

Disease Detectives C - Disease Detectives - December 19 SO Practice - 12-19-2020

1. (2.00 pts) Which of the following statements are true about herd immunity?

(Mark ALL correct answers)

- A) Degree of herd immunity necessary to prevent or stop an outbreak varies by disease.
- B) Everyone in a community has to be immune to prevent the occurrence of an outbreak.
- C) Highly immunized populations (85-90%) has not prevented outbreaks of measles and rubella.
- D) Socioeconomic and cultural factors influence the validity of herd immunity concepts.

2. (2.00 pts) Which two are the correct triads used in epidemiology to identify problems and generate hypotheses?

(Mark ALL correct answers)

- A) location, agent, treatment
- B) person, place, time
- C) outbreak, infection, treatment
- D) agent, host, environment
- E) index, describe, analyze
- F) investigate, treat, cure

3. (2.00 pts) People who are infectious but have subclinical disease are called

- A) virus holders
- B) pathogenic contributors
- C) bacterial cesspools
- D) carriers

4. (2.00 pts) Which type of carrier continues to harbor a pathogen for months or years after the initial infection?

- A) Passive carrier
- B) Incubatory carrier
- C) Convalescent carrier
- D) Chronic carrier

5. (2.00 pts) Which type of carrier never experiences symptoms despite being infected?

- A) Passive carrier
- B) Incubatory carrier
- C) Convalescent carrier
- D) Chronic carrier

6. (2.00 pts) Which type of carrier has recovered from illness but still possesses the ability to transmit the infection to others?

- A) Passive carrier
- B) Incubatory carrier
- C) Convalescent carrier
- D) Chronic carrier

7. (2.00 pts) Which type of carrier can transmit an infectious agent during a period of time before clinical illness begins?

- A) Passive carrier
- B) Incubatory carrier
- C) Convalescent carrier
- D) Chronic carrier

8. (2.00 pts) In the interest of public health, control measures/interventions are usually directed toward

(Mark ALL correct answers)

- A) Increasing host's defenses
- B) Eliminating hosts
- C) Controlling or destroying agent at source of transmission
- D) Protecting portals of entry
- E) Contributing to the delinquency of vectorborne transmission

9. (2.00 pts)

Choosing from the following terms, answer the question below. Answers for the questions in this series may be used more than once or not at all.

Question:

Which term best describes the risk among all persons who acquire the disease they will later die from? This is an indication of the severity of the disease and is expressed by a percentage and an indicator of risk.

a. Morbidity Rate	b. Mortality Rate
c. Prevalence Rate	d. Incidence Rate
e. Case Fatality Rate	f. Rate Ratio
g. Odds Ratio	

- A) B
- B) G
- C) C
- D) E
- E) A
- F) F

10. (2.00 pts) Choosing from the following terms, answer the question below. Answers for the questions in this series may be used more than once or not at all.

Question:

What is found using the number of sick divided by the number exposed?

a. Morbidity Rate	b. Mortality Rate
c. Prevalence Rate	d. Incidence Rate
e. Case Fatality Rate	f. Rate Ratio
g. Odds Ratio	

- A) F
- B) G
- C) A
- D) B
- E) D
- F) F

11. (2.00 pts)

Choosing from the following terms, answer the question below. Answers for the questions in this series may be used more than once or not at all.

Question:

What is the ratio of the number of deaths from a particular disease to the total number of cases of the disease? Generally considered to be the estimation of proportion of the population that dies during a specific time period; usually counted as # dead per 100,000.

a. Morbidity Rate	b. Mortality Rate
c. Prevalence Rate	d. Incidence Rate
e. Case Fatality Rate	f. Rate Ratio
g. Odds Ratio	

- A) G
- B) D
- C) C
- D) A
- E) F
- F) B

12. (2.00 pts) Choosing from the following terms, answer the question below. Answers for the questions in this series may be used more than once or not at all.

Question:

What is the incidence among a group exposed to disease-causing agent to a non-exposed group and measures exposure impact?

a. Morbidity Rate	b. Mortality Rate
c. Prevalence Rate	d. Incidence Rate
e. Case Fatality Rate	f. Rate Ratio
g. Odds Ratio	

- A) F
- B) G
- C) A
- D) B

- E) D
- F) C

13. (2.00 pts)

Choosing from the following terms, answer the question below. Answers for the questions in this series may be used more than once or not at all.

