



What

Typhoid fever and paratyphoid fever (collectively known as enteric fever) are caused by the bacteria *Salmonella typhi* and *Salmonella paratyphi*. These infections are commonly transmitted through the consumption of drinking water or food contaminated with the feces of individuals who have typhoid or paratyphoid fever, or those who are chronic carriers of the bacteria.



Who

There is an increased risk of acquiring typhoid fever among international travelers, especially for those living in areas with poor sanitation and hygiene. All travelers visiting endemic regions are at risk of contracting typhoid fever (enteric fever) through the ingestion of contaminated food or water. Risk factors include consuming food from street vendors or visiting relatives in endemic countries. Additionally, travelers with certain health conditions may be at a higher risk of acquiring the infection and developing severe illness.



Where and when

Salmonella typhi and *Salmonella paratyphi* occur worldwide, with the risk of infection particularly high in areas with poor sanitation. For travelers, the risk of acquiring the infection is especially increased in Southeast Asia and South-Central Asia.

Prevention

The mainstay of prevention remains practicing good hygiene and paying attention to food and water safety. Preventive hygienic practices include frequent handwashing, avoiding tap water and raw foods in areas with poor sanitation, and ensuring food is properly cooked. In the Netherlands, two vaccines are available for typhoid fever: an oral vaccine and an injectable vaccine. While these vaccines are not 100% effective and lose efficacy over time, a booster shot may be recommended every few years, depending on the type of vaccine.

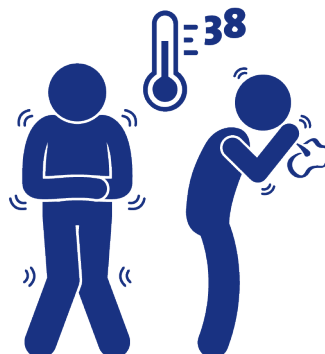


Treatment

The bacteria responsible for typhoid and paratyphoid fever can be detected in the blood. Antibiotic treatment is available, but it is important to be aware of the increasing antibiotic resistance of these bacteria. The choice of antibiotics depends on various factors, including the local resistance patterns and the patient's condition.

Symptoms

The onset of symptoms usually occurs 7-14 days after ingestion of the bacteria (with a range of 3-30 days). The majority of patients with enteric fever present with abdominal pain, fever, and chills. A typical faint rash may appear in the second week of illness. Diarrhea is not always present. If left untreated, the disease can progress and lead to death in 12-30% of cases due to complications.



In case of infection

Culturing the bacteria from blood confirms the diagnosis and can help guide treatment. Without therapy, the illness can last 3 to 4 weeks, with death rates ranging from 12% to 30%. Relapse occurs in up to 10% of untreated patients, typically 1 to 3 weeks after recovery from the initial illness, and is often milder. A chronic carrier state, in which stool or urine cultures for *Salmonella typhi* remain positive for more than one year, occurs in up to 5% of infected individuals.