ANTIMICROBIAL RESISTANCE RATE TABLE

Description

There are several analysis reports available in NHSN that will allow you to analyze AR Option Events from your facility (or group) in which a specific antimicrobial organism (or "phenotype") was identified. CDC has defined 16 AR Option phenotypes of epidemiologic importance; the analysis reports will display data from these 16 phenotypes by default.

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

Rate Table – Antimicrobial Resistance Percentages

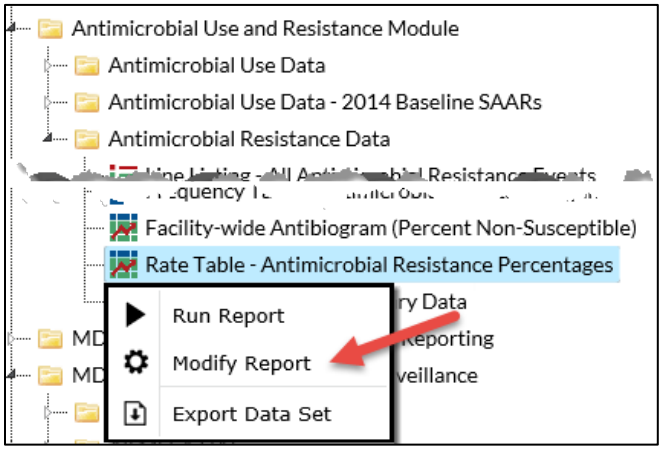
The rate table will display the percent of isolates that tested non-susceptible or resistant to certain antimicrobials for each defined phenotype. For example, the resistant percentage for MRSA or Methicillin-resistant *Staphylococcus aureus* is calculated as:

$$\frac{\#\text{ of } \textit{Staphylococcus aureus} \text{ isolates resistant to oxacillin or cefoxitin}}{\#\text{ of } \textit{Staphylococcus aureus} \text{ isolates tested for susceptibility to oxacillin or cefoxitin}} \times 100$$

The resistance percentage will only be calculated when the denominator contains at least 30 isolates in order to ensure a minimum level of precision in the calculation.

Example

In this example, you are asked to calculate your facility's resistance percentage of MRSA for the month of August 2018. After generating datasets, to run a rate table report, click Analysis > Reports > Antimicrobial Use and Resistance Module > Antimicrobial Resistance Data. After selecting "Rate Table – Antimicrobial Resistance Percentages," a pop-up box will appear that will allow you to "Run Report," "Modify Report," and "Export Data Set." Select "Modify Report" to customize your report.



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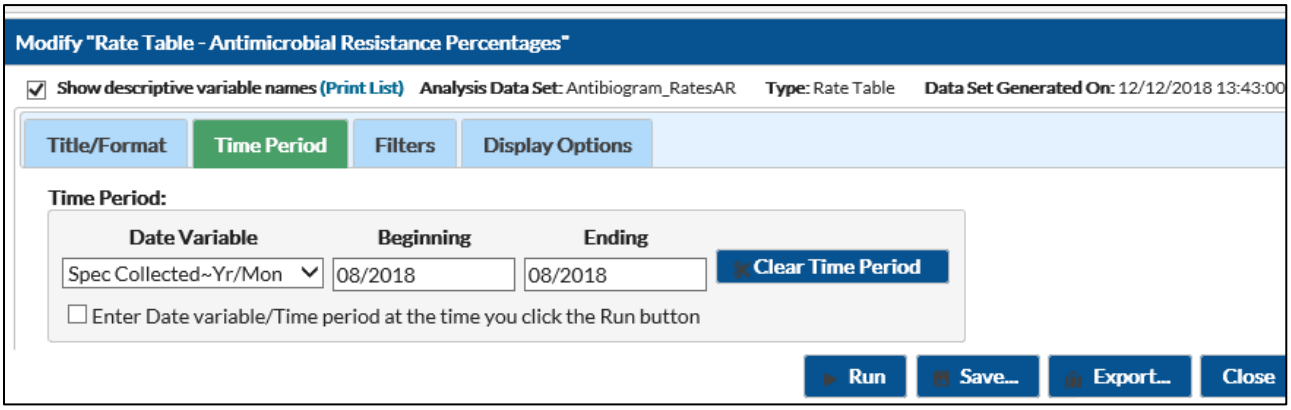
Modifying the Report

When you choose to modify the report, the modification screen appears showing multiple tabs containing available modifications for the given report. The "Title/Format" tab allows you to update the report title and select the format in which you want the report displayed, such as HTML or PDF.

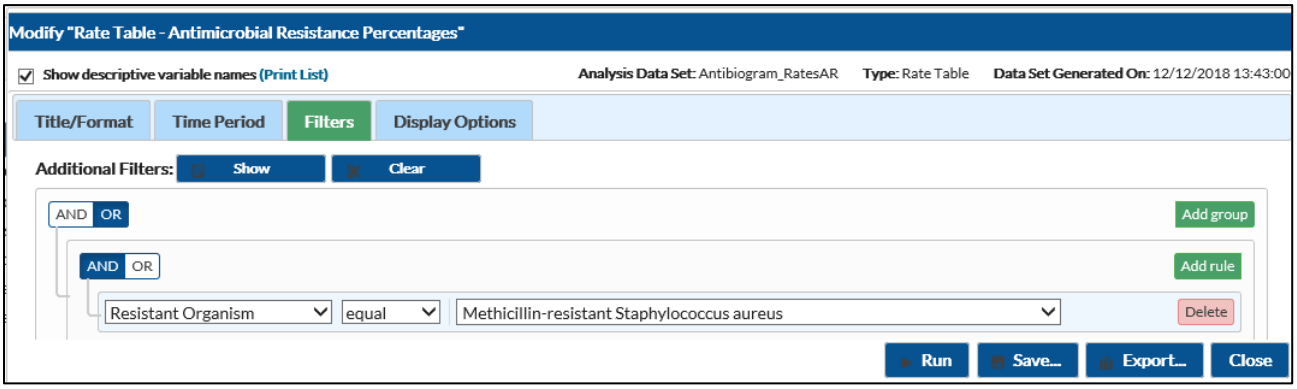
To filter the data by time period, choose the "Time Period" tab at the top of the page. In this example, we have limited the report to the Specimen Collected Year/Month of August 2018.

