

Effective Use of Bar Charts

Purpose	This tool provides guidelines and tips on how to effectively use bar charts to communicate research findings.
Format	This tool provides guidance on bar charts and their purposes, shows examples of preferred practices and practical tips for bar charts, and provides cautions and examples of misuse and poor use of bar charts and how to make corrections.
Audience	This tool is designed primarily for researchers from the Model Systems that are funded by the National Institute on Disability, Independent Living, and Rehabilitation Research (NIDILRR). The tool can be adapted by other NIDILRR-funded grantees and the general public.

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Overview and Organization

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Simple Bar Chart – Categorical Comparisons

- ▶ A bar chart is basically a vertical column chart oriented horizontally instead.
- ▶ Data values are displayed as horizontal bars.
- ▶ The magnitude of each data element is represented by the length of the bar.
- ▶ Can be used to display values for categorical items (diabetes prevalence by state, hospital performance rankings on a preferred clinical practice measure etc).
- ▶ Shows comparisons among the categorical groups on the measure.
- ▶ Categories displayed on the vertical axis.

Simple Bar Chart – Categorical Comparisons

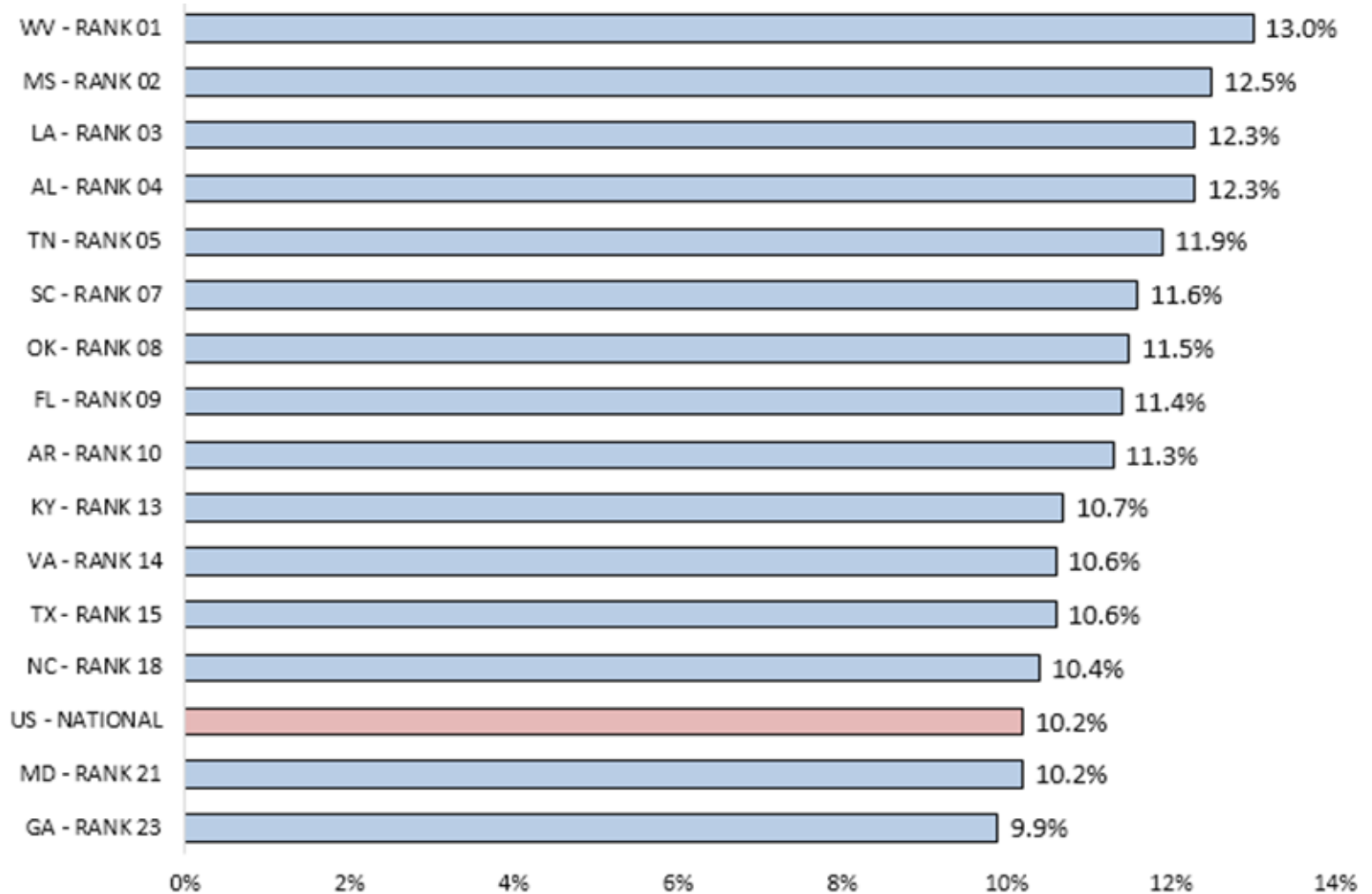
Bar charts are preferred over column charts:

- ▶ When the categorical axis labels are lengthy;
- ▶ When you have 12 or more categories;
- ▶ When the metric to be displayed is duration (such as clinic lobby wait time per health center).

