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

Session 18: Surveillance and Epidemiology – Part 3

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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





Q1: What type of surveillance is the monitoring of bloodstream infection rates?

- a. Outcome surveillance
- b. Mandatory reporting
- c. Process surveillance
- d. Combined surveillance



Q2: The IP is selecting a process measure in order to monitor and evaluate quality of care. An example of process measure is:

- a. SSI after a hip replacement
- b. Conjunctivitis
- c. Hepatitis B immunity rates
- d. Tuberculin skin test (TST) conversions



Q3: Which of the following is an example of surveillance on a process indicator?

- a. The incidence rate of *Clostridium difficile* in the bone marrow transplant unit
- b. The rate of hand hygiene compliance in the bone marrow transplant unit
- c. The number of sharp object injuries in the month of May in the bone marrow transplant unit
- d. The prevalence of vancomycin-resistant enterococci (VRE) in the bone marrow transplant unit

? **Q4: The new IP for a LTCF assesses adherence to the facility's hand hygiene policies. In reporting her findings, she includes one of the following:**

- a. The number of hand hygiene episodes performed by personnel divided by the volume of soap used in the facility
- b. The number of hand hygiene episodes performed by the personnel divided by the number of patient days times 1,000
- c. The number of hand hygiene episodes performed by the personnel divided by the volume of alcohol-based hand rub
- d. The number of hand hygiene episodes performed by personnel divided by the number of hand hygiene opportunities by ward or service



Q5: Sensitivity may be defined as:

- a. The ability of a test to detect true positives (persons with the disease) when applied to a population with the disease.
- b. The ability of a test to detect the true negatives (persons without the disease) when applied to a population without the disease.
- c. The ability of a test to detect true positives (persons with the disease) when applied to a population without the diseases
- d. The percentage of persons with true positive results when the test is applied to persons without the disease



Q6: A physician would like to use a new screening test for methicillin resistant *Staphylococcus aureus* (MRSA), which is highly prevalent in the hospital population. The screening test has a sensitivity of 98% and a specificity of 58%. Which of the following conclusions is most accurate about the screening test?

1. The test will be very effective in correctly identifying people with have MRSA
 2. The test will be effective in correctly identifying people who do not have MRSA
 3. The test will yield very few false negative results
 4. The test will yield very few false positive results
- a. 1,3
 - b. 1,4
 - c. 2,3
 - d. 2,4



Q7: Measures of dispersion to consider for surveillance reporting include which of the following?

- a. Rates
- b. Ratios and proportions
- c. Percentiles
- d. Range and standard deviation



Q8: In preparing for the first meeting of the year for the infection prevention and control committee, the IP develops an annual report to include HAI trends. Of the choices below, this report should also address:

- a. A summary of injuries and risk factors for the injuries and personnel during the previous year
- b. Staffing needs of the department to optimize efficiency
- c. An evaluation of the surveillance program providing an assessment of its usefulness to the healthcare facility in preventing and controlling infections
- d. Aligned list of all the HAIs for the previous year and risk-reduction strategies



Q9: An IP is reviewing the below data from a cohort study that examined the relationship between VRE colonization and long-term care. What was the incidence density of VRE, colonization in this study?

Participant	Person-time observed	Colonized with VRE?
1	6 months	Yes
2	1 year	Yes
3	3 months	No
4	1.5 years	Yes
5	9 months	No

- a. Three Cases/4 person-years
- b. Five cases/4 person-years
- c. Three cases/3 person-years
- d. Two cases/1 person years



Q10: An IP wants to make external comparisons of the data collected relating to catheter associated urinary tract infections (CAUTI) in the intensive care unit. Which of the formulas below will allow the IP to accurately benchmark against nationally available data?

- a. The number of ICU patients with urinary catheters is given month divided by the number of urinary tract infections identified in the same month times 1000
- b. The number of IU urinary tract infections identified in a given month divided by the number of urinary catheter days in the same month times 1000
- c. The number of urinary catheters used in the ICU in a given month divided by the number of urinary tract infections identified in the same month times 1000
- d. The number of urinary tract infections identified in a given month divided by the total number of patient days in the ICU in the same month times 1000



Q11: The existence of an outbreak is most often determined by:

- a. The identification of more than 10 new cases per week
- b. An incidence rate that is more than two standard deviations higher than the previous year
- c. Detection of a cluster of organisms within more than one population
- d. An incidence of disease that is clearly in excess of that expected

Resources

Primary References:

Grota, P. ed. *APIC Text of Infection Control and Epidemiology*, 4th edition, Washington DC: Association for Professionals in Infection Control and Epidemiology, 2014. Also available online at <http://text.apic.org> (subscription required).

- **All questions and solutions referenced throughout entirety of presentation from:** *Certification Study Guide*, 6th edition, United States of America: Association of Professionals in Infection Control and Epidemiology, 2015.
- **All pictures and/or graphics used in this presentation with permissions cited if necessary on individual slides with hyperlinks.**