

3. *Sensitivity & specificity.* A screening test for a preclinical stage of a cancer is known to have a sensitivity of .90 (i.e., 90%) and a specificity of .96 (i.e., 96%). The prevalence of this cancer in its preclinical phase in the population is 1 per 1000 (.001). Assume we use this test in one-hundred thousand (100,000) people. Based on this information, determine:

- a. the total number with disease = _____
- b. the number of true positives = _____
- c. the number of true negatives = _____
- d. the number of false negatives = _____
- e. the number of false positives = _____
- f. the total number of test positives = _____

Comment: If you wish, you can set up the data in a 2-by-2 table to help with your calculations. (Table will not be graded.)

5. *Age-adjustment.* Age-stratified data for two populations are:

Population A			Population B		
Age Group	Cases	Persons	Age Group	Cases	Persons
Young	198	99,000	Young	1	1,000
Old	5	1,000	Old	990	99,000
All	203	100,000	All	991	100,000

- a. *Which* of the populations, A or B, has the higher crude death rate? *By how much?* (Look at the data.)

- b. *In the younger age group*, which population, A or B, has the higher age-specific death rates. *By how much?* (You will need to complete elementary calculations *before* answering this question.)

- c. *In the older age group*, which population, A or B, has the higher age-specific death rates. *By how much?* (Some calculation required.)

- d. Question deleted . . .

Multiple Choice and Matching

1. Match the term with its brief description.

- ___ public health
- ___ epidemiology
- ___ pathology
- ___ morbidity

- a. study of health and disease on a population basis
- b. organized activity to prevent disease and promote health
- c. study of disease
- d. related to disease or disability

2. List the causes of death in correct rank order *as of 1990* (p. 8).

- ___ first
- ___ second
- ___ third
- ___ fourth

- a. cancer
- b. cardiovascular
- c. unintentional injuries
- d. chronic lung diseases (e.g. COPD)

3. Morbidity and mortality patterns associated with the *epidemiologic transition* of the 20th century are characterized a switch from _____ cause to _____ cause.

- a. acute infectious . . . chronic infectious
- b. acute non-infectious . . . chronic infectious
- c. acute infectious . . . chronic non-infectious
- d. chronic infectious . . . chronic non-infectious

4. What does it mean when an epidemiologist says there is "interdependence" between factors?

- a. there is a spectrum of effects
- b. multiple factors act together to result in an effect
- c. there is a long induction period
- d. much of the disease goes unnoticed or unreported

5. Match the British epidemiologist with their brief bio.

- ___ William Farr
- ___ John Snow
- ___ Sir Richard Doll
- ___ John Graunt

a. Victorian (19th century) surgeon / anesthesiologist who became quintessential epidemiologic hero; known for innovative theory about waterborne theory of cholera

b. First Registrar General for national vital statistics system; miasmaist who was late to adopt contagion theory

c. 20th century Brit known for studies about smoking and health

d. 17th century haberdasher; first to use morbidity and mortality data for demographic and epidemiologic purposes

6. Match the goal of each type of prevention

- ___ primary
- ___ secondary
- ___ tertiary

- a. delay onset or reduce severity
- b. slow progression or prevent sequelae
- c. prevent new occurrences

7. This marks the *beginning* of the *subclinical* stage of disease.

- a. exposure to the ultimate agent
- b. first symptoms
- c. diagnosis
- d. resolution of symptoms

8. How long is the incubation period for HIV and AIDS?

- a. a number of hours
- b. a number of days
- c. a number of weeks
- d. a number of years

9. Put the stages in the natural history of disease in correct chronological order

- ___ first
- ___ second
- ___ third
- ___ fourth

- a. subclinical
- b. susceptibility
- c. clinical
- d. recovery, disability, or death

10. Match the term with its brief description.

- ___ iceberg phenomenon
- ___ spectrum of disease
- ___ induction
- ___ latency

- a. broad range of manifestations and severities
- b. health problem largely undetected
- c. time between causal action and initiation
- d. time between disease initiation and detection

11. Causal factor rarely (if ever) acts alone.

- a. True
- b. False

12. The incidence of a disease depends on the prevalence of complementary factors in the population.

- a. True
- b. False

13. Select the most accurate statement.

- a. Phenylketonuria is a genetic disease caused by an inborn error in metabolism.
- b. Phenylketonuria is an environmental disease caused by the consumption of phenylketones.
- c. both A & B
- d. neither A nor B

14. Smoking is a *necessary* factor in the cause of lung cancer.

- a. True
- b. False

15. Match the term with its brief descriptor.

- ___ Agent
- ___ Host factor
- ___ Environmental factor
- ___ Epidemiologic homeostasis

- a. external conditions other than the agent
- b. inherent factors that influence the susceptibility to disease or likelihood of exposure
- c. the balance of factors determining the level of disease in a population
- d. a biologic, physical, or chemical cause

16. Match the concept with its brief description.

- ___ Causal web
- ___ Sufficient/component cause model
- ___ Spectrum of disease
- ___ Epidemiologic iceberg

- a. Diseases have a broad range of manifestations and severities
- b. Causal factors combine to complete causal mechanisms
- c. A large percentage of a problem is unreported or hidden from view.
- d. Direct and indirect causes form complex hierarchal interrelations

17. Which of the following factors can lead to an epidemic?

- a. increases in susceptibility
- b. environmental factors that favor propagation or retention of the agent
- c. increases in the pathogenicity of agents
- d. all of the above

18. The factors of a 1) slippery surface, 2) brittle bones, and 3) use of a psychoactive drug that causes loss of equilibrium contribute to a particular hip fracture. What is the *causal complement* to the slippery surface?

- a. brittle bones
- b. use of the psychoactive drug
- c. brittle bones + use of the psychoactive drug
- d. fracture