

Investigation of an outbreak: lessons from the SARS pandemic

True / False

Interactive presentation

Case Presentation

- In February 2003, a 78-year old woman was on vacation in Hong Kong with her husband. Upon returning to Toronto, Canada, on February 23rd she developed a fever, myalgia, sore throat and a cough. Over the next 10 days, her condition deteriorated and she died at home on March 5th.
- On February 27th, this woman's 41-year old son (Case A) became ill with fever and respiratory symptoms. On March 7th, 2003, he presented to the emergency room (ER) and was admitted to the Intensive Care Unit (ICU) where he died on March 13th.
- Between March 3rd and 14th, four more family members developed similar symptoms. The doctor who provided care to this family on March 6th developed respiratory symptoms on March 10th.
- By March 19th, several nurses who worked in the ER and ICU of that Hospital reported ill with fever and one or more of these symptoms: cough, malaise, myalgia, and headache. They were told to isolate themselves at home and to wear masks. The local public health department was notified of this hospital cluster.

This is an outbreak.

FALSE

- We expect respiratory infections to spread within a family so the situation was not initially defined as an outbreak.
- In Toronto, it was initially thought that the index case and her son had tuberculosis (TB). The family members were being investigated as potential TB patients.
- The two deaths and the rapid onset of respiratory symptoms among hospital staff raised suspicion that there was something else going on.

All types of pathogens (bacterial, viral etc.) could be considered in the differential diagnosis in an outbreak of respiratory illness.

TRUE

- The categories of pathogens included in the differential diagnosis for a respiratory infection include:
 - viral
 - bacterial
 - fungal and parasitic infections (unlikely to present like an outbreak)

The outbreak team should only consist
of medical doctors.

FALSE

- As in any outbreak investigation, the team should be multidisciplinary, including epidemiologists, laboratory specialists and clinicians, if possible with expertise in different content areas to cover as many fields as possible.

In this situation you should consider testing individuals not meeting the outbreak case definition or healthy contacts of ill individuals.

TRUE

- Contacts should be tested because of the potentially high infectious nature of illness. Early in an outbreak with an unknown pathogen, the case definition may need to be refined.
- Other reasons for testing of contacts not meeting the outbreak case definition include:
 - Describing the natural history of infection
 - Determining whether asymptomatic infection is possible
 - Estimating the secondary attack rate

One sample from each person is
enough.

FALSE

The number of samples needed is generally based on:

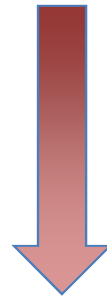
- sensitivity of the test
 - the importance of avoiding misclassification
 - whether this is a known or unknown pathogen
- ✓ Since multiple tests may be required to exclude all differential organisms, with the potential identification of a new pathogen and the subsequent need to send additional samples to multiple laboratories, if possible, additional specimens should be taken.

Sampling for respiratory viral infections

- <https://www.youtube.com/watch?v=mfZYAMDpGNk> (6 minutes)
- Video provided by WHO, Regional Office for the American continent

Identifying

1. Sample collection
2. Testing
3. Results



Severe Acute Respiratory Syndrome (SARS)

SARS EPIDEMIOLOGY

