  | <input type="text"/> | <input type="text"/> |
| Standardized Antimicrobial Administration Ratio: | <input type="text"/> |                      |
| Title:   | <input type="text"/> |                      |

# Inputting SAAR Data for Two Time Periods

**National Healthcare Safety Network  
SAARs Table - All Adult Standardized Antimicrobial Administration Ratios (SAARs) High-Level Indicators and High-Value Targets by Location (2023 Baseline)**

As of: March 4, 2026 at 5:06 PM UTC  
Date Range: AU\_SAAR\_ADULT\_2023 summaryYr 2023 to 2023  
if (((location = "MEDWARD" ) ) )

**All Antibacterial Agents used in adult medical, medical-surgical, and surgical ICUs and wards, step down units, mixed acuity units, orthopedic wards, obstetrics wards, solid organ transplant specialty care areas, oncology units, and hematopoietic stem cell transplant wards**

| Facility Org ID | SAAR Type for Adult Locations 2023 Baseline | Location | Summary Year/Month | CDC Location    | Antimicrobial Days | Predicted Antimicrobial Days | Days Present | SAAR  | SAAR p-value | 95% Confidence Interval | SAAR Percentile |
|-----------------|---|----------|--------------------|-----------------|--------------------|------------------------------|--------------|-------|--------------|-------------------------|-----------------|
| 13880           | Adult_All-Antibacterial_All_2023            | MEDWARD  | 2023M02            | IN:ACUTE:WARD:M | 610                | 852.193                      | 1500         | 0.716 | 0.0000       | 0.661, 0.774            | 14              |
| 13880           | Adult_All-Antibacterial_All_2023            | MEDWARD  | 2023M11            | IN:ACUTE:WARD:M | 599                | 738.568                      | 1300         | 0.811 | 0.0000       | 0.748, 0.878            | 23              |
| 13880           | Adult_All-Antibacterial_All_2023            | MEDWARD  | 2023M02            | IN:ACUTE:WARD:M | 620                | 732.87                       | 1500         | 0.811 | 0.0000       | 0.787, 0.920            | 27              |

**Data Source #1**      **Data Source #2**

Group Labels:      

Number Observed Antimicrobial Days of Therapy:      

Number Predicted Antimicrobial Days of Therapy:      


Standardized Antimicrobial Administration Ratio:      

Title:

**Note: Data are fictitious and for example only.**

Chat and Q & A features are limited to only 1000 participants. Please refer to email Centers for Disease Control and Prevention no-reply@emailupdates.cdc.gov with subject line, "NHSN 2026 Annual Training - Day 2" for additional instructions and links.

# Customize Title for SAARs Over Time Report



## Compare Two Standardized Ratios (for example, SIRs)

When comparing two standardized ratios, the hypothesis is that the two ratios are not different from each other. To perform a hypothesis test and calculate a p-value, first select the type of ratio you wish to analyze. Then, enter the values for the appropriate number observed and number predicted. The standardized ratios for each data source will be displayed automatically. Click Calculate

|  |  |                       |
|--|--|-----------------------|
| Type of ratio:                                   | SAAR - standardized antimicrobial administration ratio ▾ |                       |
|  | <b>Data Source #1</b>                                    | <b>Data Source #2</b> |
| Group Labels:                                    | 2023M02  | 2023M11               |
| Number Observed Antimicrobial Days of Therapy:   | 610  | 599                   |
| Number Predicted Antimicrobial Days of Therapy:  | 852.193  | 738.568               |
| Standardized Antimicrobial Administration Ratio: | 0.716  | 0.811                 |
| Title:   | Compare 2023M02 SAAR value to 2023M11 SAAR value         |                       |

**Note: Data are fictitious and for example only.**

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# Interpreting Output for SAARs Over Time

## National Healthcare Safety Network

### Compare 2023M02 SAAR value to 2023M11 SAAR value

As of: March 4, 2026 at 7:04 PM

|  | 2023M02 | 2023M11 |
|--|---------|---------|
| Observed Antimicrobial Administration  | 610     | 599     |
| Predicted Antimicrobial Administration | 852.193 | 738.568 |
| SAAR                                   | 0.716   | 0.811   |

Relative ratio of SAARs (data column 2 / data column 1):  $0.811/0.716 = 1.133$  (113.3%)

Two-tailed p-value: 0.0300

95% Conf. Interval: 1.012, 1.268

- The  $p$ -value is 0.0300, which is  $< 0.05$ .
- Our Feb. 2023 and Nov. 2023 SAAR values are statistically significantly different from each other.
- Interpret results in the context of clinical factors.

