Washington State Department of HEALTH

GETTING TO KNOW NHSN ANTIMICROBIAL USE DATA

Katarina Kamenar, MSPH
Healthcare-Associated Infections and Antimicrobial Resistance
Office of Communicable Disease Epidemiology

WA DOH's Antimicrobial Stewardship Team

Jessica Zering
Antimicrobial Stewardship Pharmacist

Katarina Kamenar
Antimicrobial Stewardship Epidemiologist

Erica Stohs
Antimicrobial Stewardship Physician

Learning Objectives

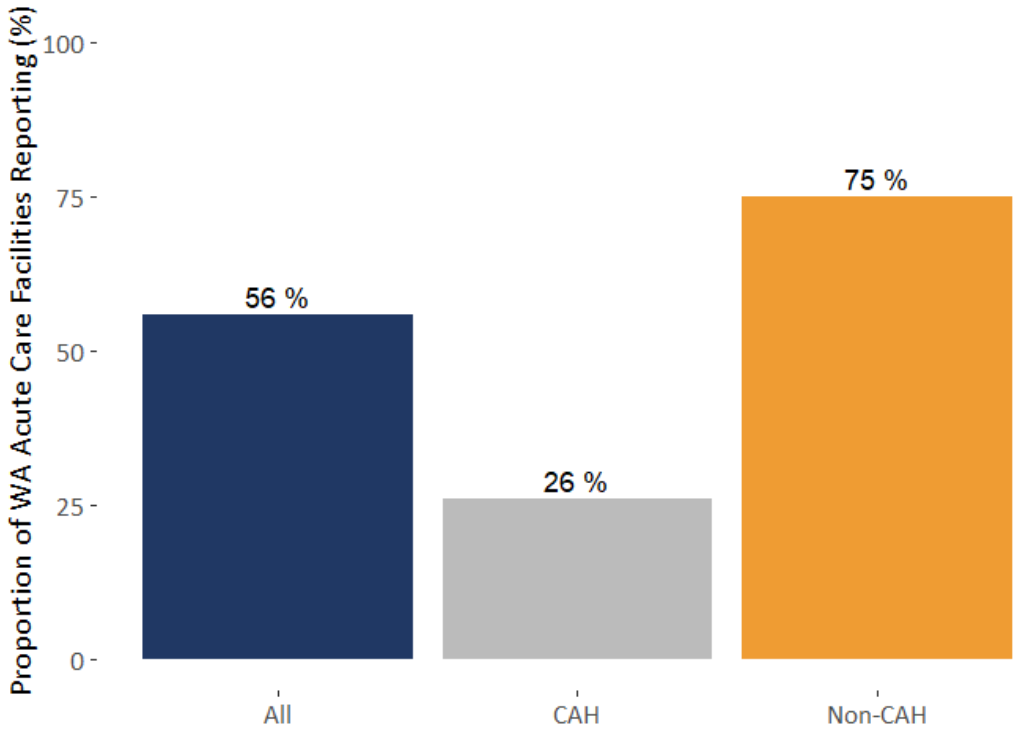
1. Identify types of Antimicrobial Use metrics available in NHSN
2. Recognize Advantages and Disadvantages to NHSN AU metrics

Background

Starting in 2024 hospitals that participate in the Medicare Promoting Interoperability Program will be required to be in ***active engagement*** or claim an applicable exclusion with NHSN AUR module.

For questions and resources on implementation:

- Visit WA DOH's NHSN Antimicrobial Use and Resistance Resources page
- Check out CDC's NHSN AUR Promoting Interoperability Guidance and FAQs page



How do you get access to NHSN AU Data?

Getting NHSN Access

- Be added to NHSN by your facility's NHSN Administrator
- Sign-up for a SAMS Account
- Complete registration and identity proofing steps
- Access NHSN through the SAMS portal

Viewing Data in NHSN

- Select "Patient Safety" Component
- Click Analysis -> Generate Datasets
- Click Analysis -> Reports -> Antimicrobial Use and Resistance Module

What data can go into the NHSN AU Module?

What data is in NHSN	What data is **NOT** in NHSN

• Facility Wide Inpatient Antibiotic Use data
  • All inpatient locations and inpatient procedural areas from which the numerator and denominator can be accurately captured.
• Antibiotic Use data from NHSN-defined* inpatient locations
• Antibiotic Use data from select outpatient settings
  • Emergency Department
  • Pediatric Emergency Department
  • 24-Hour observation area
	• Antibiotic Use data from Outpatient Clinics

**How do you know what your units are classified in NHSN as? Check your facility's reporting plan!*

NHSN Antimicrobial Use and Resistance (AUR) Module Protocol

Who can view your AU data

Your Facility

Facilities in your Network

Washington State Department of HEALTH

NHSN NATIONAL HEALTHCARE SAFETY NETWORK

Who <u>can't</u> view your data

CMS CENTERS FOR MEDICARE & MEDICAID SERVICES

Standardized Antimicrobial Administration Ratio (SAAR)

A summary measure of antimicrobial use developed by CDC.

A quantitative tool for hospitals to make comparisons of antimicrobial use.

$$\textbf{SAAR} = \frac{\textit{Observed}\ \textbf{antimicrobial days}}{\textit{Predicted}\ \textbf{antimicrobial days}}$$

What is the SAAR?

