



LESSON

5

SELF-STUDY COURSE 3030-G

Principles of Epidemiology

Disease Surveillance



U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES

SELF-STUDY

PUBLIC HEALTH SERVICE
Centers for Disease Control
Training and Laboratory Program Office
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Atlanta, Georgia 30333

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PRINCIPLES OF EPIDEMIOLOGY

Self-Study Course 3030-G

LESSON 5: DISEASE SURVEILLANCE

I: LESSON CONSISTS OF:

Part I: 32 multiple choice questions

II: PRIMARY REFERENCE:

Manual 5 - "Disease Surveillance"

NOTE: This manual is provided by CDC and should be included when you receive this lesson.

III: TOPICS AND READING ASSIGNMENTS:

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PRINCIPLES OF EPIDEMIOLOGY

Lesson 5

Objectives

Upon successful completion of Lesson 5, the student should be able to correctly:

- Identify and recognize the characteristics and objectives of disease surveillance.
 - Identify the two most important purposes of disease surveillance (characterization of disease patterns and identification of situations which merit further investigation).
 - Identify the steps involved in the accomplishment of the two most important purposes of disease surveillance, and the characteristics of these steps (collection, organization, analysis, and distribution and specific information regarding the occurrence of selected diseases).

PRINCIPLES OF EPIDEMIOLOGY

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LESSON 5: DISEASE SURVEILLANCE

Part I: Multiple-Choice

1. Which of the following is NOT referred to in the definition of disease surveillance?
 - A. It is a continuous process.
 - B. It deals with the distribution of disease.
 - C. It is concerned with physician case reports.
 - D. It includes concern for potentials for disease transmission.

2. Disease surveillance is a systematic process of:
 - A. Disease reporting, data analysis, distribution of surveillance reports, and implementation of control measures.
 - B. Morbidity reporting, preparation of tables, graphs, and charts, data analysis, and distribution of surveillance reports.
 - C. Case investigations, calculation of incidence and prevalence rates, data analysis, and distribution of information regarding disease occurrence.
 - D. Collection of data, consolidation of data, data analysis, and distribution of information regarding disease occurrence.

3. The application of effective and efficient disease control measures is based on knowledge of:
 - A. The extent of infections in the community and the risk of transmission to others.
 - B. Seropositivity rates for selected diseases in sentinel populations.
 - C. Changes in the antigenic character of various disease agents known to be highly infectious.
 - D. How changes in the characteristics of the population alter established patterns of disease occurrence in the community.

4. The principal reason(s) for a health department conducting surveillance of a disease for which control measures do not exist is (are):
 - A. It is important to know when an epidemic is in progress.
 - B. To establish program priorities when control does become available.
 - C. To enable program assessment following the implementation of control measures.
 - D. Both "B" and "C" above.

5. The consolidation of surveillance data can be productively accomplished at:
 - A. The State level.
 - B. The national level.
 - C. The international level.
 - D. All of the above.

6. A common feature of morbidity reporting regulations is the specification of:
 - A. Disease which must be reported when diagnosed.
 - B. Who is obligated to report cases of reportable disease.
 - C. How and to whom the case reports are to be sent.
 - D. All of the above.

7. The ultimate objective of disease surveillance data in a specified population is to:
 - A. Identify outbreaks.
 - B. Control disease.
 - C. Identify high risk groups.
 - D. Identify changes in disease patterns.

8. Of the following individuals, those who are usually required to notify the health authorities of the occurrence of a reportable disease that comes to his or her attention are:
 - A. Physicians.
 - B. Dentists, nurses, and other health practitioners.
 - C. Hospital and clinic directors.
 - D. All of the above.

9. The analysis of surveillance data is essential for all but which ONE of the following?
 - A. Identification of high-risk groups
 - B. Consolidation of data
 - C. Identification of disease trends
 - D. Specification of most appropriate control measures

