

# Quick Reference Guide: How to Create Bar Charts for COVID-19 Vaccination Data

## Introduction

Bar charts for Weekly COVID-19 vaccination Summary data can be produced in NHSN for healthcare personnel and long-term care (LTC) residents. A bar chart is a graphical representation of data where the length or height of the bars represents counts of records meeting the criteria. The purpose of this resource is to provide step-by-step instructions for using the “Bar Chart” report to view percentages of residents receiving partial and complete COVID-19 vaccination. Please note that although this example includes information on percentages of residents, the same process can be applied to running reports on healthcare personnel in the LTC or Healthcare Personnel Safety HPS component.

## Example

Say you want to find out the percentage of residents who had partial and complete COVID-19 vaccination between 10/24/2022 and 11/6/2022. To view this information, you can run a Bar Chart report. The steps below show how to do this.

## Generating Data Sets

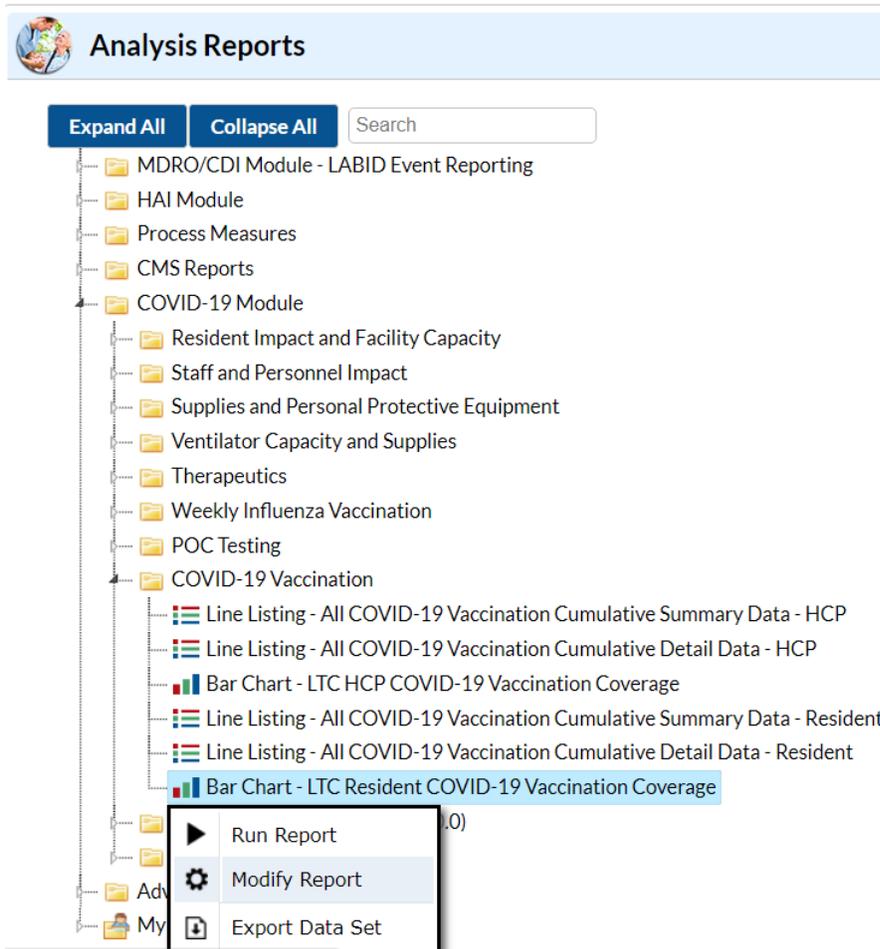
Generating datasets is the first step to performing analysis in NHSN. This process will freeze your NHSN data at the current date and time by copying those data into defined datasets. When you wish to view updates to the data contained in your NHSN reports or to include data entered since the datasets were last generated, you must regenerate new datasets for those updates to be reflected. Datasets are user-specific; therefore, each user in NHSN who wishes to analyze data must generate datasets.

To generate datasets in NHSN, navigate to Analysis > Generate Data Sets. Next, on the Reporting Data Sets tab, click “Generate Reporting Data Sets”. A pop-up alert will appear, asking the user if it is ok for datasets previously generated to be overwritten.

## Creating the Bar Charts

Once you have generated your datasets, you are ready to produce a line list.

1. On the “Analysis Reports” screen, click on the “COVID-19 Module” folder.
2. Select the “COVID-19 Vaccination” Subfolder.
3. Click on the report that you would like to run.
  - a. If you want to display bar charts to show COVID-19 vaccination coverage over time, click on “Bar Chart – LTC Resident COVID-19 Vaccination Coverage”.



## Modifying the Report

The “Modify Report” option allows you to customize your report. You can add a title to the output, select a time period, add filters, and select display options. Below are modifications for this example. For more detailed information on how to modify a report, please refer to [How to Modify a Report Quick Reference Guide](#).

You can choose to set your time period by the variable: “week of data collection, end date.” If you don’t select a time period, your report will include all data from your generated dataset. In this example, we were interested in viewing data from 10/24/2022 - 11/6/2022, so we set ‘Week of data collection, end date’ to 10/30/2022 (beginning) and 11/6/2022 (ending) to capture that two-week period. If interested in a one-week period, the beginning and ending dates would be the same.

