

## MULTI DRUG-RESISTANT TYPHOID FEVER

### What is typhoid fever or enteric fever?

Typhoid fever is a potentially life-threatening communicable disease caused by the microorganism *Salmonella Typhi*.

It is spread through contaminated food and water; Typhoid is contracted by about 21 million people a year and kills 200,000 globally.

### What does multi-drug resistance mean and why is it alarming?

Ever since the discovery of antibiotics in 1928 by Alexander Fleming, human life expectancy has increased drastically. For the first time we were able to fight infectious diseases. However, microorganisms started developing resistance against the antibiotics as early as the 1950s.

The reason: doses those are too low, particularly due to self-medication. This means that the bacteria are exposed to the drug, but it is not in enough quantity, or exposure long enough to kill them. This allows the bacteria to become “educated” against the mechanism of that drug, and evolve into a stronger version of itself by changing its genetic build-up, which will no longer be affected by the antibiotic.

Over the last decades, drug resistant strains have been evolving for diseases like pneumonia, tuberculosis, typhoid and many other fatal infectious diseases.

This is a bigger threat in Pakistan and other South Asian countries, where antibiotic abuse is common, and so are infectious diseases. This means that doctors can no longer hope to fight the disease by prescribing 1st line antibiotics, and are left with 2nd and 3rd line antibiotics which are more toxic, require higher doses and longer durations of treatment.

The new epidemic of typhoid fever in Pakistan is not only multi-drug resistant (MDRTF) but shows extreme drug resistance (XDRTF). This means that treatment options become even more limited, and the disease is not far from becoming entirely incurable.



## What are the symptoms of typhoid fever and how is it diagnosed?

The incubation period - the time before you start to feel sick – lasts about 1-2 weeks and the illness can last for 3-4 weeks.

The symptoms can vary from person to person but high grade fever (up to 104F) is a consistent find. The other possible symptoms include headaches, loss of appetite, abdominal pain, constipation or diarrhoea, cough and lethargy. In about three to four weeks, there may be improvement if there are no complications.

3-5 % becomes long term carriers, where the bacterium will live dormant in the gallbladder without causing illness. However, even after treatment, relapses may happen.

If you show symptoms that are suspicious for typhoid, see your doctor immediately. The diagnosis will be made clinically and confirmed by blood or stool culture which is the gold standard of diagnosis for typhoid.

## How can Typhoid be prevented and what vaccines are available?

Typhoid is spread through contaminated food and water. Cases are specially concentrated around areas where drinking water is contaminated with sewage water. It is highly recommended that water be boiled before drinking or being used to cook, or clean the dishes. Hands should be washed with soap after using the toilet and before meals. Food from outside, which is usually of questionable hygiene, should be avoided at all costs.

Persons in the family, who have contracted the illness, should practice strict hygiene until it is proved that they are free of disease.

There are two kinds of vaccines currently available for the prevention of typhoid fever. One is a live attenuated (weakened) vaccine in oral form, and the other is the inactivated (killed) vaccine in injectable form.



For the injectable (killed vaccine), only one dose is required, and a booster dose is needed every two years. The vaccine should be taken two weeks before possible exposure to the disease. The oral (live attenuated) vaccine should not be given to children under six years of age, or anyone with a weakened immune system. This includes persons suffering from AIDS or other debilitating chronic diseases. The vaccine is taken in the form four oral capsules, taken as four doses, once every week. Once the primary vaccination is complete, a booster dose is required every five years.