Question:

What is the ratio of the total number of people infected at one time in any population to the size of that population? Represented by the proportion of population that has specific disease a a specific time.

a. Morbidity Rate	b. Mortality Rate
c. Prevalence Rate	d. Incidence Rate
e. Case Fatality Rate	f. Rate Ratio
g. Odds Ratio	

- A) D
- B) G
- C) F
- D) A
- E) C
- F) B

14. (2.00 pts) Choosing from the following terms, answer the question below. Answers for the questions in this series may be used more than once or not at all.

Question:

This is found by calculating number of people sick divided by whole population. (Number could be multiplied by 100 to get a percentage.)

a. Morbidity Rate	b. Mortality Rate
c. Prevalence Rate	d. Incidence Rate
e. Case Fatality Rate	f. Rate Ratio
g. Odds Ratio	

- A) B
- B) C
- C) D
- D) F
- E) G
- F) E

15. (2.00 pts)

Choosing from the following terms, answer the question below. Answers for the questions in this series may be used more than once or not at all.

Question:

What is the probability of getting disease between group exposed to disease agent and non-exposed; measures magnitude of association between exposure to agent and disease outcome.

a. Morbidity Rate	b. Mortality Rate
c. Prevalence Rate	d. Incidence Rate

e. Case Fatality Rate	f. Rate Ratio
g. Odds Ratio	

- A) A
- B) G
- C) D
- D) F
- E) B
- F) E

16. (2.00 pts) Choosing from the following terms, answer the question below. Answers for the questions in this series may be used more than once or not at all.

Question:

What is found by calculating the number of deaths by specified cause divided by number of cases of specified illness multiplied by 1000?

a. Morbidity Rate	b. Mortality Rate
c. Prevalence Rate	d. Incidence Rate
e. Case Fatality Rate	f. Rate Ratio
g. Odds Ratio	

- A) E
- B) G
- C) C
- D) A
- E) F
- F) D

17. (2.00 pts)

Choosing from the following terms, answer the question below. Answers for the questions in this series may be used more than once or not at all.

Question:

What is the ratio of the number of individuals who are ill with particular disease within a susceptible population during a specified time period to the size of that population?

a. Morbidity Rate	b. Mortality Rate
c. Prevalence Rate	d. Incidence Rate
e. Case Fatality Rate	f. Rate Ratio
g. Odds Ratio	

- A) D
- B) F
- C) A
- D) B
- E) G
- F) C

18. (2.00 pts)

Choosing from the following terms, answer the question below. Answers for the questions in this series may be used more than once or not at all.

Question:

What is the ratio of number of new cases of a disease occurring within a specified time period within a susceptible population to the size of that population? This represents the proportion of the population that will get a specific disease over a period of time.

a. Morbidity Rate	b. Mortality Rate
c. Prevalence Rate	d. Incidence Rate
e. Case Fatality Rate	f. Rate Ratio
g. Odds Ratio	

- A) B
- B) D
- C) A
- D) G
- E) F
- F) C

19. (2.00 pts) An example of an acute condition is

- A) diabetes
- B) typhoid
- C) epilepsy

20. (2.00 pts) Antibiotics work against bacteria, not viruses.

- True
- False

21. (2.00 pts) Good hand hygiene is one of the most important ways to prevent the spread of disease.

- True
- False

22. (2.00 pts) Individual characteristics that can modify the effect the environmental exposure include things such as genes, diet, gender, physical condition and other diseases.

- True
- False

23. (2.00 pts)

The New York State Department of Health contacts the health providers in District A every Friday to obtain the number of patients examined with Covid-19. This is considered passive surveillance.

- True
- False

24. (2.00 pts) Correctly identify all types of public health surveillance.

(Mark **ALL** correct answers)

- A) Active
- B) Configurative
- C) Syndromic
- D) Passive
- E) Compulsory
- F) Sentinel

25. (2.00 pts) CDC must be invited by a state before conducting public health surveillance.

- True
- False

26. (2.00 pts) Public Health Surveillance is the _____, _____ collection, analysis, and interpretation of health-related data.

- A) systemic, short-term
- B) ongoing, systemic
- C) systemic, long-term
- D) methodical, ongoing

27. (2.00 pts) What is the goal of public health surveillance?

- A) To keep the public aware of new diseases
- B) To give public health personnel policies to regulate
- C) To guide Congress in enacting public health laws
- D) To provide information to be used for public health action

28. (2.00 pts) The purpose and legal basis for public health surveillance is granted by which U.S. document?

- A) Bill of Rights
- B) Declaration of Independence
- C) US Constitution
- D) 1812 Treaty of Public Health
- E) Emancipation Proclamation
- F) Gettysburg Address

29. (2.00 pts) What option is NOT a part of the public health surveillance process?

