

## Chart with Point Estimate and Confidence Interval Microsoft Excel

Using a spreadsheet program, the point estimate and confidence interval of findings in rapid surveys can be presented graphically as High-Low-Close charts. The following steps explain how to generate this type of chart using the Microsoft *Excel* program.

### Line Graph

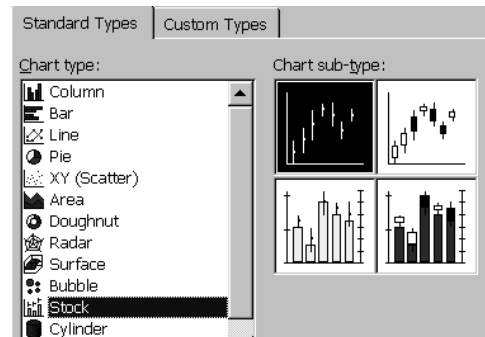
1. If you know *Excel* and are working at home, enter the following information in cells A1 through D3 as shown to the right for the prevalence of smoking among a sample of men in two cities. CL stands for “confidence limits.”

	A	B	C	D
1		Point estimate	Upper CL	Lower CL
2	City A	40	70	20
3	City B	35	75	15
4				

2. Highlight with your cursor all the columns and rows (i.e., from A1 to D3). To do so, move the cursor to cell A1, click and hold down the left mouse button, and move the cursor to cell D1 (see to the right).

	A	B	C	D
1		Point estimate	Upper CL	Lower CL
2	City A	40	70	20
3	City B	35	75	15
4				

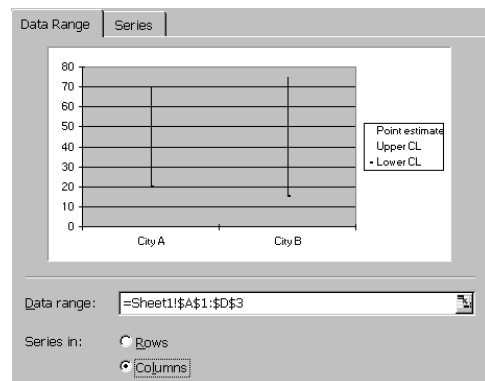
3. At the menu bar at the top, click on *Insert*, followed by *Chart* and *Stock*. Notice that there are several forms of stock graphs. For this example, select the first one as shown.



The program helps you create the specified chart (Microsoft terms graphs or figures “charts”) and does so in four steps. Selecting the stock type was the first step.

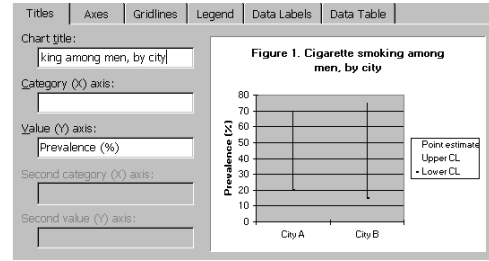
4. For step two, click on *next*, select series in *columns*, and you should see the figure to the right.

For this example, we will remove the dark background, get rid of the grid lines and upper and right side axis lines, leaving only the lines for the y-axis (i.e., vertical) and x-axis (i.e., horizontal). First, however, we will let the program complete the four steps to making a graph. Click *next* to go on to step three.



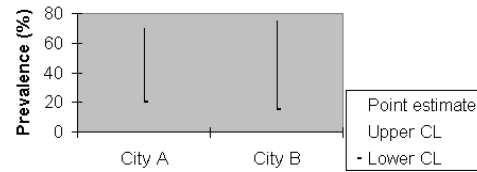
- At step three, enter the chart title (*Figure 1. Cigarette smoking among men, by city*) and the text that labels the y-axis (*Prevalence (%)*). Your efforts should resemble what is shown to the right.

Also at this step you can also get rid of the gridlines by clicking on *gridlines* and removing the “x” next to gridlines.



- The final step asks if the graph should be considered as a separate spreadsheet, or included in the current spreadsheet next to the original data. Decide which you would like and click on *finish*. This ends the preparation stage, leading to the finishing stage.

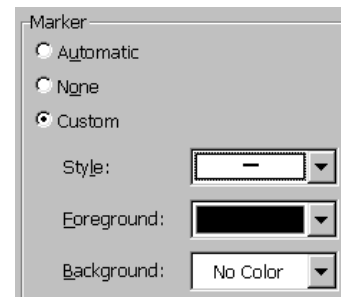
- If this is to be a graph in a report or journal article, the figure title should be moved to the bottom as shown to the right. Figure titles are only left at the top when making slides.



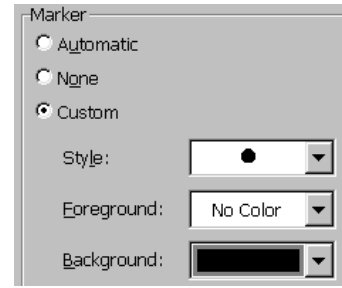
**Figure 1.** Cigarette smoking among men, by city.

- Some final editing touches are still necessary. The background should be made white, the legend text reduced, markers need to be added to the high-low lines, and the legend placement should be moved to the right center.
- To white the background, click on the main body of the chart, then in the menu bar click on *format* and *selected plot area*. In the section to the left under **border** click *none* to remove the upper and right border lines, and in the section to the right under **area**, move the cursor to the white color and click *OK*. Get rid of the tick mark in the middle of the x-axis by clicking on the x-axis, again on **Format** in the menu bar, followed by *none* under **Major tick mark type**. Finally, pull here and there to enlarge the main graph and move the legend to the right center, preferably with the mouse.

