

Instructions for Printing Pathogen & Outbreak Cards

1. Print one copy of this document.
2. Cut pages into individual cards along dotted line
3. Laminate each card

Instructions for Using Pathogen/Outbreak Cards

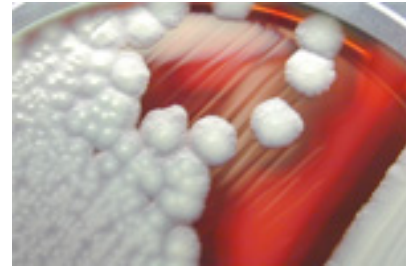
This deck contains one set of pathogen cards and one set of outbreak cards.

1. Determine the number of participants in the class.
2. Divide the number of participants by two to determine how many *pairs* of pathogen cards and outbreak cards you will need.
 - E.g 26 participants so you will need 13 *pairs* of pathogen cards and 13 *pairs* of outbreak cards.
3. For Interview Exercise One, shuffle the appropriate number of *pairs* of pathogen cards and then distribute one to each participant.
4. Have participants locate the other person in the class with the same card so that they can do the interview together.
5. For Exercise Two, repeat the above steps with the outbreak cards.
6. For Exercise Three, repeat the above steps with the pathogen cards.

Bacillus cereus

Bacillus cereus or *B. cereus* is a type of bacteria that produces toxins. These toxins can cause two types of illness: one type characterized by diarrhea and the other, called emetic toxin, by nausea and vomiting.

These bacteria are present in foods and can multiply quickly at room temperature.



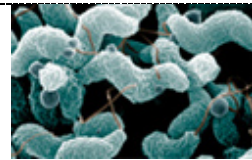
Botulism

Botulism is a rare but serious illness caused by a bacterium which occurs in soil. It produces a toxin that affects your nerves. Foodborne botulism comes from eating foods contaminated with the toxin.



Campylobacter

Campylobacter is one of the most common causes of food poisoning in the United States. The vast majority of cases occur as isolated events, not as part of recognized outbreaks.



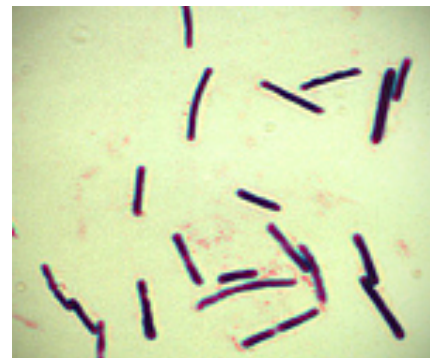
Clostridium perfringens

Clostridium perfringens (*C. perfringens*) is one of the most common causes of food poisoning in the United States.

According to some estimates, this type of bacteria causes nearly a million illnesses each year.

Cooking kills the growing *C. perfringens* cells that cause food poisoning, but not necessarily the spores that can grow into new cells. If cooked food is not promptly served or refrigerated, the spores can grow and produce new cells. These bacteria thrive between 40-140°F (the “Danger Zone”). This means that they grow quickly at room temperature, but they cannot grow at refrigerator or freezer temperatures.

C. perfringens infections often occur when foods are prepared in large quantities and are then kept warm for a long time before serving. That’s why outbreaks of these infections are usually linked to institutions (such as hospitals, school cafeterias, prisons, and nursing homes) or events with catered food.

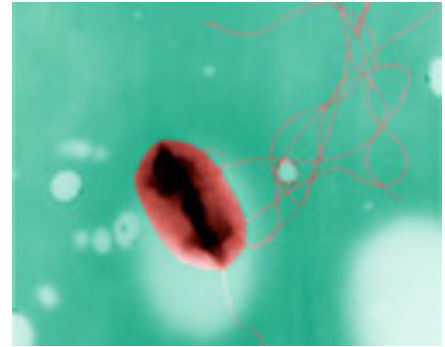


E. coli

E. coli is the name of a type of bacteria that lives in your intestines and in the intestines of animals. Although most types of *E. coli* are harmless, some types can make you sick.

The worst type of *E. coli*, known as *E. coli* O157:H7, causes bloody diarrhea and can sometimes cause kidney failure and even death. *E. coli* O157:H7 makes a toxin called Shiga toxin and is known as a Shiga toxin-producing *E. coli* (STEC). There are many other types of STEC, and some can make you just as sick as *E. coli* O157:H7.