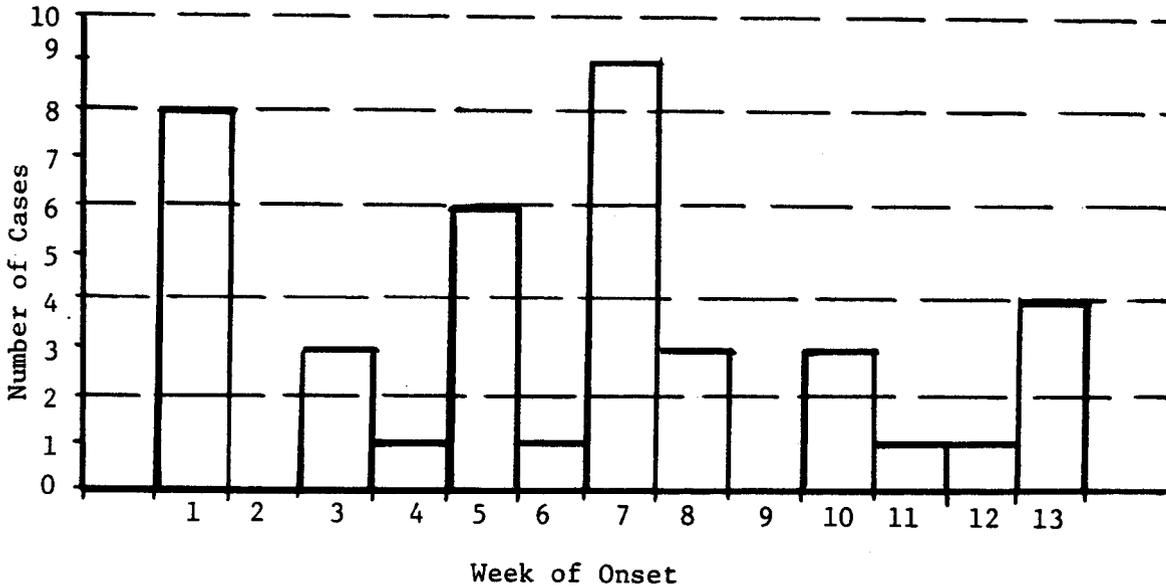
10. The primary purpose for reviewing physicians' individual case reports as they are received at the health department, or daily, is:
 - A. To verify that the report form is properly and completely filled out.
 - B. To identify cases of disease which are to be investigated.
 - C. To prepare a statistical analysis of the reported cases.
 - D. To confirm unlikely diagnoses.

11. The greatest value of statistically analyzing physicians' case reports usually is:
 - A. The clarification of the question of the degree of the completeness of physician reporting.
 - B. To identify cases of disease which must be reported immediately to a higher level of organization.
 - C. To recognize high-risk population groups
 - D. To prepare an annual summary of the occurrence of reportable diseases.

12. The single most important piece of information on a case report form from the standpoint of determining what, if anything, is to be done about the case, is the case's:
- A. Name.
 - B. Address.
 - C. Diagnosis.
 - D. Age.
13. Consolidation of surveillance data, the second function of disease surveillance, is largely a process of:
- A. Forwarding the collected physicians' morbidity reports.
 - B. Calculating attack rates.
 - C. Preparing tables, graphs, and charts of collated data.
 - D. Analyzing tabulated data which has been converted to rates.
14. Of the following criteria for determining whether a reported case of a disease should be investigated, the one which would automatically result in an investigation is:
- A. Health department disease surveillance and control objectives require it.
 - B. A common source is suspected.
 - C. The reported cases are unusual in some way.
 - D. The knowledge obtained might lead to a better understanding of the disease.
15. In order to apply the investigative criterion, "Is the infection unusual...?" it is necessary to:
- A. Read CDC's *Morbidity and Mortality Weekly Report*.
 - B. Be familiar with diagnostic methods.
 - C. Be familiar with laboratory diagnostic techniques.
 - D. Know the disease patterns in an area by time, place, and person.
16. Analysis of surveillance data essentially involves or requires which of the following procedures?
- A. Identifying differences between current data and normal or expected values.
 - B. Assessing the significance of differences between current data and expected values.
 - C. Comparing current morbidity data with some normal expected value.
 - D. All of the above.

17. Although numbers of reported cases are useful in the analysis of surveillance data, it is often desirable to convert summarized numbers of cases to incidence rates for the reason that:
- A. The number of reported cases may be unreliable.
 - B. It facilitates the identification of major new epidemiologic events which might require investigation.
 - C. Numbers, especially in epidemic situations, might become very large and cumbersome.
 - D. Taking into account the size of the population, rates provide a better measure of risk in subpopulations.
18. In order to identify changes in disease patterns within a county health jurisdiction, current morbidity data should be compared with similar data acquired:
- A. In one's own area, having specified characteristics in common.
 - B. In recent reporting periods, in the same population from which the current date came.
 - C. During the corresponding period of previous years.
 - D. Both "B" and "C" above.
19. When comparing surveillance data from different times or places, one must always bear in mind that observed differences may be misleading for a variety of reasons. The surveillance system itself may be responsible chiefly due to:
- A. Variations in the sensitivity and accuracy of the reported data.
 - B. Differences in the age structure of the populations involved.
 - C. Errors in the consolidation of the reported data.
 - D. Analytic procedures which introduce a random bias to the data.
20. The identification of important epidemiologic trends depends heavily upon the analysis of morbidity data collected over a period of years. The longer the periods of time considered, the greater the opportunity for events to occur which lessen the comparability of the data. Chief among these events is (are) change(s) in the:
- A. Diagnostic criteria and relative contributions of various sources of data.
 - B. Preventive measures available to health agencies.
 - C. Effort expended to identify additional cases by investigating reported cases.
 - D. Both "A" and "B" above.