The screenshot shows the 'Modify "Bar Chart - LTC Resident COVID-19 Vaccination Coverage"' interface. At the top, it indicates 'Show descriptive variable names (Print List)', 'Analysis Data Set: LTC\_COVID19\_VaccSum\_Res\_VC', 'Type: Bar Chart Summary', and 'Last Generated: November 7, 2022 11:07 AM'. Below this is a navigation bar with four tabs: 'Title/Format', 'Time Period' (selected), 'Filters', and 'Display Options'. The 'Time Period' section includes a 'Time Period:' label, a 'Date Variable' dropdown set to 'Week of data collection, end date', 'Beginning' and 'Ending' date input fields with values '10/30/2022' and '11/06/2022' respectively, and a 'Clear Time Period' button. A checkbox labeled 'Enter Date variable/Time period at the time you click the Run button' is currently unchecked.

The “Filters” tab allows you to further filter the data that will be displayed in the report. Please note that for this example, we do not need to apply filters since we want to see both partial and complete vaccination data. We will leave the filter tab at its default which is seen below in the screenshot. This default setting restricts data to after 9/21/2021 since this is the date that new variables were added in the 10.0 release.

The screenshot shows the 'Modify "Bar Chart - LTC Resident COVID-19 Vaccination Coverage"' interface with the 'Filters' tab selected. It includes the same top navigation and metadata as the previous screenshot. The 'Filters' section has 'Additional Filters:' with 'Show' and 'Clear' buttons. Below this is a filter rule editor with 'AND OR' logic buttons. A single rule is defined: 'Week of data collection, start date' with a 'greater or equal' operator and a date value of '9/27/2021'. There are 'Add group', 'Add rule', and 'Delete' buttons for managing the filter rules.

On the “Display Options” tab, you can select your chart variable and stratification variable. In the example of vaccination coverage bar charts, our chart variable is “Week of data collection, end date” and our stratification variable is “Vaccine Dosing Status”.

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

Bar Chart Options

Chart Variable

Week of data collection, end date

Orientation of Bars: 2D Vertical

Placement of the Percent: None

Placement of the Value: Inside

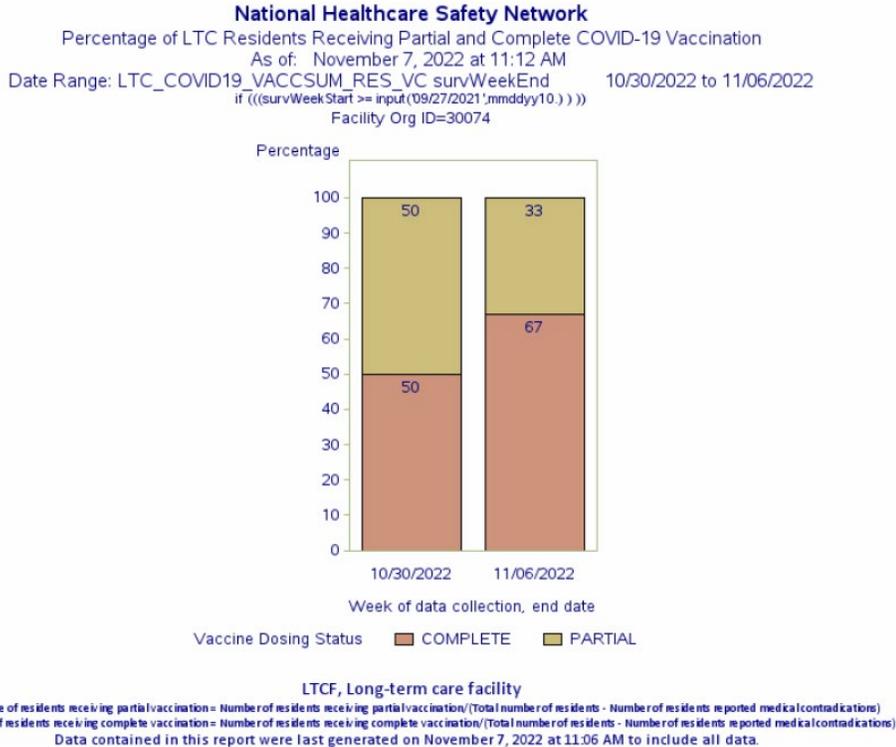
Stratification Variable

Vaccine Dosing Status

## Output

After modifying the report, you are now ready to see the output. The example bar charts shown below are the result of the example modifications. **Note: The screen can currently only accommodate up to 8 weeks of data.**

For healthcare personnel vaccination coverage, there is one bar for each week of data collection and each bar is stratified by vaccine status (Complete or Partial).



November 2022

It is important to note that for the calculation of the percentages, the denominator subtracts the number of individuals with a medical contraindication from the total number of individuals at the facility.

$$\frac{\# \text{ Cumulative total of individuals vaccinated}}{\# \text{ Individuals at the facility (excluding contraindications)}} \times 100 = \text{Pct. of individuals vaccinated}$$

In our example, for the week of 10/31/2022-11/6/2022, there were 200 individuals at the facility. Fifty were partially vaccinated, 100 were fully vaccinated, and 50 had contraindications. The equation for the partially vaccinated would then be:

$$\frac{50}{(200 - 50)} (100) = 33\%$$

This percentage is illustrated by the yellow segment of the bar chart for the second week of interest.

The equation for the complete vaccinations would be the following:

$$\frac{100}{(200 - 50)} (100) = 67\%$$

This percentage is illustrated by the red segment of the bar for the second week of interest.

**Note:** The data in this example output are fictitious and intended for illustrative purposes only.