# Graphs: Taking a Critical Look

Instructions: Examine the graphs below and note what you think may be missing or misleading about each. There will be at least *one issue* with each graph. Identify the issue(s) and then briefly explain for each.

Graph #1
a) Identify what is the primary issue? Summarize in a phrase.

b) Explain briefly.

Length of remarks at the Republican and Democratic National Conventions, as delivered
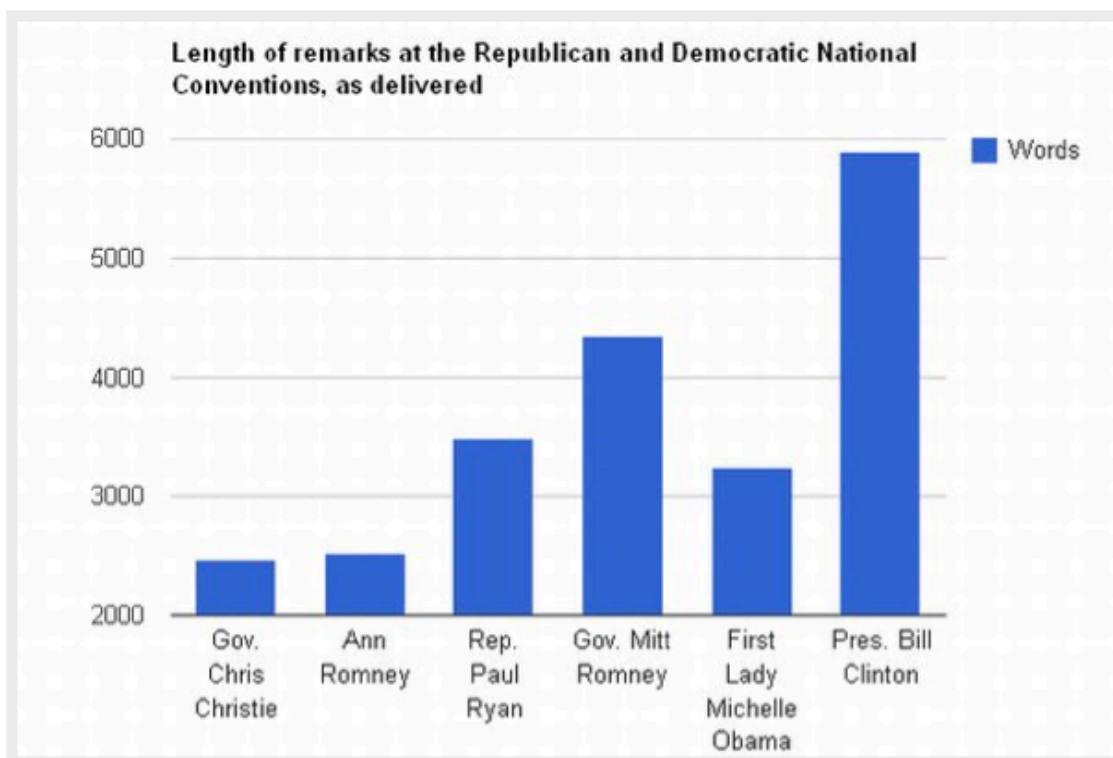
Citation:
Kliff, S. (2012, Sept. 6) "Bill Clinton's speech (in graphs). *Washington Post*. Retrieved from
http://www.washingtonpost.com/blogs/ezra-klein/wp/2012/09/06/bill-clintons-speech-in-graphs/

Commentary

Issue #1 – Bar Charts without Zero [misleading scale]
The graph does not start at 0 on the Y axis. As a result, there is a visual take-away that is false. Though the text does not appear to say anything false, the graphs can be mis-leading and can cause a viewer to draw false conclusions – in this case to exaggerate conclusions. [It changes

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the impression of magnitudes of differences.]

It looks like Pres. Bill Clinton's delivered reports were three times longer than those delivered by First Lady Michelle Obama. In reality, her remarks were approximately 3,100 words while his remarks were about 5,900 words. In reality his speech was closer to twice hers in length rather than three times more. It is a false visual representation.

Graph #2
a) Identify what is the primary issue? Summarize in a phrase.

