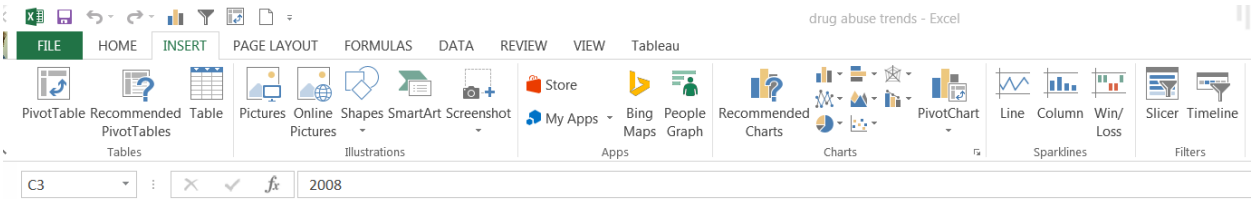
Making charts in Excel:

Use Excel file – “drug abuse trends”

We’ll start with the worksheet called “treatment”
This shows the number of admissions (not necessarily people) to Twin Cities’ treatment programs by year and by the primary substance. This counts admissions because sometimes people will go through more than one treatment episode in a year. The programs don’t track people, they just track the number of admissions. And this is the primary drug—many addicts come to treatment addicted to more than one thing. It leaves out alcohol, which is – by far – the biggest reason for treatment.

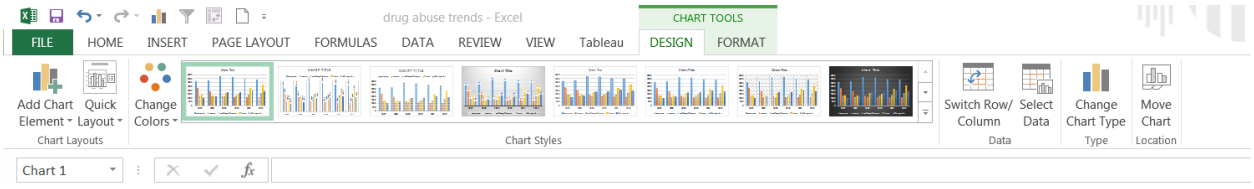
Let’s start by looking at the tools we’ll be using in Excel.

If you click on the Insert menu (or ribbon) at the top of Excel, you’ll see these options:



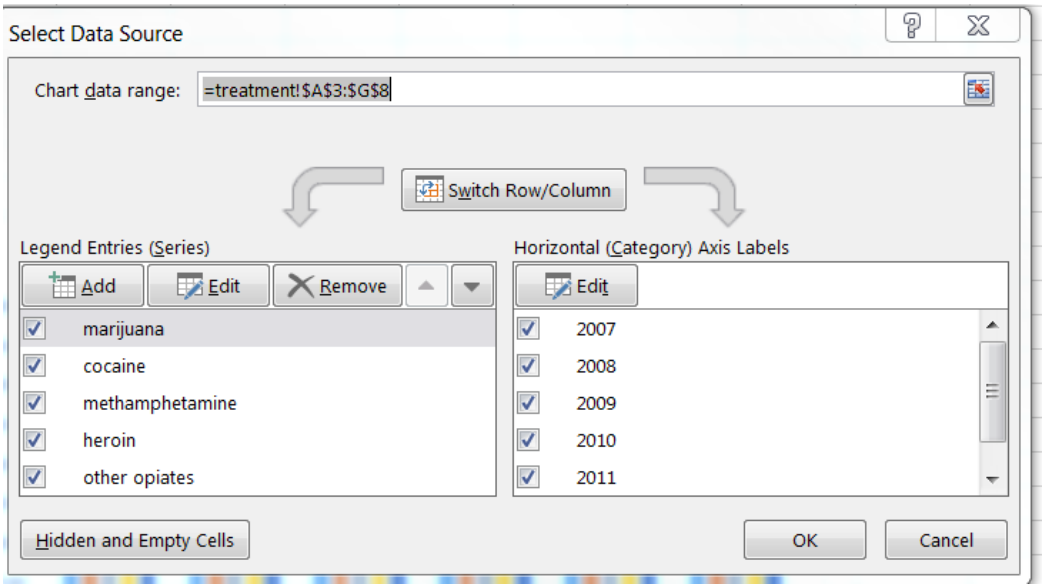
Toward the right side you’ll see the “Charts” section. You can click on Recommended Charts to get Excel to make an educated guess on which type to use, or you can click on one of the images to the right of that for column chart (bars are vertical) or bar chart (bars are horizontal) or line chart (best used for time series), scatterplot, pie charts and others.

