ANTIMICROBIAL RESISTANCE FREQUENCY TABLE

Description

A frequency table is an organized display of counts and percentages. The data are organized by a row variable and a column variable, and the frequency table provides a count of the number of observations in the data set that meet the specifications of both the row and column variables.
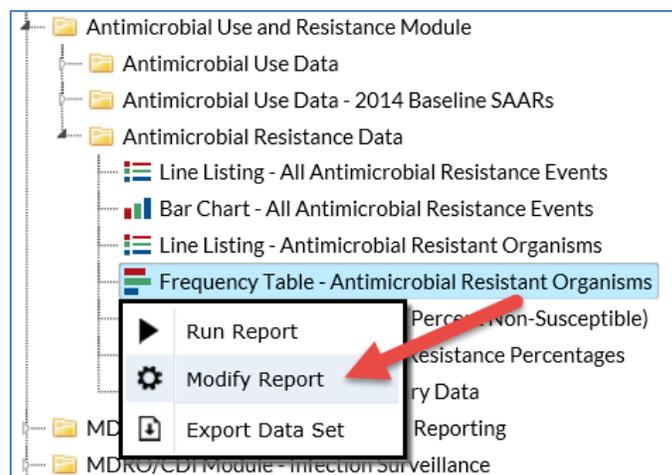
The Antimicrobial Resistance (AR) Frequency Table report will allow you to analyze AR events from your facility (or group) in which a specific antimicrobial resistant organism (or "phenotype") was identified. CDC has defined 16 AR Option phenotypes of epidemiologic importance; the analysis output options will display data from these 16 phenotypes by default. Criteria and definitions for the pre-defined phenotypes can be found here: https://www.cdc.gov/nhsn/pdfs/ps-analysis-resources/aur/ar-phenotype-definitions-508.pdf.

For a 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.

Example

Suppose you are interested in looking at the distribution of Antimicrobial Resistance (AR) Option events that met the NHSN AR Organisms definitions across each calendar year, by the location types in your facility.

After generating data sets, to run a frequency table report, click Analysis > Reports > Antimicrobial Use and Resistance Module > Antimicrobial Resistance Data. After selecting the report, in this case, "Frequency Table – Antimicrobial Resistant Organisms," 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.
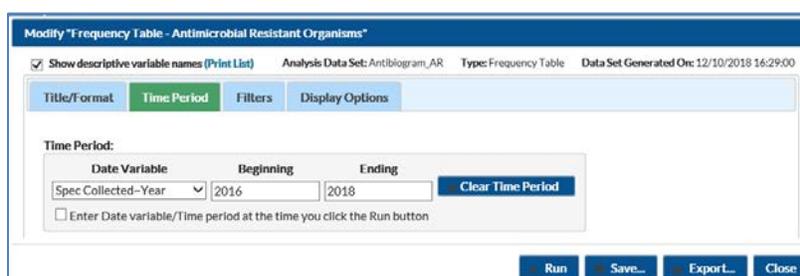
Modifying the Report

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 include only AR organisms that were collected from 2016 through 2018 (Spec Collected~Year Beginning = 2016 and Ending = 2018).
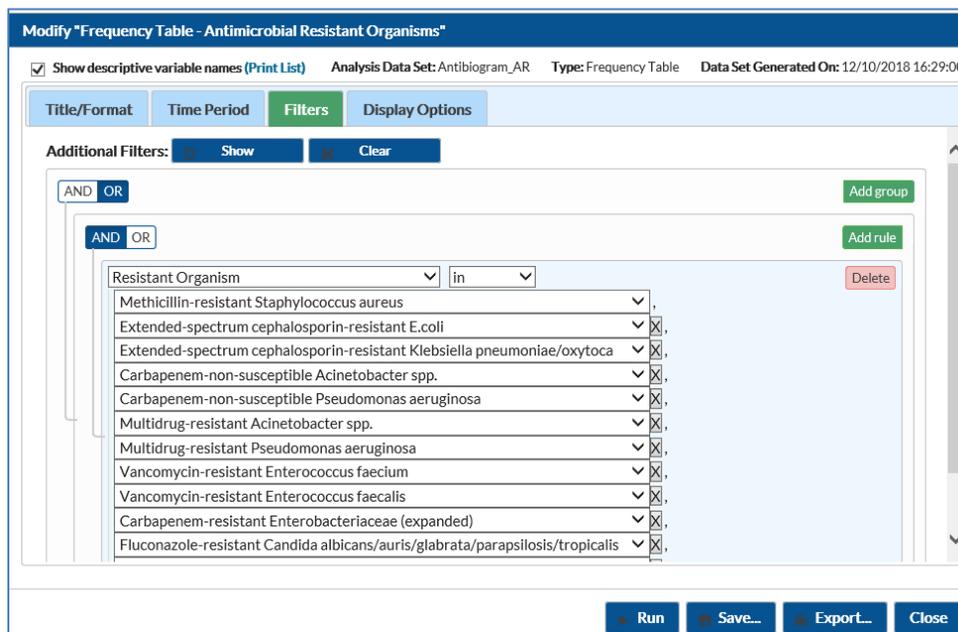
Tip: For more descriptive variable labels on your report, check the box "Show descriptive variable names" that appears near the top of the modification window (recommended).