Also note that, perceptually, people are more accurate at judging length than height, so for purposes requiring greater precision or finer distinctions of differences, bar charts may communicate much better than column charts.

Simple Bar Chart – Categorical Comparisons

Percent of Southern Adults Who Have Ever Been Told by a Doctor that They Have Diabetes



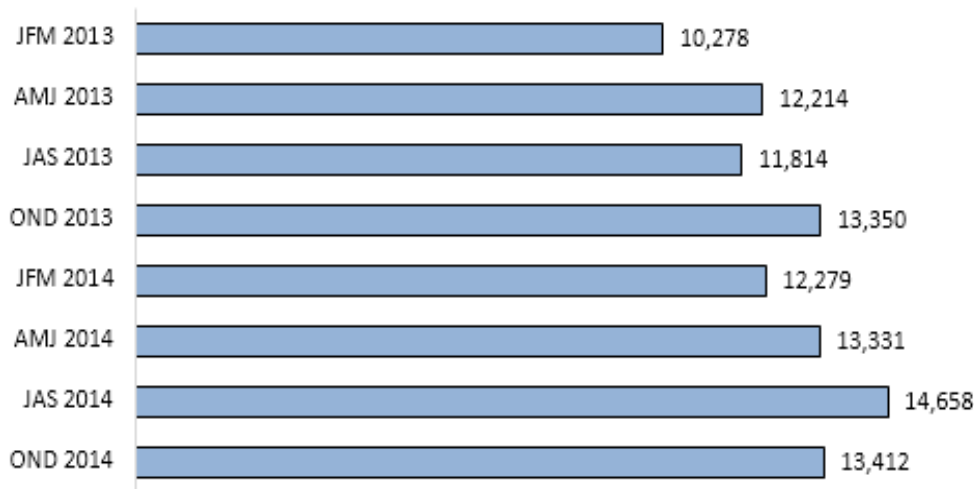
9 of the 10 states with the highest adult diabetes prevalence are in the South

Simple Bar Chart – Trends

- ▶ It is possible to use horizontal bar charts to display time-based [trend] data.
- ▶ However it is generally not a good idea since most people “expect” time (quarters, years etc) to move horizontally from left to right.
- ▶ Displaying time as moving from top to bottom (as would occur in a bar chart) requires more mental processing by the reader and reduces the “quick understanding” that charts are typically intended to convey.

