



July 23, 2026

Summer 2026 Antimicrobial Use and Resistance (AUR) Users Call

Surveillance Branch

Division of Healthcare Quality Promotion

National Center for Emerging and Zoonotic Diseases

Centers for Disease Control and Prevention

Agenda

- Overview of 2023 Standardized Antimicrobial Administration Ratio (SAAR) Rebaseline reports and materials
- Reporting Antimicrobial Resistance (AR) summary data from individual inpatient locations
- Updates on AR Option reporting rapid molecular results for antimicrobial resistance genes
- Recent bugs impacting the AUR Analysis & Reporting functionality
- Upcoming data quality outreach for the 2025 AR Data Report
- Constructing antibiogram using NHSN AR Option Data: 2025 Oregon Hospital Antibiogram Dashboard

2023 SAAR Rebaseline Update

Stephanie Sutton

2023 Baseline SAAR Reports now available in NHSN!

- SAAR Reports using the updated 2023 baseline are now available for hospitals and groups
 - Users should generate data sets to see the new reports
- More locations!
 - 26 adult
 - 9 pediatric
 - 4 neonatal
- Minor updates to drugs in each category
- Risk adjustment variables still hospital and location-specific variables
- Education and training materials are being posted to the [SAAR Rebaseline webpage](#) as they become available

2023 SAAR Rebaseline Reports

- Available SAAR Reports
 - Facility SAAR Reports Type: By Location
 - Facility SAAR Reports Type: By Location Groups
 - Group Level SAAR Reports Type: By Location Groups
 - Facility SAAR Plots
 - Group Level SAAR Plots
 - **NEW**: Facility TAS Reports: adult & pediatric
- Reports still in development
 - Facility TAS Reports: neonatal
 - Group Level TAS Reports
 - Facility TAS Dashboard
 - Group TAS Dashboard

SAAR Rebaseline Resources

- Resources available on the SAAR Rebaseline webpage: [2023 AU SAAR Rebaseline | NHSN | CDC](#)
- Resources include:
 - Educational webinar slides and recordings
 - Updated NHSN SAAR Guide
 - Keys to Success with the SAAR
 - SAAR Rebaseline fact sheet
 - SAAR quick reference guides

NHSN 2023 AU SAAR Rebaseline

[Print](#)

“Rebaseline” is a term that CDC’s National Healthcare Safety Network (NHSN) staff use to describe the process of updating the national antimicrobial use (AU) baseline and risk adjustment models. Each Rebaseline process results in the creation of updated calculations and risk adjustment models to generate the predicted antimicrobial use, which is the denominator used to calculate the standardized antimicrobial administration ratio (SAAR).

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



Important message: New educational materials are being posted to this webpage on a rolling basis as they become available. Please check back regularly for ongoing updates.

Refer to the resources below for additional information, FAQs, and training materials. The NHSN team remains committed to working with facilities to advance antimicrobial stewardship. Measuring progress under an updated national standard is important in evaluating prescribing practices and identifying opportunities for stewardship. The newly baselined data will continue to drive patient safety and the effort to optimize antimicrobial use.

Education & Analysis Resources	Understanding New Models	Using New Reports in NHSN
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Content Type	Title	Description
Recorded Webinar	How will my SAARs change? Understanding the impact of the 2023 SAAR Rebaseline YouTube Link [Video – 50 min] Slideset [PDF – 1,006 KB]	A presentation that explains the impact of the 2023 SAAR baseline and provides guidance for the analysis and interpretation of SAARs under different baselines. Designed for users of NHSN AU SAAR data looking to understand how SAARs may change when the new baseline is implemented.