Once you create a graphic, two new “Chart Tools” ribbons are added. The main one we’ll use a lot is called “Design”



The buttons we’ll use a lot are:
Switch Row/Column—reverse how the data is presented
Select Data – apply labels
Change Chart Type—change to another chart type (i.e. line chart, bar chart, etc)

Quite possibly one of the most confusing things is how to apply labels to the charts. That's what the "Select Data" button is for. When you click on that it brings up this window:



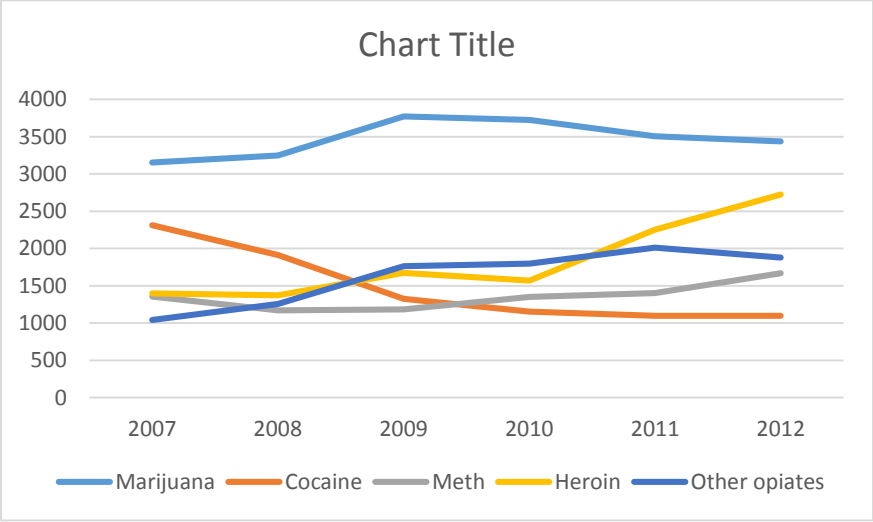
On the left will be where you create the legend. In this case, we're identifying what each color represents for our columns. (this is the vertical axis)

On the right, you set the labels for the horizontal axis (running along the bottom).

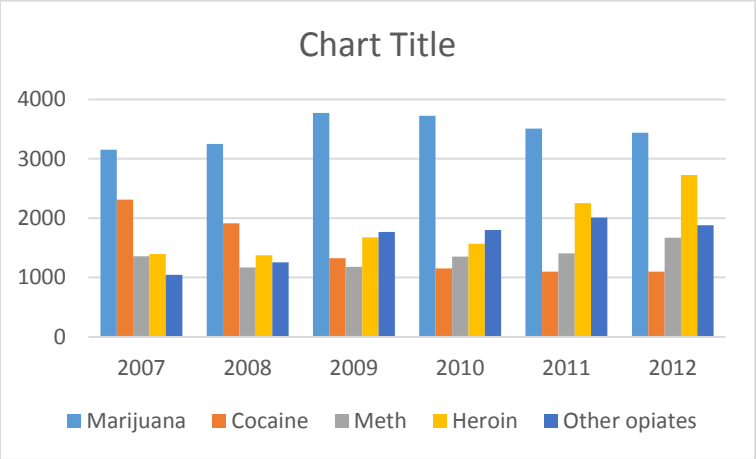
Click the "Edit" button to add the labels.

