Operation Outbreak

Epidemiology Review

Teacher's note: before printing, review and modify areas highlighted in yellow

Words in blue can be found in posters, glossaries and other printouts.

1 Objectives

After attending the laboratory the student should demonstrate achievement of at least 70% in written and practical examinations focusing on the following objectives.

1. Define epidemiology, surveillance and related definitions.
2. Use mathematics to measure statistics such as mortality, morbidity and incidence.
3. Outline the steps in an outbreak investigation.
4. Work collaboratively with student peers in a social simulation.
5. Effectively communicate scientific findings.

2 Procedure

Simulation:

1. Download the Operation Outbreak app and make sure Bluetooth is enabled.
2. Meet in the classroom for initial instructions.
3. Discuss pathogen, interventions and limitations.
4. Determine roles of laboratory, nurse, scientific communicator.
5. Complete questions on laboratory report—due at the end of class.

Assessment:

1. Log into classroom platform to review simulation data. (video of your simulation will be provided by Operation Outbreak)
2. Answer follow up questions.

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Name_____ Date_____

Operation Outbreak

LABORATORY EXERCISE

Epidemiology lesson

1. Predict (to be completed BEFORE starting the simulation):
   Your classroom is undergoing a simulation of exposure to a measles-like virus. This virus is highly contagious (measured by proximity on the Operation Outbreak app).
   a. If 2 of the 45 members of the group carry the pathogen, how many do you think will become ill?

   b. How many classmates do you think you will be in contact with over the next XX minutes?

   c. Will you stay "well"?

   d. Record your ID name for the outbreak here.

2. Investigate:
   Explore the classroom space and answer the following questions:
   1. What is our case definition of an infected person? How are cases characterized?

   2. What is the etiological agent used in the simulation?

   3. What kind of laboratory support is provided?

3. Define the following terms as they relate to the spread of disease. There are definition glossaries around the classroom.

   a. Endemic
   b. Epidemic
   c. Pandemic
   d. Incubation period
   e. Morbidity rate
   f. Mortality rate
   g. Nosocomial infections
   h. Reservoir
   i. Cluster

4. Define the following types of transmission of pathogenic microbes. (Ask a Clinical Year student for an example of each mode of transmission). I used this portion of the worksheet to encourage the younger students to ask older students for their expertise. If not you may want to bring books OR supply a few microbiology textbooks for students to look up this information as it is not all available in the posters or glossaries

Mode of transmission	Definition	Example of pathogen
Fomite		
Droplet		
Zoonoses		
Oral/fecal		
Vector		
Close Contact		

Which route of transmission best fits today's simulation?

5. What control measures are being implemented? Are there any additional measures that would be helpful?

4. Assess: Visit the online classroom, post- simulation to view our dashboard and answer final questions.
    a. Examples of assessment questions:
        i. What do you think went well with this simulation? Did you learn anything new?
        ii. What suggestions do you have to improve this simulation?
        iii. Review your predictions on page one. Compare them to the simulation review video. How accurate were you about the number of contacts you had and your health?
        iv. Students may calculate specific statistics such as
            1. Total population
            2. Mortality rate vs morbidity rate
            3. Vaccination rate
            4. Discussion of "prevalence"

This page for scientific communicator only (alternately, you might provide a whiteboard or other venue for them to disseminate this information)

Name_____ Date_____

You have been designated as scientific communicator. Write an 80-word (maximum) "tweet" to the public that describes your current "outbreak" and includes all of the information that they need to know.