Reporting AR Summary Data

Stephanie Sutton

AR Option Summary Data by Inpatient Location

- Allows facilities to report AR Option summary data (patient days) at the individual location level
- Key Updates:
 - Reporting Plan: Update to allow the AR box to be checked per inpatient location
 - Business Rules: Modify to accept AR Summary CDA files tied to individual inpatient locations
- Why This Matters:
 - Enables alignment of AU and AR data
 - Provides clearer visibility into which inpatient locations are included in AR Option reporting
 - Supports more granular analysis and benchmarking

AR Option Summary Data by Inpatient Location: Reporting Plan and Alerts

Section 3: Antimicrobial Use and Resistance Module

	Locations	Antimicrobial Use	Antimicrobial Resistance
	FACWIDEIN - Facility-wide Inpatient (FacWIDEIn) ▼	☒	☒
	1152EMERGY - ER ▼	☒	☐
	5GPED - PED MED_SURG - AU ▼	☒	☒
	MEDWARD - MEDICAL WARD_AU ▼	☒	☒
	MSICU - MED SURG ICU ▼	☒	☒
	NICU - NICU-2/3 ▼	☒	☐

Summary Type	Location Code	CDC Location	Month/Year ▼	Alert Type	Event Type
AUR	LDRP	IN:ACUTE:WARD:LD_PP	02/2026	No summary data entered Add Summary	AR Event
AUR	MSICU	IN:ACUTE:CC:MS	02/2026	No summary data entered Add Summary	AR Event
AUR	SICU	IN:ACUTE:CC:S	02/2026	No summary data entered Add Summary	AR Event
AUR	5GPED	IN:ACUTE:WARD:MS_PED	01/2026	No summary data entered Add Summary	AR Event
AUR	MEDWARD	IN:ACUTE:WARD:M	01/2026	No summary data entered Add Summary	AR Event
AUR	MSICU	IN:ACUTE:CC:MS	01/2026	No summary data entered Add Summary	AR Event

Reporting rapid molecular results for antimicrobial resistance (AR) genes

Amy Webb

Hospitals can now submit rapid molecular results for AR genes

- New functionality for specimens collected July 1, 2026, and forward
 - Requires your vendor moving to a new CDA Implementation Guide
 - IG version R4-D4
- Phenotypic testing tells us what is resistant
- Genotypic testing helps explain why it is resistant and how resistance is spreading
 - Capturing additional data allows NHSN to have a fuller picture of resistance mechanisms and enhances surveillance for emerging resistance

Optional for 2026 and forward

- Moving to the new R4-D4 IG is optional for your vendor; current version of reporting will continue to work.
- Rapid molecular detection of antimicrobial resistance markers results CANNOT be reported if using the CURRENT IG.

AR Genotypic Test Value set

- Eligible resistance genes include: blaCTX-M, blaIMP, blaKPC, blaNDM, blaOXA, blaVIM, MCR, mecA, mecX, MREJ, SCCmec, vanA, and vanB
- Found in “AR Genotypic Test” tab in the Vendor IDM
- Contains 88 LOINC terms
 - Example: Bacterial carbapenem resistance blaKPC-18 gene [Presence] by Molecular method
- Only LOINC codes on this IDM tab are eligible for AR Option reporting

Reporting details

- Molecular test will be included in the AR Event CDA file if conducted
 - Will not be tied to specific organisms (specifically, any gene can be reported for any organism)
 - Include as many molecular tests as were conducted by the lab
 - Specific code to include in the CDA file if no molecular tests were performed on the isolate to indicate a true zero molecular tests performed
- Result value set using SNOMED:
 - Detected
 - Not detected
 - Indeterminate
 - Invalid
 - NA = No discrete data available

Reporting details, continued

- For a given isolate, all phenotypic and molecular test results should be included in a single AR Event CDA file.
 - If submitted as two separate AR Events, one will be considered a duplicate and will not upload.
- If additional testing is performed, results should be combined into a single AR Event CDA file.

Same day de-duplication

- Same day duplicate: same species or genus, when identification to species level is not provided, isolated from the same source type (specifically, invasive or non-invasive) from the same patient on the same day
- Rules remain:
 - For invasive source isolate selection, select CSF isolates over blood isolates.
 - For non-invasive source isolate selection, select isolates based on the order specified: 1) lower respiratory, 2) urine, 3) skin, soft tissue, wound, and musculoskeletal.
 - Eliminate isolates on same day with neither phenotypic or molecular susceptibility test results. Only report isolates with final laboratory testing to NHSN.
 - Do not merge test results across multiple isolates (specifically, don't summarize results across different isolates tested on same day).

