

Indian Academy of Pediatrics (IAP)



GUIDELINES FOR PARENTS

Typhoid

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10 FAQs on TYPHOID

1. How can my child get typhoid fever?
2. My daughter is having a high fever for 5 days. Can it be typhoid fever? Her widal test report shows 1:320. Is it alarming? Doctor says that we will have to wait for the blood culture report. I am confused. Please guide.
3. My elder daughter is suffering from typhoid. I have a younger son, can he get it from his sister?
4. My child is being treated for typhoid fever. How long it takes for fever to come down after starting treatment?
5. Doctor has advised admission for my child as fever is not coming down. When a child does need hospitalization?
6. What should be the diet when my child is suffering from typhoid fever? Which foods are to be avoided? Can she take non-vegetarian food?
7. My daughter has recovered from typhoid fever. When can I send her to school?
8. Can typhoid fever occur again after full treatment and recovery?
9. My daughter suffered from typhoid fever 1 year back, should I still give her typhoid vaccine?
10. Can typhoid fever occur even after vaccinating my child?

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Typhoid

Q1

How can my child get typhoid fever?

Typhoid fever is caused by bacterial germs such as *Salmonella typhi* and *Salmonella paratyphi*. These bacteria enter the body through the mouth either through contaminated food or water. On reaching the intestine, they invade the body and spread through the bloodstream to cause fever and other symptoms and signs of typhoid.

The feces or urine of typhoid-infected patients contain these germs and can contaminate water supply systems, especially during the monsoon. Therefore, it is preferable to boil water before drinking. Undercooked shellfishes, raw vegetables or contaminated milk and dairy products can also be a source of *Salmonella* infection (**Fig. 1**).

Who are “Carriers”?

Some patients, though cured of the illness and without any symptoms, carry these bacteria in a part of their body called the gallbladder, and shed these bacteria for a longer duration, sometimes for years. They are known as *chronic carriers*. These chronic carriers can again serve as a potential source of spread of typhoid in the community. For example, if the child eats food made in an unhygienic way by one of these chronic carriers, the child can get infected. A classical example is of “typhoid Mary” who worked as a cook in the United States of America in the early decades of the 19th century and was known to have infected at least 53 people.



Fig. 1: How typhoid spreads?

Q2

My daughter is having a high fever for 5 days. Can it be typhoid fever? Her widal test report shows 1:320. Is it alarming? Doctor says that we will have to wait for the blood culture report. I am confused. Please guide.

Fever can be a sign of a very wide spectrum of illness ranging from a self-limited to a sinister problem. Fortunately, most of the infections are caused by self-limiting viral illnesses. The onset, trend of fever, the appearance of fever in between the febrile episodes and associated symptoms give some idea, whether it is a viral or bacterial illness. In viral illness, generally, onset is high, and after 48–72 hours, the intensity and frequency start coming down. Importantly, child is active and playful in the interfebrile period.

Fever in Typhoid

The fever may be low-to-moderate and steadily increases in intensity and frequency. The child appears lethargic or dull in-between fever spikes.

There may be vomiting or loose motions. Some may have respiratory symptoms such as cough. Tongue appears coated. In the 2nd week, though rare, a faint rash called “Rose spots” may be observed over the trunk of fair-skinned children which fades on pressure. If untreated, there can be complications related to the gastrointestinal system or the brain (**Fig. 2**).

Enteric Fever

Typical Step-ladder Pattern

The fever goes up a little each day.

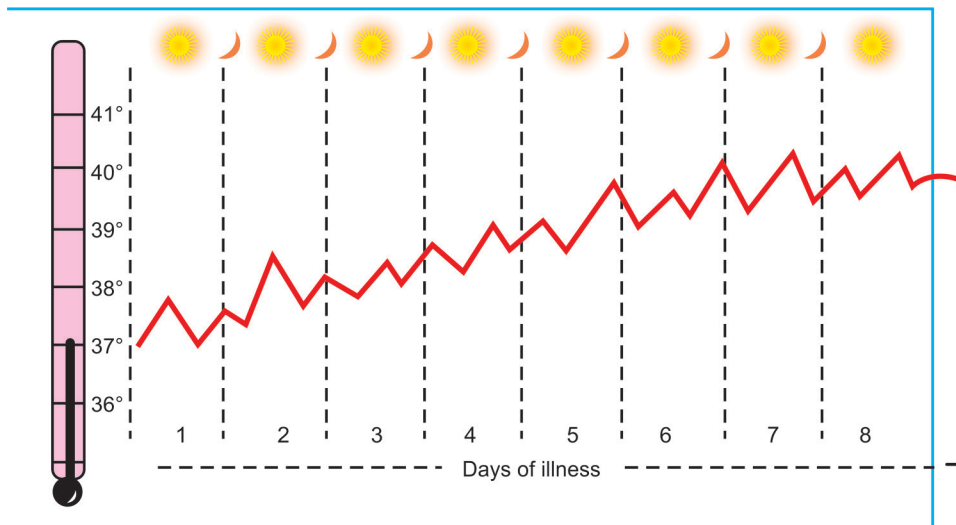


Fig. 2: Fever chart.