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

Interpretation

A **SAAR > 1.0** indicates antimicrobial use was greater than predicted.

A **SAAR = 1.0** indicates antimicrobial use was equivalent to predicted use.

A **SAAR < 1.0** indicates antimicrobial use was less than predicted.

CDC's Keys to Success with the SAAR

A SAAR of 1.0 may not be your specific goal…. Antibiotic Prescribing Rates vary significantly by State and Region.

SAAR DATA BY STATE MAP

YEAR

2022 | 2021

POPULATION

Adult | Pediatric | Neonatal

SAAR AGENT ALL ANTIBACTERIAL AGENTS

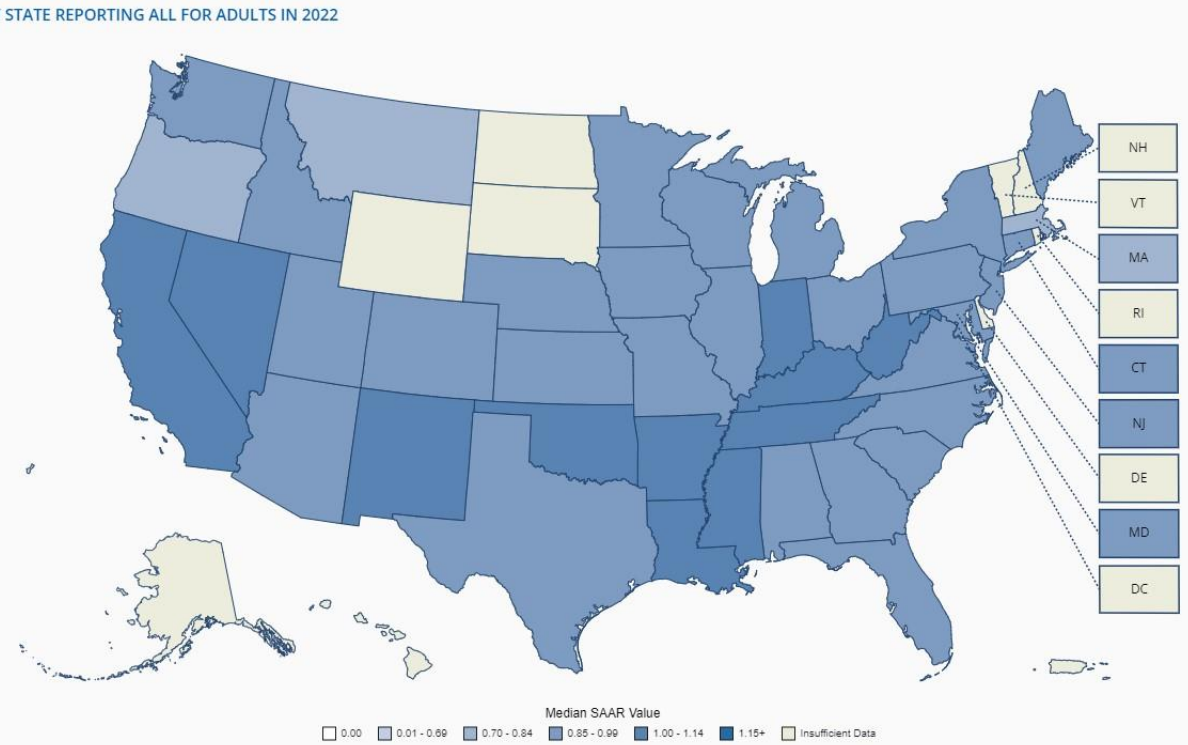
This map displays 2022 median SAAR values for all SAAR agent categories and SAAR populations, by state and select territories.

To view State Profile data, hover and click on desired State.

For specific SAAR agent category names, please see footnotes below.

For additional SAAR distribution data, please see "View Data" tab.

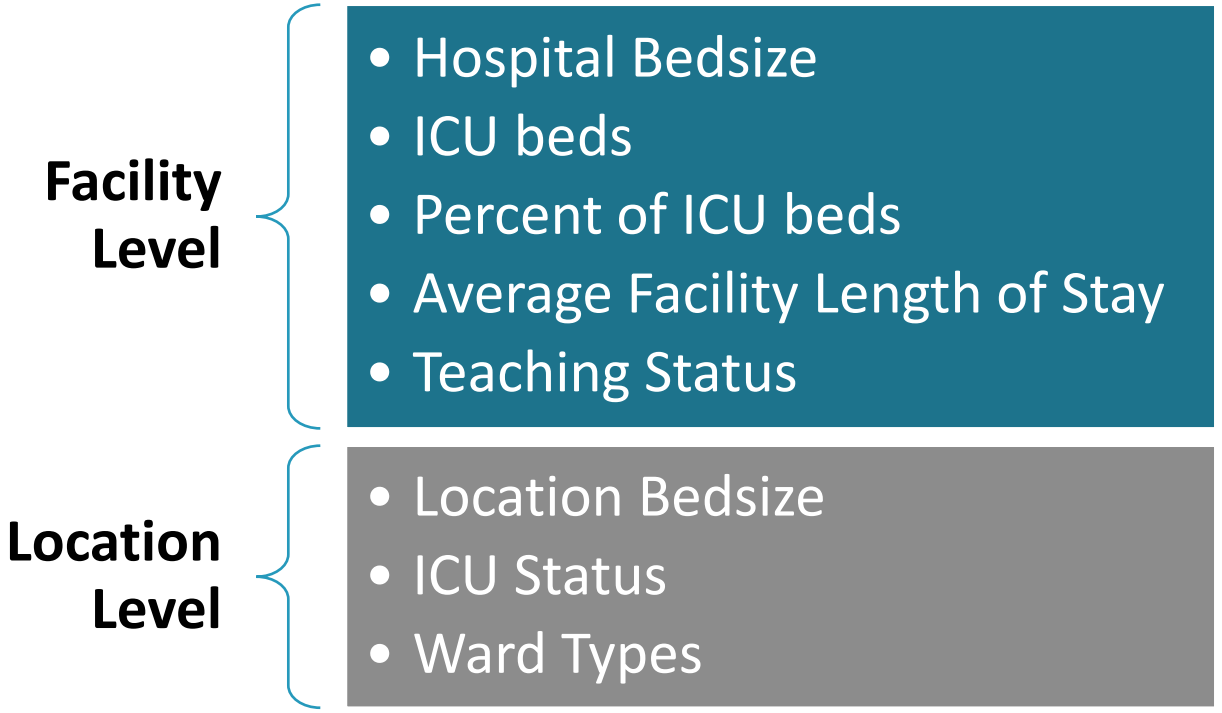
For more information on insufficient data, please see footnotes below.



