

What Causes Foodborne Illness?

Although foodborne illness can result from biological, chemical, or physical hazards in food, pathogenic microorganisms (bacteria and viruses) cause more than 90 percent of reported cases of foodborne illness. Bacteria and viruses cannot be seen with the naked eye. In fact, they are so small that 1 million can fit on the head of a pin. Although small, the effects of microorganisms can be large. People who eat food contaminated with harmful microorganisms can become ill, or even die.

There are two ways that harmful microorganisms can work:

- 1) The microorganisms get into the food, multiply rapidly, and cause illness when the food is eaten.
- 2) The microorganisms get into the food, multiply, and produce a toxin that causes illness when the food is eaten.

Proper cooking will kill microorganisms, but may not deactivate toxins.

Microorganisms need four things to grow: a source of contamination, the proper food, the right temperature, and time. We can think of these four things as the pieces of a time bomb. When all four come together, the bomb explodes and foodborne illness occurs. Each piece is discussed briefly below.

1)Source

Bacteria can get into our food in a variety of ways. The most common ways include:

Pests: Mice, rats, flies, and other insects can carry bacteria.

People: We all carry bacteria on our bodies. We can transmit these bacteria to food by coughing, sneezing, spitting, through runny noses, infected cuts, pimples, boils, feces, and by forgetting to wash our hands before touching food.

Cross contamination: Raw food may contain harmful bacteria which can be spread to uncontaminated food by people, direct contact between foods (like when juice from a thawing chicken drips on the lettuce stored below it), or contact with contaminated utensils (like when the same cutting board is used for both raw and cooked food without being thoroughly washed and sanitized in between).

2)Food

Microorganisms like many of the same foods that we do. Their favorites are foods that are high in protein or carbohydrates, like meat, milk, poultry, and eggs. They also like cream fillings, gravies, and puddings. Because microorganisms require moisture to grow, they are very happy in cooked rice and pasta, but will not grow in the dry products.

3)Temperature

Harmful microorganisms grow rapidly in the Danger Zone, between 40 °F and 140 °F. That's why it's important to keep perishable foods either HOT or COLD.

4)Time

Bacteria multiply rapidly under favorable conditions. That's why it is important to minimize the amount of time that food is between 40° F and 140° F. Remember the two hour rule. Discard perishable food that has been in the Danger Zone for more than two hours.