One severe complication associated with *E. coli* infection is hemolytic uremic syndrome (HUS). The infection produces toxic substances that destroy red blood cells, causing kidney injury. HUS can require intensive care, kidney dialysis, and transfusions.



Giardia

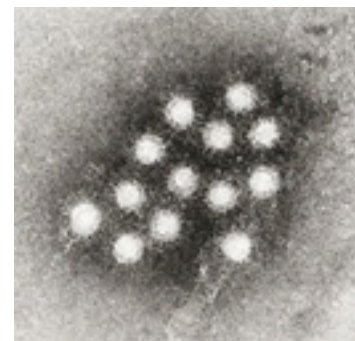
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Hepatitis A

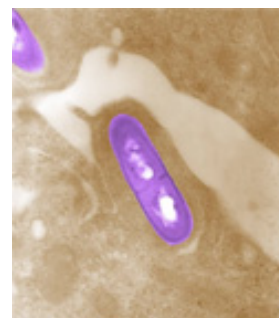
Hepatitis A is a liver disease caused by the hepatitis A virus. The disease is spread primarily through food or water contaminated by stool from an infected person.

Hepatitis A is one of the few foodborne or waterborne illnesses that can be prevented by vaccination. Vaccination is recommended for all children age 12 months and older, for travelers to certain countries, and for people at high risk for infection with the virus.



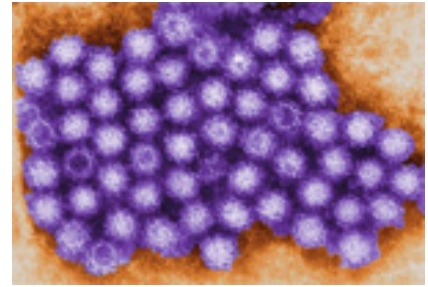
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Listeria is the name of a bacteria found in soil and water and some animals, including poultry and cattle. It can be present in raw milk and foods made from raw milk. It can also live in food processing plants and contaminate a variety of processed meats. *Listeria* is unlike many other germs because it can grow even in the cold temperature of the refrigerator. *Listeria* is killed by cooking and pasteurization.



Norovirus (Norwalk Virus)

Noroviruses are the most common cause of acute gastroenteritis (infection of the stomach and intestines) in the United States. Norovirus illness spreads easily and is often called stomach flu or viral gastroenteritis, People who are infected can spread it directly to other people, or can contaminate food or drinks they prepare for other people. The virus can also survive on surfaces that have been contaminated with the virus or be spread through contact with an infected person.



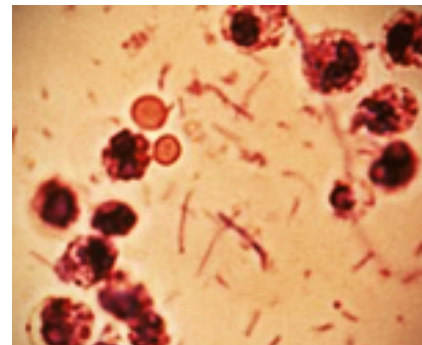
Salmonella

Salmonella, the name of a group of bacteria, is one of the most common causes of food poisoning in the United States. Usually, symptoms last 4-7 days and most people get better without treatment. But, *Salmonella* can cause more serious illness in older adults, infants, and persons with chronic diseases. *Salmonella* is killed by cooking and pasteurization.



Shigella

Shigellosis is an infectious disease caused by *Shigella*. The *Shigella* germ is a family of bacteria that can cause diarrhea in humans. People with shigellosis shed the bacteria in their feces. The bacteria can spread from an infected person to contaminate water or food, or directly to another person. Getting just a little bit of the *Shigella* bacteria into your mouth is enough to cause symptoms. The illness is most commonly seen in child-care settings and schools. Shigellosis is a cause of traveler's diarrhea, from contaminated food and water in developing countries.