[CDC's Antibiotic Resistance & Patient Safety Portal: Inpatient Antibiotic Use]

How are predicted days calculated?

NHSN uses a model based on national aggregated antibiotic use data and the following factors:



NHSN's Guide to the SAAR: The SAAR predictive model development process

SAAR Report Options

Location

- Specific Units
- Ward Types
- Facility Wide*

Antimicrobial Agent Categories

Time Periods

- Annual
- Monthly
- Bimonthly
- Quarterly
- Biannually

SAAR Antimicrobial Agent Categories

Adult SAAR Types	NHSN Prefix Outputs
All antibacterial agents	Adult_All-Antibacterial
Broad spectrum antibacterial agents predominantly used for hospital-onset infections	Adult_BSHO
Broad spectrum antibacterial agents predominantly used for community-acquired infections	Adult_BSCA
Antibacterial agents predominantly used for resistant Gram-positive infections (e.g., MRSA)	Adult_GramPos
Narrow spectrum beta-lactam agents	Adult_NSBL
Antibacterial agents posing the highest risk for CDI (not mutually exclusive, agents may overlap with other categories)	Adult_CDI
Antifungal agents predominantly used for invasive candidiasis	Adult_Antifungal

NHSN Antimicrobial Use and Resistance (AUR) Module Protocol

What does a SAAR report look like?

All Antibacterial Agents used in adult SAAR ICUs, wards, step down units and oncology units

orgID	SAARType_2017	location	summaryYr	locCDC	antimicrobialDays	numAUDaysPredicted	numDaysPresent	SAAR	SAAR_pval	SAAR95CI	SAAR_pctl
	Adult_All-Antibacterial_2017		2022	IN:ACUTE:WARD	2856	3631.318	5654	0.786	0.0000	0.758, 0.816	16
	Adult_All-Antibacterial_2017		2023	IN:ACUTE:WARD:	1723	2090.544	3255	0.824	0.0000	0.786, 0.864	19
	Adult_All-Antibacterial_2017		2022	IN:ACUTE:WARD:	2337	4055.717	6593	0.576	0.0000	0.553, 0.600	9
	Adult_All-Antibacterial_2017		2023	IN:ACUTE:WARD.	1585	2373.886	3859	0.668	0.0000	0.635, 0.701	15
	Adult_All-Antibacterial_2017		2022	IN:ACUTE:WARD:.	8240	8631.245	14031	0.955	0.0000	0.934, 0.975	58
	Adult_All-Antibacterial_2017		2023	IN:ACUTE:WARD:	5576	5047.965	8206	1.105	0.0000	1.076, 1.134	80
	Adult_All-Antibacterial_2017		2022	IN:ACUTE:WARD.	3046	4020.569	6539	0.758	0.0000	0.731, 0.785	20

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SAAR 2017 National Baseline is 1.0, 1 = AU was as expected per CDC modeling

Keys to Success with the SAAR

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The SAAR p-value is a statistical measure that indicates if reported antimicrobial use is statistically significantly different from predicted antimicrobial use. If the p-value ≤ 0. 05, then the reported antimicrobial days are statistically significantly different from predicted antimicrobial days.