Now let's start working with the data in our worksheet – called "treatment" – to look at the various ways we can present this data.

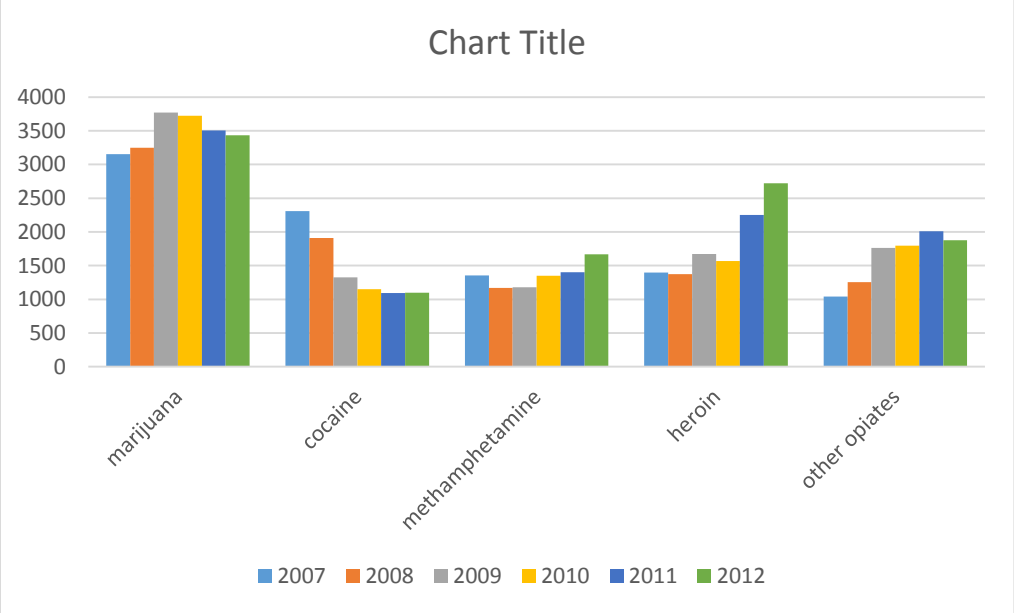
- Line chart. There would be 5 lines, one for each drug, and 6 data points for each line, representing the years. This does a good job of showing change over time. It's harder for user to discern the gap between each drug – but they get a general idea.



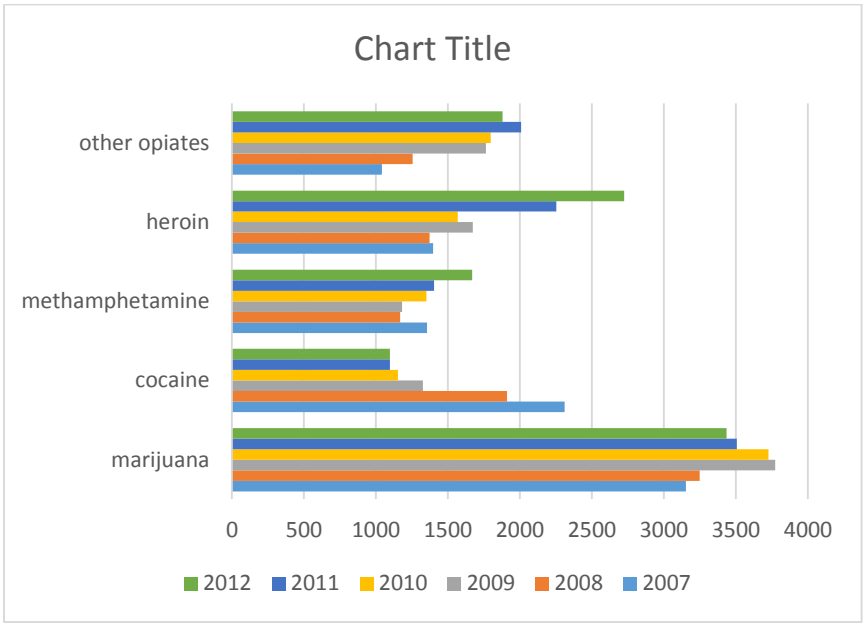
- Column chart. If you keep the years on the horizontal axis and each bar is a different drug, you end up with this – Can you tell which drug has increased most over time?



