# Drawing graphs of causal relationships

## Graphs and BHC

Often we see evidence presented in the form of a graph. Good graphs will tell a story of sorts, highlighting relationships or comparisons. *Drawing* graphs will help you think about what how you think things work or what aspects of the relationship(s) you want to illustrate. We'll be doing a lot of graph drawing in this class!

To get us started, I would like you and your group to come up with some *causal* relationship that you find at least moderately interesting. Let me know if you need help with this, but once you have it, write it down here:

Then I would like you to draw graphs (or sets of graphs) that illustrate for each of the following "criteria" of Bradford Hill made up data[1] that would *support* this causal assertion. You can use what ever type of graph(s) you like. You might even try different types of each graph to see which is most compelling. Please label the axes as best you can and be precise, within the limits of your understanding of the system.

*Then*, please draw a second set of graphs, using identical forms and axes, showing what the data would look like if this relationship were *not* causal.

[1] Yes, you can make up data. It's a good thought exercise to think about what sort of data would be helpful for a particular argument.

Strength of association or effect size

Biological gradient (dose-effect)

Consistency (reproducibility)

Coherence

Specificity