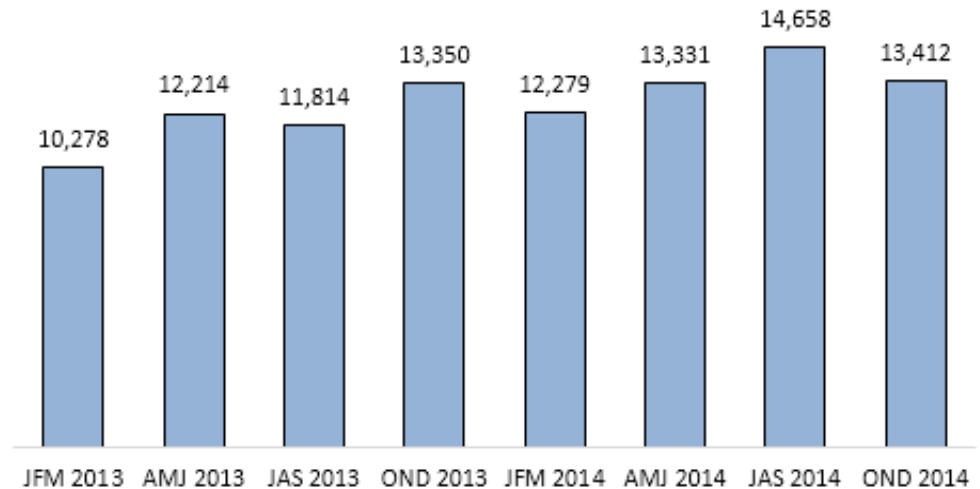
Simple Bar Chart – Trends

Total Clients Served By Year and Quarter



You could create trend data using horizontal bar charts

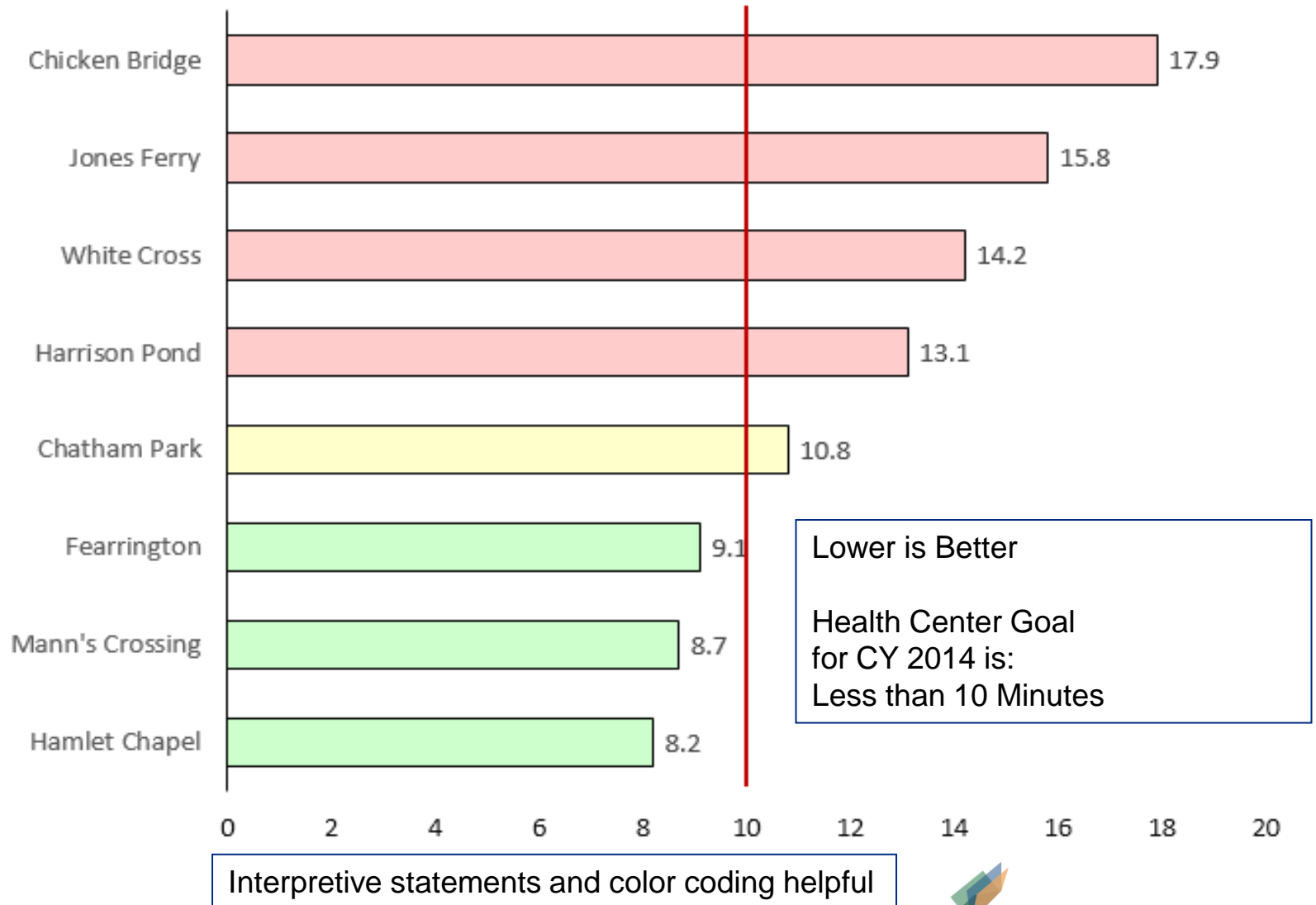
Total Clients Served By Year and Quarter



But readers tend to process time-based [trend] data faster and easier when displayed with time moving from left to right