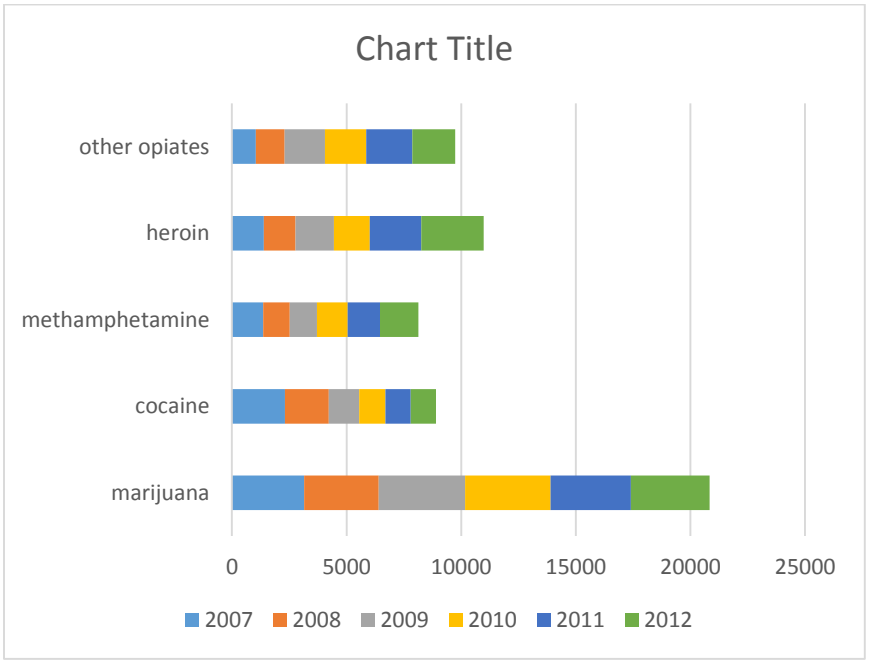
With the column chart still open, go to "Switch Row/Column" – so you now have 5 "groups" instead of 6. Each group represents a drug and the bars represent the years.



- Then go to “Change Chart Type” and switch it to a bar chart like this:

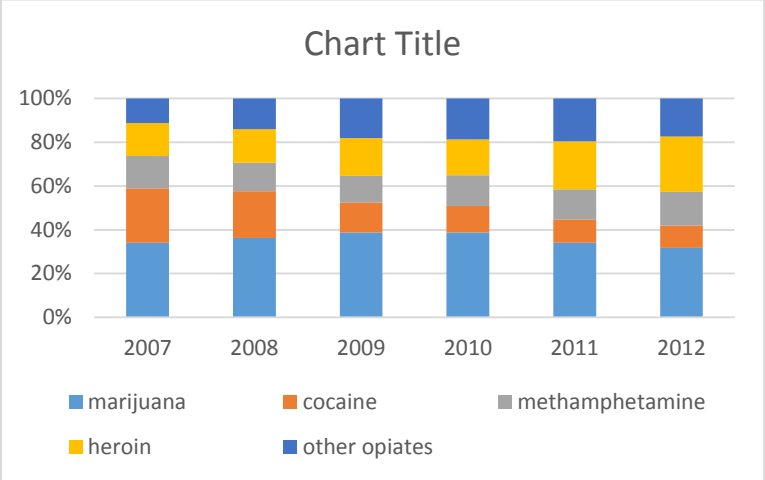


- Then change chart type again and look at a Stacked Bar Chart. This changes the picture altogether. Now each bar represents ALL of the admissions across all of the years. So now it doesn’t show change over time at all.

