



# Travel Guard® Health Advisory

## Typhoid Fever



AIG Travel, a global leader in travel insurance and assistance, closely monitors outbreak of diseases and continuously strives to update our clients traveling to these endemic countries.

Most recently, a typhoid fever outbreak has been reported in Kuala Lumpur, Malaysia. Seven cases were reported in early August 2015 amongst construction workers near downtown Kuala Lumpur. To date, the Kuala Lumpur Health Department has reported a total of 32 cases. Most have been treated and there have been no reported fatalities.

The Kuala Lumpur Health Department is currently conducting epidemiology studies to identify the source of infection, which include food and drinks from local restaurants and food outlets in the city, as well as inspections at ice distributor factories.<sup>1</sup>

This is a general advisory for those who may be traveling to an endemic region, as well as other areas where typhoid is endemic, so travelers are able to take the necessary precautions.

### Introduction

Typhoid fever, also known as enteric fever, is a potentially life-threatening multisystem illness caused by bacterium *Salmonella Typhi*. The condition is common in developing countries where it affects about 21.5 million people each year. It can be prevented and can usually be treated with antibiotics.

### Transmission

*Salmonella Typhi* lives only in humans. Individuals with typhoid fever carry the bacteria in their bloodstream and intestinal tract. Patients and chronic carriers shed *Salmonella Typhi* in their stool.

Individuals can contract the bacteria and develop typhoid fever if they ingest food or beverages that have been handled by persons that carry the *Salmonella* bacteria.

Large epidemics are most often related to fecal contamination of water supplies or street-vended foods.

Once *Salmonella Typhi* bacteria are consumed, they multiply and spread into the bloodstream. Infected individuals react with fever and other signs and symptoms.

### Demographics

Typhoid fever is common in most parts of the world, except in industrialized regions such as the United States of America, Canada, Western Europe, Australia, and Japan. If individuals are traveling to developing countries that are without or have poor clean water systems, overcrowding population, poor food hygiene or environmental sanitation, taking the necessary precautions are highly recommended.

### Clinic features

Symptoms usually develop within one to three weeks after exposure and may be mild or severe. They include:

- Fever as high as 103° to 104° F (39° to 40° C).
- Flat, rose-coloured rash that generally subsides within two to five days.
- Nonspecific symptoms such as malaise, headache and loss of appetite
- Stomach pains, diarrhea or constipation.
- Enlarged spleen and liver.

Even if the symptoms seem to go away, infected individuals may still be carrying the *Salmonella Typhi* bacteria (carrier states). If left untreated, it could progress to intestinal bleeding, bowel perforation, systemic infection and delirium.

### Diagnosis

The diagnosis of typhoid fever is primarily clinical.

Blood culture is the mainstay of typhoid fever diagnosis. However, it is only positive in 50 percent of cases. Bone marrow culture increases the diagnostic yield to 80 percent of cases. Stool culture is not usually positive during the earliest phase of the disease.

The Widal test, though unreliable, is widely used in developing countries because of its low cost. Newer serologic assays (TyphiDot and TUBEX) for *Salmonella Typhi* infection are somewhat more sensitive and specific than the Widal test, but are not an adequate substitute for blood, stool or bone marrow culture.

### Treatment

Typhoid fever is generally treated with antibiotics. However, the bacteria's resistance to multiple antibiotics is increasing.

Antibiotic susceptibility testing may help guide and determine the use of an appropriate therapy. Choices for antibiotic therapy include fluoroquinolones – Ciprofloxacin, levofloxacin,

moxifloxacin, norfloxacin and ofloxacin (for susceptible infections), Ceftriaxone, Azithromycin, Chloramphenicol and Bactrim.

Infected individuals that do not seek/receive immediate treatment may continue to have fever for weeks or months, and as many as 20 percent may die from complications of the infection.

If an individual is being treated for typhoid fever, it is important to do the following:

- Continue taking antibiotics for as long as the doctor has prescribed. This is usually for two weeks.
- Wash hands frequently and carefully with soap and water especially after using the bathroom, and do not prepare or serve food for other people. This will lower the chance of infecting other individuals.
- Have a doctor perform a series of stool cultures to ensure that no Salmonella Typhi bacteria persist

## Prevention

### Two basic actions that can protect individuals from typhoid fever:

1. Avoid consuming risky foods and drinks.
  - Drink only bottled water or water that has been boiled for several minutes.
  - Avoid using ice, as it could be made from a contaminated water source.
  - Avoid eating raw vegetables or fruits that cannot be peeled. Do not eat the peelings of fruits as they may contain the bacteria.
  - Do not eat food from street vendors, as they are at high risk for contamination.
2. Get vaccinated against typhoid fever.

### Two typhoid vaccines are available in the market and they are:

1. Oral live attenuated vaccine (Vivotif, manufactured from the Ty21a strain of Salmonella Typhi by PaxVax).
  - Primary vaccination with oral Ty21a vaccine consists of four capsules; one capsule is to be taken every other day. Capsules should be kept refrigerated and the regime should be completed within one week before potential exposure. It is recommended to repeat the oral vaccination every five years.
2. Vi capsular polysaccharide vaccine (ViCPS) (Typhim Vi, manufactured by Sanofi Pasteur) for intramuscular use.
  - Primary vaccination with ViCPS consists of one 0.5-ml dose administered intramuscularly. This should be given two weeks before the expected exposure. The boosting interval is every two years.

**Both typhoid vaccines protect 50–80 percent of recipients.**

## References

- Centers for Disease Control and Prevention, CDC, [http://www.cdc.gov/nczved/divisions/dfbmd/diseases/typhoid\\_fever/](http://www.cdc.gov/nczved/divisions/dfbmd/diseases/typhoid_fever/)
- World Health Organization, [http://www.who.int/topics/typhoid\\_fever/en/](http://www.who.int/topics/typhoid_fever/en/)
- <sup>1</sup> Malaysian Star, <http://www.thestar.com.my/News/Nation/2015/10/20/Typhoid-on-the-rise-in-KL-32-cases-reported-since-August-source-of-infection-still-unknown/>

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