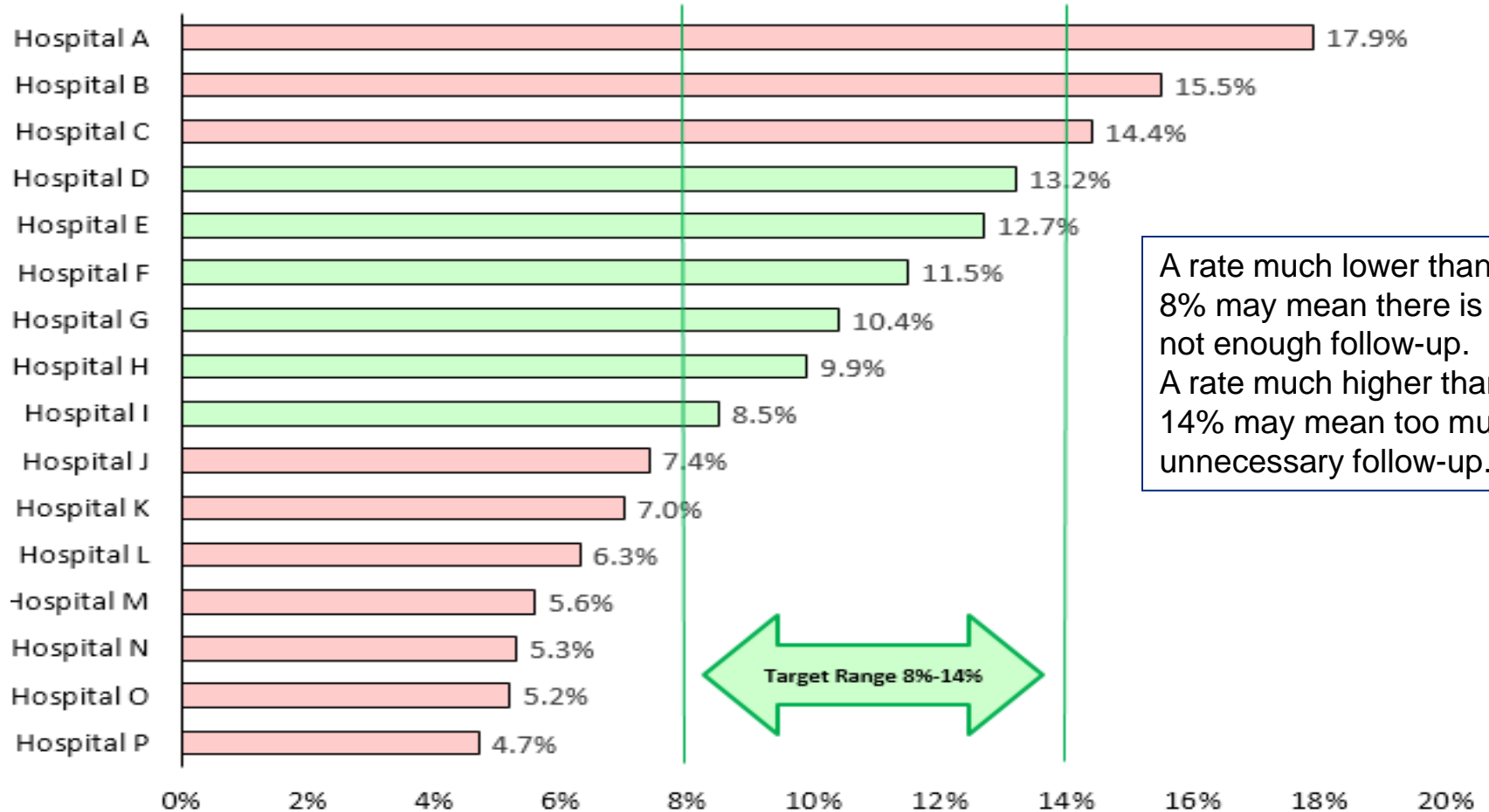
Simple Bar Chart – Duration Comparisons

Average Lobby Wait Time [Minutes] Per Health Center - December 2014



Simple Bar Chart – Performance Comparisons

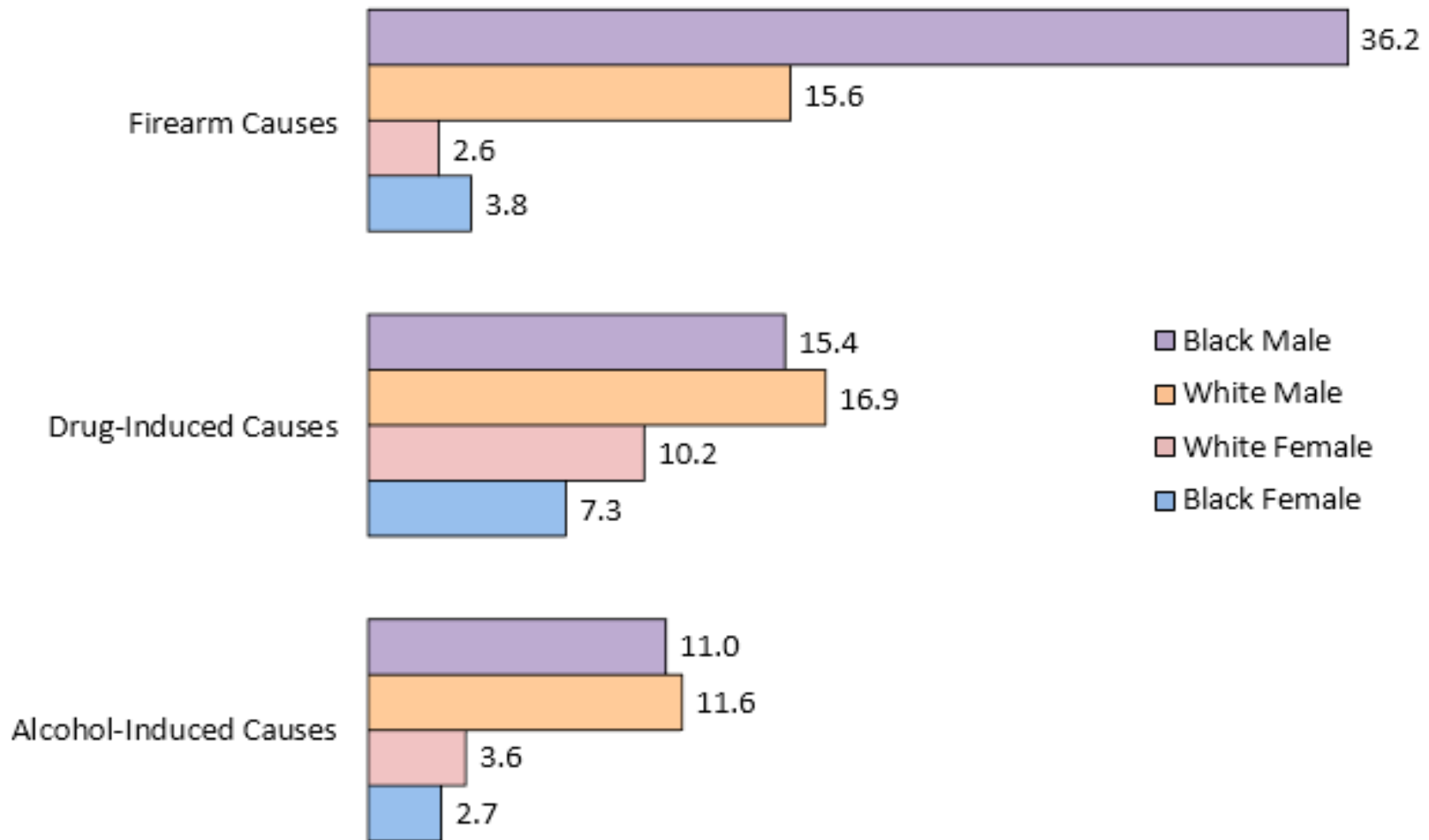
Additional Mammograms After Screening - By Hospital - Central NC - OND 2014



Percent of hospital outpatients who had a follow-up mammogram or ultrasound within 45 days after a screening mammogram.