- The last step is perhaps the least intuitive, so likely you will need to refer to this section in the future. The confidence intervals should have small horizontal bars at the top and bottom and a point in between. To do this, click first on the top of the bars (series “upper CL”), followed by **Format** in the menu bar, and **Selected Data Series**. In the right section under **Markers**, click on custom, small horizontal bar, and foreground black, as shown to the right. End with *OK*.



- Repeat the process for the lower confidence limits (Series "Lower CL"). Finally click on the point estimate (Series "Point Estimate") [note: do not click on the lines themselves, which also may be highlighted -- the small window above the spreadsheet on the left should not state "high-low lines 1"], and select the small open circle and background black as presented to the right. Click *OK* when done.



- If all went well the graph should appear as shown to the right.

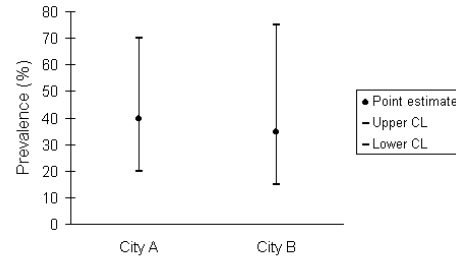


Figure 1. Cigarette smoking among men, by city.

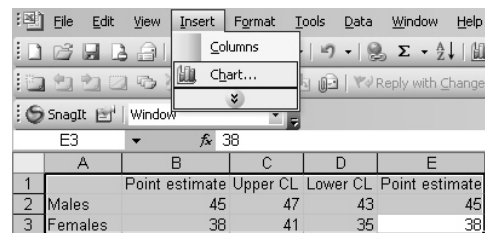
## Bar Graph

Instead of a confidence limits extending above and below a point estimate, you may want to show the data as a bar graph, but with a confidence interval at the top. To create such a graph you will need to trick the *Chart* program in *Excel* which assumes the data are being presented for stocks. As such, the *Chart* program assumes the data are presented as the volume of shares traded, the high value, the low value and the closing value. You will be following this expectation by rearranging your data, and then eliminating elements of the graph once it is created. The specific steps follow.

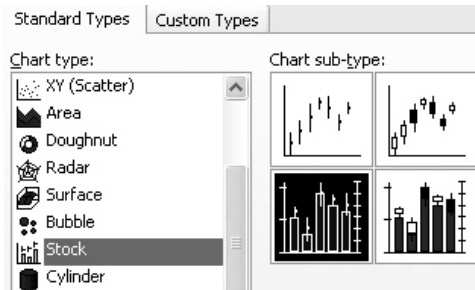
- Enter the data shown at right into the *Excel* spreadsheet. Assume that the data come from a survey which is measuring an existing disease or condition, that is, prevalence rather than incidence.
- Insert a new column in column B and enter the same data in new column B as in old column D, as shown to the right.
- With your cursor, highlight the data and click with your left mouse on "Insert, Chart."

	A	B	C	D
1		Upper CL	Lower CL	Point estimate
2	Males	47	43	45
3	Females	41	35	38

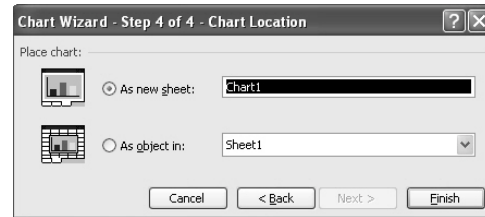
	A	B	C	D	E
1		Point estimate	Upper CL	Lower CL	Point estimate
2	Males	45	47	43	45
3	Females	38	41	35	38



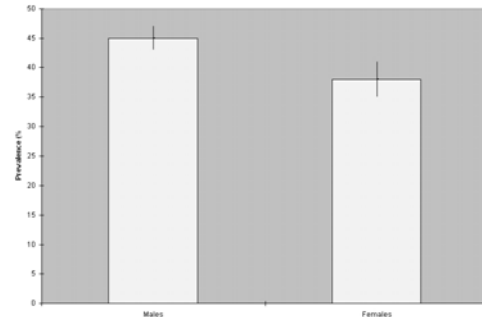
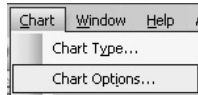
- In the Chart menu, select “Stock” and the bar graph with vertical lines at the top. At the bottom of the Chart Wizard menu, click  and make sure the data series are read as being in columns (i.e.,  Rows  Columns).



- When you again click , proceed to the “Titles” section and enter  in the “Value (Y) axis:” field, then continue to the “Axis” section and removing the check mark  Value (Y) axis. Next in the “Gridlines” section, remove the check mark  Major gridlines. Finally, place the chart as a new sheet, as seen at right, followed by “Finish.”



- At the top of the screen, click on , proceed to “Legend” and remove the legend  Show legend, followed by OK. You should now be viewing your graph.



- Click on the background to remove the shading, click on border to remove the border, click on the bars to darken one of them, change the weight of the pattern of the high-low lines, and finally, click on the text to make it larger. The final graph might look like the following.