Same day de-duplication – current logic

- If two isolates from the same day have conflicting phenotypic susceptibilities, report the isolate with the most resistant final interpretation (NS > R > I > S-DD > S > NA).
 - If the lab validated susceptibility results of both isolates but did not provide a final interpretation, report the isolate with the higher amount of drug resistance based on the number of antimicrobials testing first “NS”, if equal amount of “NS” then move to the amount of “R”, then “I”, then “S-DD” then “S.”
- Example: a facility isolated *Candida albicans* from two blood specimens collected from the same patient on the same calendar day.
 - Isolate A tested “R” to three of the eight antimicrobials
 - Isolate B tested “R” to four of the eight antimicrobials
 - The facility should report the second isolate to NHSN because it showed the higher amount of resistance.

Same day de-duplication – current logic, continued

- If two or more isolates have the same number of antimicrobials testing “NS”, “R”, “I”, “S-DD” and “S” and it cannot be determined which is most resistant, then report the isolate that was the first entered into the LIS.

Same day de-duplication – new logic

- For the purposes of the same day de-duplication algorithm:
 - Genotypic detected = R
 - Genotypic not detected = S
 - Genotypic indeterminate, invalid and NA = NA

Same day de-duplication – new logic, continued

- Compare isolates in the following order until one isolate is selected:
 - Compare the number of non-susceptible (NS) results.
 - If tied, compare resistant findings, including phenotypic resistant (R) results and detected resistance genes. If the isolates have the same total number of resistant or detected findings, select the isolate with the greater number of AR genes detected.
 - If still tied, compare the number of intermediate (I) results.
 - If still tied, compare the number of susceptible-dose dependent (S-DD) results.
 - If still tied, compare susceptible findings, including phenotypic susceptible (S) results and resistance genes reported as not detected. If the isolates have the same total number of resistant findings, select the isolate with the greater number of phenotypic susceptible (S) results.
 - If the isolates remain equivalent after all comparisons, report the isolate that was entered first into the laboratory information system (LIS).

Same day de-duplication – Example 1

	Drug 1	Drug 2	Drug 3	Drug 4	Drug 5	Drug 6	AR Gene 1	AR Gene 2
Isolate A	S	I	R	S-DD	NA	R	detected	not detected
Isolate B	S	R	R	S-DD	NS	R	not detected	not detected

- Isolate B has higher number NS
- Report Isolate B

Same day de-duplication – Example 2

	Drug 1	Drug 2	Drug 3	Drug 4	Drug 5	Drug 6	AR Gene 1	AR Gene 2
Isolate A	R	I	R	S-DD	NS	R	detected	not detected
Isolate B	R	I	R	S-DD	NS	R	NA	not detected

- Equal number NS
- Isolate A has higher number R/detected
- Report Isolate A

Same day de-duplication – Example 3

	Drug 1	Drug 2	Drug 3	Drug 4	Drug 5	Drug 6	AR Gene 1	AR Gene 2
Isolate A	S	R	R	NA	NA	R	NA	NA
Isolate B	S	I	R	NA	NA	R	NA	NA

- Equal number NS
- Isolate A has more R/detected
- Report Isolate A

Same day de-duplication – Example 4

	Drug 1	Drug 2	Drug 3	Drug 4	Drug 5	Drug 6	AR Gene 1	AR Gene 2
Isolate A	NA	NA	NA	NA	NA	NA	detected	not detected
Isolate B	NA	NA	NA	NA	NA	NA	NA	not detected

- Equal number NS
- Isolate A has more R/detected
- Report Isolate A

Same day de-duplication – Example 5

	Drug 1	Drug 2	Drug 3	Drug 4	Drug 5	Drug 6	AR Gene 1	AR Gene 2
Isolate A	R	I	R	S-DD	NS	R	detected	not detected
Isolate B	R	R	R	S-DD	NS	R	NA	not detected

- Equal number NS
- Tied number R/detected
- Isolate A has more genotypic = detected
- Report Isolate A

Same day de-duplication – Example 6

	Drug 1	Drug 2	Drug 3	Drug 4	Drug 5	Drug 6	AR Gene 1	AR Gene 2
Isolate A	NA	I	S	S	S	R	not detected	not detected
Isolate B	S	I	S	S	S	R	not detected	not detected

- Equal number NS, R, I, S-DD
- Isolate B has more S/not detected
- Report Isolate B