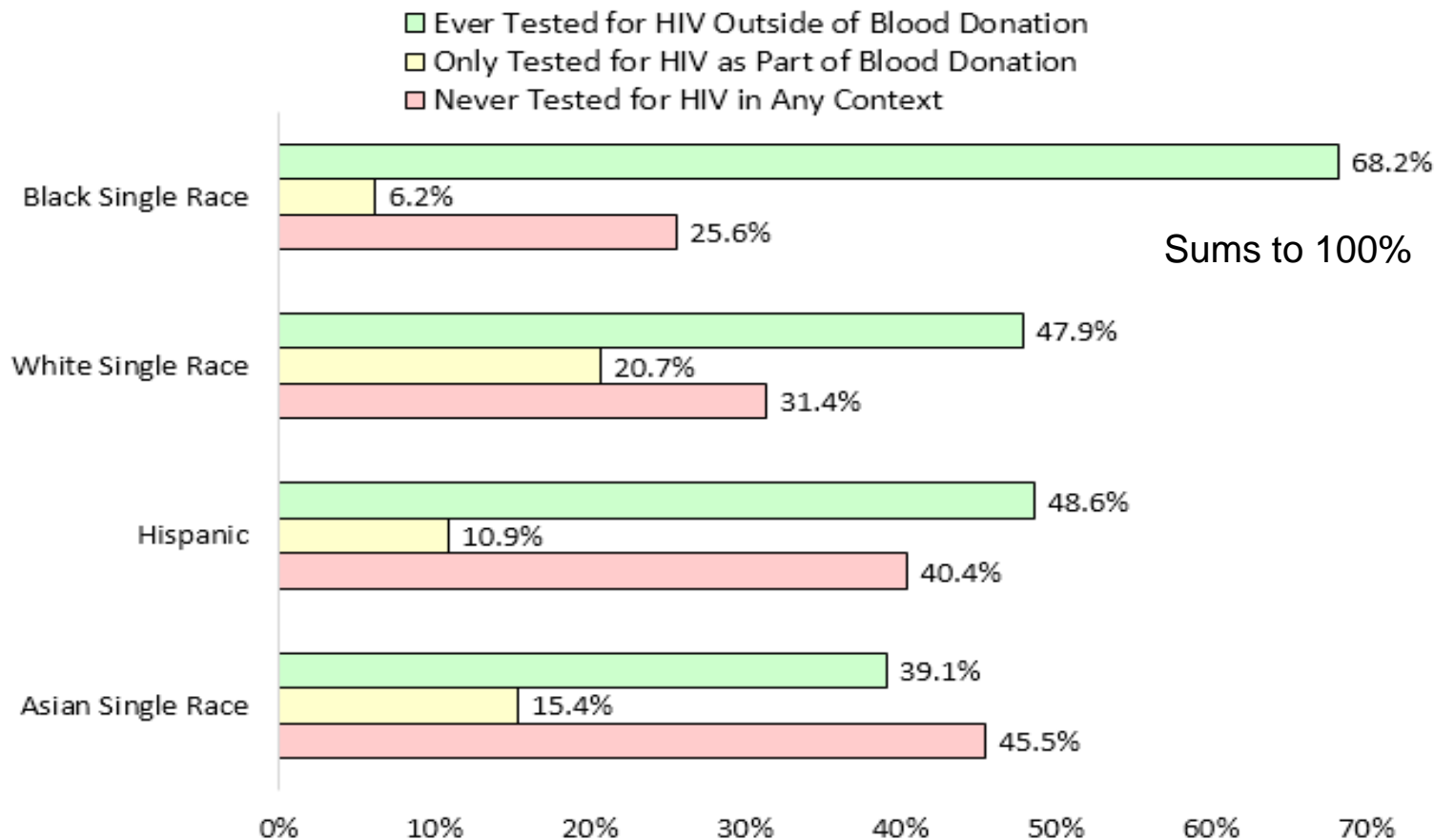
Clustered Bar Chart – Rates, Two Factors

Age-Adjusted Death Rates Per 100,000 Standard Population
By Race-Gender - Selected Causes - US - CY 2007