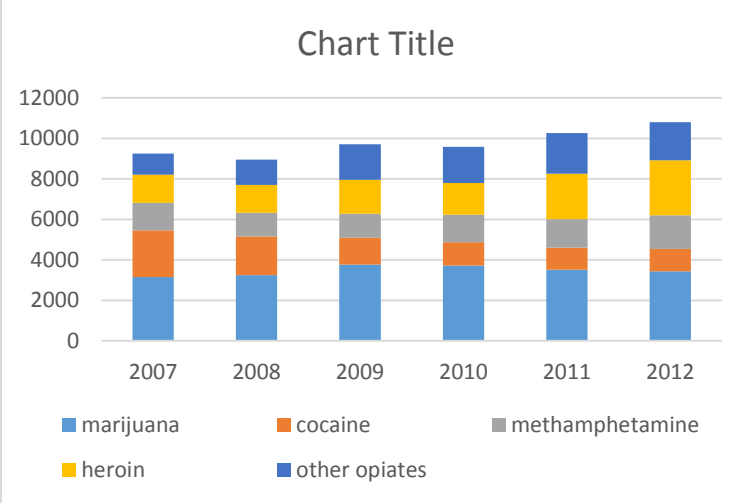


- Now change chart type again to 100% stacked COLUMN chart and, if necessary, switch row/column so that each column represents a year and the colors represent the drugs. This shows the drugs as a percentage of the whole. So you can see that marijuana has held pretty constant over the years, while treatment for cocaine is becoming a smaller portion of the whole

and heroin and other opiates are getting bigger. Note, that the thing you can't see here is whether total treatments have gone up.

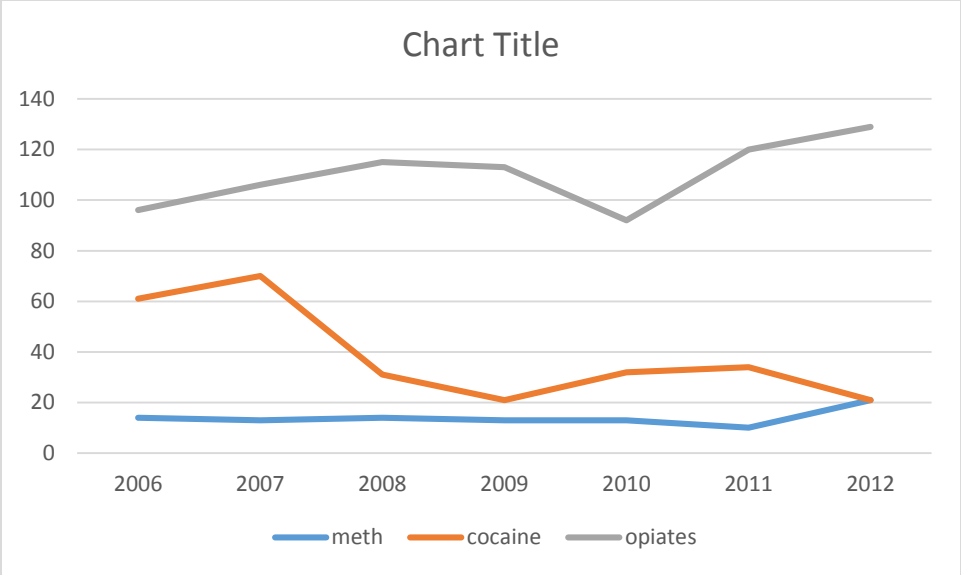


If you change it to a regular stacked column, then you also see how much total treatment admissions have gone up. Notice that it has converted back to number of admissions, not percentages.



