**Detecting Monitoring, and Responding to an Outbreak**

In 2004, there was an outbreak of bird flu (avian influenza) on a poultry farm in British Columbia. It is caused by a virus that infects birds, and it also can be transferred to humans. Health authorities at all levels of government responded to the outbreak. They put measures in place to reduce the risk of people being infected. For example, workers who came in contact with farmed poultry were monitored for symptoms of illness and treated if they got sick. So were their families. By the end of the outbreak, only two people had been infected. Both were treated successfully.

A successful outcome to a disease outbreak requires a coordinated effort. Health officials at all levels of government— local, provincial, and federal— work together to plan how to monitor and respond to an outbreak. They also plan how outbreaks may be detected.

**Part A: Detecting and Responding to an Outbreak— Guided Inquiry**

Question: How are outbreaks detected, monitored, and responded.

Procedure:

1. Collaborate to decide how you will plan, conduct, and process the research that you will do. Your goal is to find out and communicate how disease outbreaks in the province are detected, monitored, and responded to.
   * What is the role of health care professionals during an outbreak of an infectious disease? What agencies may be involved?
   * How do local public health authorities monitor, and respond to an outbreak?
   * What resources can be used to help confirm, monitor, and respond to an outbreak?
   * How do factors such as the type of pathogen, how it is transmitted, or the location of the outbreak affect the ways that public health authorities respond to an outbreak?
   * What steps do local authorities take to control the spread of the pathogen and contain the outbreak?
2. Find answers to the questions below. Also keep a record of any new questions you have as you do your investigation, and research those as well.
   * At what point may other levels of government get involved.
   * What protocols (plans) are in place to notify patients and/or the public about an outbreak?
   * How is the public notified of an outbreak? (For example, what news and other media may be used?)
   * How is the public informed about best practices to follow to help stop the spread of disease?
   * How are updates provided to the public, and who provides them?
   * How do health agencies reflect on what they have learned from an outbreak to better respond to the next outbreak?
3. You will record all the answers to these questions in ***FULL SENTENCES*** or in paragraph format. Then do the same for the *Analyze and Interpret* as well as the *Conclude and Communicate* sections. You may also take liberties with illustrations to enhance your research.

Analyze and Interpret:

1. Why is it important for health care professionals to report any incidences of notifiable diseases to the proper authorities?
2. Why is it important for public health authorities to monitor an outbreak?
3. What role does the public play in helping to reduce the spread of pathogen and reduce the size of an outbreak?

Conclude and Communicate:

1. Why is communication an important part of monitoring and responding to an outbreak?
2. How do social, economic, or ethical factors influence public health authorities when deciding when and how to notify the public of an outbreak?

**Part B: Detecting and Responding to an Outbreak— Open Inquiry**

Question: You will determine your own question to investigate. See step 3 of the Procedure.

Procedure:

1. Find an example of an outbreak of a disease that has occurred in or near your region.
2. Write out any questions you have about the outbreak. Use the 5 W’s (Who, What, Where, When, and Why?) to help you brainstorm questions.
3. Decide which question or questions you will investigate, and plan how you will answer them.
4. Carry out your plan.

Process and Analyze:

1. You can show patterns or relationships in your findings using tables, graphs, and digital technologies. Choose the methods that help you organize and examine your findings best.
2. Identify patterns and connections in your findings to make science-based inferences, interpretations, and conclusions.

Evaluate and Communicate:

1. Do you think the public health authorities monitored and responded to the outbreak in a satisfactory manner? Give examples and reasons to justify your opinion.
2. What has been and could be done to prevent future outbreaks like the example you chose?

Apply and Innovate:

1. Consider the example you chose. Assume that the outbreak has progressed to the point that the public needs to be notified. Create a notification, in a form of your choice, for the public about the outbreak. Include basic information about the disease, the current status of the outbreak, and best practices to follow to help reduce the spread of the pathogen. Consider your audience when creating your notification. For example, “the pubic” includes people of different ages and backgrounds. How can you tailor your notification to reach the broadest possible audience?