Public Health Training Network

Lesson 1

SELF-STUDY COURSE 3010-G

Control of Communicable and Certain Noninfectious Diseases

Environmental Health Sciences
Self-Study Course SS3010

Lesson 1: *Control of Communicable and Certain Noninfectious Diseases*

I. Lesson Consists of

A. Part I: 25 multiple choice questions
B. Part II: 25 true-false questions

Note: These questions are not in sequence because of the interrelated nature of the subject. The student must complete the reading assignments before attempting to complete the questions.

II. Reference

Salvato, J. A. *Environmental Engineering and Sanitation.* 4th ed. New York: John Wiley & Sons, 1992.

III. Topics and Reading Assignments

1.	Chapter 1 - *Control of Communicable and Certain Noninfectious Diseases*	**(Page No.)**
	A. General	03 to 31
	B. Respiratory Disease	31 to 38
	C. Water and Foodborne Disease	38 to 77
	D. Insectborne Diseases and Zoonoses	77 to 93
	E. Miscellaneous Diseases and Illnesses	93 to 94
	F. Noninfectious and Noncommunicable Diseases Associated with the Environment Including Air, Water, and Food	94 to 134
	G. Investigation of Water and Foodborne Disease Outbreaks	134 to 145
2.	*Hantavirus Illness in the Southwest*, CDC document 310031; copy included at end of lesson.	2 pages
3.	*Hantavirus Infection—Southwestern United States: Interim Recommendations of Risk Reduction* MMWR, July 30, 1993 Vol. 42/ No. RR-11; copy included at end of lesson.	12 pages

IV. Suggested Supplementary Readings

Benenson, A. S., ed. *Control of Communicable Disease in Man.* 15th ed. Washington, D.C.: American Public Health Association, 1991.

Hunter, J., et al. *Parasitic Diseases in Water Resources Development*, WHO, 1993.

IAHFES. *Procedures to Investigate Foodborne Illness.* 4th ed. Ames, Iowa: International Association of Milk, Food and Environmental Sanitarians, Inc., 1987.

Koren, H., *Handbook of Environmental Health and Safety - Principles and Practices (Vols. 1, 2).* Lewis Publishers 1991.

Morgan, M. T., *Environmental Health.* Brown and Benchmark publishers, 1993.

Morbidity and Mortality Weekly Report. Atlanta, Georgia: Centers for Disease Control.

Nadukavukaren, A., *The Global Environment: A Health Perspective.* Waveland Press, 1995.

References of Historical Significance:

Winslow, C.E.A. *The Conquest of Epidemic Disease: A Chapter in the History of Ideas.* Princeton, New Jersey: Princeton University Press, 1943. (Reprinted 1980, University of Wisconsin Press). (This classic is highly recommended for reading.)

Freedman, B., *Sanitarian's Handbook: Theory and Administrative Practice for Environmental Health.* 4th ed. New Orleans: Peerless, 1977. (This classic handbook can be found in the office of most environmental health supervisors and continues to be a highly regarded reference by the profession).

V. Objectives

Upon successful completion of Lesson 1, students should be able to correctly recognize and define the various terms associated with disease control and demonstrate an understanding of disease control principles. Specifically, students should be able to:

- demonstrate a basic understanding of the relationship of insects to disease transmission
- demonstrate a basic understanding of the relationship of fomites in disease transmission

- recognize the relationships between the environment and disease
- recognize the importance of environmental control and quality of life issues in extending human life expectancy
- demonstrate an understanding of the disease control issues in industry, schools, and health care facilities
- develop an awareness of the risk reduction procedures for Hantavirus.

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Part I: Multiple Choice

1. A factor or agent which increases the risk of cancer is known as a

   a. teratogen
   b. mutagen
   c. carcinogen
   d. fomite.

2. The amelioration of a disease to reduce disability or dependence resulting from it is termed

   a. first degree prevention
   b. second degree prevention
   c. tertiary prevention
   d. none of the above.

3. The gains in life expectancy between 1900 (48 years) and 1974 (72 years) have occurred mostly in the early years and are due to

   a. sanitation
   b. nutrition
   c. chemotherapy
   d. all of the above.

4. Between 27 B.C. and 395 A.D., the average life expectancy was _____.

   a. 73 years
   b. 36 years
   c. 45 years
   d. 24 years.

5. The four major causes of death among all age groups of Americans include all of the following **except**

   a. homicide
   b. accidents
   c. malignant neoplasms
   d. heart disease.

6. There is a scientific consensus that further increases in life expectancy are dependent on the extent to which

   a. cancer can be controlled
   b. personal lifestyles can be changed
   c. pollution can be controlled
   d. b and c above.

7. As of 1975, the diseases which caused 2/3's of the deaths in the United States included all but which of the following?

   a. cerebrovascular diseases
   b. influenza
   c. cancer
   d. heart disease.

8. The goal of environmental health programs should be

   a. the prevention of disease
   b. the enjoyment of living
   c. the preservation of comfort
   d. all of the above.

9. The basic principles of disease control include all of the following **except**

   a. use of antibiotics
   b. control of disease source
   c. mode of transmission
   d. susceptibility.

10. The prevention of respiratory diseases in "at risk" individuals is to

    a. protect people from the source
    b. eliminate routes of transmission
    c. reduce presence of susceptible individuals
    d. all of the above.

11. A water or foodborne disease outbreak with a short incubation period is likely because of

    a. chemical poisoning
    b. schistosomiasis
    c. salmonellosis
    d. shigella.

12. A major process for the prevention of respiratory disease of susceptible persons is

    a. isolation
    b. hospitalization
    c. immunization
    d. education.

