Imagine you are writing a proposal for your next research project. You may be applying for a grant, or writing your IRB application. The application form has a blank: “State your research hypotheses here.” What do they want?

The best research hypotheses make predictions about the association between Two Phenomena. (Really, it’s usually more than two).

However, researchers often start with a keen interest in one:

- Maternity Care
- Opioid use
- Physician burnout
- Adolescent health
- Sports medicine

The problem with studying one phenomenon is that it’s not very interesting by itself. So how do I identify a second phenomenon?

1. Group Comparisons

Many research hypotheses make comparisons between 2 or more groups, predicting that Group A has more than Group B, or Group X has a higher mean score or test value than Group Y. In intervention studies, researchers recruit a control group to compare to the experimental group.

- **Hypothesis:** In patients with chronic back pain, those who take daily opioid medications will be more likely to have depression than pain patients who do not use opioids.
- **Hypothesis:** Women will have higher depression scores than men.

2. Change Over Time

This type of hypothesis often looks at an intervention (Phenomenon 1), and predicts it will improve an outcome over time (Phenomenon 2). The intervention might be a QI project to improve a clinical task, an education program to improve knowledge or skills, or a treatment to improve a condition.

3. Correlations

This type of hypothesis is appropriate when both Phenomenon 1 and Phenomenon 2 are measured along a continuous scale. Examples include lab values, age, blood pressure, survey scores, test scores.

- Hypothesis: Physicians’ resilience scores will be negatively correlated with burnout scores.
- Patients’ A1c will be positively correlated with their BMI.