21. Examine the following histogram of the number of cases of unspecified food poisoning reported during each of several consecutive weeks and identify those weeks having a higher-than-usual incidence (which in this case we will arbitrarily say is any weekly incidence more than two times the average weekly reported number of cases).



- A. Week 7
- B. Weeks 1 & 7
- C. Weeks 1, 5 & 7
- D. Weeks 1, 3, 4 & 7

22. Examine the following weekly statistical surveillance data for viral hepatitis (number of cases, by age group and week of onset) and identify weeks having events that might plausibly represent situations that should be investigated (using the previous threshold of more than two times the average or usual frequency).

Age Group (years)	Number of Cases, by week								Average #/week for same 8 weeks last year
	1	2	3	4	5	6	7	8	
0 - 14	0	2	2	0	0	2	1	0	1
15 - 29	4	2	3	7	8	2	4	9	3
30+	0	3	4	2	0	1	1	2	2
TOTAL	4	7	9	9	8	5	6	11	6

- A. Week 8
 B. Weeks 2, 3 & 6
 C. Weeks 3, 4 & 8
 D. Weeks 4, 5 & 8
23. In question 22, the age group(s) in which the epidemic threshold is most frequently exceeded is (are):
- A. All age groups.
 B. The 0-14 year olds.
 C. The 15-29 year olds.
 D. The 30+ group.
24. Referring to question 22, the earliest week at which a possible problem can be identified is:
- A. Week 2.
 B. Week 3.
 C. Week 4.
 D. Week 8.

25. Examine the following tabulated surveillance data for salmonellosis (number of cases, by township and week of onset) and identify weeks having events that might plausibly represent situations that should be investigated (using the same threshold of an incidence greater than two times normal).

Township	Number of Cases, by week								Average #/week for same 8 weeks last year
	1	2	3	4	5	6	7	8	
1. Green	1	0	2	4	6	7	3	1	1
2. Peach	0	1	0	0	3	4	5	1	< 1
3. Harvey	1	2	1	3	2	2	1	3	2
4. Lake	7	5	6	8	7	4	4	7	6
5. Anvil	2	8	13	17	7	2	4	2	3
TOTAL	11	16	21	32	25	19	17	14	12

- A. Weeks 4, 5 & 8
 B. Weeks 5, 6 & 7
 C. Weeks 2, 3, 4 & 5
 D. Weeks 2, 3, 4, 5, 6 & 7
26. In question 25, the problem of excess current cases seems to involve the township(s) of:
- A. Lake and Anvil.
 B. Green, Peach and Anvil.
 C. Green and Anvil.
 D. Green, Peach, Lake and Anvil.
27. Referring to question 25, and assuming that the five townships comprise all of a single county, the earliest week at which a possible problem can be identified in any township is:
- A. Week 4.
 B. Week 3.
 C. Week 2.
 D. Week 1.

28. The primary purpose of special surveillance activities may best be described as:
- A. Cyclical in nature.
 - B. Especially useful for monitoring the progress of widespread outbreaks.
 - C. Useful in monitoring the potential for human disease.
 - D. A specific set of morbidity programs designed to function as a substitute for physician morbidity reporting.
29. Special surveillance activities focused on animal populations are NOT usually intended to:
- A. Detect disease agents which might be present.
 - B. Detect changes in the size and distribution of reservoir and vector populations.
 - C. Substitute for human morbidity reporting.
 - D. Detect epizootics.
30. Special surveillance activities applied to selected human populations are usually conducted to:
- A. Assess their susceptibility.
 - B. Assure that tuberculin reactors and VDRL positives are properly followed up.
 - C. Detect persons having infections.
 - D. Both "A" and "C" above.
31. The reason(s) for preparing and distributing periodic surveillance reports is (are) primarily to:
- A. Document recent epidemiologic investigations which have identified the source of the outbreak.
 - B. Provide, to those who need it, current information on disease occurrence.
 - C. Provide up-to-date information on the treatment of selected diseases.
 - D. Both "B" and "C" above
32. Besides containing accurate information, surveillance reports, if they are to be widely read and used, must also:
- A. Be based on a representative sample of practicing physicians in the reporting area.
 - B. Be accompanied by estimates of statistical significance.
 - C. Be timely.
 - D. Contain data for neighboring reporting areas.

DHHS:PHS:CDC:TLPO
Division of Training

(FOR TRAINING PURPOSES ONLY)

PRINT OR TYPE

TITLE _____ NAVEDTRA _____

NAME _____ ADDRESS _____
 Last First Middle Street/Ship/Unit/Division, etc.

RANK/RATE _____ SOC. SEC. NO. _____ City or FPO State Zip
 DESIGNATOR _____ ASSIGNMENT NO. _____

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