Clustered Bar Chart – Distribution, Two Factors

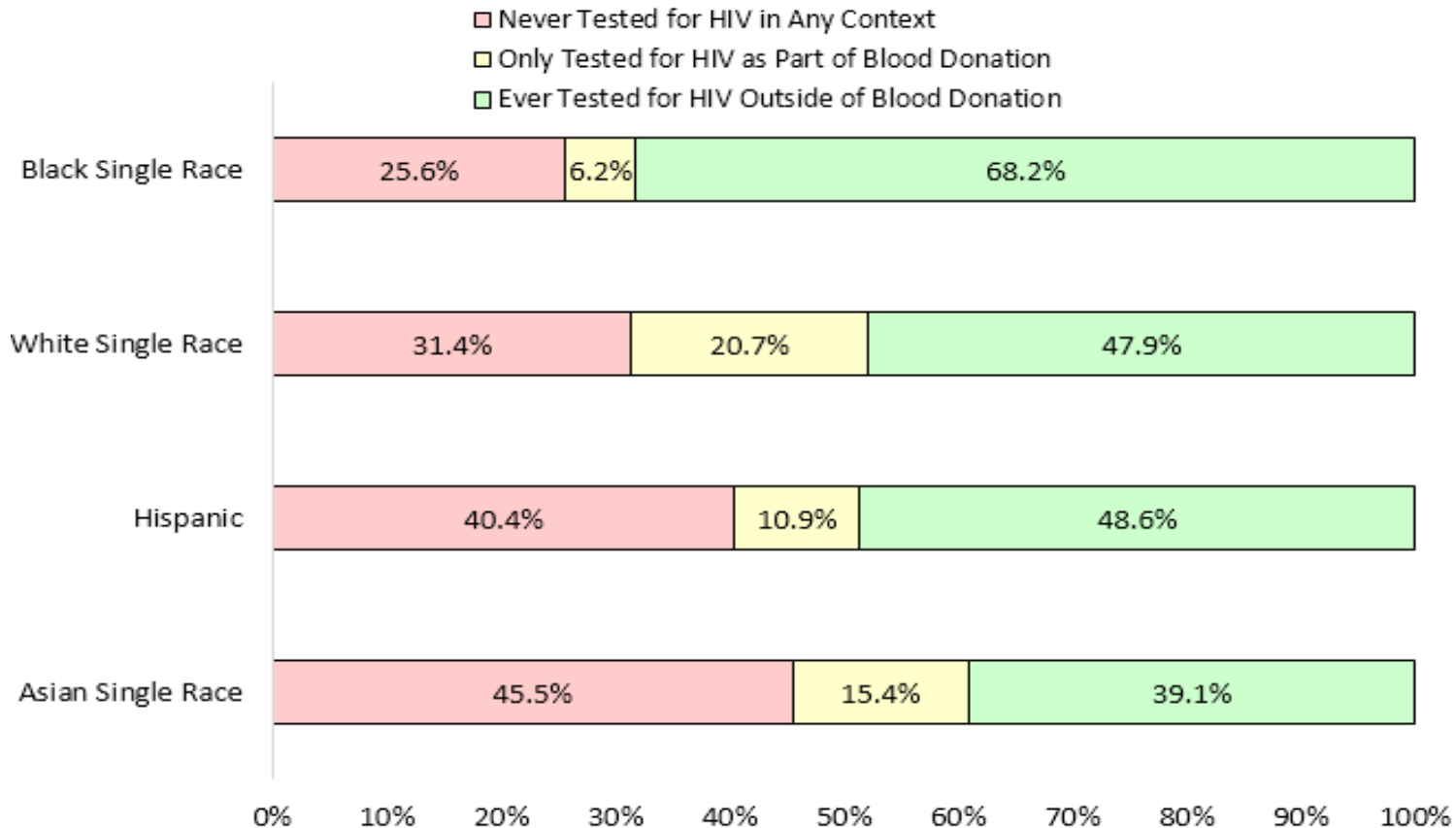
Distribution of HIV Test Status, Age 15-44
By Race Ethnicity - US - 2006-2010



Usually need to decide which series (or series) you will use to rank. This graph uses green and yellow to represent the "ever tested for HIV" rank, which highlights the never tested (red) series.