Same day de-duplication – Example 7

	Drug 1	Drug 2	Drug 3	Drug 4	Drug 5	Drug 6	AR Gene 1	AR Gene 2
Isolate A	S	NA	R	S	NS	R	not detected	not detected
Isolate B	S	S	R	S	NS	R	NA	not detected

- Equal number NS, R, I, S-DD
- Tied number S/not detected
- Isolate B has more phenotypic = S
- Report Isolate B

Same day de-duplication – Example 8

	Drug 1	Drug 2	Drug 3	Drug 4	Drug 5	Drug 6	AR Gene 1	AR Gene 2
Isolate A	S	NA	R	S	NS	R	Invalid	not detected
Isolate B	S	NA	R	S	NS	R	NA	not detected

- Equal number NS, R, I, S-DD, S
- Report first isolate entered into LIS

Education & Resources

- Plan to post updated [AUR Module protocol](#), [AR CDA Toolkit](#) when finalized.
- Analysis reports will be added to NHSN in the coming months.

Recent bugs impacting the AR Option Analysis & Reporting functionality within NHSN

Michelle Fedrick

AR Missing Event Alerts Persist After Submission

- Missing Events alerts are displaying for individual inpatient locations now available for AR data submissions, even after the corresponding AR Event data have been successfully uploaded.
 - The "Missing Events" alert should clear after an AR Event for that inpatient location is uploaded or the user clicks the "Report No Events" box.
 - "Missing Events" alerts remain present for location-months where AR Event data were successfully submitted.
 - Facilities may think AR Event data are missing even though the data were submitted successfully.
- Facilities are being instructed to ignore the Missing Events alerts and not select the "No AR Events" box displayed under the alerts.

Recent bugs impacting AR Option functionality that are currently being fixed

- Facility and group AR Option SRIR and pSIR reports
 - Group users cannot generate the SRIR and pSIR reports.
 - There are issues with the calculations in the SRIR and pSIR reports for facilities and groups.
- Facility and group AR Option facility-wide antibiogram (percent susceptible) and percent tested report
 - The report now displays tables by orgID/CDC location (locCDC) with cumulative data (all data) regardless of what group by time period is selected.
- Facility and group AR Option incidence and prevalence rate table reports
 - Some reports only include Cumulative as option under Display Options; no options to filter Time Period.
 - Running the phenotype reports by summaryYH does not include the summaryYH column.
 - For groups, some of the reports don't include the orgID in the table title.

Recent bugs impacting AR Option functionality that are currently being fixed, continued

- Facility and Group AR Percentages Rate Table Report
 - Issue: For several phenotypes, some antimicrobial susceptibility test (AST) results are not included in the total count of isolates tested, which may affect AR percentage calculations displayed in the report.
 - Status: This issue has been identified and is currently being addressed.
 - Recommendation: Please refrain from using the report until the issue has been resolved.
 - Next steps: Users will be notified once the fix has been released.

Recent bugs that have been fixed in a previous release

- Facility and group neonatal SAAR reports (2023 baseline)
 - The neonatal birthweight risk adjustment variables used in the calculation of predicted antimicrobial days for many neonatal SAAR types were not being rounded to the tenth decimal place.
 - Some facilities fell in between risk adjustment categories and were not getting the appropriate risk adjustment for the neonatal SAARs. This has been fixed.

Data Quality Outreach

Terence Robinson

2025 AR Data Report

- Development of the 2025 AR Data Report will begin later this year.
 - Data quality outreach will be conducted before report development begins.
- Outreach will focus on validating key AR report metrics.
 - Specific metrics to be reviewed are still being finalized.
- Outreach is anticipated to begin during Q3 2026.
- What to Expect
 - Hospitals included in the outreach will receive correspondence that includes:
 - Potential data quality issues
 - Instructions for reviewing and addressing potential issues
 - The deadline for submitting a response



OREGON
HEALTH
AUTHORITY

2025 Oregon Hospital Antibiogram Dashboard

Lisa Iguchi and Liz Breitenstein

NHSN AUR Users Call

July 23, 2026

What is an Antibigram?



What is an antibiogram?

- A summary table of antimicrobial susceptibility patterns for bacterial isolates, typically compiled annually within a healthcare facility.



How do you interpret it?