Testing: Widal Test and Blood Culture

Widal test is one of the methods used to detect typhoid, but it is reliably interpreted, if there is a four-fold rise in the titer in two samples taken at an interval of minimum 7–10 days. Hence, a single reading of 1:320 does not mean the child has typhoid. Also, prior vaccination or other bacterial infections can alter the interpretation. The doctor is right in saying that we must wait for the blood culture report, which informs of growth of bacteria when blood is incubated in laboratory conditions.

A positive blood culture test is completely reliable and is the best test for confirming typhoid. This test has an added value that it also can check which antibiotics will work well. A negative culture, however, does not rule out typhoid fever. The chance of getting a positive culture is the highest in the first week of illness. Also, prior receipt of antibiotics can interfere with the culture growth giving a falsely negative report.

If the child is sick, and if on clinical grounds, the doctor strongly suspects typhoid, antibiotics are generally started pending blood culture report. Blood culture takes at least 48 hours to detect growth (**Fig. 3**).

Blood Cultures in Typhoid Fever

- Bacteremia occurs early in the disease
- Blood cultures are positive in:
 - 1st week in 90%
 - 2nd week in 75%
 - 3rd week in 60%
 - 4th week and later in 25%



Fig. 3: Blood culture.

Q3

My elder daughter is suffering from typhoid. I have a younger son, can he get it from his sister?

Since typhoid spreads through contaminated food and water, unlike infections which spread through respiratory route or direct contact, it is unlikely that the younger son would get infected by interacting with his sister. The only rare possibility of an indirect transmission is if the elder girl does not wash hands with soap after going to the toilet and handles food or water for her younger brother (**Fig. 4**).

Prevention of Typhoid



Wash your hands



Drink boiled water



Wash Fruits and Vegetables before use



Get Vaccinated

Fig. 4: Prevention of typhoid.

Q4

My child is being treated for typhoid fever. How long it takes for fever to come down after starting treatment?

Once the pediatrician has confirmed that it is a case of typhoid fever by tests, treatment with antibiotics will be started. As a parent, you would then be eagerly waiting for your child's typhoid fever to go, indicating to you that (s)he is responding to the treatment.

But unlike in many other infections where a rapid decrease of temperature to normal within 2–3 days is seen, fever in typhoid declines only gradually and may continue for up to a week even after the correct drugs have been started. Hence, one needs to be patient in these cases and not rush the doctor to change the treatment.

However, if the diagnosis is not certain, then further tests may be required to find out whether there is some problem other than typhoid fever (Figs. 5 and 6).

11 Symptoms of Typhoid in Children

- 1 Extremely high fever
- 2 Sore throat
- 3 Rashes or red-colored spots
- 4 Abdomen pain
- 5 Diarrhea
- 6 Weight loss and weakness
- 7 Loss of appetite
- 8 Coated tongue
- 9 Swollen belly
- 10 Headache
- 11 Constipation

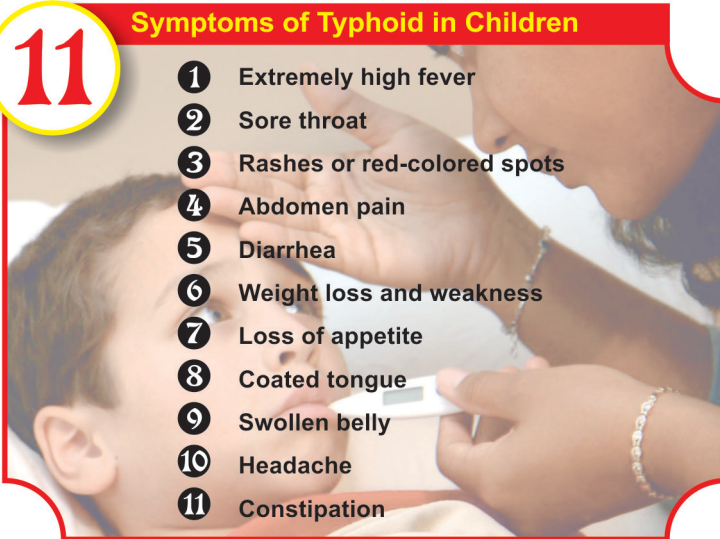


Fig. 5: Eleven symptoms of typhoid in children.

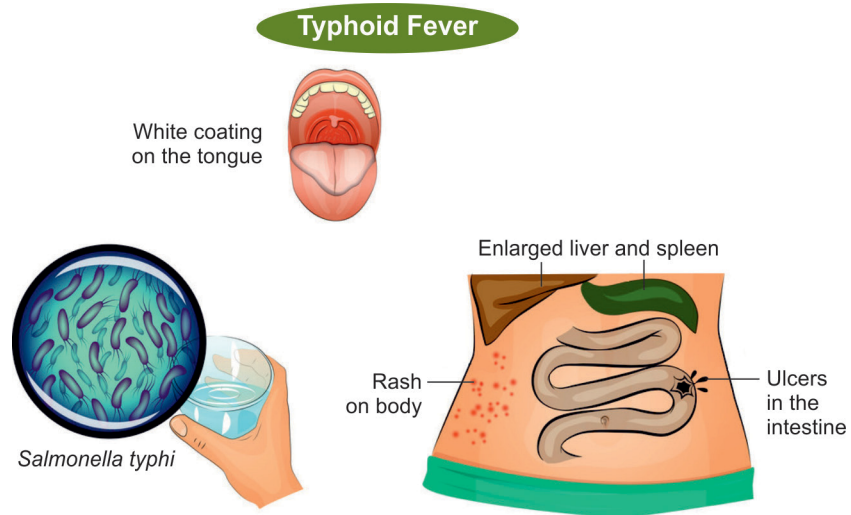


Fig. 6: Signs of typhoid fever.