**Note: Data are fictitious and for example only.**

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# Knowledge Check -2

Which of the following comparisons are not appropriate when evaluating SAARs? *Select all that apply.*

- A. Comparing your SAAR to 1.0
- B. Comparing your SAAR to a benchmark other than 1.0
- C. Comparing two SAARs values directly
- D. Comparing SAARs from different SAAR agent categories using the same baseline model
- E. Comparing SAARs calculated under different baseline models



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# Knowledge Check – 2 Answer

Which of the following comparisons are not appropriate when evaluating SAARs? *Select all that apply.*

A. Comparing your SAAR to 1.0

B. Comparing your SAAR to a benchmark other than 1.0

C. Comparing two SAARs values directly

**D. Comparing SAARs from different SAAR agent categories using the same baseline model**

**E. Comparing SAARs calculated under different baseline models**



*When comparing two SAAR values directly, they should only be compared within the same population, SAAR agent category, and baseline model. SAARs from different SAAR agent categories or calculated under different baselines should not be compared.*

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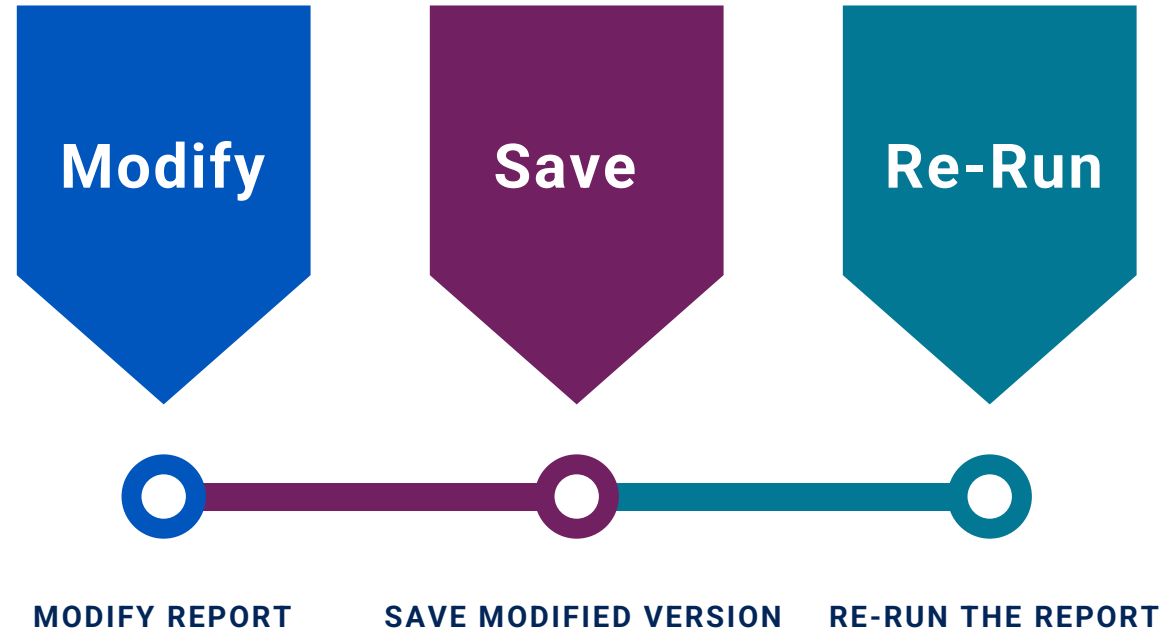
# Custom Reports

## How to Save and Share Custom Reports

Chat and Q & A features are limited to only 1000 participants.

