

OUTBREAK:

An infectious disease role-playing activity

A curriculum activity to complement the December 1999 HHMI Holiday Lecture “2000 and Beyond: Confronting the Microbe Menace”

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Objective

To stimulate students to tackle problems addressed by public health officials to limit the spread of an infectious disease.

Preparation

Students should watch the HHMI December 1999 Holiday lectures “2000 and Beyond: Confronting the Microbe Menace“. Viewing the three lectures “The Microbes Strike Back” and “Outwitting Bacteria’s Wily Ways” by Brett Finlay, and “Emerging Infections: How Epidemics Arise” by Donald Ganem would be most useful. However, the information required to complete this exercise will not be limited to what the students have viewed in the HHMI Holiday Lectures. Students should be encouraged to utilize other resources such as the Internet and the library.

Assignment

Students are informed that a major outbreak of an infectious disease has occurred. The disease is highly contagious and the outbreak has already resulted in a number of deaths overseas and in the United States. The disease is airborne, but demonstrates some ability to infect humans from contact with inanimate objects, food, and water. As a student activity, it is probably more advantageous to have the outbreak be a disease which health officials have some experience dealing with. If the disease is a previously identified disease, available vaccines and antibiotics may be useful. This new outbreak should represent a more virulent strain, which has not been encountered before. However, the teacher can always decide that the class may want to tackle the issues associated with confronting a previously unidentified disease.

The Center for Disease Control (CDC) has been charged with the responsibility to develop a public health policy which can be used to successfully tackle the problem of the disease outbreak. The CDC policy should rely on current knowledge of infectious disease and acceptable public health protocols. The students in your class will participate in developing the CDC’s policy by contributing to the emergency meeting setting the public health policy regarding this outbreak. The Head of the CDC has decided that the meeting will be held in breakout sessions where the participants will be divided into small groups which address specific issues and then report back to the larger group. This is the basis of the exercise for the class.

The students are divided into discussion groups of three or four students and given issues to discuss. The groups are given 15 minutes to address each of the assigned questions. A spokesperson for the group will then present the group’s answers (or

decisions) related to each assigned question. Students from the other groups should be encouraged to state views in opposition to the presenting group if they disagree with the group's proposals.

Issues to be discussed by the breakout groups

Each group is assigned one topic, but must address each of the listed questions for that topic.

Minimizing person-to-person contact

- What effect will population density in the community have on spread of the disease?
- Should public health efforts be concentrated on large urban communities or smaller rural communities with limited resources?
- How would the spread of the disease be affected by congregation of large groups of people?
- What should be the policy regarding closing schools, day care, businesses, and public events such as concerts and athletic events?

Health care availability

- What is the impact of the quality of available health care in the community?
- What is the impact of the high cost of health care and the economic status of the community?
- Should free clinics be opened to address the outbreak?
- Should antibiotics and/or vaccinations be provided at no cost to individuals?

Health status

- What is the impact of age on the spread of an infectious disease?
- Is the impact of age related more to the spread of the disease or the impact on the individual?
- Similarly address the effects of economic status, nutritional status, stress, and injury on spread of the disease and impact to individuals.
- Should resources be concentrated on higher risk groups?

Travel

- What impact does public transit (buses, trains, subways, or airlines) have on the spread of infectious disease?
- Should the general public be warned against vacation travel or should travel be prohibited?
- What would be the impact on the economy if business or pleasure travel were curtailed?
- If the disease is spreading in foreign countries, should travel or immigration from impacted countries be prohibited?

Community Health Administration

- Should a quarantine be implemented?

- How do you determine the length of an effective quarantine while minimizing impact on individuals?
- What impact would public sanitation have on the spread of the infectious disease? Please address issues such as water quality, air quality, and waste disposal.

Health precautions

- Should masks, gloves, and/or exposure suits be utilized?
- What recommendations should be made about hand washing and use of public facilities such as toilets and phones?
- Should visitors be barred from visiting non-infected patients in hospitals or nursing homes?

Immunization

- What is the impact of an available vaccine on the spread of the infectious disease?
- What if the 90% of the public is currently immunized?
- What if the 50% of the public is currently immunized?
- What if the 90% of the public was immunized as children, but the immunization weakens with time?
- Should large amounts of vaccines be available?
- Who should be first priority for immunization?

Dissemination of public health information

- What would be the best way to spread information about the disease outbreak to the general public?
- How important is it to educate health care deliverers about the outbreak?
- The threat of a serious disease outbreak is likely to cause panic in the general public. What would be the best way to address possible panic?