Activity 3: No Room For Rumors

In this activity, students take on the role of a Reconstructor who needs to research information on an infectious disease.

Background

Infectious diseases are the leading cause of death worldwide and are becoming an increasing threat in the United States. Not only are many of these diseases curable, but many can also be prevented due to advances gained from research. Therefore, it is essential that the public have an understanding of the pathology of infectious diseases and the methods used to prevent them.

Although we know much about certain infectious diseases, there are many newly emerged diseases as well as old ones that have re-emerged with which the public needs to become familiar. It is important to remember that this class of diseases is ever-changing. We must continue to learn and relearn the pathology and epidemiology of infectious diseases in order to make appropriate changes to deal with them.

During middle school, students become familiar with the idea that illnesses can be caused by microorganisms, genetic predisposition, health habits, and their environment. At this time, an introduction to information on infectious diseases can impact how they live the rest of their lives. Therefore, an understanding of infectious diseases, the infectious agents involved, the method of spread, symptoms, diagnosis, treatment, risk of infection, and prevention are vital to a healthy individual and community.

Learning Objectives

The student will:

1. perform research on an infectious disease.
2. create a presentation on a specific infectious disease using a presentation software program.

Materials

1. computer with Internet access and presentation software program
2. No Room For Rumors Student Activity Sheet
3. sample cholera presentation
MISSION DEBRIEFING: Teacher Guide

Procedure

1. At the beginning of class, hand out the Neuropolis Center for Disease Control: No Room For Rumors Student Activity Sheet and the sample cholera presentation.
2. Tell the students that they are researchers for the Neuropolis Center for Disease Control. Each of them is required to research an infectious disease and document the facts that the public should know.
3. Using cholera as an example, they are to describe the disease, its infectious agent, method of spread, symptoms, diagnosis, treatment, risk of infection, and prevention.
4. Discuss how the study of a disease can ultimately help in its prevention.
5. Inform students that the Center needs them to make a public presentation about an infectious disease in order to stop the spread of false rumors about it. The presentation will be made using the information gathered on the disease plus any images that would aid in the description of the ailment in a slide show, overhead, or poster presentation.
6. Divide the class into groups of two or three students and assign each group an infectious disease to research.
7. Suggested research topics are:
   
   A. Examples of infectious diseases that affect the gut: *Escherichia coli* O157 infection, hookworm infection, salmonellosis, and shigellosis.
   B. Examples of infectious diseases that affect the central nervous system: botulism, meningococcal disease, and rabies.
   C. Examples of infectious diseases that affect the respiratory system: influenza, strep throat, and tuberculosis.
   D. Examples of infectious diseases that affect more than one system: anthrax, chickenpox, legionellosis, Lyme disease, measles, and mononucleosis.

8. Have each group present a finished presentation to the class.
No Room For Rumors

Extension Activities

- **Language Arts**: Interview a scientist or physician about their job, their role in fighting infectious disease, or a specific disease.
- **Social Studies**: Create a timeline of the history of a specific infectious disease. Include information on where the disease originated, scientists who studied the disease and their findings, and where the disease occurs today.
- **Social studies**: Draw a map with the locations and dates of an infectious disease outbreak.
- **Language Arts**: Write a poem about a disease and its consequences.
- **Mathematics**: Calculate the percent infected population for different infectious diseases.

Standards

National Science Education Standards, Grades 5-8

- Science Content Standard C: All students should develop understanding of structure and function in living systems
- Science Content Standard F: All students should develop understanding of personal health

Books


Web Sites

- Centers for Disease Control
- World Health Organization
  [http://www.who.int/](http://www.who.int/)
- The Plumber: Plagues and Epidemics
- History of Disease: *Karolinska Institute*
  [http://www.mic.ki.se/HistDis.html](http://www.mic.ki.se/HistDis.html)
No Room For Rumors

Rumors are rampant about an infectious disease that is spreading in your area. The Neuropolis Center for Disease Control (NCDC) needs your help to research the disease and present the facts to the public to stop the rumors and public anxiety!

Do the Research
Gather information on the infectious disease assigned to you from the library and/or using Internet sites and classroom reference materials. Record the name of the source of the information. The facts required for each disease are:

1. brief description of the disease
2. infectious agent
3. method of spread (water, food, insect, or person)
4. risk of infection
5. symptoms
6. method of diagnosis
7. treatment
8. prevention.

Present the Material
1. The presentation must contain these slides in the following order:
   A. Title Slide: Contains the name of the disease, your name and class period.
   B. Disease Facts: Use no less than five (5) “fact” slides to describe the disease facts. Graphics can be original artwork, clipart from free Internet sites, or images scanned from books and other sources. Report the source of all scanned images on the reference slide.
   C. Conclusion: Use one slide to conclude what you have learned about the study of the disease. You may want to include the precautions the public should take to prevent the disease.
   D. Reference Slides: List the names of the sources of the information presented including scanned graphics.

2. Suggestions for making the presentation:
   A. When using a color printer or monitor, use a background and font color combination that works well together. When using a black and white printer, use white for the background and black for the font. Avoid wild, distracting colors, as well as colors that appear to “vibrate” or are out of focus when projected.
   B. Use the same background and font color for each slide.
   C. Use the same fonts throughout the presentation.
   D. Use no more than six words per line of text and six lines of text per slide.
MISSION DEBRIEFING: Student Activity Sheet

Sample Cholera Presentation

Cholera

Infectious Agent:

Vibrio cholerae, a comma-shaped bacterium with a whip-like flagellum used for movement.

Invades the small intestines and secretes a poison.

Cholera

Method of Spread:

- In areas of poor sanitation, human solid waste can contaminate the water supply with Vibrio cholerae.
- If contaminated water is ingested, Vibrio cholerae can infect and cause the infectious disease cholera.

Cholera

Risk of Infection:

- Age and health
- Vaccination status
- Amount of bacteria ingested
- Bacteria's virulence

Cholera

Symptoms:

- Large amounts of diarrhea, vomiting, cramping in the legs and abdomen, but not usually a fever.
- If left untreated can produce as much as one liter of watery diarrhea per day which can eventually lead to death.
Sample Cholera Presentation

Cholera

Diagnosis:

- Detection of symptoms
- Detection of V.livio cholerae in stool samples
- Biochemical tests

Cholera

Treatment:

Replace the fluid and electrolytes lost through diarrhea. The fluid and electrolytes are replaced either by mouth or through a vein.

Cholera

Prevention:

- Good public hygiene with safe and efficient sanitation systems
- Boiling or chemically treating tainted water
- Good personal hygiene, such as thoroughly washing hands after using the restroom, will also help limit cholera.

Cholera

Conclusion:

Bad news Good news!

- Bad News: Cholera is a dangerous disease when left untreated.
- Good News: Cholera is completely preventable and treatable even if occurs!

Cholera

References:

1. Infectious Disease Information: Cholera (Electronic Database) (2001). Atlanta, GA: National Center for Infectious Disease (Producer and Distributor).
3. Imagen: Personal Drawings or Microsoft PowerPoint clips.