Please refer to email Centers for Disease Control and Prevention [no-reply@emailupdates.cdc.gov](mailto:no-reply@emailupdates.cdc.gov) with subject line, "NHSN 2026 Annual Training - Day 2" for additional instructions and links.

# Save Time with Custom Reports



# Saving Your Custom Report

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

Show descriptive variable names ([Print List](#))      Analysis Data Set: AU\_SAAR\_ADULT\_2023    Type: SAAR    Last Generated (UTC): February 12, 2026 3:04 PM

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

**Title:**  
SAARs Table - All Adult Standardized Antimicrobial Administration Ratios (SAARs) High-Level Indicators and High-Val

**Format:**

html     pdf     xls     rtf

[▶ Run](#)    [Save...](#)    [Export...](#)    [Close](#)


# Title the Custom Report

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

Show descriptive variable names ([Print List](#))      Analysis Data Set: AU\_SAAR\_ADULT\_2023    Type: SAAR    Last Generated (UTC) : February 12, 2026 3:04 PM

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

Title:  
SAARs Table - All Adult Standardized Antimicrobial Administration Ratios (SAARs) High-Level Indicators and High-Val

Format:  


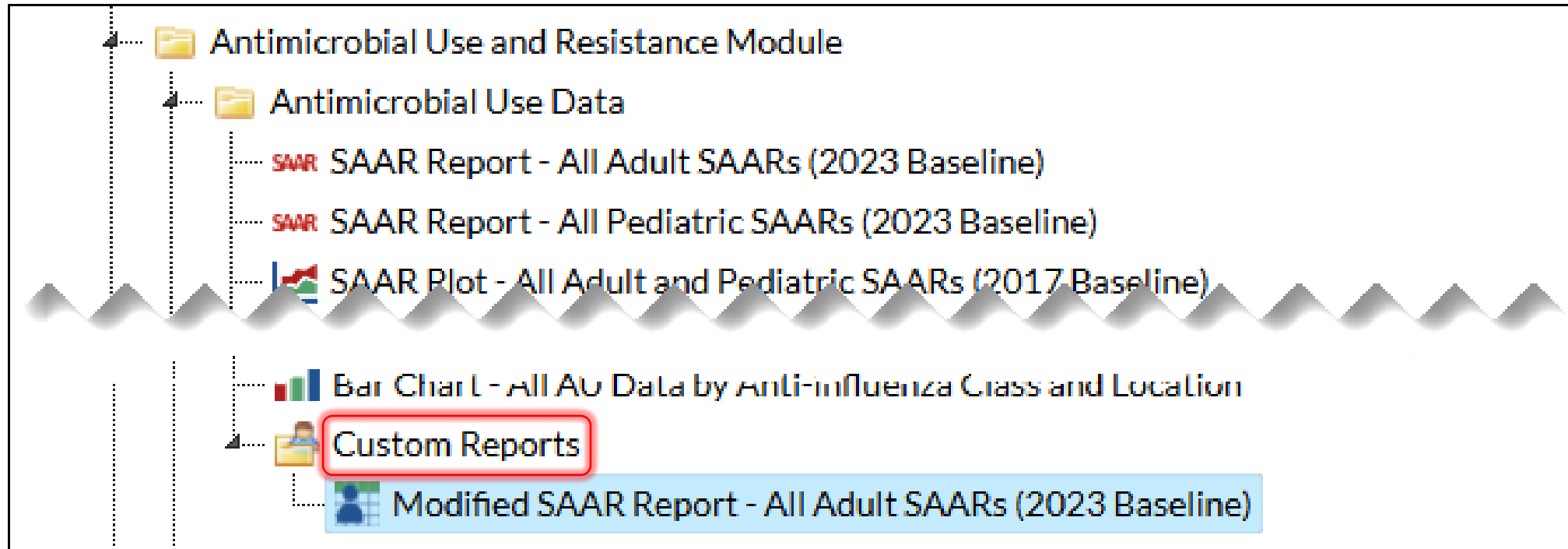
**Specify a name for your Analysis Report:**

Analysis Report Name:

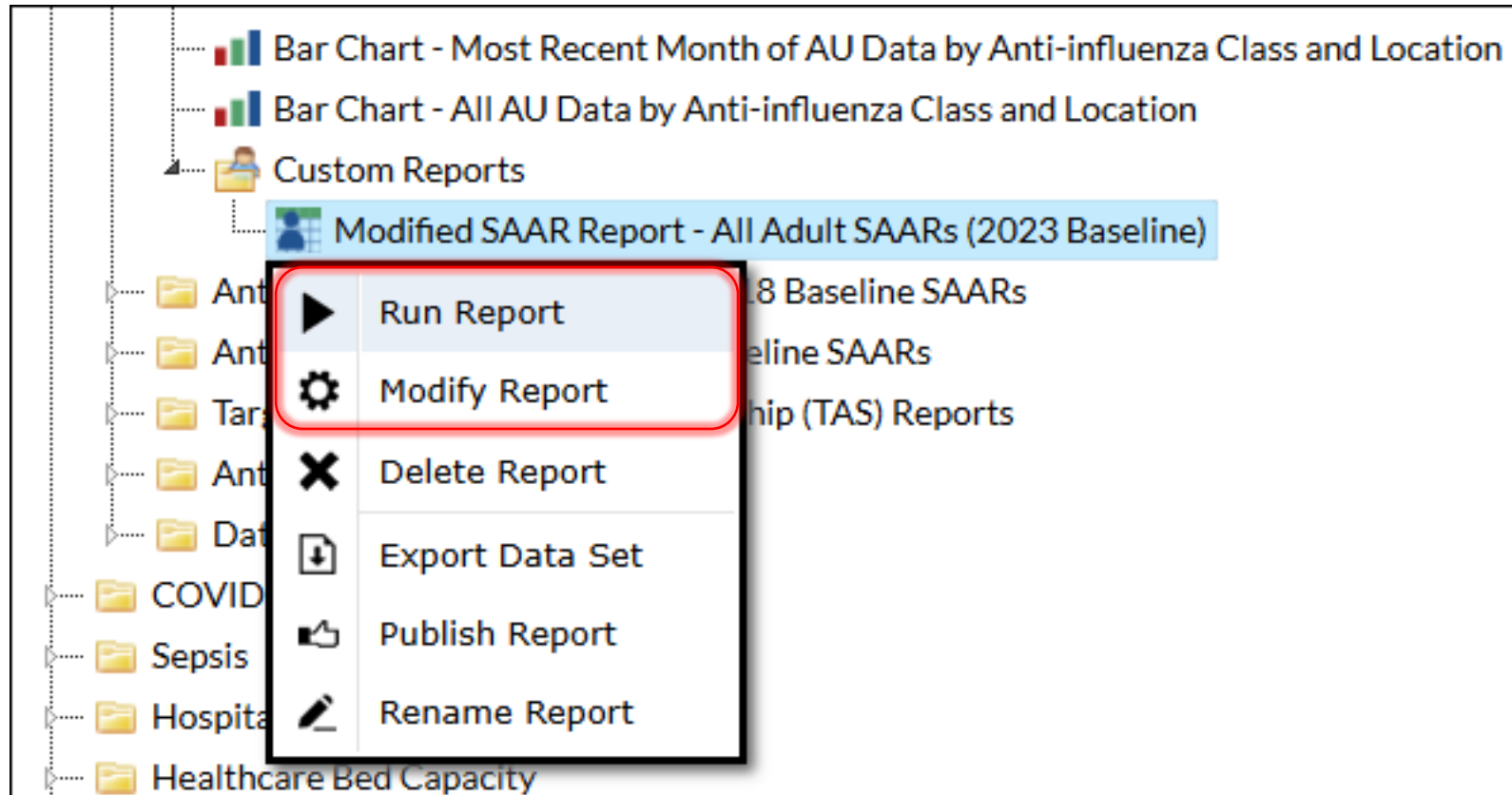
Overwrite existing Custom Analysis Report (Save)

Create a new Custom Analysis Report based on this one (Save as)