b) Explain briefly.
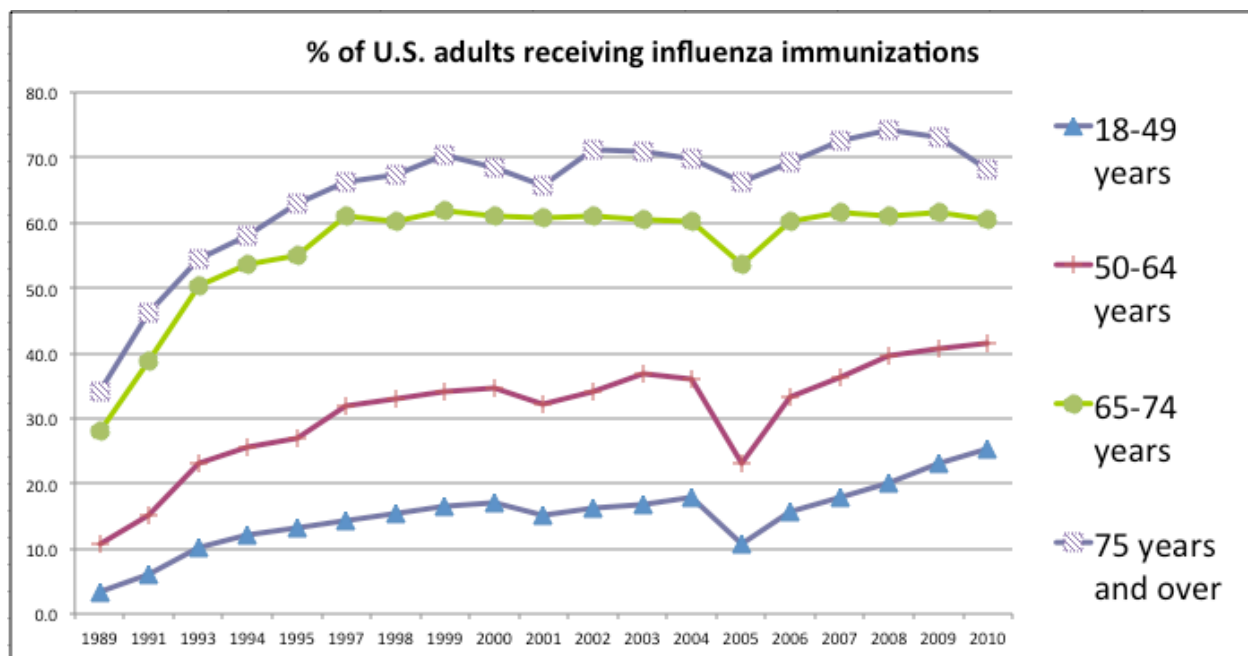
Citation: Centers for Disease Control and Prevention, National Center for Health Statistics. (2011). *Health, United States, 2011* (Trend Table 88) [Excel data file]. Retrieved from http://www.cdc.gov/nchs/hus/contents2011.htm#088

Commentary

Issue #2 – Using a Line Graph with missing years across the X axis [also missing year from which the data is taken in labeling]

For example, in this graph it does not always progress by single years, sometimes there is a gap of two years. If a missing year saw a decrease or a spike this will not be accurately captured. In this case, using a line graph is probably not the best representation or else data from successive years should be used.

Graph #3

a) Identify what is the primary issue? Summarize in a phrase.

b) Explain briefly.

% of Influenza Vaccinations received by 1-4 years olds by Ethnicity, 2009 (U.S.)
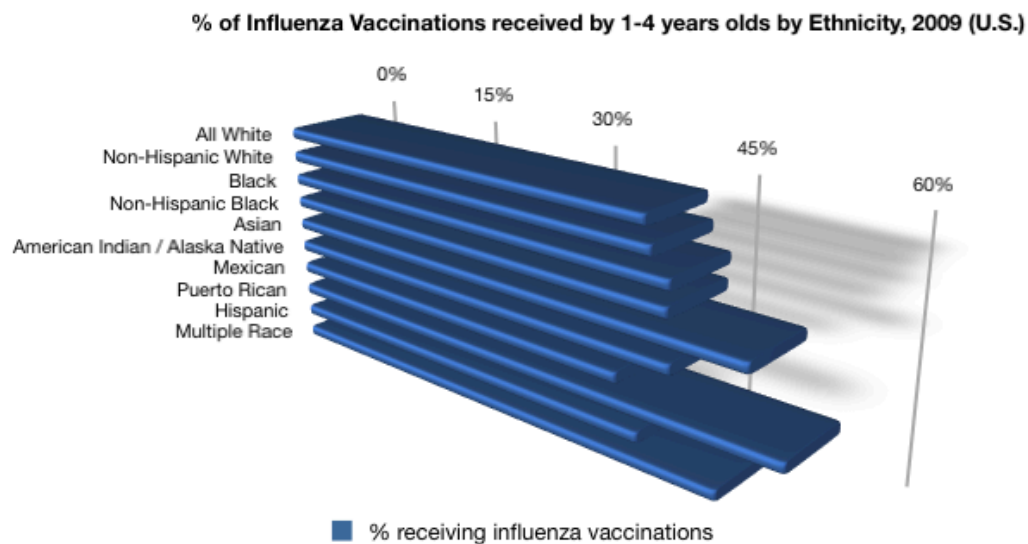
Citation: ProQuest Statistical Datasets. (2011). *Vaccinations: Influenza Vaccinations, 1995-2009* [Data file]. Retrieved from https://web.lexis-nexis.com/statuniv

Commentary

Issue #3 – Using a Bar Graph in 3D format (no labeling of bars) [difficult to read, can skew interpretation]

The following graph is difficult to read due to the 3D formatting. For instance it becomes difficult to see which ethnic group is represented by which bar. Since the graph is 3D it is also difficult to determine what is an accurate reading of the percentage. For instance for Asian and Puerto Rican it is difficult to give an accurate percentage. Asian does not look like 52.6% and Puerto Rican does not look like 56%.

In this case going with a straightforward bar graph (possibly with including the specific percentages) is much easier to read and eliminates inaccuracies which may be easy to make in interpretation.

e.g. easier to read and interpret

% of Influenza Vaccinations received by 1-4 years olds by Ethnicity, 2009 (U.S.)

Ethnicity	% receiving influenza vaccinations
All White	43%
Non-Hispanic White	43.6%
Black	45.4%
Non-Hispanic Black	45.2%
Asian	52.6%
American Indian / Alaska Native	45.5%
Mexican	40.2%
Puerto Rican	56%
Hispanic	42.4%
Multiple Race	50.1%

■ % receiving influenza vaccinations