Research Methods presentation

CP + TKP present to Dr. Drake’s class

**Objectives:**

* Prepared to articulate a research to a statistician; equipped to plan an collaborative research project
  + **Preparation for an effective initial meeting**
* Equip students to formulate a strong research question with an appropriate statistical outcome

Mini lesson 1:

* Motivate the need for communication in collaborative research
* Highlight the importance of the initial meeting(s)
* Initial meetings are effective when:
  + Clear research question
    - Quantifiable outcome with clinically/scientifically motivated relationships
    - A expectation about the size of the population of interest
  + When everyone leaves the meeting with action items for each role
  + There is an agreed-upon document that states the objective, data collection methods, and expected outcome (a number, a category, etc)
  + A data source in a location that all collaborators can access
  + A timeline with specific deadlines
* Examples:
  + Strong research questions:
    - “Is there a relationship between a child’s fluoride intake (mg) and the corresponding counts of dental caries?”
    - “Do mice with a specific genetic mutation (e.g. a specific knockout) have a greater weight than control mice?”
    - Among a population of patients living in skilled nursing facilities, was the number of *Streptococcus mutans* colonies different between implant sites and natural teeth?
  + Weak research question:
    - “Is poor oral hygiene related to diet?”
    - “Does non-surgical periodontal treatment improve kidney function?”
    - “In a set of tooth slices, was treatment associated with demineralization?”
    - “We want to see if \_\_ makes a difference in \_\_\_\_, and if \_\_ is related to \_\_\_, controlling for \_\_\_; in the subset of subjects with \_\_\_, we will also test for \_\_\_\_ “
* JamBoard activity to finish up

Mini lesson 2: Relationship advice

* Survey of statistical outcomes; offer a word bank to help students formulate and describe their research questions

Action items:

* TKP: create a SAP template and handout (?) on GitHub
* CP: Email Dr. Drake with proposed outline of two mini-lectures