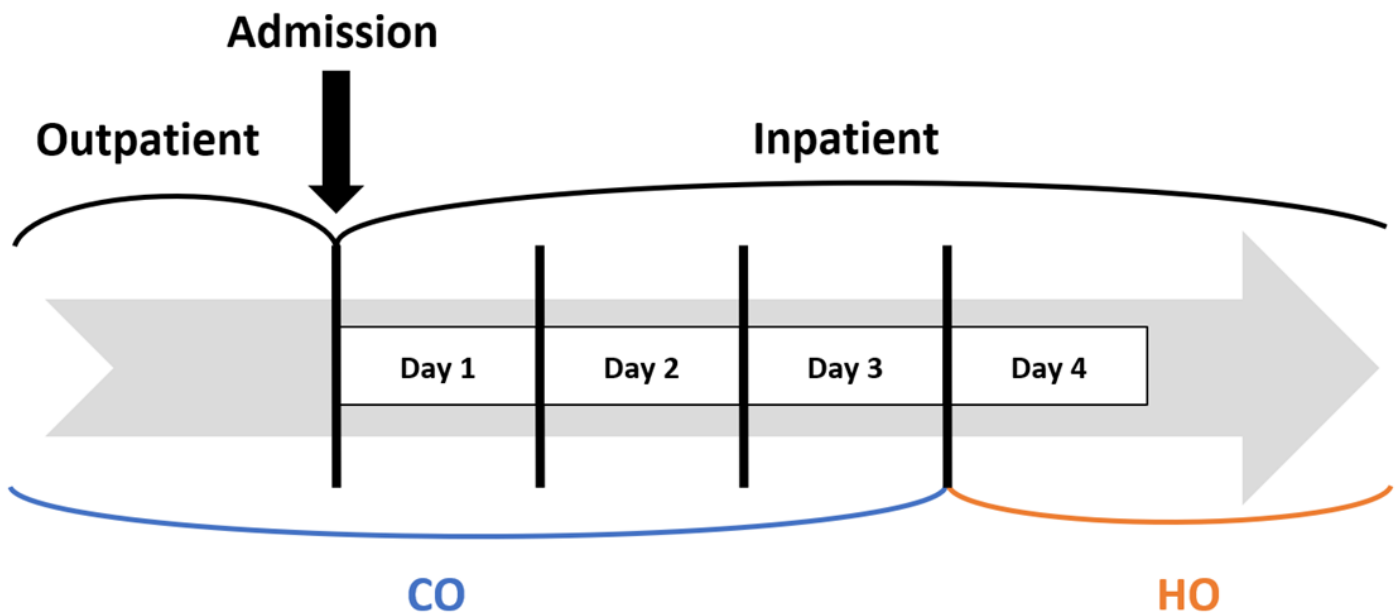


# Community-onset Antimicrobial Resistance Prevalence Rate Table

## Description

The Community-onset Antimicrobial Resistance Incidence Rate Table is one of six incidence and prevalence reports for the Antimicrobial Resistance (AR) Option. This report includes a set of tables that display the calculated prevalence rates for community-onset AR Events with susceptibility results reported from all inpatient and outpatient locations to the AR Option that meet the definition for one of the 16 AR phenotypes. The AR phenotype definitions can be found here: <https://www.cdc.gov/nhsn/pdfs/ps-analysis-resources/aur/ar-phenotype-definitions-508.pdf>. NHSN classifies AR Events as hospital-onset (HO) or community-onset (CO) based on the specimen collection date and date of admission (see screenshot below). Facility admission date is considered Day 1. If the specimen was collected in an outpatient location or in an inpatient location on Days 1, 2, or 3, the AR Event is classified as CO. If the specimen was collected in an inpatient location on Day 4 or after, the AR Event is classified as HO. The specific panel requirements for each organism are in Appendix F of the AUR Module Protocol: <https://www.cdc.gov/nhsn/pdfs/pscmanual/11pscaurcurrent.pdf>.



NHSN calculates the prevalence rate per 10,000 admissions for each AR phenotype using the following formula:

$$\text{Community-onset Prevalence rate} = \frac{\text{\# Community-onset AR Events from inpatient and outpatient locations}}{\text{\# Admissions}} \times 10,000$$