Keys to Success with the SAAR

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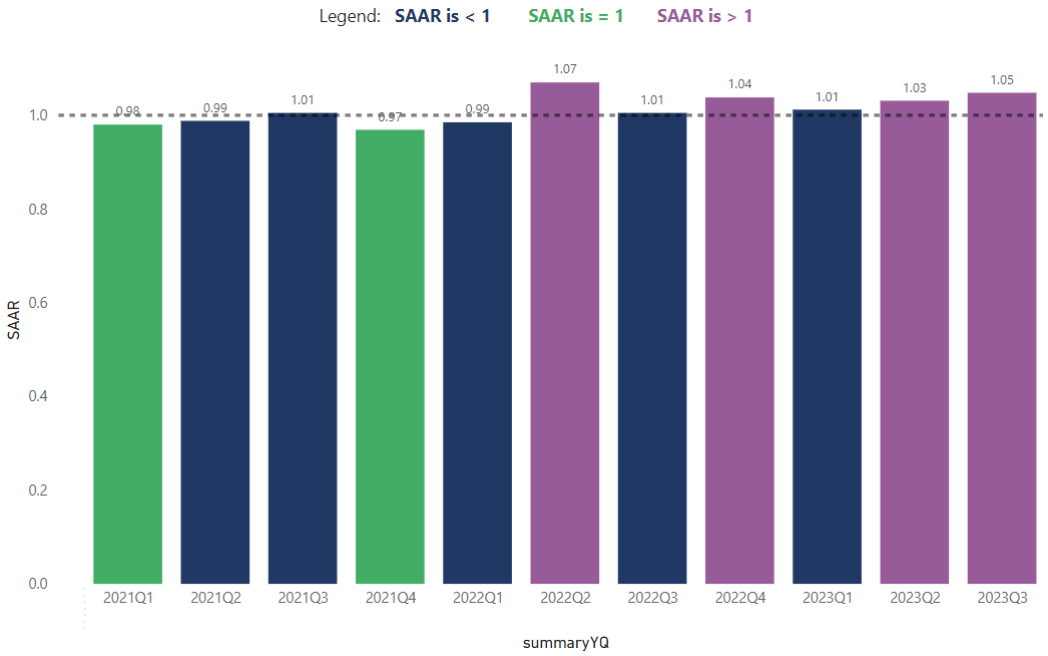
The 50th percentile is the median location-specific SAAR value. For example, a SAAR for a medical ICU location with a SAAR percentile of 90 indicates 89% of SAAR values reported from medical ICU locations are less than that SAAR and 10% of SAAR values reported from medical ICU locations are higher than it based on data reported into the AU Option.

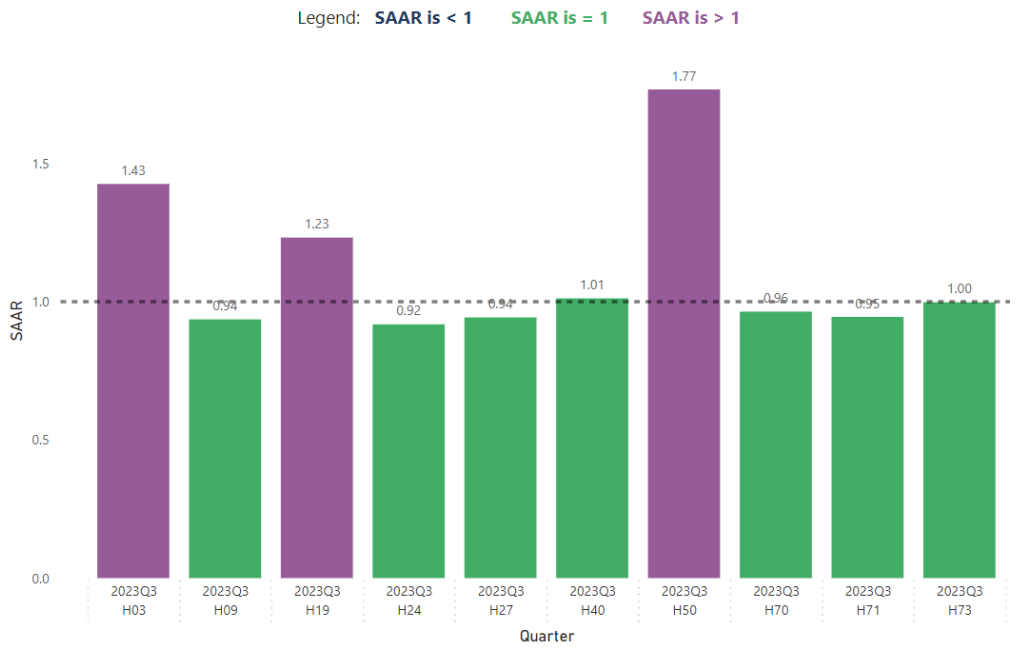
Keys to Success with the SAAR

What can I do with SAAR data?

Inter-Facility Benchmarking



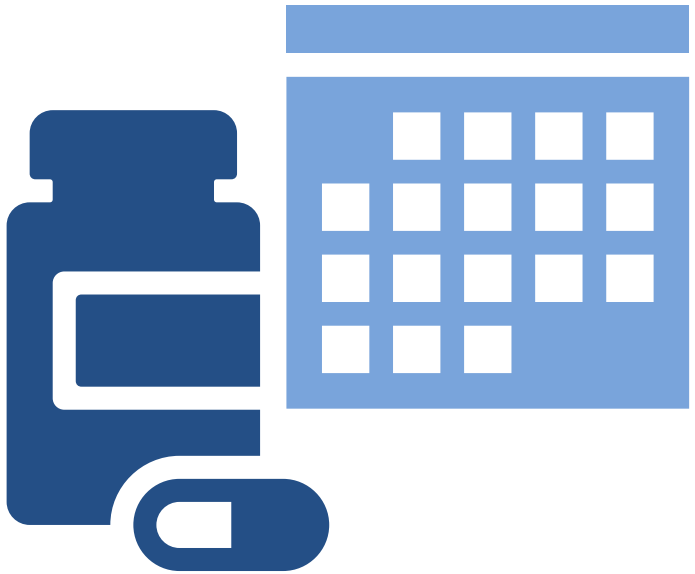
Intra-Facility Benchmarking



Standardized Antimicrobial Administration Ratio(SAAR)

Advantages	Disadvantages
Risk Adjusted	Not risk adjusted for patient level or clinical factors
Inter-facility Benchmarking	**Does not measure appropriateness!**
Intra-facility Benchmarking	

Exploring NHSN data beyond the SAAR…



Antimicrobial Days per 1,000 Days Present!