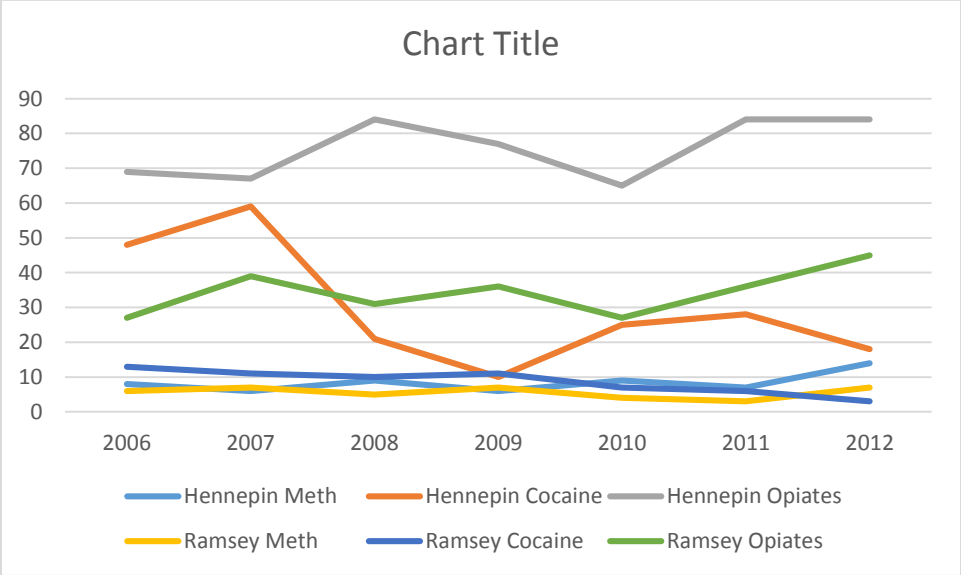
Now, let's work with the data in worksheet called "DEATHS"
This has total overdose deaths by drug, by year for Ramsey and Hennepin counties. Just below, I've added a set of lines for the total of the two counties.

The total data is easy to work with – we can do a line chart or bar chart.



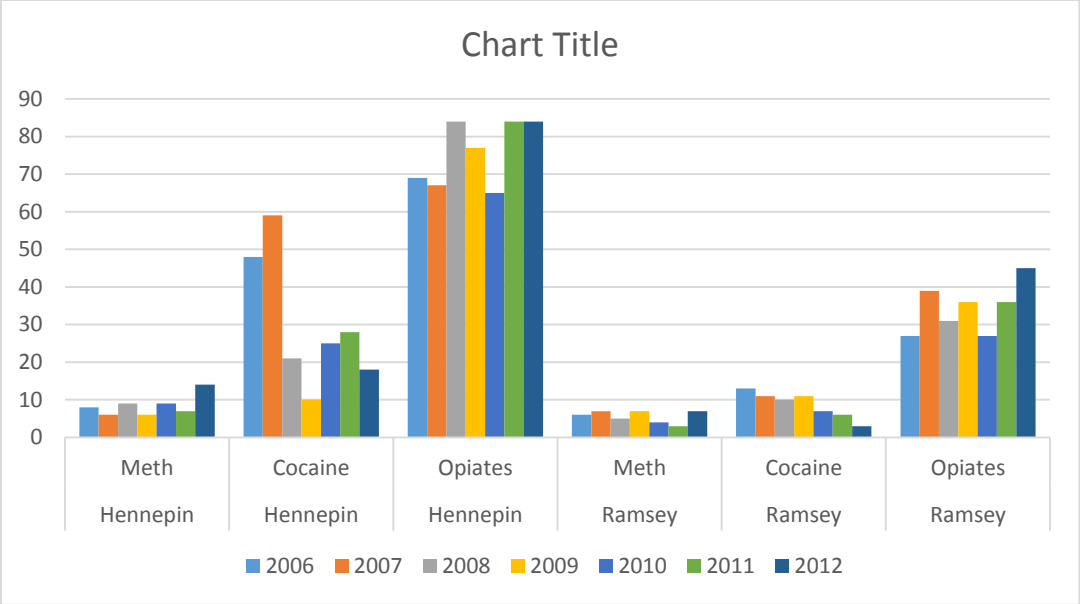
But what if we want to show both Ramsey and Hennepin separately? That gets much harder.