13. In recent years, the largest number of rabies cases were associated with

    a. skunks
    b. bats
    c. dogs
    d. raccoons.

14. Asbestosis is caused by fine silicate fibers retained in the

    a. kidneys
    b. lungs
    c. colon
    d. abdomen.

15. An illness due to a specific infectious agent or its toxic product which is transmitted from a reservoir to a susceptible host either directly or indirectly is called

    a. an infectious disease
    b. a communicable disease
    c. a genetic disease
    d. a noncommunicable disease.

16. The primary health problems of developing countries are

    a. diphtheria and pertussis
    b. heart disease
    c. cancer and diabetes
    d. communicable disease and malnutrition.

17. The term "endemic" means

    a. sporadic occurrence of an illness
    b. constant presence of an illness
    c. all illnesses present at any one time
    d. an unusually large number of persons with the same illness.

18. The interval between exposure to an infectious agent and the appearance of the first symptom is called the

    a. lag time
    b. susceptible period
    c. incubation period
    d. primary period.

19. Schistosomiasis is

    a. a water contact disease
    b. a foodborne disease
    c. a milkborne disease
    d. an airborne disease.

20. A disease transmitted by birds and bird droppings is

    a. dengue fever
    b. psittacosis
    c. tularemia
    d. hurine typhus.

21. An infected organism which does not exhibit symptoms during the spread of an illness is called a

    a. reservoir
    b. parasite
    c. host
    d. carrier.

22. The killing of an infectious agent outside the body by chemical or physical means is termed

    a. detoxification
    b. deodorization
    c. destabilization
    d. disinfection.

23. Rocky Mountain spotted fever is spread by

    a. flies
    b. spiders
    c. cockroaches
    d. ticks.

24. Mycotoxins are poisonous chemicals produced by

    a. bacteria
    b. vertebrates
    c. viruses
    d. fungi.

25. The study of the occurrence, frequency, and distribution of disease is

a. entomology
b. biology
c. endocrinology
d. epidemiology.

Part II: True-False

(Mark answer sheet under column "A" if the statement is true, or under column "B" if the statement is partially or totally false.)

1. Disease is considered the antithesis of health, defined as "a state of physical, mental, and social well-being and ability to function, and not merely the absence of illness or infirmity."

2. The prevention of deaths from a particular disease increases the overall life expectancy in direct proportion to its decreased mortality.

3. Life expectancy is a measure of health progress, morbidity levels, and the quality of life.

4. Observations and cost-effective analyses have shown that good housing and sanitation are far more effective measures for the control of cholera, typhoid, and similar diseases than is immunization.

5. Soil moisture of about 30% to 45% of saturation is the best for survival of pathogens.

6. Coliform, on soil surfaces, may survive up to 38 days.

7. Ascaris ova may survive up to 7 hours in moist, warm soil.

8. It is believed that the ingestion of one virus particle can cause infection in humans.

9. A typical chronic toxicology test on a compound can be done for less than 3,000 1985 dollars and will take about 1 year of time to complete.

10. Urine is usually sterile, except for urinary schistosomiasis, typhoid, and leptospirosis carriers.

11. Onchocerciasis is a rare illness found in some third world countries.

12. Food poisoning from *Staphylococcus aureus* can be prevented by thoroughly cooking foods that have been properly handled and then through appropriate time temperature control of the finished product.

13. Toxins that attack nerves are referred to as enterotoxin.

14. It is estimated only 38% of water and foodborne diseases are reported.

15. Some of the prime sources of *Giardia lamblia* cysts are humans, beavers, muskrats, and domestic animals.

16. The disease caused by *Legionella pneumophila* was found to originate in the tanks or water closets in older hotels.

17. Harsh miasma is another name for the disease known as Legionella.

18. House mice may carry the disease lymphocytic choriomeningitis.

19. Tularemia is often transmitted to humans by dogs.

20. Rats are one of the seven animals most likely to carry rabies.

21. A vaccinated dog or cat bitten by or exposed to a rabid animal should be confined for 4 months or destroyed.

22. The most effective means of control of bats is to "build them out."

23. Any person bitten by a bat should receive antirabies therapy unless the bat is caught and found to be negative for the rabies virus.

24. The cancer rate is roughly 72% higher for inner-city people than the level for suburbanites.

25. An analysis by Dever indicated that environmental factors were considered to be the cause of 49% of all deaths due to accidents, 20% of the influenza and pneumonia deaths, 41% of the homicides, and 15% of the deaths due to birth injuries and other diseases peculiar to early infancy.

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Answer Keys

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Environmental Health Sciences
Answer Keys (Page No.)

***Lesson 1*: Part I**

1. C (04)	6. D (18)	11. A (39-47)	16. D (19)	21. D (4)
2. C (08)	7. B (19)	12. D (32)	17. B (5)	22. D (5)
3. D (13)	8. D (19)	13. A (86)	18. C (6)	23. D (79)
4. D (14)	9. A (24)	14. B (119)	19. A (77)	24. D (53)
5. A (16/17)	10. D (32/33)	15. B (04)	20. B (89)	25. D (6)

Part II

1. A; true (5)	6. A; true (35)	11. B; false (49)	16. B; false (61)	21. B; false (88)
2. B; false (13-15)	7. B; false (35)	12. A; true (72)	17. B; false (78)	22. A; true (92)
3. B; false (19)	8. A; true (37)	13. B; false (5-7)	18. A; true (42/85)	23. A; true (92)
4. A; true (28)	9. B; false (99)	14. A; ~~true~~ false (54)	19. A: true (42/85)	24. B; false (122)
5. B; false (34)	10. A; true (49)	15. A; true (60)	20. B; false (86)	25. A; true (97)