

## Chapter 4 Nutritional Epidemiology

### **Student assignments and activities designed to enhance learning and stimulate critical thinking.**

1. Search the Internet for job descriptions of a nutritional epidemiologist. What skills are necessary to work in this field? In what types of settings are nutritional epidemiologists employed? Describe at least three topics of current interest in nutritional epidemiology.
  
2. Your friend wants to know if she can safely consume caffeine during pregnancy. Using PubMed (<http://www.ncbi.nlm.nih.gov/pubmed/>), find three epidemiological studies in humans that will help you answer your friend's question. Then, answer the following for each study:
  - A. What were the objectives of the study?
  - B. What type of study design was conducted? Discuss the strengths and weaknesses of this type of study design.
  - C. Describe the source of the study population, process of sample selection, and sample size.
  - D. What type(s) of dietary assessment method was used in this study? Was this method the most appropriate choice? Why or why not?
  - E. What were the major results of the study?
  - F. What study limitations were addressed in the discussion section? What other limitations of the study were not mentioned?
  - G. What were the authors' main conclusions?
  - H. What do you conclude?

Based on your review of these three studies, what will you tell your friend?

3. Using PubMed (<http://www.ncbi.nlm.nih.gov/pubmed/>), find a nutrition-related example of five of the following epidemiological study designs. Articles must be published within the past five years.

- |                              |  |
|------------------------------|--|
| • Ecological study           | • Prospective cohort study             |
| • Cross-sectional study      | • Meta-analysis                        |
| • Case-control study         | • Nonrandom controlled clinical trial  |
| • Retrospective cohort study | • Randomized controlled clinical trial |

For each study, answer the following questions:

- A. What were the objectives of the study?
- B. What type of study design was conducted? Discuss the strengths and weaknesses of this type of study design.
- C. Describe the source of the study population, process of sample selection, and sample size.
- D. What type(s) of dietary assessment method was used in this study? Was this method the most appropriate choice? Why or why not?

- E. What were the major results of the study?
- F. What study limitations were addressed in the discussion section? What other limitations of the study were not mentioned?
- G. What were the authors' main conclusions?
- H. What do you conclude?

4. Review the newsletters detailing the progress of the *Nurses Health Studies* at <http://www.channing.harvard.edu/nhs/history/index.shtml>. Describe five of the most significant findings from these studies. Discuss the strengths and weaknesses of these studies.

5. Your supervisor has asked you to conduct a 12-month cohort study of infant feeding among first-time Chinese-American mothers. The purpose of this study is to determine how long mothers breastfeed their infants, at what age infants are first given solid foods, and the food preparation techniques mothers use to prepare food for their infants.

- A. Develop 10 interview questions you would ask each study participant. State your reasons for asking each question. Use the *Health Professional Follow-up Study* from the *Harvard School of Public Health* ([http://www.hsph.harvard.edu/hpfs/hpfs\\_qx.htm](http://www.hsph.harvard.edu/hpfs/hpfs_qx.htm)) as a guide.
- B. Discuss how you would conduct your study. Include the following:
  - 1) What criteria would you use to include/exclude potential participants? How many participants would you recruit?
  - 2) Describe where, when, and how the interviews would take place.
  - 3) Develop a timeframe for the study.
  - 4) List the advantages and disadvantages of using a cohort study design.
- C. Explain how another study design could be used to answer the same research questions and discuss the advantages and disadvantages of using this design.
- D. Discuss the strengths and weaknesses of collaborating with universities, hospitals, health clinics, non-profit organizations, and/or a health department to conduct this study.
- E. Sometimes additional funding is needed to complete a study, so researchers will apply for grant money. Search the federal government grants at <http://www.grants.gov> and *The Foundation Center* at <http://fdncenter.org/funders/>. List potential grant sources for your research study. Explain why you chose these grants.

6. Download the sample of the National Cancer Institute's Diet History Questionnaire at <http://riskfactor.cancer.gov/DHQ/forms/files/shared/dhq1.2007.sample.pdf>. After completing the questionnaire, describe your experience. Include in your discussion answers to the following:

- A. What questions are difficult to understand? Why? How could the questions have been reworded to make them clearer?
- B. What, if any, attempts were made to reflect seasonal changes in dietary habits? Why is this important?

- C. Are there any foods listed in the questionnaire that seem uncommon to you? Which ones? Why do you think these foods were included?
- D. Were there any foods that you feel are missing from the questionnaire? What are they and why do you think they were excluded?
- E. How accurate do you think your recall was? How does this affect the results of the questionnaire?

7. Describe how the complexity of our food intake poses challenges in studying the relationship between diet and disease.

8. Does the daily variation in an individual's dietary intake have important implications for population-based nutritional epidemiologic studies? Explain your answer.