Staphylococcus

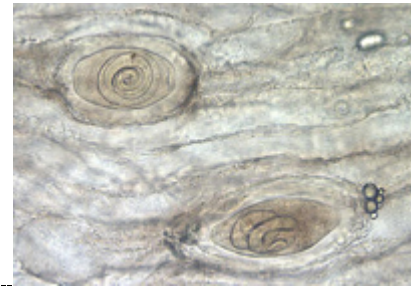
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Staphylococcus can cause food poisoning when a food handler contaminates food and then the food is not properly refrigerated. Other sources of food contamination include the equipment and surfaces on which food is prepared. These bacteria multiply quickly at room temperature to produce a toxin that causes illness. *Staphylococcus* is killed by cooking and pasteurization.



Trichinosis

Trichinellosis, also called trichinosis, is caused by eating raw or undercooked meat of animals infected with the larvae of a species of worm called *Trichinella*. Infection occurs commonly in certain wild carnivorous (meat-eating) animals such as bear or cougar, or omnivorous (meat and plant-eating) animals such as domestic pigs or wild boar.

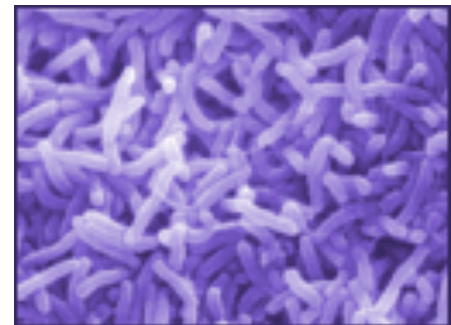


Vibrio Infections

Vibrio vulnificus (*V. vulnificus*) and *Vibrio parahaemolyticus* (*V. parahaemolyticus*) are bacteria that occur naturally in warm coastal areas, such as the Gulf of Mexico. These bacteria are found in higher concentrations in the summer months when water gets warmer.

Vibrios typically cause disease in people who eat contaminated seafood.

V. parahaemolyticus typically causes non-bloody diarrhea. In persons with liver disease, cancer, or another immune-compromising condition, *V. vulnificus* typically infects the bloodstream, causing a life-threatening illness. About half of *V. vulnificus* bloodstream infections are fatal, and death can occur within two days. In addition to transmission by raw shellfish, *V. vulnificus* can enter the body via a wound that is exposed to warm seawater.



E. coli at Jack in the Box, 1993

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Jack in the Box rebounded by creating the now infamous “Jack” character and accompanying ad campaign in 1994. The campaign kept the company alive and 15 years later, Jack and the franchise are still going strong.



Listeria Caused by Jalisco Cheese, 1985

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Cargill Ground Turkey Causes Salmonella, 2011

In August 2011, Cargill, Inc.—the largest privately held corporation in the U.S.—recalled 36 million pounds of ground turkey after fears that it was contaminated with a strain of *Salmonella* resistant to antibiotics. It has been linked to at least one death and 79 illnesses across 26 states. That investigation is ongoing.



Listeria in Cantaloupes, 2011

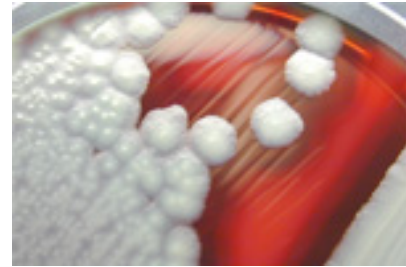
In 2011, cantaloupes contaminated with the bacteria *Listeria monocytogenes* caused the deadliest foodborne disease outbreak in the United States in nearly 90 years. The outbreak, which was linked to a single cantaloupe farm in Colorado. There were 147 cases of illness in 28 states; 29 cases died and one miscarried.



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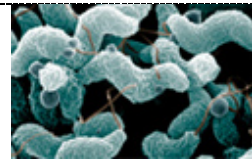
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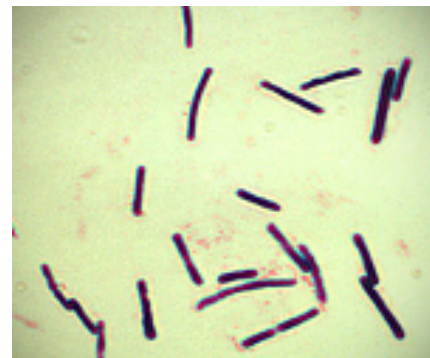
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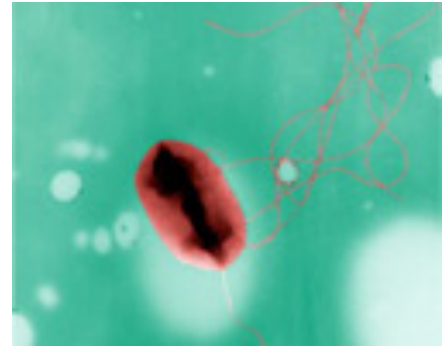