If we take all 6 rows of data – for the two counties – and put that into a chart, it will look something like this:



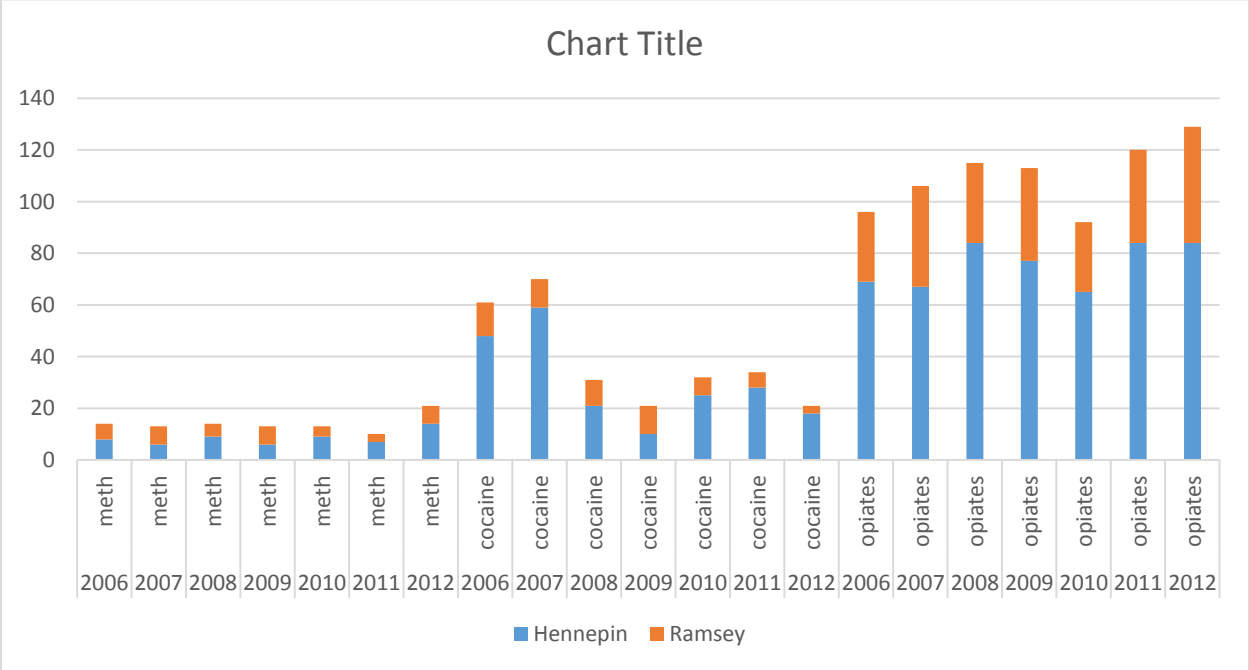
It's pretty confusing trying to figure out that the yellow line and the light blue lines are both Meth and the green and grey lines are both opiates. It requires the reader to spend a lot of time studying it to see what the patterns are.

If you switch it to a column chart and then switch the row/column you would end up with something like this – again, way too confusing:

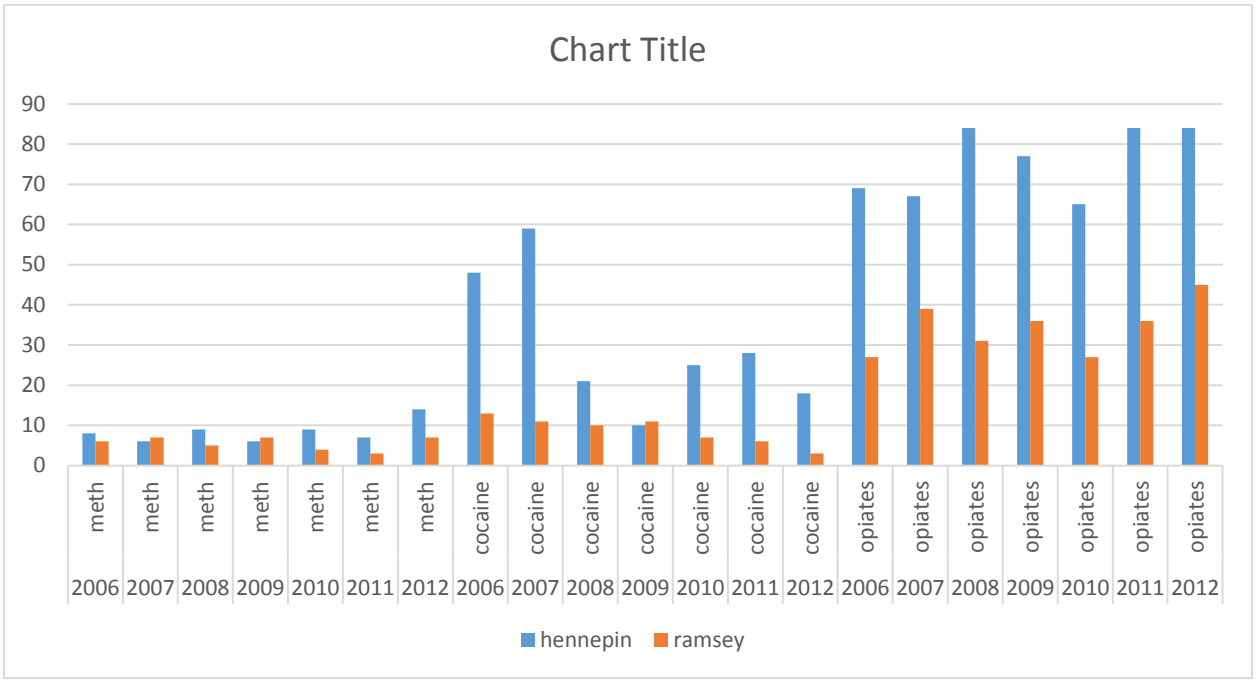


Let's try setting up the data in an entirely different way. The table at the bottom of the page has one row for each year and drug and then just two data columns – one for Hennepin and another for Ramsey.

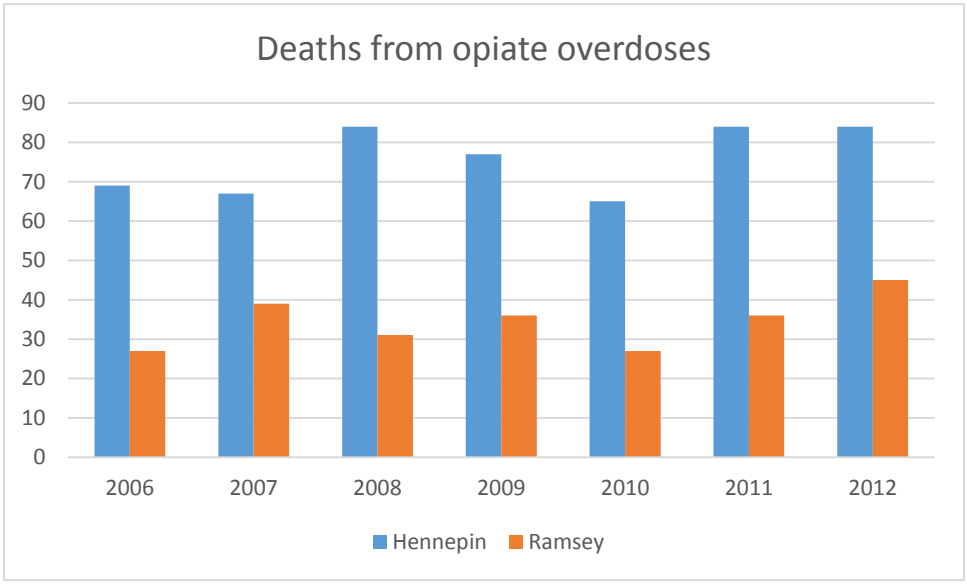
A stacked column chart would get us this:



Or a clustered column chart would get us this:



That's still quite confusing and basically just shows us we have too much information that we're trying to pile into one chart. So then we could think about breaking it up. How about this, using just the opiate deaths from the original table at the top of the worksheet:



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