EPI 536/636
Project 1. Presentation of the Research Topic and Hypothesis

I. Introduction

The required, term-long research project for this class uses National Health and Nutrition Examination Survey (NHANES) data. For your project, you will design and complete an analytic cross-sectional study to investigate a topic relevant to epidemiology and public health. The project should determine the strength of association between an exposure variable and an outcome condition.

Recognize that NHANES is a cross-sectional survey, so the limitations of cross-sectional designs for addressing epidemiologic hypotheses apply. Within the causal framework, you will be estimating prevalence of the outcome condition or variation in the distribution of a continuous outcome variable. You will not be able to compute cumulative incidence ('risk'), incidence rates of the outcome condition, or change in a continuous outcome over time.

Although the purpose of this course is to provide skills in the management, analysis and interpretation of epidemiologic data, and not the public process itself, some students plan to attempt publishing their work later on. If this is a possible eventual goal for you, please be sure that your topic has not already been published using the U.S. NHANES data.

At this point you and your learning partner will have chosen your research topic. You will have developed your working scientific hypothesis regarding a possible causal association between the exposure characteristic and the outcome condition. You will now make a formal written presentation of your topic.

II. Instructions

Introduce the purpose of your study in 1-2 sentences. Present your scientific hypothesis for this analytic cross-sectional study in a complete sentence. Be sure to include the direction of the association you hypothesize. In your statement, refer specifically to the study population to which you expect to make inference (Among children 14-17 years of age, we hypothesize ….). Then be sure to state the comparison correctly, by defining the exposed groups and the referent group. If you also hypothesize effect measure modification such that the magnitude of association between the exposure characteristic and outcome condition may differ within strata of a third factor, explicitly describe this hypothesis. State in which strata you hypothesize that the association will be stronger. (2 points)

Prepare a simple directed acyclic graph (DAG) and include it as Figure 1. Provide a short (1-2 sentences) explanation of how your figure supports the rationale for your hypothesis (hypotheses). Try using dagitty if you'd like! (1 point)

In 2-3 short paragraphs, support the rationale for your research topic and scientific hypothesis by addressing the following.

(a) Burden of disease measure(s) for the population of interest (3 points)
(b) Biological and/or social basis of the association (3 points)
(c) The potential impact on public health that you expect will derive from addressing this hypothesis (1 point)

Approximate length: 500 words and 3-5 references. As you prepare your submission, consult example analysis plans, example NHANES papers (how to frame a rationale), instructors, TAs and classmates for feedback and refinement.

Each individual in the pair submits a copy of the written research question assignment created by the group. Name your file according to the naming convention and submit.

Be prepared to discuss your assignment in small groups on the in class the afternoon of the day it is due. Use the discussion to revise your work in preparation for the final Analysis Plan submission (P.2). Additionally, be sure to incorporate feedback into the Background and Rationale section of your final report (P.7).