

**Geography 480**  
**Environmental Geography, Climate, and Health**  
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**Spring, 2012**

The purpose of this assignment is for you to see, in the research literature, how the different types of epidemiologic study designs are applied to diseases that have environmental causes, at least in part. Remember, of course, that many diseases are associated with susceptibility genes and genetic loci. However, the genetic epidemiology is beyond the scope of this assignment, unless you wish to address it.

Remember, this assignment may be difficult, since you will want to find the original research papers, and the research papers should be understandable to you. Thus, I recommend that you start on this project as soon as possible.

The assignment is to choose a disease that may have an environmental cause, and to examine the research literature for risk factors or causal factors that have been identified based upon original (primary) research. Thus:

- 1) Choose the disease. I recommend that the disease be a fairly common disease, because you will find more research on it, and it will have greater public health importance. “Common” is open to interpretation—asthma is common, but so is prostate cancer, lung cancer, and so on. The point is that you probably should stay away from a very rare disease.
- 2) Using available research engines (I recommend PubMed and Web of Science, both available through the UW Libraries homepage), select three research papers such that each paper represents a different study design (i.e., case-control, cohort, ecological/geographic, etc). Download the paper or copy it from a bound journal. You will be submitting the papers that you have chosen along with your analysis. For your information, the most commonly used engine in medical and public health research worldwide is PubMed, which is an engine that connects to the National Library of Medicine—part of the National Institutes of Health.
- 3) You need not understand the statistical analysis, but only the design—and, of course, the introduction, conclusion, abstract, methods, etc.
- 4) For each paper, answer the following questions:
  - a. What is the research question?
  - b. What are the hypotheses?
  - c. What is the research design? Why did the investigators choose this research design? What are the strengths and weaknesses of this design in answering the research question?
  - d. What are the data sources?
  - e. Do the authors consider confounders? If so, are there other confounders that they should have considered? If they have not considered confounders, what confounders should they have considered?
- 5) What risk factors or causal factors are identified through the research? Is the hypothesis verified or refuted?

- 6) What are the strengths of this study? What are the weaknesses?
- 7) Do the conclusions of the different studies contradict one another? Why? Or are the topics examining different phenomena?
- 8) Which study is strongest? Why?
- 9) Compare the studies.

Your written analysis should address these topics, and should also have an introduction and conclusion. The actual articles should be stapled to the back of your own written work.

The entire paper should be *approximately* 5-6 pages long, double-spaced, 12 point font. Remember, this sort of writing is brief and to the point—and your paper should be as well.

You are free to consult any outside sources. You may wish to do this to gain some background in the disease. WebMD is a fine lay source that has been assessed for accuracy. If you go to the UW Healthlinks page, you can also access some of the major medical references, including major textbooks. “Up to Date” is a very useful source—you can read succinct summaries of diseases, and there are references for further knowledge.

Quality of writing counts in my assessment of your paper. Turn on your grammar and spell checkers! While there may be correct and incorrect answers, the quality and depth of your arguments, and your use of evidence will both count a great deal.

This paper is due in class on Tuesday, April 24<sup>th</sup>.