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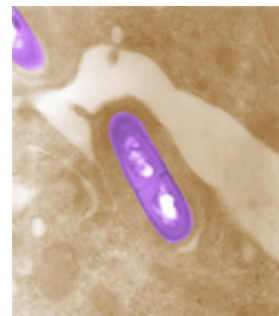
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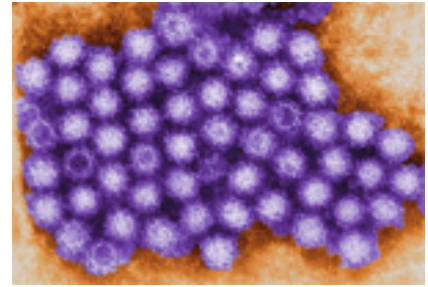
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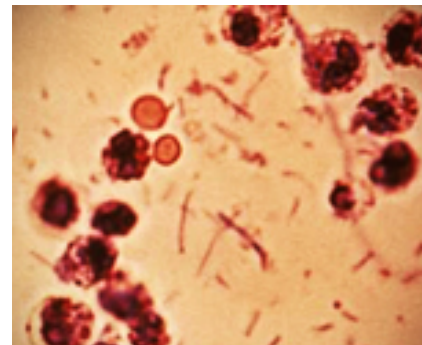
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Getting just a little bit of the *Shigella* bacteria into your mouth is enough to cause symptoms.

The illness is most commonly seen in child-care settings and schools. Shigellosis is a cause of traveler's diarrhea, from contaminated food and water in developing countries.



Staphylococcus

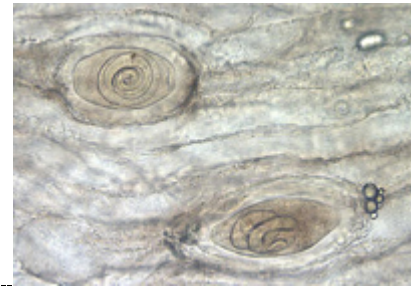
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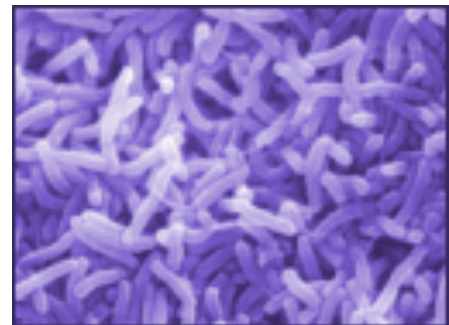


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From April to July 2008, more than 1,329 people across 43 states were infected with *Salmonella* poisoning, the largest *Salmonella* outbreak since 1985. They were linked to fresh tomatoes from Mexico and Florida, as well as fresh jalapeños and Serrano peppers from those areas. In early 2009, contaminated peanut butter prompted a recall of 3,918-related peanut butter products after nine people died, and 22,500 more were sickened. The cases were linked to Peanut Corporations of America, which is now bankrupt.



Cargill Ground Turkey Causes Salmonella, 2011

In August 2011, Cargill, Inc.—the largest privately held corporation in the U.S.—recalled 36 million pounds of ground turkey after fears that it was contaminated with a strain of *Salmonella* resistant to antibiotics. It has been linked to at least one death and 79 illnesses across 26 states. That investigation is ongoing.



Listeria in Cantaloupes, 2011

In 2011, cantaloupes contaminated with the bacteria *Listeria monocytogenes* caused the deadliest foodborne disease outbreak in the United States in nearly 90 years. The outbreak, which was linked to a single cantaloupe farm in Colorado. There were 147 cases of illness in 28 states; 29 cases died and one miscarried.

