

What is My Diagnosis?

Disease Background Information

(Taken from the State Science Teacher Resource Book, page 12.2.34 and 35.)

Enter toxigenic E. coli Gastroenteritis, caused by E. coli bacteria:

Leading cause of infant death worldwide. Visitors to Latin American countries who partake of the food and water occasionally come down with “traveler’s diarrhea,” also known as “turista” or “Montezuma’s Revenge.” A large outbreak of this disease occurred in 1975 in Crater Lake National Park, Oregon. About 2,000 park visitors and about 200 park employees became ill after consuming water that had been contaminated by sewage. Campers who drink from springs frequently contract this disease.

Typhoid Fever, caused by Salmonellatyphi bacteria:

Now uncommon in the U.S., this is usually acquired during foreign travel. During the first half of this century it was the most commonly reported cause of waterborne disease in the U.S. It can be acquired by contact with contaminated water, swimming, etc. In 1907, Mary Mallon, nicknamed “Typhoid Mary,” was identified as a carrier of the disease. She transmitted the disease while working as a cook in restaurants and private homes in New York City. She escaped authorities for eight years, but was finally apprehended in 1915. She infected some 50 people, with three cases resulting in death. In 1973 a major outbreak of typhoid fever affected 225 people in a migrant labor camp in Dade County, Florida. The well that supplied water to the camp was contaminated by surface water.

Giardiasis, caused by Giardia lamblia protozoan:

Sickness results with only a low dose of the protozoan. Today it is the most commonly reported cause of waterborne diseases. Normal hosts for the parasite are mammals, such as beavers, muskrats, and raccoons. The giardia protozoan is killed by boiling water for at least five minutes.

Legionnaire’s Disease, caused by Legionella pneumophila bacteria:

Found naturally in water environments; bacteria often colonized artificial water systems such as air conditioners and hot water heaters, and can be inhaled with aerosols produced by such systems. Smoking and lung disease increase susceptibility to disease.

Salmonellosis, caused by a species of Salmonella bacteria:

This is carried by humans and many animals; wastes from both can transmit the organism to water or food. The largest waterborne salmonella outbreak reported in the U.S. was in Riverside, California, in 1965 and affected over 16,000 people.

Shigellosis, caused by a species of Shigella bacteria:

Most infection is seen in children 1-10 years old; a very low dose can cause illness. Waterborne transmission is responsible for a majority of the outbreaks. It is quite common in the United States.

Hepatitis A, caused by Hepatitis A virus:

Third most common cause of waterborne disease in U.S. The term hepatitis relates to inflammation of the liver.

Disease Cards with No Answers

Patient #1 Background

Returns home from vacation in Central America. Problems start about 12 hours after drinking water in Central American restaurant. Diarrhea begins and ultimately causes dehydration. Muscles are tender and sore. Slight fever develops. Some nausea and vomiting occurs. Stomach and abdominal cramps cause increased discomfort.

Patient #2 Background

Problems begin about 10 days after patient drinks from the same water glass as a family member who contracted a disease while visiting Africa. It becomes difficult for the patient to do any physical work (lethargic). Rose-colored spots appear on the skin. There are general aches and pains. Patient gets weaker (malaise), and loses appetite. Abdomen is tender to the touch. High fever develops and patient becomes delirious.

Patient #3 Background

Symptoms start two weeks after a hike in the mountains. Patient drank water from a clear, cold mountain stream where there was evidence of beaver activity. Abdominal cramps begin. Bowel movement is greasy and foul-smelling. Patient experiences excessive intestinal gas. General weakness and discomfort ensues (malaise). Patient loses weight.

Patient #4 Background

Patient is a heavy smoker. He/she likes a house cool, so uses the air conditioner and keeps windows closed. Sudden fever rises to 104° F. Patient gets chills, and notes that his/her breathing is very rapid, and a cough develops. There is a rattling sound in the lungs, and pains the chest. Patient experiences general muscle pain and tenderness. Mental confusion and severe headaches occur.

Patient #5 Background

Patient develops symptoms 10 hours after eating a poorly cooked hamburger. General discomfort and weakness occur (malaise). Fever increases. Stomach cramps with dysentery is followed by nausea and vomiting.

Patient #6 Background

Patient is a four-year-old child. Symptoms begin the day after the patient attends a friend's birthday party. Patient shared food with other children, and now has severe abdominal cramps, and frequent painful dysentery. Blood and mucous are in patient's stool. Nausea and vomiting accompany the cramping. A high fever develops with chills and dehydration.

Patient #7 Background

Patient has been swimming in a local river. Upon his/her return, general weakness and discomfort occur (malaise). Patient loses appetite and develops fever, mild diarrhea, and nausea. Patient's skin and whites of his/her eyes become yellow. The patient is sick for a week.

Waterborne Disease Analysis Key

1a. Recently visited a foreign country or associated with someone who had visited a foreign country. (Go to 2)

1b. Did not have contact with foreigners or people who had traveled to a foreign country. (Go to 3)

2a. Rose-colored spots on skin, malaise, loss of appetite, high fever, delirious, tender abdomen. (Typhoid Fever)

2b. No rose-colored spots on skin, diarrhea, tender and sore muscles, slight fever, stomach cramps, nausea, and vomiting. (Gastroenteritis)

3a. Went camping, hiking, or swimming. (Go to 4)

3b. Did not recently experience any outdoor activities. (Go to 5)

4a. Drank water from a spring, stream, or lake. Abdominal cramps, greasy, smelly bowel movements, excessive gas, and weight loss. (Giardiasis)

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b. Did not drink water, but spent time in the water. Malaise, anorexia, fever, nausea, jaundice. (Hepatitis A)

5a. Abdominal cramps. (Go to 6)

5b. No abdominal cramps, but fever, chills, cough, and rapid breathing. (Legionnaire's Disease)

6a. Recalls eating poorly cooked meat, malaise, fever, dysentery. (Salmonella)

6b. Blood and mucous in stool, generally that of a child who had contact with other children. (Shigella)

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Hepatitis