What are Antimicrobial Days per 1,000 Days Present?

$$\frac{\text{Antimicrobial Day}}{\text{Days Present}} \times 1{,}000 = \text{Antimicrobial Days per 1,000 Days Present}$$

Antimicrobial Day

Defined as the aggregate sum of days for which any amount of a specific antimicrobial agent was administered to individual patients as documented eMAR and/or BCMA.

Days Present

Days present are defined as the aggregate number of patients housed in a patient care location or facility anytime throughout a day during a calendar month.

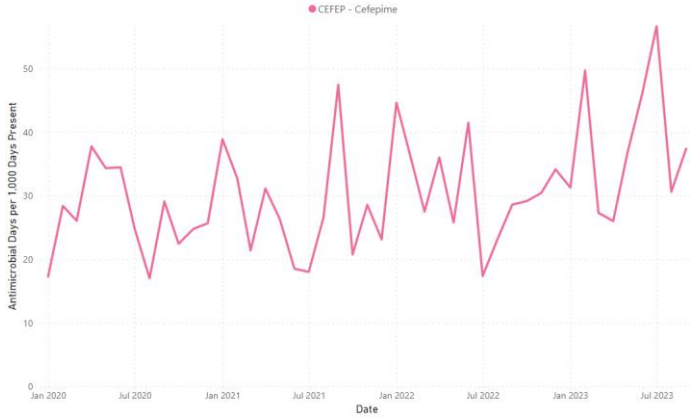
Similar to but not equivalent to Days of Therapy…

"Patient days and days present were compared to directly measured person time to quantify how choice of different denominator metrics may affect antimicrobial use rates. Overall, days present were approximately one-third higher than patient days. This difference varied among hospitals and units and was influenced by short length of stay."

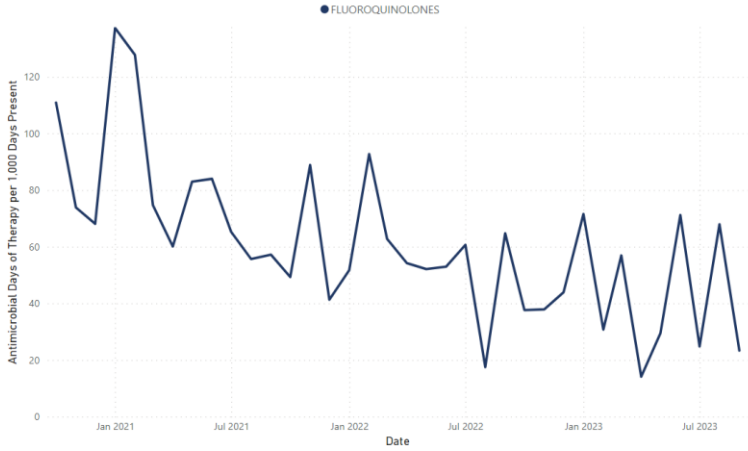
- Denominator Matters in Estimating Antimicrobial Use: A Comparison of Days Present and Patient Days

What can I do with Antimicrobial Days data?