- A) Data dissemination
- B) Data storage
- C) Link to action
- D) Data collection

30. (2.00 pts) In data interpretation, by identifying the _____, _____, and _____, you can more easily determine how and why the health event occurred.

- A) person, place, time
- B) disease, risk, occurrence
- C) person, protocol, risk
- D) risk, protocol, disease

31. (2.00 pts) Choose the option that is NOT a source of data used for public health surveillance.

- A) Administrative data systems
- B) Vital records
- C) Disease notifications
- D) Newspaper articles

32. (2.00 pts) Michigan Department of Health and Human Service receiving a case report from a healthcare provider is considered which type of public health surveillance?

- A) Outbreak
- B) Passive
- C) Risk Factor
- D) Centrifugal
- E) Reactive
- F) Retrospective

33. (2.00 pts) MDHHS trapping mosquitos during the summer and testing the for West Nile Virus is considered which type of surveillance?

- A) Risk Factor
- B) Secondary
- C) Reactive
- D) Passive
- E) Outbreak
- F) Philanthropic

34. (2.00 pts) Calling a restaurant to identify any additional sick food handlers is considered which type of surveillance?

- A) Sentinel
- B) Outbreak
- C) Risk Factor
- D) Active
- E) Syndromic

35. (2.00 pts) Calling providers to detect adverse events associated with smallpox is considered which type of surveillance?

- A) Cursory
- B) Typical
- C) Active

- D) Passive
- E) Sentinel
- F) Risk Factor

36. (2.00 pts) MDHHS recruiting hospitals to report influenza-like illness every week is considered which type of surveillance?

- A) Sentinel Surveillance
- B) Active
- C) Risk Factor
- D) Passive
- E) Outbreak
- F) Centrifugal

37. (1.00 pts) The Chain of Infection is a model of what?

- A) How bacteria multiply
- B) How an infection affects the immune system
- C) How pathogenic microorganisms are transmitted from one person to another
- D) How microorganisms mutate to become pathogens
- E) How infections can be prevented

38. (2.00 pts) There are 6 links in the Chain of Infection. These include each of the following except:

- A) Susceptible host
- B) Personal protective device
- C) Portal of entry
- D) Mode of transmission
- E) Reservoir

39. (2.00 pts) In any healthcare setting, the Chain of Infection can be interrupted most readily at this step.

- A) Portal of exit
- B) Mode of Transmission
- C) Portal of Entry
- D) Causative Agent
- E) Susceptible Host

40. (2.00 pts)

There are 3 recently added elements to Standard Precautions that focus on protection of patients. These are: 1) Respiratory Hygiene/Cough Etiquette, 2) Safe Injection Practices, and 3) Use of Masks for Insertion of Catheters. Respiratory Hygiene/Cough Etiquette includes all of the following except

- A) Education of healthcare facility staff, patients, and visitors
- B) Posted signs, in language(s) appropriate to the population served, with instructions to patients and accompanying family members or friends
- C) Covering the mouth/nose with a tissue when coughing and prompt disposal of used tissues, using surgical masks on the coughing person when tolerated an appropriate

- D) Spatial separation, ideally >3 feet, of persons with respiratory infections in common waiting areas
- E) Healthcare workers wear a gown and gloves for all interactions that may involve contact with the patient

41. (2.00 pts) What does CDC stand for?

- A) Centers for Diligence of Care
- B) Centers for Diagnostic Compliance
- C) Centers for Disease Control and Prevention
- D) Centers and Department of Chronology

42. (2.00 pts)

Powassan Disease Case Study - According to the CDC "Powassan virus is spread to people by the bite of an infected tick. Although still rare, the number of reported cases of people sick from Powassan virus has increased in recent years. Most cases in the United States occur in the northeast and Great Lakes regions from late spring through mid-fall when ticks are most active. There are no vaccines to prevent or medicines to treat Powassan virus disease." The following case examination will relate to this virus.

When a case of Powassan is found, it is required to be reported to the CDC. This means it is on the ____ list.