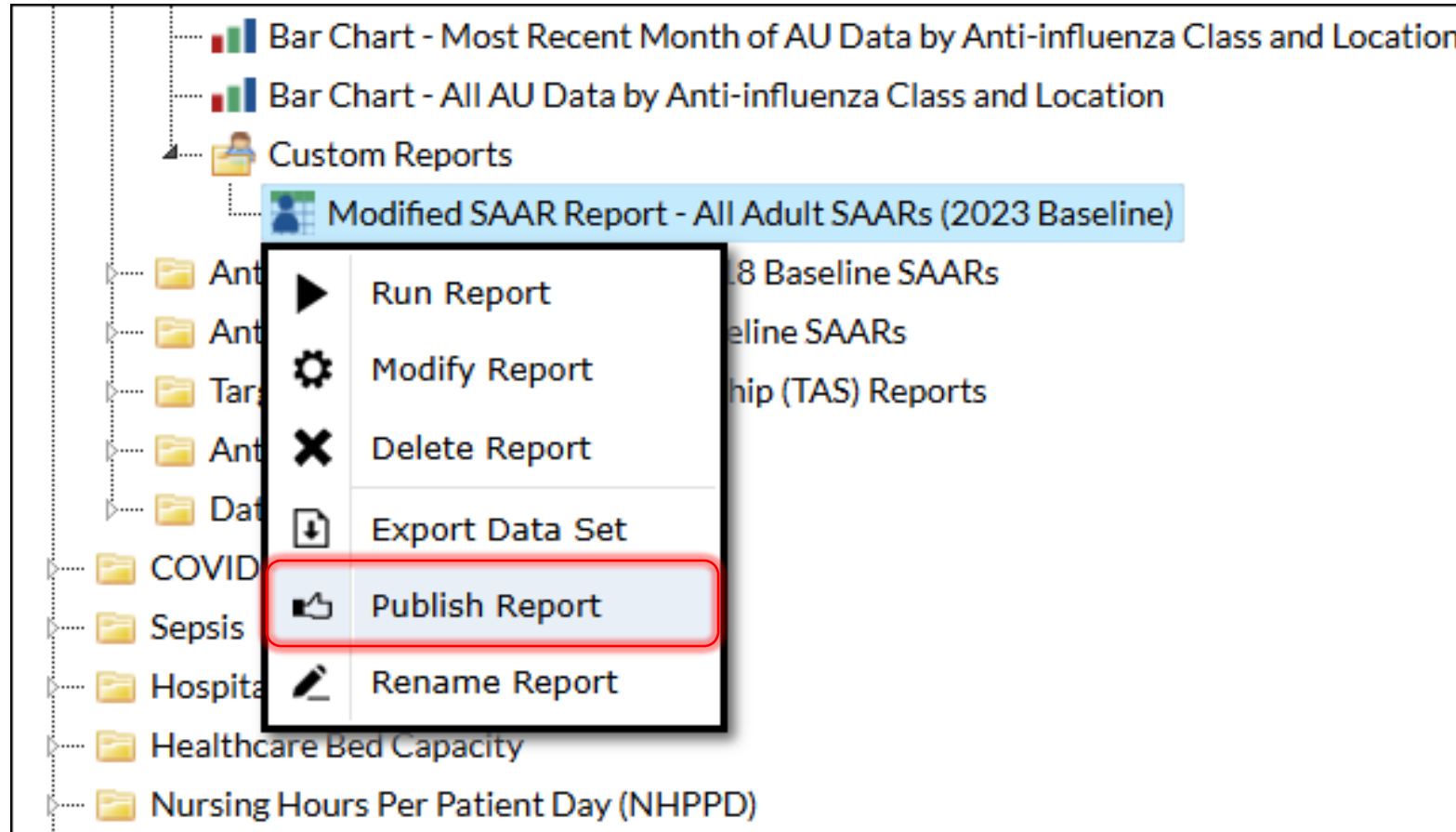
# Location of Custom Reports



# Re-Running a Saved Custom Report



# Share Custom Reports with Your Team



# Share Custom Reports with Your Team (continued)

The screenshot shows a list of reports in a software interface. The reports include:

- Pie Chart - All AU Data by Anti-influenza Class and Location
- Bar Chart - All Data - Selected Agent Distribution by Month
- Bar Chart - Most Recent Month of AU Data by Antibacterial Class and Location
- Bar Chart - All AU Data by Antibacterial Class and Location
- Bar Chart - Most Recent Month of AU Data by Antifungal Class and Location
- Bar Chart - All AU Data by Antifungal Class and Location
- Bar Chart - Most Recent Month of AU Data by Anti-influenza Class and Location
- Bar Chart - All AU Data by Anti-influenza Class and Location
- Custom Reports
  - Modified SAAR Report - All Adult SAARs (2023 Baseline)
- Antimicrobial Use Data - 2017/2018 Baseline SAARs
- Antimicrobial Use Data - 2014 Baseline SAARs
- Targeted Assessment for Stewardship (TAS) Reports
- Antimicrobial Resistance Data
- Data Quality

An alert dialog box is overlaid on the right side of the interface. The dialog has a dark blue header with the word "Alert" in white. Below the header, the text "Successfully published report." is displayed. At the bottom right of the dialog is a dark blue button with the text "OK" in white.

## Knowledge Check - 3

### True or False?

Custom Reports cannot be modified after they have been created.



Chat and Q & A features are limited to only 1000 participants. Please refer to email Centers for Disease Control and Prevention [no-reply@emailupdates.cdc.gov](mailto:no-reply@emailupdates.cdc.gov) with subject line, "NHSN 2026 Annual Training - Day 2" for additional instructions and links.

# Knowledge Check – 3 Answer

True or **False?**

Custom Reports cannot be modified after they have been created.



*Custom Reports can be modified at any time after they've been created.*

Chat and Q & A features are limited to only 1000 participants.

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# Analyzing Group-Level AU Data

SAARs at the Group Level

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# NHSN Group Function Overview

- Groups are configured with shared data rights to allow group-wide reporting and analysis, including AU Option reports.
- NHSN Group view offers the same reports available to individual facilities.
- Group users can aggregate and analyze data from multiple facilities in one view.
  - Group users will see the results of the reports for all facilities in a single output, by orgID.
  - Member facilities do not have to generate data sets for Group users to analyze their data.



# Generating Group-Level SAAR Reports

- Group report displaying all Adult SAAR results for member facilities
- Output is organized by orgID.

**National Healthcare Safety Network**  
**SAARs Table - All Adult Standardized Antimicrobial Administration Ratios (SAARs) High-Level Indicators and High-Value Targets (2023 Baseline)**  
 As of: March 18, 2026 at 8:27 PM UTC  
 Date Range: AU\_SAAR\_ADULT\_2023 summaryYM 2025M01 to 2025M12

**All Antibacterial Agents used in adult medical, medical-surgical, and surgical ICUs and wards, step down units, mixed acuity units, orthopedic wards, obstetrics wards, solid organ transplant specialty care areas, oncology units, and hematopoietic stem cell transplant wards**

| orgID | summaryYM | SAARTypeAdult2023                   | antimicrobialDays | numAUDaysPredicted | numDaysPresent | SAAR  | SAAR_pval | SAAR95CI     |
|-------|-----------|-------------------------------------|-------------------|--------------------|----------------|-------|-----------|--------------|
| 13860 | 2025M07   | Adult_All-Antibacterial_Select_2023 | 646               | 422.755            | 750            | 1.528 | 0.0000    | 1.414, 1.649 |
| 14059 | 2025M07   | Adult_All-Antibacterial_Select_2023 | 12315             | 28711.242          | 48810          | 0.429 | 0.0000    | 0.421, 0.437 |
| 14461 | 2025M07   | Adult_All-Antibacterial_Select_2023 | 1498              | 5628.370           | 6790           | 0.266 | 0.0000    | 0.253, 0.280 |
| 14731 | 2025M08   | Adult_All-Antibacterial_Select_2023 | 1533              | 2145.67            | 2700           | 0.71  | 0.0000    | 0.699, 0.751 |

**Note: Data are fictitious and for example only.**

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# SAAR Aggregation Across Group Members

- NHSN does not have an option to generate a single, combined SAAR across multiple facilities.
- Users can export and manually pool data to calculate SAARs at different levels of aggregation:
  - Across time (months, quarters, or years)
  - Across SAAR-eligible locations (within any baseline population)
  - Across hospitals, health systems, or health department jurisdictions
- More information can be found under “Scalability of the SAAR – aggregate SAAR data appropriately” in the [2023 SAAR Guide](#).