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



The "Filters" tab allows you to further filter the data that will be displayed in the report. You can filter the data by specific location or phenotype. For our report, we will filter by the phenotype Methicillin-resistant *Staphylococcus aureus*.

Tip: *For including more than one item in each filter such as multiple locations or multiple phenotypes, the "in" operator can be used instead of the "equal" operator.*



The "Display Options" tab allows you to view your rates by month, quarter, half-year, year, or cumulative time periods for the entire time period selected. Specimen Collected Year/Month is used in this example to show monthly antimicrobial resistance percentage rates.

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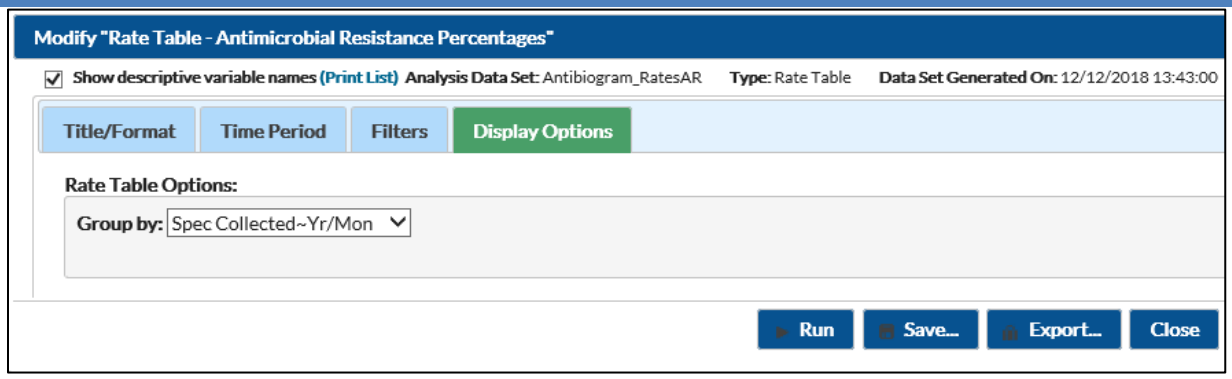

Final Report

The default report will contain one rate table for each phenotype. In this example, because we specified a single phenotype of interest, we will see only one table. The output below shows a rate table with the antimicrobial resistance percentage of Methicillin-resistant *Staphylococcus aureus* isolates collected in August 2018.

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

National Healthcare Safety Network
Rate Table - Antimicrobial Resistance Percentages
As of: December 17, 2018 at 2:22 PM
Date Range: ANTIBIOGRAM_RATESAR specDateYM 2018M08 to 2018M08
if (((phenotype_AR = MRSA_AR)))
Facility Org ID=13860 Phenotype Description=Methicillin-resistant Staphylococcus aureus

Facility Org ID	Resistant Organism	Spec Collected Yr/Mon	Number Isolated	Number Tested	Number Resistant	Percent Resistant	95% confidence interval
13860	MRSA_AR	2018M08	44	39	36	92.3	80.5,98.0

1. MRSA includes any Staphylococcus aureus that has tested Resistant ('R') to oxacillin or cefoxitin.
2. Percent resistant is only calculated when at least 30 isolates have been tested.
3. If the percent of isolates tested is less than 70%, caution should be used when interpreting the percent resistant.

Data contained in this report were last generated on December 12, 2018 at 1:43 PM.

1. In August 2018 (2018M08), 44 *Staphylococcus aureus* isolates were reported to the AR Option (Number Isolated). Thirty-nine of those were tested (Number Tested) by the laboratory for susceptibility to oxacillin or cefoxitin (see AR phenotype definition list and the first footnote beneath this rate table). The Number Resistant column shows that 36 isolates tested resistant to either oxacillin or cefoxitin.
2. Dividing 36 (Number Resistant) by 39 (Number Tested) and multiplying by 100 is 92.3%. This can be interpreted as 92.3% of tested *Staphylococcus aureus* isolates were resistant to either oxacillin or cefoxitin in August 2018.

Note: The percent resistant is only calculated when at least 30 isolates have been tested. To include more data in the calculation, you could select a wider time period or choose a different "group by" option on the Modification screen.

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Additional Resources

Antimicrobial Resistant Phenotype Definitions for AR Option Data: https://www.cdc.gov/nhsn/pdfs/ps-analysis-resources/aur/ar-phenotype-definitions-508.pdf

AUR Module Protocol: http://www.cdc.gov/nhsn/pdfs/pscmanual/11pscaurcurrent.pdf

Introduction to NHSN Analysis: https://www.cdc.gov/nhsn/pdfs/training/2018/intro-to-analysis-508.pdf

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

Surveillance for Antimicrobial Resistance Option: http://www.cdc.gov/nhsn/acute-care-hospital/aur/