



## HOW TO CHOOSE WHICH TYPE OF GRAPH TO USE?

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### NCDB Hospital Comparison Benchmark Reports

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There are many types of graphic data displays that can be used to present data and many techniques to visually display information so that the reader may readily recognize patterns or trends. In order to represent data properly, users of the CoC Hospital Comparison Benchmark Reports should determine which type of graph puts the right "spin" on the data. There are a few universal rules about which type of graph best portray data.

There are three types of graphs that may be used to compare or display data, each have strengths and weaknesses. These include:

- Bar graphs, vertical, horizontal or stacked
- Line or area graphs
- Pie charts.

The vertical and horizontal graphs can be used to reveal a changes or differences in magnitude. In general, vertical bar graphs should be the user's first choice. Line graphs can be used to show a change in direction or trend. And pie charts are effective for showing proportional distributions.

**Vertical Bar Graphs** can be used for a limited time series (i.e., just a few years, or whatever time period you are working with) to show how values change over time. This type of graph is also good for handling multiple series for comparison purposes. It can be simple bar graph (contains one variable), or grouped bar graph (contains one or more variables).

**Horizontal Bar Graphs** have been used to show comparisons. This type of graph is good to use when the labels are too long to appear clearly on the x-axis and more room may be available to fit text labels for categorical variables on the y-axis.

**Stacked Bar Graphs** display single bars that are used to show segments of totals. For example, a single bar can represent white breast cancer patients in the bottom section of a bar, hispanic, black and patients of other race or ethnic groups in top sections of a bar. Two important points should be kept in mind when presenting data using stacked bars: 1) these can be very difficult to analyze if too many groups are presented, ideally no more than five groups should be displayed; and 2) these types of graphs are best for representing proportional data, eg. the percent of cases in each category (white, hispanic, black, other) across the diagnosis years or other categories shown along the principle axis of the graph.

**Line Graphs** are used to display changes over extended periods of time. When small absolute or proportional changes are observed, line graphs may be better to use than bar graphs. Line graphs are particularly informative when used to compare changes over time across multiple groups or categories of patients.

**Area Graphs** are very similar to line graphs. These can be used to track changes over time for one or more groups or categories of patients. Area graphs may be particularly helpful when tracking proportional changes in two or more related groups.

**Pie Chart** do not show changes over time, but may be the best way to portray the proportional distribution of groups or categories.