

Epidemiology Midterm, Fall '01

Chapters covered on this exam: Preface, Chapter 1, Chapter 2, Chapter 3, Chapter 6 modified to conform to “risk/rate” terminology.

INSTRUCTIONS (Please read carefully!):

- Please write your name in the usual location (back of last page).
- This exam is a combination of short answer (**S/A**) problems, multiple-choice (**M/C**) questions, and calculation problems.
- Answer directly on the page.
- On multiple-choice (M/C) problems, select the **SINGLE** best response.
- On calculation problems, show all work *and please leave final answers in fractional form!*
- Please write neatly. (I cannot give credit for that which I cannot read.)

CHAPTER 6 (PREVALENCE AND INCIDENCE) PROBLEMS

1. Schematic of 8 individuals followed over a year.

x = period of illness
- = period of health

	Jan1		Dec31
A			
B	xxxxxxxxx		
C			xxxxxxx
D			
E	xxxxxx		xxxxxx
F			
G	xxxxxxxxx		
H			xxxxxxx

(a) What is the prevalence of disease on Jan 1? [2 pts]

(b) What is the prevalence of disease on Dec 31? [2 pts]

(c) What is the period prevalence for Jan 1 to Dec 31? [2 pts]

(d) What is the risk (cumulative incidence) of disease over Jan 1 to Dec 31? [2 pts]

2. A cohort of one-thousand susceptible people followed for two years shows 200 disease onsets.
 - (a) What is the risk (cumulative incidence) of disease over the two-year period? [2 pts]
 - (b) What is the rate (incidence density) of disease? [2 pts]
3. Over a year, a population averaging 50,000 people has 500 live births, 80 deaths in children less than 1, and 600 deaths overall.
 - (a) What is the birth rate in the population? [2 pts]
 - (b) What is the infant mortality rate? [2 pts]
 - (c) What is the overall mortality rate? [2 pts]
4. **(M/C)** What will happen to the prevalence of a disease if the average duration of the disease increases? [1 pt]
 - (a) It will increase
 - (b) It will decrease
 - (c) It will remain the same
5. **(M/C)** What will happen to the incidence of a disease if the average duration of the disease increases? [1 pt]
 - (a) It will increase
 - (b) It will decrease
 - (c) It will remain the same
6. **(S/A)** A non-epidemiologist says “the prevalence of disease in the community is 100 cases.” What is wrong with this statement? [1 pt]

CHAPTER 3 (INFECTIOUS DISEASE PROCESS) PROBLEMS

7. **(M/C)** This type of infectious agent lacks genetic material. It is sometimes referred to as an infectious protein.

- (a) Fungi and yeast (b) Rickettsia (c) Virus (d) Prion

8. **(M/C)** The agent of Valley Fever (coccidiomycosis) is propagated in the soil. Therefore, its reservoir is a(n):

- (a) Case (b) Carrier (c) Animal (d) Inanimate object

9. **(S/A)** What is the difference between “infection” and an “infectious disease”? [1 pt]

10. **(S/A)** List two different portals of infection: [2 pts]

11. **(S/A)** What’s the difference between a vehicle transmitter and vector transmitter? [1 pt]

12. **(S/A)** List two examples of physical barriers to infection. [2 pts]

13. **(S/A)** What is the difference between a modified-live vaccine and killed vaccine? [1 pt]

14. **(M/C)** What do B lymphocytes produce? [1 pt]

- (a) Cytokines (b) Phagocytic cells (c) Antibodies (d) Killer cells

CHAPTER 2 (CONCEPTS OF DISEASE) PROBLEMS

15. (M/C) In the esophageal cancer assignment, you described cancer rates by age. What type of variable is “age”?
- (a) Person (b) Place (c) Time
16. (M/C) What type of variable is “year”? [1 pt]
- (a) Person (b) Place (c) Time
17. (M/C) This stage of disease coincides with the incubation period or latent period.
- (a) Susceptibility (b) Subclinical (c) Clinical (d) Recovery, disability, or death
18. (M/C) This stage of disease is associated with tertiary prevention.
- (a) Susceptibility (b) Subclinical (c) Clinical (d) Recovery, disability, or death
19. (M/C) This type of prevention is intended to prevent new occurrences of the disease.
- (a) Primary (b) Secondary (c) Tertiary
20. (M/C) Match the term with its definition.

Terms: (I) spectrum of illness (II) iceberg phenomenon (III) agent
(IV) host factor (V) environmental factor (VI) cause

- _____ A biological, physical, or chemical factors that is essential for the disease to occur.
- _____ An intrinsic (physiologic, behavioral, or immunologic) trait that influence exposure, susceptibility, or responses to a causal factor.
- _____ Suggests that the disease may have a broad range of manifestations and severities.
- _____ Describes the situation in which a large percentage of the disease is subclinical or unreported for some other reason.
- _____ Any antecedent event, condition, or factor that has as effect on disease occurrence; a condition that increases the likelihood of disease, *ceteris parabus*.
- _____ An extrinsic (physical, biological, social, or cultural) factor that influence the level of the agent, likelihood of exposure, or susceptibility to disease once exposed; external contributors to disease other than the agent.

CHAPTER 1 (INTRODUCTORY) PROBLEMS

21. **(M/C)** Which of the following statements best fits the definition of epidemiology used in this course?
- (a) A form of social and political activism that has as its goal the promotion of health and prevention of disease.
 - (b) The study of the distribution and determinants of disease in populations.
 - (c) The study of the measures used to treat illness.
 - (d) The science dealing with the physiological and mental effects ascribed to diseases and disease-related conditions.
22. **(M/C)** Which of the following statements best fits the definition of public health used in this course?
- (a) A form of social and political activism that has as its goal the promotion of health and prevention of disease.
 - (b) The study of the distribution and determinants of disease in populations.
 - (c) The study of the measures used to treat illness.
 - (d) The science dealing with the physiological and mental effects ascribed to diseases and disease-related conditions.
23. **(M/C)** If a disease simultaneously affects people of several countries or of more than one continent, and affects them in numbers clearly in excess of normalcy, then the disease is said to be:
- (a) endemic (b) epidemic (c) pandemic (d) epizootic
24. **(M/C)** The time between exposure to an agent and the first symptoms of disease is known as the:
- (a) incubation period (b) latent period (c) subclinical period (d) all of the "above"
25. **(M/C)** Match the term with its definition.
- | | | | |
|--------|-------------|--|-----------------|
| Terms: | (I) disease | (II) sickness | (III) mortality |
| _____ | | Related to death. | |
| _____ | | A physiological or psychological dysfunction. | |
| _____ | | State of dysfunction of social role (e.g., inability to go to work). | |
26. **(M/C)** Match the epidemiologist with their brief description
- | | | | | |
|------------------|---------------|--|-------------------------|-------------------|
| Epidemiologists: | (I) John Snow | (II) Emile Durkheim | (III) Joseph Goldberger | (IV) Richard Doll |
| _____ | | Studied smoking and cancer in the mid 20th century | | |
| _____ | | Studied suicide at turn of prior century. | | |
| _____ | | Removed the handle from the Broad Street pump. | | |
| _____ | | Studied the nutritional causes of pellagra. | | |