

Post-Film Quiz Example Answers

1. What are the four food safety “weapons” for keeping harmful bacteria from getting into our food? List the 4Cs and explain what they mean.

Good food safety practices are to **clean**—which removes bacteria from hands and surfaces, **cook**—which kills bacteria by breaking down their cell walls and destroying enzymes, which they need to survive, **chill**—which slows down bacteria’s metabolism, thus slowing their growth, and **combat cross contamination**—which is to separate foods in order to prevent bacteria from spreading from one item to another.

2. Most E. coli strains are helpful bacteria that do not hurt us. Why is E. coli 0157:H7 such a harmful bacterium?

Bacteria multiply quickly and can also mutate (adapt and evolve). Mutations can make bacteria better able to survive, with characteristics such as antibiotic resistance. *E. coli* 0157:H7 is a unique form of the *E. coli* bacteria that can cause severe illness, and sometimes kidney failure and death.

3. What does DNA have to do with bacteria?

DNA is the genetic blueprint for all living things. It contains the information that gives living things their traits or characteristics. In bacteria, the DNA molecule encodes the information that enables bacteria to grow, reproduce and cause illness.

4. What does DNA tell us when there is a foodborne illness outbreak?

Scientists use DNA “fingerprinting” to identify similar groups of bacteria. DNA is treated so that it exhibits its own special pattern. When an outbreak of foodborne illness occurs, scientists try to determine where the bacteria in the food originated by examining the pathogen’s DNA from other samples. Then they can trace the spread of the bacteria from its DNA.

5. Consider the **12 worst bacteria** that you reviewed and that Dr. X describes in the film. Using the list provided to you and/or web resources, provide the following information for each:

Name of bacterium: *Campylobacter jejuni*

In which food sources might you find it?

Raw milk, untreated water, raw and undercooked meat, shellfish and poultry

What illnesses can it cause?

Diarrhea, cramps, fever, muscle pain, headache and nausea

How do you prevent it being transmitted?

Do not drink raw milk or untreated water, and cook meat, poultry, shellfish thoroughly

Incubation period and duration of illness?

Incubates 2-5 days after ingestion, duration is 7-10 days

Name: _____ Date: _____

Name of bacterium: *Clostridium botulinum*

In which food sources might you find it?

Home canned and prepared foods, vacuum packed and tightly wrapped food, meat products, seafood, herbal cooking oils

What illnesses can it cause?

Dry mouth, followed by nausea, vomiting, and diarrhea. In later, more severe stages, constipation, weakness, muscle paralysis, and breathing problems. If untreated, severe cases can be fatal.

How do you prevent it being transmitted?

Proper heat processing destroys this bacterium in canned food. Freezing inhibits growth, low moisture controls its growth in dried food, and oxygen controls its growth in fresh food.

Incubation period and duration of illness?

Incubation occurs 4 to 36 hours after ingesting, duration is 1 week to a year

Name of bacterium: *Clostridium perfringens*

In which food sources might you find it?

Meat and meat products

What illnesses can it cause?

Mild abdominal pain, sometimes nausea and vomiting

How do you prevent it being transmitted?

Meat must be well cooked and chilled if not consumed quickly

Incubation period and duration of illness?

Incubation occurs within 8 to 12 hours, duration is a day or less for healthy people

Name of bacterium: *Escherichia coli* O157:H7

In which food sources might you find it?

Meat, especially raw or undercooked hamburger, uncooked produce, raw milk, unpasteurized juice and contaminated water

What illnesses can it cause?

Severe abdominal cramps, bloody diarrhea, nausea. Can cause kidney damage to young, old and people with compromised immune system

How do you prevent it being transmitted?

Thorough cooking of food, pasteurizing milk and juice, treating water

Incubation period and duration of illness?

Incubation occurs to 10 days after ingestion, but most commonly 3-4 days, illness lasts 5 to 8 days

Name of bacterium: *Listeria monocytogenes*

In which food sources might you find it?

Refrigerated, ready-to-eat foods

What illnesses can it cause?