- A) Compulsive Reporting Illness
- B) Mandatory Reporting Illness
- C) Diseases of Required Registration
- D) Nationally Notifiable Diseases

43. (2.00 pts) Powassan Virus is the only tick-transmitted virus endemic to the United States. Endemic means:

- A) The disease is spread over an area of 10 or more square miles
- B) That an amount of disease transmission is maintained over time
- C) The disease has infected at least one person per month over a five-year span
- D) That all of the cases exist within a strict geographic area

44. (2.00 pts) People are classified as "dead end" hosts for this virus, meaning:

- A) Ticks can pass the disease to humans, but humans cannot pass the disease back to ticks
- B) Humans die too soon after contracting the virus to be sustainable hosts
- C) Humans can contract the disease from many animals, but can only spread it to other humans
- D) Ticks are the primary reservoir

45. (2.00 pts) The virus, habitats, and ticks of this infection make up the _____ triad:

- A) Agent, host, environment
- B) Person, place, time
- C) Agent, host, reservoir
- D) Bacterium, disease, time

46. (2.00 pts) Animals such as woodchucks and mice may have the virus in their blood and pass it to ticks when the ticks feed off of them. These animals are:

- A) viruses
- B) environments
- C) agents
- D) reservoirs

47. (1.00 pts) Are tick-borne diseases zoonotic?

- A) Yes
- B) No

48. (2.00 pts)

Although this disease is typically seen in single cases, a recent excursion of the triangle hunting club seems to have led to a grouping of cases in their small town of tri-ville. The group went on three separate outings six weeks ago to the local woods, field, and swamp in search of triangles to photograph.

A group of epidemiologists visit the town to investigate. Which type of study will they be conducting?

- A) Cohort; observational
- B) Case control; observational
- C) Cohort; experimental
- D) Case control; experimental

49. (2.00 pts) A case refers to:

- A) A person who has been diagnosed with the disease
- B) An occurrence of a disease
- C) A grouping of diagnoses in a specified area
- D) A person exhibiting symptoms matching the case definition

50. (2.00 pts)

(Hopefully in the future) A new diagnostic test has been created for the Powassan virus and is being tested on lab rats. Look at the diagram below and answer the following about this new breakthrough given the results below:

		Does the Rat Have the Disease?	
		YES	NO
Test Result	Positive	79	21
	Negative	20	280

What is the equation for sensitivity?

- A) Sensitivity = False Negatives / (True Positives + False Negatives)
- B) Sensitivity = True Positives / (True Positives + False Negatives)
- C) Sensitivity = True Positives / (True Positives + False Positives)
- D) Sensitivity = False Positives / (True Positives + False Positives)

51. (2.00 pts) Given this chart, what is the specificity of this test?

- A) 0.97
- B) 0.95
- C) 0.93
- D) 0.91
- E)

52. (2.00 pts) What is the difference between specificity and sensitivity?

- A) Specificity is about detecting people without that disease, Sensitivity is about detecting people with the disease
- B) Specificity is about identifying false positives, Sensitivity is about false negatives
- C) Specificity is a measure of reliability, sensitivity is a measure of efficacy

- D) Specificity measures human response, Sensitivity measures the biological response

53. (2.00 pts) Which of the below strategies are recommended by the CDC to avoid contracting tick-borne diseases?

(Mark **ALL** correct answers)

- A) Use insect repellent
- B) Treat clothes with insect repellent
- C) Invest in hats with net coverings for the head and face
- D) Treat household pets for ticks regularly
- E) Shower after being outdoors
- F) Tie long hair back

54. (2.00 pts) Which of the below strategies are recommended by the CDC to avoid contracting tick-borne diseases?

(Mark **ALL** correct answers)

- A) Regularly check area such as the hairline, armpits, and groin
- B) Hike during daylight hours
- C) Hike during dusk and dawn
- D) Stay well hydrated
- E) Avoid swamplands
- F) Use landscaping techniques to minimize tick habitat in the yard

55. (2.00 pts) Which of the following Powassan-virus induced experiences would be considered signs?

(Mark **ALL** correct answers)

- A) Vomiting
- B) Nausea
- C) Headache
- D) Seizures
- E) Encephalitis
- F) Difficulty Speaking

56. (2.00 pts) Is this the best test you've ever taken?

(Mark **ALL** correct answers)

- A) Yes (mark this)
- B) Also yes (also mark this)

57. (1.00 pts) List the four criteria established by Koch to identify the causative agent of a particular disease.

58. (1.00 pts) Of the 10 most important public health problems and concerns identified by the CDC, write down 3.

59. (1.00 pts)

There is a new virus going around a closed community. Only males are at risk of contracting the disease. The community is made up of 40% female and 60% males. Given there are 406 new cases of this disease, and the population size at the time is 2350 people, what is the rate?

60. (1.00 pts) What are the three types of infections from food borne illnesses?

61. (1.00 pts) What is the difference between an epidemic and a pandemic?

62. (1.00 pts) Explain why nausea is a symptom and not a sign.

63. (1.00 pts) What is the term for individuals in the stage of susceptibility?

64. (1.00 pts) When participants in public health surveillance are asked for consent in surveillance, does it affect the data?

65. (1.00 pts) Explain the Delaney Clause.