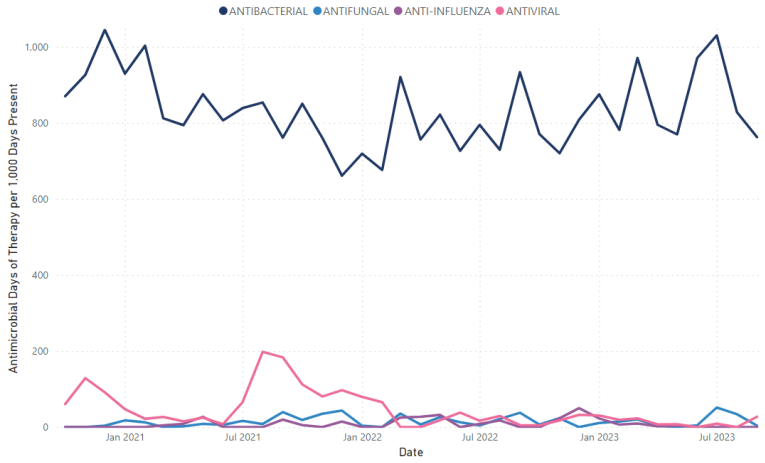
Selected Drug Agents



Drug Classes



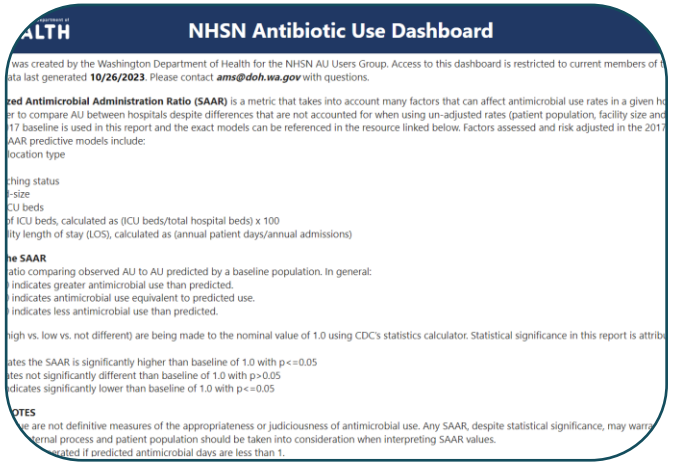
Drug Categories



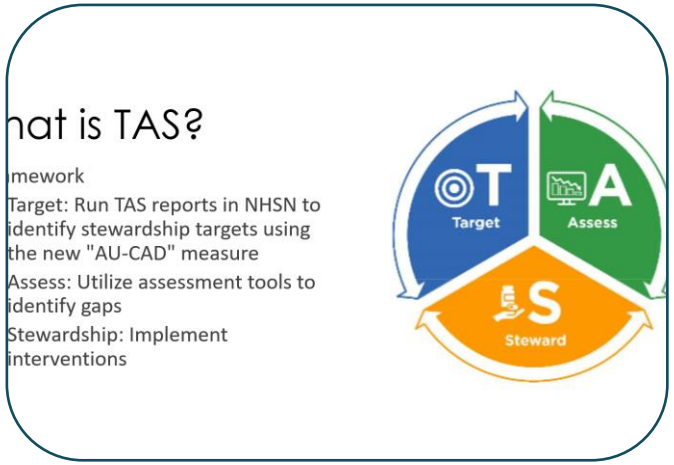
Antimicrobial Days per 1,000 days present

Advantages	Disadvantages
Easy to assess magnitude of changes in prescribing rates for select antimicrobial agents and classes **over time!**	NOT a measure of appropriateness - Measures **QUANTITY** of prescribing **not QUALITY**
Can investigate potential balloon effects of AMS interventions	
Conceptually straightforward – easier to communicate to stakeholders	
Can track at Facility Wide Level or Individual Unit Level	

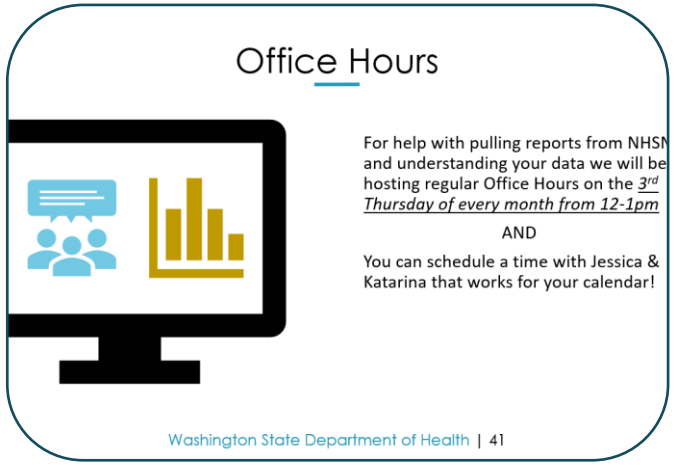
Washington Department of Health's NHSN AU Users Group