Stacked Bar Chart – Category-Based - Distribution

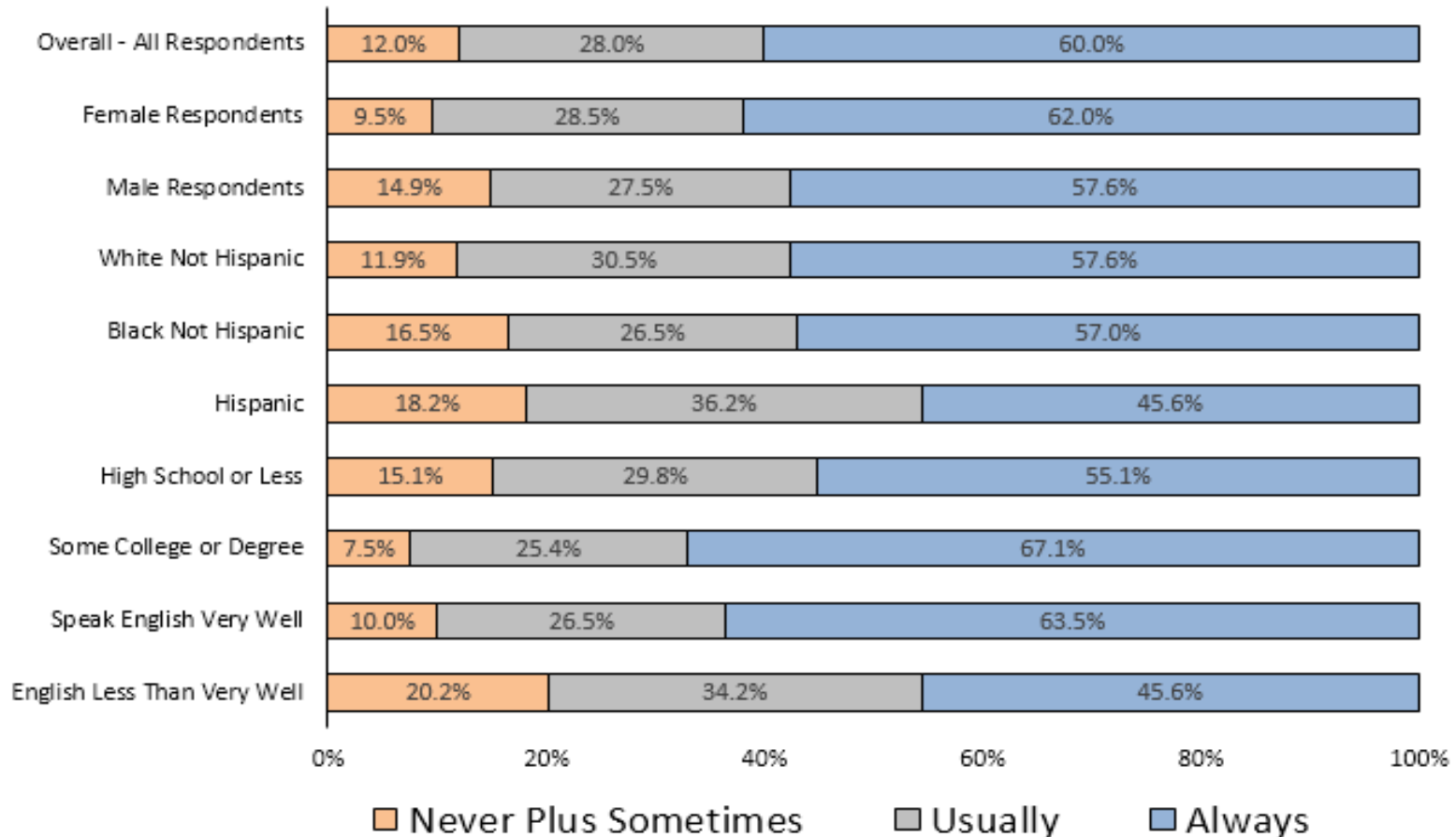
Distribution of HIV Test Status, Age 15-44
By Race Ethnicity - US - 2006-2010



Same data as previous slide but as a stacked bar chart instead, which is possibly easier to read

Stacked Bar Chart – Category-Based – Survey Distribution

How often did you get the information you needed when you called the Department of Social Services?