- Each cell shows the % of isolates susceptible to an antibiotic.
- Higher % = antibiotic more likely to work as first-line empiric therapy.



Why does it matter?

- Supports initial antibiotic selection
- Tracks emerging resistance patterns over time
- Informs antibiotic stewardship and surveillance activities

Why a statewide antibiogram?

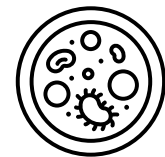
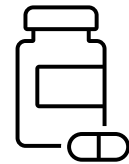
- Smaller facilities may lack sufficient isolates to generate a valid facility-level antibiogram.
- A statewide antibiogram can
 - Support empiric antibiotic selection when local data are unavailable
 - Supplement facility-level antibiograms
 - Identify emerging resistance trends across Oregon



The statewide antibiogram **does not replace facility antibiograms** and should be interpreted alongside clinical judgment and treatment guidelines.

Using the National Healthcare Safety Network (NHSN) Data

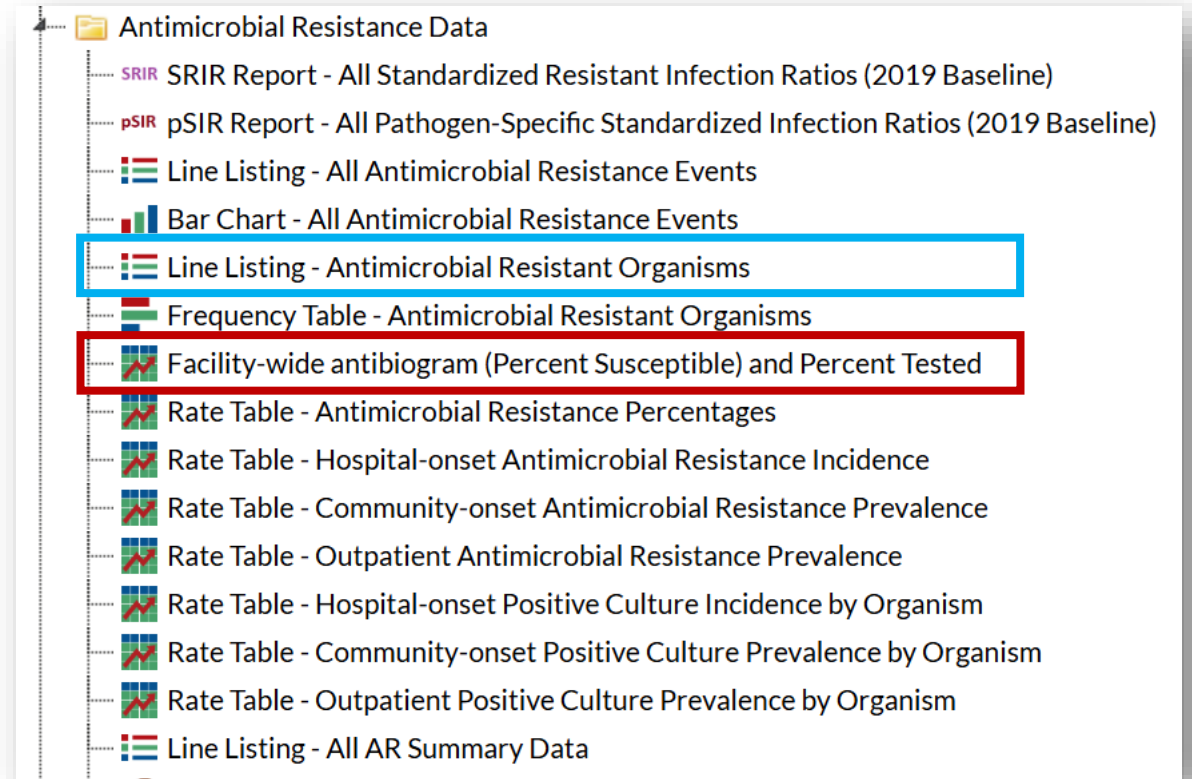
- Previous efforts compiled antibiogram PDFs collected from hospitals
- Aggregation of antibiotic resistance (AR) data from NHSN improves standardization
- Majority of hospitals reporting into NHSN following the federal reporting requirements in place



