



# Typhoid Fever

## What is typhoid fever?

Typhoid fever is an infectious disease caused by the bacterium *Salmonella* Typhi. In the United States, about 400 cases occur each year with approximately 75% of these cases acquired during travel to underdeveloped countries, including Asia, Africa, and Latin America. Typhoid fever is uncommon in Oklahoma. Since 1990, 0 to 3 cases have been reported each year.

## What are the symptoms of typhoid fever?

People with this disease may experience mild or severe symptoms. Persons with typhoid fever usually have a sustained fever as high as 103° to 104°F (39° to 40°C). The symptoms of typhoid fever may also include weakness, headache, stomach pains, or loss of appetite. Constipation or diarrhea may also occur. In some cases, persons may develop a rash of flat, rose-colored spots on the trunk of the body.

## How is typhoid fever spread?

*Salmonella* Typhi lives only in humans; there are no animals that carry it. Persons with typhoid fever carry the bacteria in their bloodstream and intestinal tract while experiencing symptoms. In addition, some people recover from typhoid fever but continue to carry the bacteria; these people are called carriers. Both ill persons and carriers can shed *Salmonella* Typhi in their feces and sometimes urine. A person can get typhoid fever if they eat or drink beverages that have been contaminated by feces from a person who is shedding *Salmonella* Typhi, or if the bacterium gets into the water used for drinking or washing uncooked foods like fruits and vegetables.

## How soon after infection do symptoms occur?

Symptoms may appear from 3 days to 60 days after exposure, but usually within 8 to 14 days.

## How long can an infected person spread the bacteria?

The disease can be spread to others as long as the bacteria remain in the stool and urine, which may vary from days to years. About 10% of untreated typhoid fever cases will continue to shed the bacteria in their feces for 3 months after experiencing symptoms; 2% to 5% become permanent carriers.

## Should people sick with typhoid fever stay home from work, school, or day care?

If a person is employed as a food handler, works in a day care center, or has direct patient care duties, they must not work while they have diarrhea. Children with diarrhea should not attend a day care center or a school setting. People who are sick with typhoid fever will be given specific instructions by a public health nurse or epidemiologist about working with food, providing direct patient care, and working in/attending a day care center or school setting.

## What is the treatment for typhoid fever?

Specific antibiotics may be prescribed by a doctor to treat typhoid fever. Persons given antibiotics usually begin to feel better within 2 to 3 days. However, persons who do not get treatment may continue to have symptoms of illness for weeks or months. Before antibiotics were available, the fatality rate from typhoid fever was as high as 20%. The fatality rate is less than 1% among those given timely treatment.

## Is there a vaccine against typhoid fever?

Yes. Two vaccines are currently available, an oral and an injectable vaccine. Travelers to countries where typhoid fever occurs should plan ahead with a travel clinic or their healthcare provider in order to receive their vaccinations in time to be fully protected before arrival.

## How can food handlers prevent the spread of typhoid fever?

There are three important ways a food handler can prevent the spread of typhoid fever.

1. Food handlers should never work while ill with fever, nausea, vomiting, abdominal cramps, or diarrhea. If a food handler has any of these symptoms, he/she should immediately stop handling food and report the symptoms to the restaurant management.
2. Food handlers should always use good hand washing techniques—especially after each use of the restroom. The proper hand washing method is: 1) wet hands with clean, running water and apply soap, 2) lather hands by rubbing them together with soap, 3) scrub hands together for 20 seconds, paying close attention to scrubbing the back of the hand, between the fingers, ends of the fingers, and under/around the fingernails, 4) rinse hands well with clean, running water, 5) turn off faucets with the towel or elbow (so that clean hands do not touch the faucets), and 6) dry hands with a disposable, single-use towel. Use the towel to open the restroom door.
3. Wear gloves when handling or preparing ready-to-eat foods. A fresh pair of gloves must be put on after each time a food handler uses the rest room, whenever gloves have been used to touch items other than food, after touching raw (to be cooked) foods, or clean utensils used to directly prepare food. A new pair of gloves should always be put on if a tear is noticed. It is important to know that gloves are not a substitute for good hand washing. Hands must always be washing prior to using gloves.

## All travelers to areas where typhoid fever has occurred should observe the following recommendations:

1. Avoid raw vegetables and fruits that cannot be peeled. Leafy vegetables like lettuce are easily contaminated and are very hard to wash well.
2. When eating raw fruit and vegetables that can be peeled, you should peel them yourself after first washing your hands. Do not eat the peelings.
3. Avoid foods and beverages from street vendors. Even when such food has been prepared safely, it is difficult for them to be kept at safe temperatures and uncontaminated on the streets. Many travelers get sick from food bought from street vendors.
4. Eat foods that have been thoroughly cooked and that are still hot and steaming.
5. Drink beverages without ice unless you can verify that the ice was made from bottled or boiled water. Avoid popsicles and flavored ice made with water from an unknown source.
6. Buy bottled water or bring water to a rolling boil for 1 minute before drinking it. When buying water, make sure that the seal is intact; unscrupulous vendors may resell bottles with unpurified water. Bottled carbonated water is safer than uncarbonated water.

Travelers can also receive information on typhoid fever and other diseases by visiting the Centers for Disease Control and Prevention travelers' health website at <http://www.cdc.gov/travel>.