Fever, headache, fatigue, muscle aches, nausea, vomiting, diarrhea, meningitis and miscarriages

How do you prevent it being transmitted?

Dispose of unused ready to eat foods as directed on label

Incubation period and duration of illness?

Name: _____ Date: _____

Incubation occurs in 2-3 days although it can be up to 30 days; illness lasts 1-4 days

Name of bacterium: *Salmonella Enteridis*

In which food sources might you find it?

Raw and undercooked eggs, raw meat, poultry, seafood, raw milk, dairy products

What illnesses can it cause?

Diarrhea, fever and abdominal cramps

How do you prevent it being transmitted?

Cook food thoroughly, avoid cross-contamination, wash raw produce, and avoid raw milk or dairy products

Incubation period and duration of illness?

Incubation occurs 12-72 hours after eating contaminated food, and illness lasts 4-7 days

Name of bacterium: *Salmonella Typhimurium*

In which food sources might you find it?

Raw and undercooked eggs, raw meat, poultry, seafood, raw milk, dairy products

What illnesses can it cause?

Diarrhea, fever and abdominal cramps; however, it is a highly virulent strain of Salmonella and is resistant to some antibiotics

How do you prevent it being transmitted?

Cook food thoroughly, avoid cross-contamination, wash raw produce, and avoid raw milk or dairy products

Incubation period and duration of illness?

Incubation occurs 12-72 hours after eating contaminated food, and illness lasts 4-7 days

Name of bacterium: *Shigella*

In which food sources might you find it?

Salads, milk and dairy products, raw oysters, ground beef, poultry and unclean water

What illnesses can it cause?

Diarrhea, fever, vomiting, abdominal cramps, bloody stool

How do you prevent it being transmitted?

Proper human cleanliness procedures, particularly hand washing

Incubation period and duration of illness?

Incubation occurs 1-7 days after eating contaminated food; illness lasts 5 to 7 days

Name of bacterium: *Staphylococcus aureus*

In which food sources might you find it?

Dairy products, cream-filled pastries and other desserts, high-protein foods, such as cooked ham, raw meat and poultry and humans (skin, infected cuts, pimples, noses and throats)

What illnesses can it cause?

Nausea, abdominal cramps, vomiting and diarrhea

How do you prevent it being transmitted?

Make sure food is properly chilled and do not eat food left out at room temperatures, cover wounds, isolate infected people, protective hygiene measures

Name: _____ Date: _____

Incubation period and duration of illness?

Incubation occurs rapidly, within 30 minutes to 8 hours after eating infected food; illness lasts 24-48 hours

Name of bacterium: *Vibrio cholerae*

In which food sources might you find it?

Raw and undercooked seafood and other contaminated food and water. Contaminated food or water has mixed with water sources containing cholera from feces of cholera victims.

What illnesses can it cause?

Mild to severe. In a severe form, profuse diarrhea, leading to loss of bodily fluids, dehydration, shock and sometimes, death.

How do you prevent it being transmitted?

Cook seafood thoroughly, and eliminate contact with cholera-infected food or water.

Incubation period and duration of illness?

Incubation occurs 6 hours to 5 days after contact; illness lasts 7 days.

Name of bacterium: *Vibrio vulnificus*

In which food sources might you find it?

Raw fish and shellfish, especially oysters

What illnesses can it cause?

Diarrhea, chills, abdominal pain, nausea, vomiting, fever, sometimes sore-like blisters on legs.

How do you prevent it being transmitted?

Cook seafood thoroughly

Incubation period and duration of illness?

Incubation occurs within 16 hours, illness lasts 2 to 3 days

Name of bacterium: *Yersinia enterocolitica*

In which food sources might you find it?

Raw meat and seafood, dairy products, produce, and untreated water

What illnesses can it cause?

Fever, diarrhea, vomiting, abdominal pain. Particularly severe in children

How do you prevent it being transmitted?

Cook meat and seafood thoroughly, avoid cross-contamination, drink treated water

Incubation period and duration of illness?

Incubation occurs 1-2 days after eating contaminated food or drinking contaminated water, illness lasts 1 to 2 days