Core Principles of Epidemiology

Revision and Quiz

Quiz

Idea of the quiz

For each question

1. **Individually :** ~2 mins to write a brief answer
2. **In pairs :** ~5 mins to discuss and deepen answer
3. **As a class :** ~5 mins to discuss together + follow-up questions

Question 1

I want to estimate a **risk ratio** for smoking → hypertension relationship

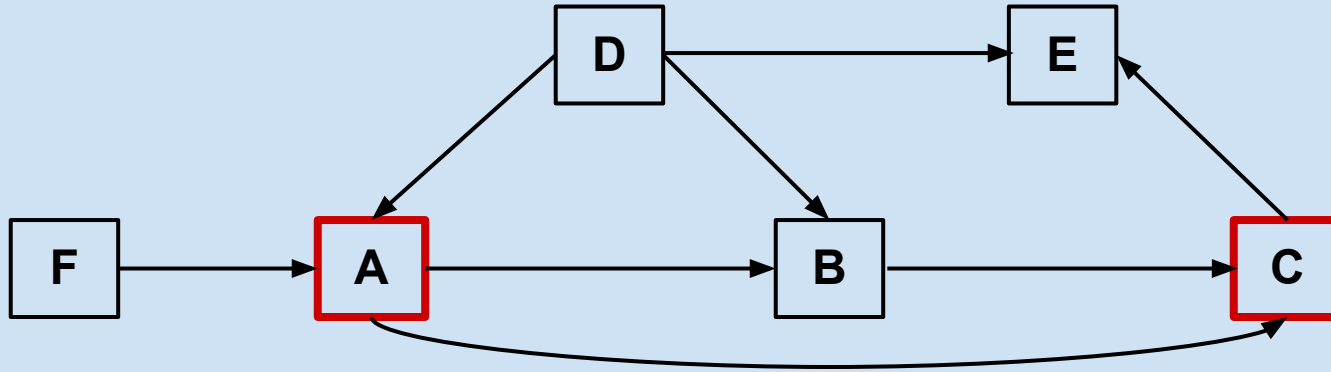Which is the best study design : **cohort or case-control**? Why?

Name some problems I might encounter with this design and how I might overcome them.

Question 2

A diagnostic test has 95% sensitivity and 90% specificity for a disease with 1% prevalence.

I screen 10,000 people using this test. How likely is it that a person who receives a positive test truly has the disease?

Question 3

I am interested in the causal effect of A on C.

Name the components of this DAG and its implicit assumptions.

Write a minimally sufficient adjustment set. Is it possible to estimate the causal effect of A on C if the variable(s) in this set are unmeasured?

Question 4

I do a prospective cohort study for 1 year in a factory to assess the association between an occupational exposure and a disease.

The 200 factory floor workers are classified as exposed, and the 300 office workers are classified as unexposed. During the year, I record 30 new cases in the exposed and 15 in the unexposed.

Fill in the table, calculate and interpret the risk ratio, risk difference, and odds ratio.

	Exposed	Unexposed	Total
Disease			
No disease			
Total			

Question 5

A cross-sectional study reports lower prevalence of depression among people who exercise.

List some reasons this association might not be causal. For each, suggest a design or analytical choice to address this.

Question 6

I conduct a randomised trial to evaluate the efficacy of a new vaccine in its target (at-risk) population by comparing it to a placebo solution.

Name some advantages and disadvantages of this design to address the clinical question.

Question 7

I am doing a prospective study on coronary heart disease. I assess an exposure, smoking status, using a self-reported survey.

Discuss the impacts of misclassification in this context.

Next class – 12/09

Read/take notes on 2 articles :

Chronic obstructive pulmonary disease as a cardiovascular risk factor. Results of a case–control study (CONSISTE study) – https://www.dovepress.com/article/download/11158

Participation in Special Olympics reduces the rate for developing diabetes in adults with intellectual and developmental disabilities – https://onlinelibrary.wiley.com/doi/10.1111/dme.15393