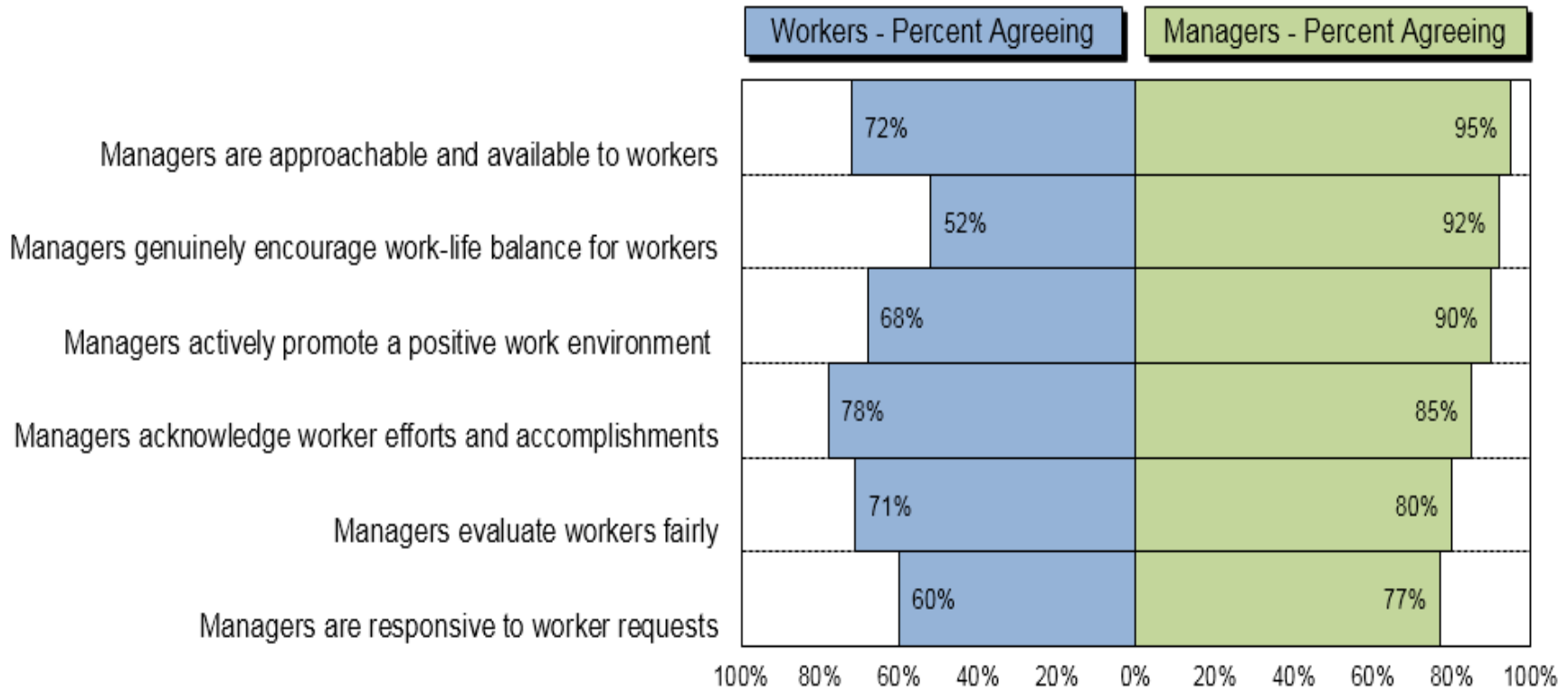


Often useful for displaying survey results by demographics. Identify priority populations. Age 18 and Older. Mock Data

Paired Bar Chart – Survey Response Comparisons

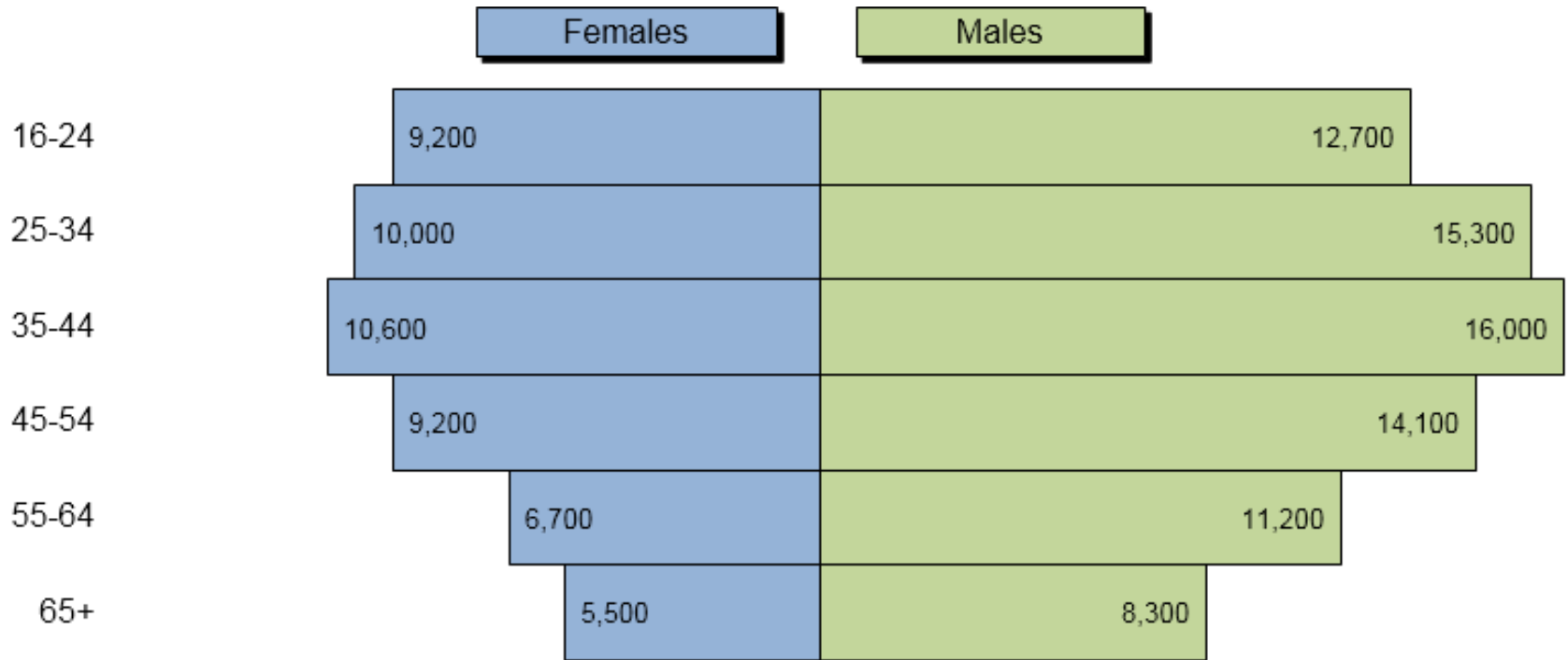
Often used to display the response distribution to common survey questions across two groups of respondents

One of the group series is sorted to highlight the different “shape” of the responses in the second group.



Paired Bar Chart – Numeric Comparisons

Miles Driven Per Year - By Gender and Age Group - State XX



Also used for Population Pyramid charts:
Number of persons in a population by gender and age group

Note: People are less accurate in judging “negative” length – bar magnitude displayed to the left. Histograms or column charts may communicate better.