

Mediquiz

Series - 4



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Quiz Master

Investigation of a Covid-19 outbreak, Part-1

- (1) In a recent report, a cluster of cases of fever with Dyspnoea has been found in a slum area. What is the definition of a cluster?
- An aggregation of similar cases in an area over a period of time
 - An aggregation of similar cases in the same place and time which may or may not be greater than the expected incidence
 - An aggregation of similar cases in the same place and time which are far greater than the expected occurrence
 - Similar cases found in one area with one defined point source
- (2) A hospital has introduced a new test for coronavirus infection. After that, over the next one week, 52 cases were identified. Normally, the expected number of new cases in that area per week is 30-35. What is this phenomenon called?
- Outbreak
 - Cluster
 - Pseudo-outbreak
 - Epidemic
- (3) A hospital reported two new cases of Covid-19 among the staff. An outbreak management team was set up and it was found that there were lapses at various levels. The hand hygiene practice had gone lax, patient screening at the emergency was missing and bronchoscopy was done by a first year resident. What is this multiple level failure better known as?
- Swiss cheese model
 - Haddon matrix
 - Administrative failure
 - Cream cheese model
- (4) In a nursing home, it is seen that there are cases of hepatitis A every month. It started around six months ago and every month, there are 10-15 cases. Later, the outbreak investigation team found that one drinking water filter in the kitchen was contaminated. What is the type of epidemic?
- Propagated epidemic
 - Common source intermittent exposure
 - Common source continuous exposure
 - Mixed type
- (5) Hospitals often have infection outbreaks. Based on literature, what is the commonest infection outbreak in healthcare?
- Skin and soft tissue
 - Surgical site
 - Pneumonia
 - Bloodstream infections
- (6) When an outbreak occurs, the main duty is to break the chain of transmission. Healthcare workers are trained on the methods of asepsis for central venous catheter insertion. Which link in the chain of transmission does this address?
- Reservoir
 - Portal of entry
 - Portal of exit
 - Method of transmission

(Answer : next page)

Answer : Mediquiz

1. B

A cluster, for the purpose of outbreak investigation, is a number of similar cases grouped in place and time. The total number of cases may or may not be greater than the expected incidence for that population. It does not define the source of infection. Occurrence of a cluster is an indication for public health action. For example, a slum area normally has 10-12 cases of measles every quarter. Now, in the first week of April, there are 10 cases of measles in that slum. This is still not greater than the expected incidence. But this is a cluster and it needs investigation.

2. C

The introduction of new diagnostic method or new test kit may lead to a sudden increase in the number of detected cases. This may be due to higher sensitivity of the new test. This may also happen if the case definition is changed. This is called a pseudo-outbreak. If this happens, new baseline incidence rates will have to be established.

3. A

In epidemiology, as in other industries, it is seen that a catastrophe does not occur due to a single point of carelessness. Rather, there are systemic failures at multiple levels which cause the eventual disaster. This is called the Swiss cheese model. Each layer of the Swiss cheese has holes at different levels. Only when the holes of all layers line up, there is a catastrophe. Thus, the key to preventing a disaster is to ensure that multiple failures do not add up.

4. C

This is an example for common source epidemic with continuous exposure. In such cases, the case number reaches a plateau and continues in that plateau till the source is removed. In common source intermittent exposure, there are intermittent peaks coinciding with the exposure. For example, if the nursing home allows outside food twice a month and the outbreaks coincide with the days of outside food, then it is intermittent exposure.

5. D

Based on published surveys, blood stream infections are the commonest healthcare associated infection outbreaks. It occurs in about 35-40% of cases.

6. B

Any procedure on a patient is a potential source of entry of infections into the body of a susceptible host (patient). Thus, strict asepsis is needed to break this link (portal of entry) in the chain of transmission. The "method of transmission" link is broken by hand hygiene.