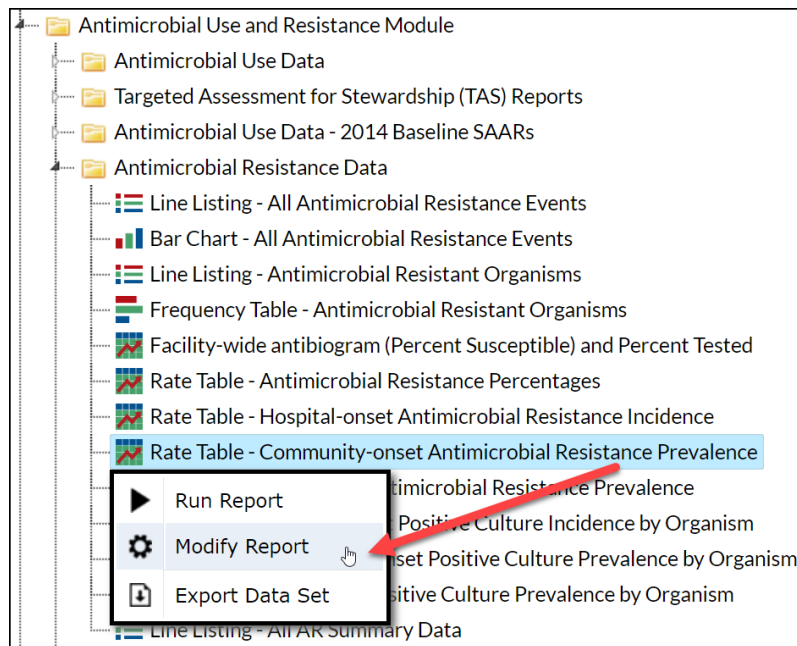
The default settings for the Community-onset Antimicrobial Resistance Prevalence Rate Table produce a report by quarter, but users can make modifications to display the data by half-year, year, or cumulative time periods. Users do not have the option to run the report by month. Additionally, NHSN includes rates by individual specimen source (blood, cerebrospinal fluid [CSF], lower respiratory specimen [LRS], and urine) and a combined rate for all specimen sources in the report by default, for a total of five rates per table. The default option will include 16 rate tables, one for each AR phenotype.



## Example

Suppose you want to review the prevalence rates for community-onset carbapenem-resistant Enterobacterales (*E. coli*, *Klebsiella*, or *Enterobacter*) for 2019-2022 by year for your facility.

After generating data sets, to run the report, click Analysis > Reports > Antimicrobial Use and Resistance Module > Antimicrobial Resistance Data. After selecting the report, “Rate Table – Community-onset Antimicrobial Resistance Prevalence” in this case, a pop-up box will appear that will allow you to “Run Report,” “Modify Report,” or “Export Data Set.” Select “Modify Report” to customize your report.



## Modifying the Report

For a general, step-by-step explanation of the NHSN modification screen, please refer to this document: <https://www.cdc.gov/nhsn/pdfs/ps-analysis-resources/howtomodifyreport.pdf>.

When you choose to modify the report, the modification screen appears showing multiple tabs containing available modifications for the given report. The “Title/Format” tab allows you to update the report title and select the format in which you want the report displayed, such as HTML or PDF. To filter the data by time period, choose the “Time Period” tab at the top of the page. To display data for 2019-2022, select Summary~Yr with a beginning date of 2019 and an ending date of 2022.

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

**Modify "Rate Table - Community-onset Antimicrobial Resistance Prevalence"**

Show descriptive variable names ([Print List](#))    Analysis Data Set: AntibigramRates\_CO\_PHEN    Type: Rate Table    Last Generated: [May 30, 2023 9:20 AM](#)

[Title/Format](#)    **Time Period**    [Filters](#)    [Display Options](#)

Time Period:

Date Variable	Beginning	Ending
Summary~Yr	2019	2022

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

The "Display Options" tab allows you to pick how you'd like the tables displayed in your final report. For this example, we'd like the tables to display by year, so select Summary~Yr as the Group by value.

**Modify "Rate Table - Community-onset Antimicrobial Resistance Prevalence"**

Show descriptive variable names ([Print List](#))    Analysis Data Set: AntibigramRates\_CO\_PHEN    Type: Rate Table    Last Generated: [May 30, 2023 9:20 AM](#)

[Title/Format](#)    [Time Period](#)    [Filters](#)    **Display Options**

Rate Table Options:

Group by: Summary~Yr

## Final Report

The example rate table shown below is the result of the modifications shown in this document. The report will display 16 rate tables; scroll down to the carbapenem-resistant Enterobacterales (*E. coli*, *Klebsiella*, or *Enterobacter*) table.

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

## National Healthcare Safety Network

### Rate Table for Prevalence of Community-onset Antimicrobial Resistance by Phenotype (per 10,000 admissions) <sup>1</sup>

As of: June 2, 2023 at 6:10 PM

Date Range: ANTIBIOGRAMRATES\_CO\_PHEN summaryYr 2019 to 2022

<sup>2</sup> Facility Org ID=13860 Phenotype Description=Carbapenem-resistant Enterobacterales (E. coli, Klebsiella, or Enterobacter)

Phenotype_AR	Summary Yr	Admissions	Blood Count	Blood Prevalence Rate	CSF Count	CSF Prevalence Rate	LRS Count	LRS Prevalence Rate	Urine Count	Urine Prevalence Rate	All Specimen Type Count	All Specimen Type Prevalence Rate
CREall_AR	2019	1119	0	0.00	0	0.00	0	0.00	2	17.87	2	17.87
CREall_AR	2020	3760	12	31.91	18	47.87	6	15.96	23	61.17	59	156.91
CREall_AR	2021	2933	16	54.55	1	3.41	1	3.41	3	10.23	21	71.60
CREall_AR	2022	3346	3	8.97	0	0.00	0	0.00	2	5.98	5	14.94