The "Filters" tab allows you to further filter the data that will be displayed in the report. The frequency table report defaults automatically to filter the output for specific AR Organisms. We will use this default.

Tip: For including just one item in each filter such as a single phenotype, the "equal" operator can be used instead of the "in" operator.

National Center for Emerging and Zoonotic Infectious Diseases
Division of Healthcare Quality Promotion

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The "Display Options" tab allows you to customize the variables to display in your report. In our example, we used the default "Resistant Organism" for Row, selected "Spec Collected~Year" for Column, and selected "Location Type" for Page by drop downs. Additional selections are available below the Frequency Table Options and Two-Way Table Options for even more customization.

Tip: *Not sure of the meaning of the variables in the list? Use the variable reference list:*
http://www.cdc.gov/nhsn/pdfs/ps-analysis-resources/varlabelxref-ps_current.pdf.

Modify "Frequency Table - Antimicrobial Resistant Organisms"

☑ Show descriptive variable names **(Print List)**   **Analysis Data Set:** Antibiogram_AR   **Type:** Frequency Table   **Data Set Generated On:** 11/29/2018 10:25:00

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

Frequency Table Options:

Selected Variables to include in report:

Row	Column	Page by
Resistant Organism ⌄	Spec Collected~Year ⌄	Location Type ⌄

Frequency Table Options:
☐ Table percent - Display cell frequency divided by table total
☐ Missing - Include observations with missing values
☐ Print the table in list form

Two-Way Table Options:
☐ Row Percent - Display cell frequency divided by row total
☐ Column Percent - Display cell frequency divided by column total
☐ Expected - Expected cell frequencies
☐ Chi-square - Test for independence

▶ Run   Save...   Export...   Close

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Final Report

The example frequency table shown below is the result of the modifications shown in this document. There is one row for each AR organism phenotype and one column for each year. The output below shows only the frequency table for the CC, or critical care, location type but the full report would include the facility's other location types in separate tables.

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

National Healthcare Safety Network
Frequency Table - Antimicrobial Resistant Organisms
As of: December 11, 2018 at 9:48 AM
Date Range: ANTIBIOGRAM_AR specDateYr 2016 to 2018
if (((phenotype_AR IN (MRSA_AR, ESCecoli_AR, ESCklebsiella_AR, carbNS_Acine_AR, carbNS_PA_AR, MDR_Acine_AR, MDR_PA_AR, VREfaecium_AR, VREfaecalis_AR, CREexpanded_AR, FR_Candi_AR", "DR_SP_AR))))

Location Type=CC

Frequency	Table of phenotype_AR by specDateYr				
		specDateYr(Spec Collected~Year)			
	phenotype_AR(Resistant Organism)	2016	2017	2018	Total
	CREexpanded_AR	0	0	95	95
1	DR_SP_AR	2	0	5	7
	ESCecoli_AR	0	1	8	9
	ESCklebsiella_AR	0	0	8	8
	FR_Candi_AR	0	0	10	10
	MDR_Acine_AR	0	0	3	3
	MDR_PA_AR	0	0	6	6
2	MRSA_AR	0	0	38	38
	VREfaecalis_AR	0	0	10	10
	VREfaecium_AR	0	0	2	2
	carbNS_Acine_AR	0	0	7	7
	carbNS_PA_AR	0	0	10	10
	Total	2	1	202	205

1. Please find the document containing Phenotype_AR definitions at
https://www.cdc.gov/nhsn/pdfs/ps-analysis-resources/aur/ar-phenotype-definitions-508.pdf
Data contained in this report were last generated on November 19, 2018 at 4:30 PM.

1. In the three year timeframe shown, the red box (#1 above) shows a total of 7 drug-resistant *Streptococcus pneumoniae* organisms (phenotype_AR = DR_SP_AR) were reported from all Critical Care units (Location Type = CC) with 2 reported in 2016, 0 in 2017, and 5 in 2018.
2. The blue box (#2 above) shows in 2018, there were 38 Methicillin-resistant *Staphylococcus aureus* organisms (phenotype_AR = MRSA_AR) from all Critical Care units (Location Type = CC) but none reported in 2016 and 2017.

CDC

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Additional Resources

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

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

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