NHSN AR Analysis Reports

Modified and exported the Analysis Reports:

- Facility-wide antibiogram (Percent Susceptible) and Percent Tested
 - Filter by variables e.g., specimen type, age group, etc.
- Line Listing – Antimicrobial Resistant Organisms
 - Filter to look at *Staphylococcus aureus* isolates



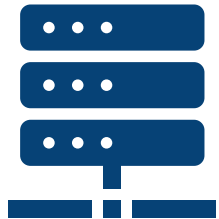
Exploring Antibiotic Resistance Data



Review completeness of AR data reporting



Outreach to hospitals to submit CY2025 data



Allow internal validation of AR data and review of the antibiogram

Limitations

- Not all hospitals in Oregon submitted complete resistance data to NHSN for 2025
- Variation across reporting laboratories:
 - Breakpoint variation
 - Selective and cascade reporting

Who Contributed Data?

Oregon acute care + critical access hospitals, 2025

Total facilities

49

Of Oregon hospitals

84%

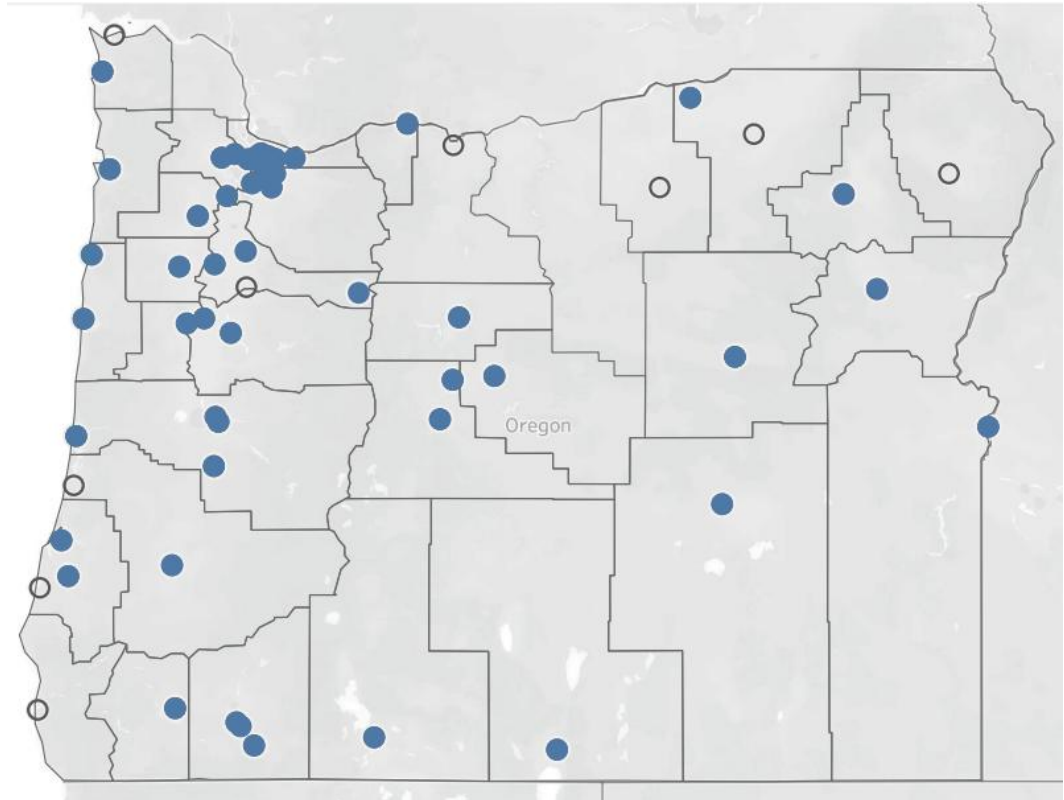
Acute care hospitals

31

Critical access hospitals

18

13 of 49 hospitals (27%) are in the tri-county metro area



Dashboard Features

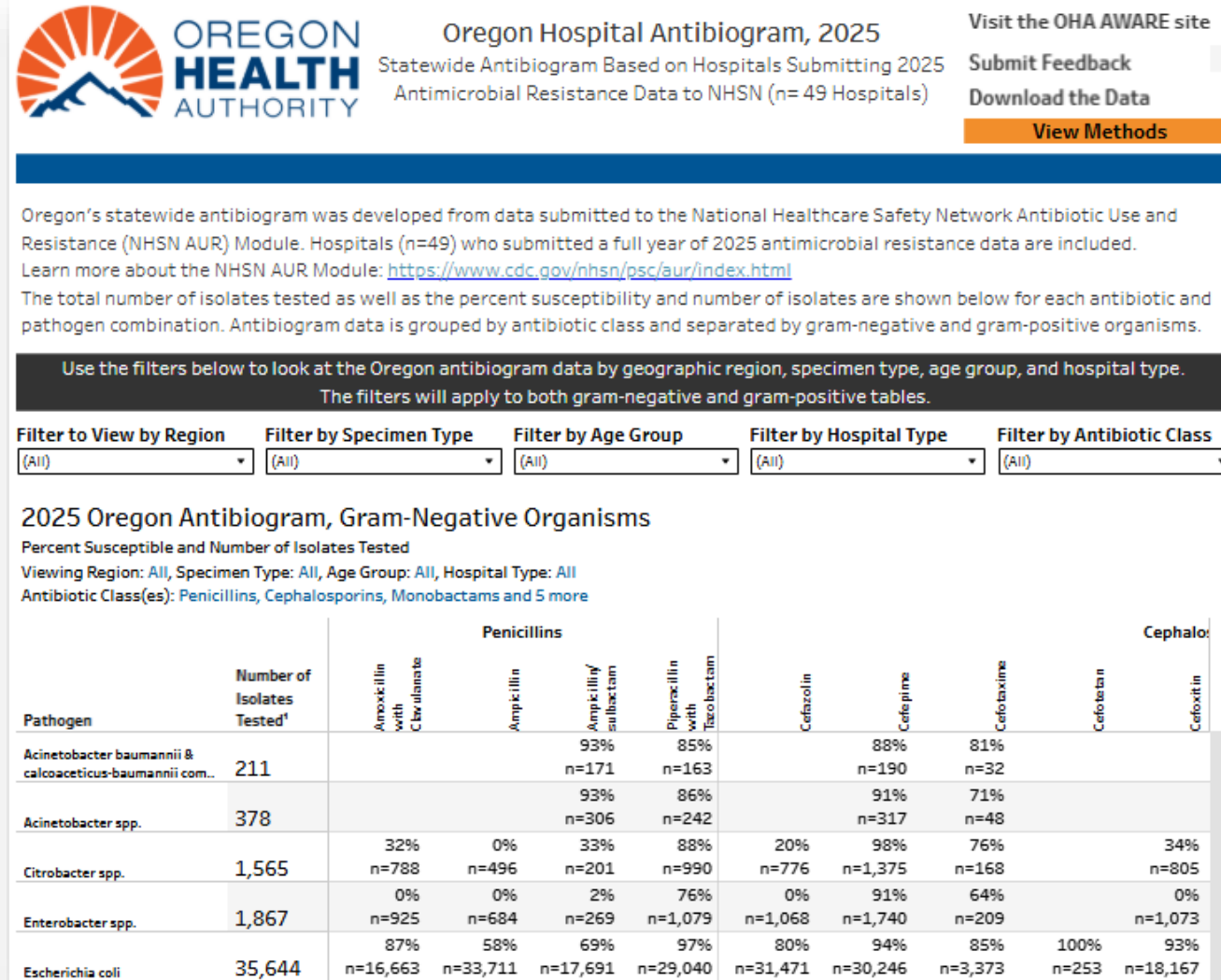
WHAT YOU SEE

- Presented in separate Gram-negative and Gram-positive tables
- Total number of isolates per organism
- Cells display the percentage of isolates susceptible and the number of isolates tested for each organism–antibiotic combination.