- <sup>7</sup> 1. This phenotype includes any *Escherichia coli*, *Klebsiella aerogenes*, *Klebsiella oxytoca*, *Klebsiella pneumoniae* (including *Klebsiella pneumoniae pneumoniae*, *Klebsiella pneumoniae rhinoscleromatis*, and *Klebsiella pneumoniae ozaenae*), or *Enterobacter* spp. that has tested Resistant (R) to at least one of the following: imipenem, meropenem, doripenem, ertapenem, meropenem/vaborbactam, or imipenem/relebactam.
2. Prevalence: number of community-onset AR Events (including events from inpatient and outpatient locations) / admissions \* 10,000

- The title of the report specifies which rates are being displayed. Here, we are looking at the prevalence of community-onset antimicrobial resistance by phenotype (per 10,000 admissions).
- NHSN prints out the Facility Organization ID and a description of the AR phenotype being displayed in each table. In this example, we are looking at the rates for community-onset carbapenem-resistant Enterobacterales (*E. coli*, *Klebsiella*, or *Enterobacter*). The first column in the table (Phenotype\_AR) displays the abbreviation for the AR phenotype.
- The second column in the table specifies the time period. In the modifications screen, we filtered the time period to only include data from 2019 through 2022, and we specified the report to group the data by year. Each row in the table represents one year starting with 2019 and ending with 2022.
- The third column in the table specifies the denominator of the rates. For the AR community-onset prevalence rates, the denominator is admissions. In this example as shown in the purple box, there were 3,346 admissions to the facility's inpatient locations in 2022.
- Each table will include the number of community-onset AR Events that meet the AR phenotype definition isolated from each of the four specimen sources (blood, CSF, LRS, and urine) as well as a combined count for all specimen sources. In 2022, there were 3 carbapenem-resistant Enterobacterales (*E. coli*, *Klebsiella*, or *Enterobacter*) isolated from blood, 0 from CSF, 0 from LRS, and 2 from urine for a total of 5 carbapenem-resistant Enterobacterales (*E. coli*, *Klebsiella*, or *Enterobacter*) reported to the AR Option.
- Each table will include rates for each of the four specimen sources (blood, CSF, LRS, and urine) as well as a combined rate for all specimen sources. In 2022, the rate of community-onset carbapenem-resistant Enterobacterales (*E. coli*, *Klebsiella*, or *Enterobacter*) isolated from blood was 8.97 events per 10,000 admissions. The rate for CSF and lower respiratory were both 0.00 since no events were isolated from CSF or lower respiratory. The rate for urine was 5.98 events per 10,000 admissions. The overall prevalence rate of community-onset carbapenem-resistant Enterobacterales (*E. coli*, *Klebsiella*, or *Enterobacter*) from all specimen sources in 2022Q4 was 14.94 events per 10,000 admissions.
- In the footnotes, you will find the definition of each AR phenotype and the formula for calculating prevalence. This example's phenotype includes any *Escherichia coli*, *Klebsiella aerogenes*, *Klebsiella oxytoca*, *Klebsiella pneumoniae* (including *Klebsiella pneumoniae pneumoniae*, *Klebsiella pneumoniae rhinoscleromatis*, and *Klebsiella pneumoniae ozaenae*), or *Enterobacter* spp. that tested Resistant (R) to at least one of the following: imipenem, meropenem, doripenem, ertapenem, meropenem/vaborbactam, or imipenem/relebactam. Prevalence = number of community-onset AR Events from inpatient and outpatient locations / admissions x 10,000.

**Note:** If denominator data (*i.e.*, patient days, admissions, encounters) are not reported for a month, but AR Events were reported for that month, then the AR Events for that month will be excluded from the counts and rates for the rollup (*e.g.*, quarter, half-year, year, cumulative). If denominator data (*i.e.*, patient days, admissions, encounters) are not reported for all three months in a quarter, all six months in a half-year, all 12 months in a year, or at all (cumulative), but

AR Events were reported for that time period, then the AR Events will be included in the counts, but both the denominator and rates will be suppressed/appear missing ('.').

## Additional Resources

AR Option Incidence and Prevalence Reports Session from the 2023 NHSN Annual Training:

Video recording: <https://www.youtube.com/watch?v=1seKabgmCIA>

Slides: <https://www.cdc.gov/nhsn/pdfs/training/2023/AR-Option-Incidence-Prevalence.pdf>

How to Export Data from NHSN: <http://www.cdc.gov/nhsn/pdfs/ps-analysis-resources/exportdata.pdf>

AUR Module Protocol: <https://www.cdc.gov/nhsn/pdfs/pscmanual/11pscaurcurrent.pdf>

AUR Training: <https://www.cdc.gov/nhsn/training/patient-safety-component/aur.html>

NHSN Analysis Quick Reference Guides: <http://www.cdc.gov/nhsn/PS-Analysis-resources/reference-guides.html>