# Example: SAAR Aggregation Steps

- Manually calculate a pooled SAAR for aggregation levels not available in NHSN:
  - Sum observed antimicrobial days across desired level of aggregation
  - Sum predicted antimicrobial days across same level
  - Divide pooled observed antimicrobial days by pooled predicted antimicrobial days

**National Healthcare Safety Network**  
**SAARs Table - All Adult Standardized Antimicrobial Administration Ratios (SAARs) High-Level Indicators and High-Value Targets (2023 Baseline)**  
 As of: March 18, 2026 at 8:27 PM UTC  
 Date Range: AU\_SAAR\_ADULT\_2023 summaryYM 2025M01 to 2025M12

**All Antibacterial Agents used in adult medical, medical-surgical, and surgical ICUs and wards, step down units, mixed acuity units, orthopedic wards, obstetrics wards, solid organ transplant specialty care areas, oncology units, and hematopoietic stem cell transplant wards**

| orgID | summaryYM | SAARTypeAdult2023                   | antimicrobialDays | numAUDaysPredicted | numDaysPresent | SAAR  | SAAR_pval | SAAR95CI     |
|-------|-----------|-------------------------------------|-------------------|--------------------|----------------|-------|-----------|--------------|
| 13880 | 2025M07   | Adult_All-Antibacterial_Select_2023 | 646               | 422.755            | 750            | 1.528 | 0.0000    | 1.414, 1.649 |
| 14059 | 2025M07   | Adult_All-Antibacterial_Select_2023 | 12315             | 28711.242          | 48810          | 0.429 | 0.0000    | 0.421, 0.437 |
| 14461 | 2025M07   | Adult_All-Antibacterial_Select_2023 | 1498              | 5628.370           | 6790           | 0.266 | 0.0000    | 0.253, 0.280 |
| 14731 | 2025M08   | Adult_All-Antibacterial_Select_2023 | 133               | 2145.67            | 271            | 0.71  | 0.0000    | 0.59, 0.751  |

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# Example: SAAR Aggregation Calculation

| orgID | summaryYM | SAARTypeAdult2023                   | antimicrobialDays | numAUDaysPredicted | numDaysPresent | SAAR  | SAAR_pval | SAAR95CI     |
|-------|-----------|-------------------------------------|-------------------|--------------------|----------------|-------|-----------|--------------|
| 13860 | 2025M07   | Adult_All-Antibacterial_Select_2023 | 646               | 422.755            | 750            | 1.528 | 0.0000    | 1.414, 1.649 |
| 14059 | 2025M07   | Adult_All-Antibacterial_Select_2023 | 12315             | 28711.242          | 48810          | 0.429 | 0.0000    | 0.421, 0.437 |
| 14461 | 2025M07   | Adult_All-Antibacterial_Select_2023 | 1498              | 5628.370           | 6790           | 0.266 | 0.0000    | 0.253, 0.280 |


$$Pooled\ SAAR = \frac{orgID\ 13860\ observed\ DOT + orgID\ 14059\ observed\ DOT + orgID\ 14461\ observed\ DOT}{orgID\ 13860\ predicted\ DOT + orgID\ 14059\ predicted\ DOT + orgID\ 14461\ predicted\ DOT}$$

$$Pooled\ SAAR = \frac{646 + 12315 + 1498}{422.755 + 28711.242 + 5628.370} = \frac{14,459}{34,762.367} = 0.416$$


The pooled Adult All Antibacterials SAAR for the group in July 2025 was **0.416**.

**Note: Data are fictitious and for example only.**

# Comparing Pooled SAAR to 1.0



## Statistics Calculator




- Compare Two Proportions
- Compare Two Incidence Density Rates
- Compare Single Proportion to a Benchmark

The options below can be applied to the following standardized ratios: standardized infection ratios (SIRs), standardized utilization ratios (SURs), standardized antimicrobial administration ratios (SAARs), pathogen-specific standardized infection ratios (pSIRs), and standardized resistant infection ratios (SRIRs).

