
Advancing Infection Control Capacity & Education (ACE): COACHING TO CERTIFICATION

Session 17: Surveillance and Epidemiology – Part 2

Presented on April 25, 2023, by: Elizabeth Johnson, BSN, RN, CIC



HEALTHCARE-ASSOCIATED INFECTIONS PROGRAM
Public Health Division

Surveillance and Epidemiology

4 Parts

1. Statistics in Infection Prevention
 - 2. Epidemiology**
 3. Surveillance
 4. Outbreak Investigation
- 22 questions on CIC exam



Epidemiology

APIC Definition:

- Epidemiology: The study of the distribution and determinants of disease and other conditions in human populations.



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Objectives

- Better understand how epidemiology and the elements involved in transmission can guide your IP practice in improvement of prevention
- Know some of the types of study designs and how to determine what is the best to use in different situations
- Learn some basic data terminology that is used when displaying information
- Develop test taking strategies for epidemiology

Slide 3

JJ0 Christina, can we add an image under the definition? I was thinking of a group of people, but couldn't find one I liked in the CDC image library

Johnson Elizabeth J, 2023-04-24T16:57:50.562

CDM0 0 Elizabeth - thoughts on either of these images?

Christina Dionisio-Martinez, 2023-04-24T17:42:01.086

JJ0 1 I like the red people :)

Johnson Elizabeth J, 2023-04-24T19:53:27.282

APIC Key Concepts

- The primary purpose of epidemiology is to aid in the understanding of the causes of a disease by knowing its distribution; determinants in terms of person, place, and time; and natural history.
- Understanding the elements involved in the transmission of infection enables infection preventionists (IPs) to develop strategies that target specific areas in the transmission process.
- Selecting the appropriate study design is an essential step in answering questions important to IPs.
- IPs should understand the meaning of commonly used epidemiology terms and know how to apply basic epidemiology skills.
- Correct presentation of data allows the IP to demonstrate outcomes and relationships in a manner that will likely encourage collaboration and support among stakeholders.
- Risk: The probability or likelihood of an event occurring.
- Risk factor: A characteristic, behavior, or experience that increases the probability of developing a negative health status (e.g., disease, infection)



Q1: The “epidemiologic triangle” model for disease causation does not include:

- a. Agent
- b. Post
- c. Time
- d. Environment



Q2: Which of the following viruses is the causative agent in Kaposi's sarcoma?

- a. Herpes zoster virus
- b. Human herpesvirus 8
- c. Epstein-Barr virus
- d. Human papillomavirus (HPV)



Q3: An acute care facility experiences an outbreak of *Serratia marcescens* bloodstream infections. After the outbreak is under control and no new cases are being reported, the IP wants to find the source of the outbreak. The most appropriate epidemiology study designed to use is:

- a. Retrospective cohort study
- b. Prospective cohort study
- c. Case-Control study
- d. Cross sectional study



Q4: The IP has identified a cluster of candida bloodstream infections into adjoining ICUs. She want to look at risk factors that these patients may have had in common. Which study design should she us?

- a. Cross-Sectional study
- b. Cohort study
- c. Case-Control study
- d. Conical trial



Q5: Which of the following would be appropriate for a graph displaying C. difficile infections?

- a. X axis labeled with the months of the year
- b. X axis labeled with the number of cases each month
- c. Y axis labeled with the months of the year
- d. Y axis labeled with the days of the month of April



Q6: Which of the following is an example of continuous data set?

- 1) Body temperature measurements: 98.6 F, 97.4 F, 99.8 F, 99.9F
- 2) Gender: male, male, female, male
- 3) Blood type: O+, A-, A+, AB+
- 4) Body weight: 189, 144, 261, 113

- a. 1,2
- b. 2,3
- c. 2,4
- d. 1,4



Q7: The critical-care classes have 48 new students. There are 8 males. What is the ratio of females to males?

- a. 1:5
- b. 5:1
- c. 6:1
- d. 1:6



Q8: In 2013, 3254 persons died of all causes in a large metropolitan area with a population of 1.8 million. What was the crude mortality rate?

- a. 18 per 100,000
- b. 18 per 1000
- c. 180 per 1000
- d. 180 per 100,000



Q9: Which of the following patients would have the lowest risk of SSI?

- a. A 53 year old male with insulin dependent diabetes and coronary artery disease undergoing elective aortofemoral bypass
- b. A 38 year old female with mild but controlled hypertension undergoing a laparoscopic cholecystectomy
- c. A 42 year old, well conditioned male undergoing elective groin hernia repair
- d. A 62 year old female on chronic renal hemodialysis undergoing emergency laparotomy for perforated diverticulitis

Slide 13

JJO

I have no idea why this slide shows all the spelling errors

Johnson Elizabeth J, 2023-04-24T19:54:21.549



Q10: On September 1, there were 30 surgical patients in the hospital. Two of these were post op patients with SSI's. A total of 75 surgeries were performed in September. Six additional SSIs occurred in patients who had surgery in September. What was the numerator for an incidence rate in September?

- a. 30
- b. 6
- c. 8
- d. 75

Slide 14

JJO

SCS eyes was corrected to SSI's. I had originally used dictation software to create my questions, lol

Johnson Elizabeth J, 2023-04-24T21:07:26.462



Q11: The use of influenza vaccine in school age children to decrease the number of cases in the community uses the principle of:

- a. Innate immunity
- b. Passive immunity
- c. Herd immunity
- d. Epidemic immunity



Q12: The IP is called to the day care center for a possible outbreak of hepatitis A. The public health nurses assisting her investigating the outbreak. Prophylactic administration of immunoglobulin to the daycare worker and noninfected children would be an example of:

- a. Passive Immunity
- b. Active Immunity
- c. Herd Immunity
- d. Nonspecific immunity



Bonus Q13: The p value in statistical test results indicates:

- a. Causation
- b. The probability of having committed a Type I error
- c. The probability of committing a Type II error
- d. The probability of data being accurate and valid