AU Dashboard

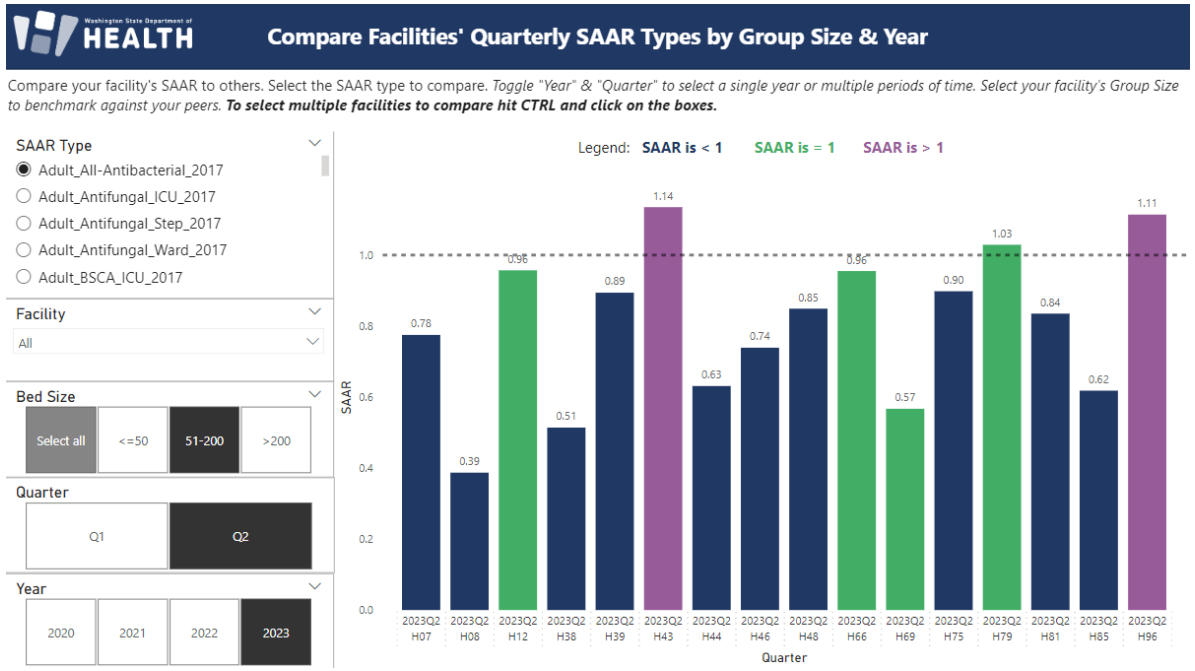


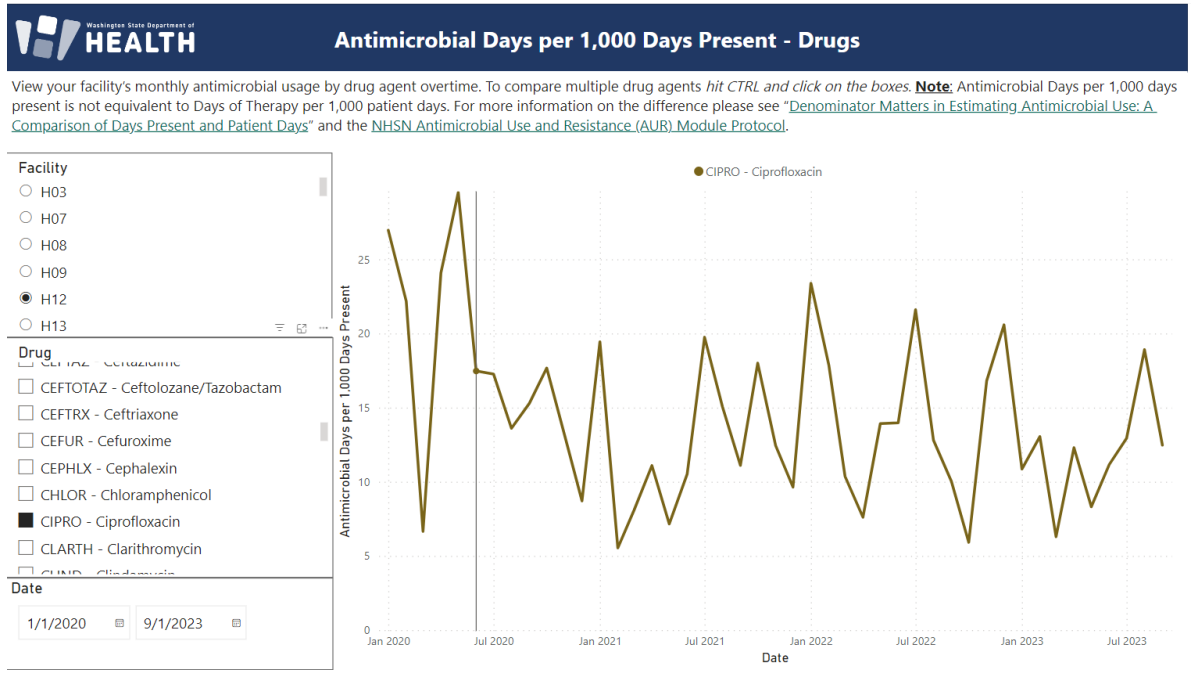
Quarterly Didactics



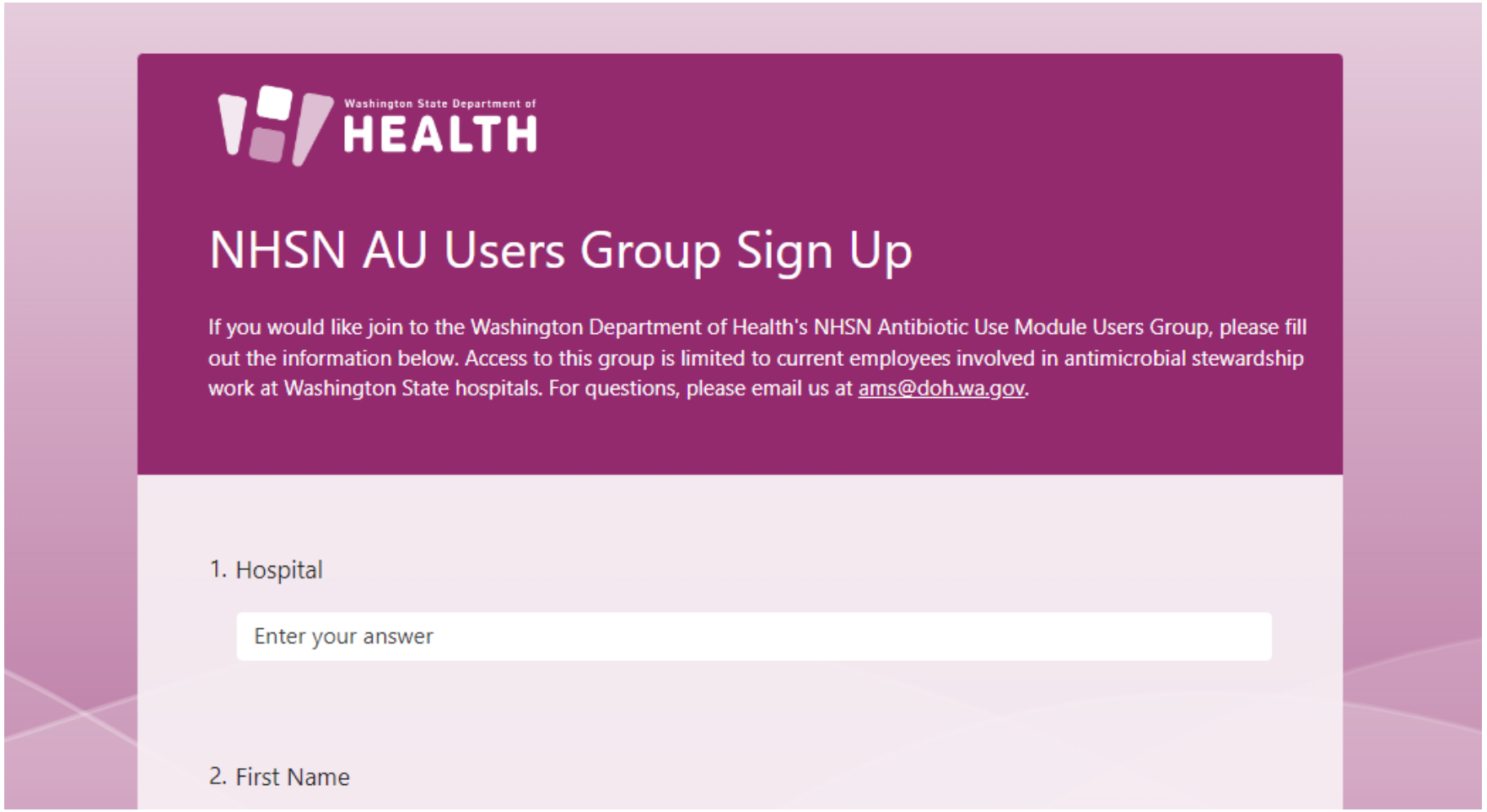
Office Hours

NHSN Antibiotic Use Dashboard



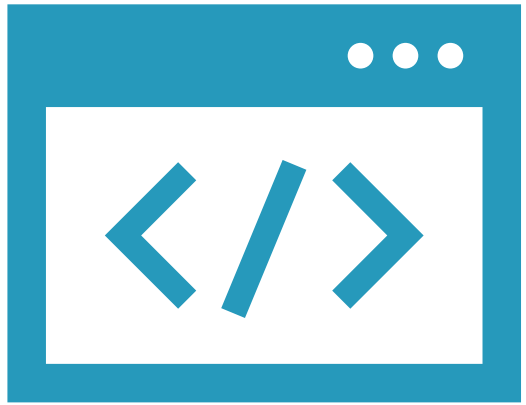


Register for NHSN AU Users Group



NHSN AU Funding Opportunity

To help offset the cost of implementing reporting to the NHSN-AUR module, the Washington Department of Health is offering a ***$5,000 financial reimbursement.***

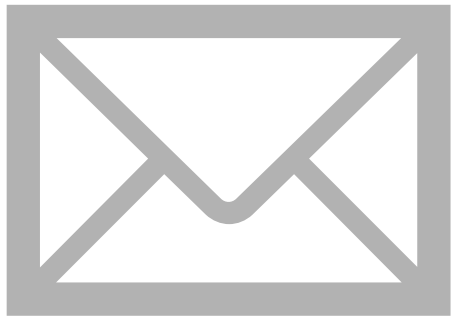


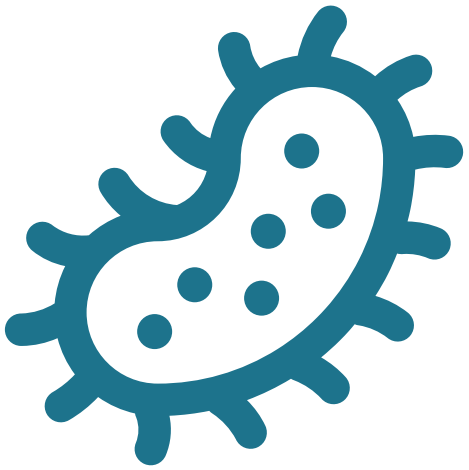
Eligibility Requirements:

- Acute Care Hospitals within the State of Washington that are not yet reporting to the NHSN AU module or started reporting after ***August 1st, 2022.***
- Facilities can not have received funding from WA DOH for this purpose in the past***.***

Learn more and apply here.

Deadline to apply is and submit paperwork is ***March 1st, 2024.***





Questions? Comments?

Reach our team at ams@doh.wa.gov

Katarina Kamenar, MSPH
Antimicrobial Stewardship Epidemiologist
Cell: 564-669-1353
Katarina.Kamenar@doh.wa.gov

Jessica Zering, PharmD, BCIDP, BCPS, CAPM
Antimicrobial Stewardship Pharmacist
Cell: 564-669-1680 Jessica.zering@doh.wa.gov

Erica Stohs, MD, MPH
Antimicrobial Stewardship Advisor
Cell: 564-233-8711
Erica.Stohs@doh.wa.gov

Additional NHSN AU Resources

- NHSN's Guide to the SAAR
- NHSN Antimicrobial Use and Resistance (AUR) Module Protocol
- Tennessee Department of Health's NHSN AUR Reporting and SAAR Interpretation Presentation
- 2022 NHSN Training - Antimicrobial Use (AU) Option: Beginner Analysis
- CDC's Antibiotic Resistance & Patient Safety Portal: Inpatient Antibiotic Use

Washington State Department of HEALTH

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