FILTER BY

- Region (Tri-county vs. Rest of State)
- Specimen Source (Urine vs. Non-urine)
- Age group (Adult vs. Pediatric)
- Hospital Type (Acute care vs. Critical access)
- Drug class

Antibiogram Walkthrough



Features and Filters

Filter to View by Region

(All)

Filter by Specimen Type

(All)

Filter by Age Group

(All)

Filter by Hospital Type

(All)

Filter by Antibiotic Class

(All)

2025 Oregon Antibiotgram, Gram-Negative Organisms

Percent Susceptible and Number of Isolates Tested

Viewing Region: All, Specimen Type: All, Age Group: All, Hospital Type: All

Antibiotic Class(es): Penicillins, Cephalosporins, Monobactams and 5 more

Pathogen	Number of Isolates Tested ¹	Penicillins					Cephalosporins				
		Amoxicillin with Clavulanate	Ampicillin	Ampicillin/sulbactam	Piperacillin with Tazobactam	Cefazolin	Cefepime	Cefotaxime	Cefotetan	Cefoxitin	
<i>Acinetobacter baumannii</i> & <i>calcoaceticus-baumannii</i> com.	211			93% n=171	85% n=163		88% n=190	81% n=32			
<i>Acinetobacter</i> spp.	378			93% n=306	86% n=242		91% n=317	71% n=48			
<i>Citrobacter</i> spp.	1,565	32% n=788		33% n=201	88% n=990	20% n=776	98% n=1,375	76% n=168		34% n=805	
<i>Enterobacter</i> spp.	1,867				76% n=1,079		91% n=1,740	64% n=209			
<i>Escherichia coli</i>	35,644	87% n=16,663	58% n=33,711	69% n=17,691	97% n=29,040	80% n=31,471	94% n=30,246	85% n=3,373	100% n=253	93% n=18,167	

Filter to View by Region

Tri-County

Filter by Specimen Type

(All)

Filter by Age Group

(All)

2025 Oregon Antibigram, Gram-Negative Organisms

Percent Susceptible and Number of Isolates Tested

Viewing Region: Tri-County, Specimen Type: All, Age Group: All, Hospital Type: All

Antibiotic Class(es): Fluoroquinolones & Others

Pathogen	Number of Isolates Tested ¹	Fluoroquinolones		Others	
		Ciprofloxacin	Levofloxacin	Nitrofurant...	Sulfamethoxazole with Trimethoprim
Escherichia coli	35,644	74% n=14,399	75% n=10,093	96% n=12,773	75% n=14,679

Filter to View by Region

Outside Tri-County

Filter by Specimen Type

(All)

Filter by Age Group

(All)

2025 Oregon Antibigram, Gram-Negative Organisms

Percent Susceptible and Number of Isolates Tested

Viewing Region: Outside Tri-County, Specimen Type: All, Age Group: All, Hospital Type: All

Antibiotic Class(es): Fluoroquinolones & Others

Pathogen	Number of Isolates Tested ¹	Fluoroquinolones		Others	
		Ciprofloxacin	Levofloxacin	Nitrofurant...	Sulfamethoxazole with Trimethoprim
Escherichia coli	35,644	79% n=17,358	79% n=11,285	97% n=16,846	80% n=19,031
		96%	97%	16%	98%

For Clinicians: Putting the Data to Work



The Oregon statewide antibiogram supports antimicrobial stewardship efforts and is **not designed for direct patient-level clinical decision-making.**



**Facilities WITH a
local
antibiogram**

- Use facility-level data **first** for empiric therapy
- Use the statewide antibiogram for regional context and trend identification



**Facilities
WITHOUT a
local
antibiogram**

- Use the statewide antibiogram to inform empiric antibiotic selection and support development of prescribing guidance
- Apply alongside patient-specific factors: source of infection, prior microbiology, MDRO history, allergies

Surveillance, Stewardship, and Communication



Longitudinal surveillance

Baseline surveillance tool — annual updates enable longitudinal resistance monitoring



Stewardship campaigns

Identifies antibiotics with declining susceptibility to inform targeted stewardship campaigns



Partner communication

Communicates resistance trends to healthcare partners and facilities lacking local antibiogram data



Regional comparison

Regional filter enables comparison of resistance patterns across Oregon communities

Thank You!

Questions?



Special Thanks

- Oregon Hospitals
- Liz Breitenstein, PharmD
- Oregon Antimicrobial Stewardship Network (ORASN)
- Dat Tran, MD, MS
- Lex Zhang, MPH





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Thank you!
Questions?
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The findings and conclusions in this report are those of the authors and do not necessarily represent the official position of the Centers for Disease Control and Prevention.