- Compare Single Standardized Ratio (for example, SIR) to Nominal Value
- Compare Single Standardized Ratio (for example, SIR) to 1
- Compare Two Standardized Ratios (for example, SIRs)

# Inputting Pooled SAAR Data



## Compare Single Standardized Ratio (for example, SIR) to 1

When comparing a standardized ratio to 1, the hypothesis is that the ratio is not different from 1 (specifically, the number observed is not different than the number predicted). To perform a hypothesis test and calculate a p-value and 95% confidence interval, first select the type of ratio you wish to analyze. Then, enter the values for the appropriate number observed and number predicted. The standardized ratio will be displayed automatically. Click Calculate.

Type of ratio: SAAR - standardized antimicrobial administration ratio ▼

Data Source #1

Number Observed Antimicrobial Days of Therapy: 14459

Number Predicted Antimicrobial Days of Therapy: 34762.367

Standardized Antimicrobial Administration Ratio: 0.416

Title: Pooled Adult All Antibacterial SAAR in July 2025

**Note: Data are fictitious and for example only.**

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# Interpreting Output for Pooled SAAR Comparison to 1.0

## National Healthcare Safety Network Pooled Adult All Antibacterial SAAR in July 2025

As of: March 18, 2026 at 9:01 PM

| Number Observed Antimicrobial Days of Therapy | Number Predicted Antimicrobial Days of Therapy | SAAR  | SAAR p-value | SAAR 95% CI  |
|---|--|-------|--------------|--------------|
| 14459   | 34762.367                                      | 0.416 | 0.0000       | 0.409, 0.423 |

- The  $p$ -value  $< 0.001$  and the 95% CI does not include 1.
- Our pooled SAAR value of 0.416 is statistically significantly lower than predicted use.
- High degree of confidence the true SAAR lies between 0.409 and 0.423.
  - 0.416 is the best estimate and most likely value.
- Interpret results in the context of clinical factors and stewardship goals.

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# Considerations for SAAR Aggregation

- Do not aggregate data across baseline populations (adult, pediatric, neonatal).
- Do not combine data from different baseline years.
- Greater aggregation introduces more uncertainty.
  - As aggregation increases, differences in underlying facility characteristics may influence results.
  - Over-aggregation can reduce proportionality and mask meaningful differences.

# Knowledge Check – 4

**At what levels of aggregation can SAARs be pooled?**

- A. Across time (months, quarters, or years)
- B. Across SAAR-eligible locations
- C. Across hospitals, health systems, or health department jurisdictions
- D. All of the above
- E. None of the above



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# Knowledge Check – 4 Answer

At what levels of aggregation can SAARs be pooled?

- A. Across time (months, quarters, or years)
- B. Across SAAR-eligible locations
- C. Across hospitals, health systems, or health department jurisdictions
- D. All of the above**
- E. None of the above



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# Resources for Advanced AU Option Analysis

Where to Find Help and Tools

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# Resources

- [AUR Training](#): Video trainings and slide decks for the AU/AR Options
- [AU Option Quick Reference Guides](#): How to run, modify, and interpret AU analysis reports
- [Keys to Success with the SAAR](#): Overview of the SAAR and key considerations
- [NHSN's Guide to the SAAR](#): In-depth description of SAAR methods and models
- [AUR Module Reports](#): National SAAR distributions and summary of antimicrobial use
- [NHSN Statistical Tool SAS Macros](#): SAS macros for SAAR-related analyses

# Questions

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# Thank you.

For any questions or concerns, contact the NHSN Helpdesk.

- **NHSN-ServiceNow** to submit questions to the NHSN Help Desk.
- Access new portal at <https://servicedesk.cdc.gov/nhsncsp>.
- If you do not have a SAMS login, or are unable to access ServiceNow, you can still email the NHSN Help Desk at [nhsn@cdc.gov](mailto:nhsn@cdc.gov).

For more information, contact CDC  
1-800-CDC-INFO (232-4636)  
TTY: 1-888-232-6348 <https://www.cdc.gov/>  
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