Q5

Doctor has advised admission for my child as fever is not coming down. When a child does need hospitalization?

All cases of typhoid fever may not need admission. Some cases of typhoid fever, especially if mild and/or detected early, will respond to oral medicines. This is especially true in older children who will take the medicines regularly and reliably without vomiting them out.

Antibiotics (syrups or tablets) given by mouth have to be absorbed by the intestines into the body before they can work. However, remember that typhoid is mainly a disease of the intestines which get swollen and do not work properly. Hence in some cases, the drugs though correctly chosen and given, do not get absorbed properly and treatment may fail. These cases then require an antibiotic to be given as injection in the veins, which will of course require to be done in a hospital or nursing home, i.e., admission.

If the child is feeling too weak, unable to eat properly and/or vomiting, then also admission is needed to ensure that antibiotics are given by injection and also for glucose/saline infusions. Children with complications of typhoid fever also need hospitalization for full treatment.

Q6

What should be the diet when my child is suffering from typhoid fever? Which foods are to be avoided? Can she take non-vegetarian food?

Typhoid-like many other infections makes the body weak. Children should be offered balanced, easily digestible diet during typhoid fever and following recovery. Undercooked food, raw vegetables or contaminated milk and dairy products should not be consumed. Typhoid affects liver. So rich food should be avoided. Properly cooked non-vegetarian food can be consumed during typhoid fever (**Figs. 7 and 8**).

Foods to Eat during Typhoid Fever



Fig. 7: Foods to eat during typhoid fever.

Typhoid Diet Chart

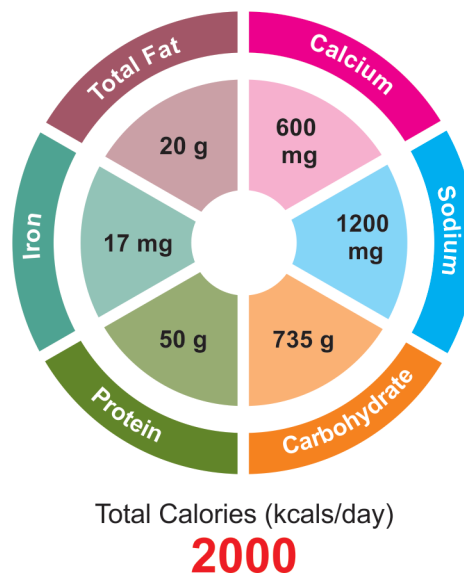


Fig. 8: Typhoid diet chart.

Q7

My daughter has recovered from typhoid fever. When can I send her to school?

Typhoid fever causes weakness to the patient and it may persist for some days after recovery. Adequate rest is necessary for complete recovery. 1–2 weeks of rest in home after completion of treatment depending on the age of the child and severity of illness is recommended.

Q8

Can typhoid fever occur again after full treatment and recovery?

Typhoid fever is known to occur in 5–10% of patients even after proper treatment and recovery. It is known as relapse. It usually occurs 2–3 weeks after the resolution of fever and is usually milder than the original attack. Rarely, relapse may occur during treatment or later, several months after the initial infection. Relapse typhoid fever should be treated with the same antibiotics with proper dose and duration. Very rarely, a chronic relapsing form of typhoid fever may occur lasting for many months, especially after treatment with insufficient doses of antibiotics.

Q9

My daughter suffered from typhoid fever 1 year back, should I still give her typhoid vaccine?

Typhoid vaccine should be given to children who have suffered from typhoid vaccine because natural infection does not give long-term protection. The vaccine may be given as early as 4–6 weeks after recovery (**Fig. 9**).

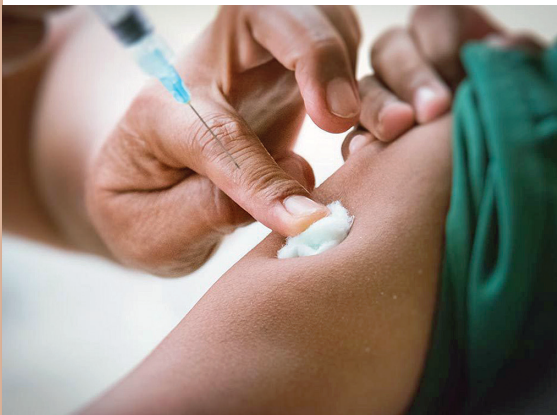


Fig. 9: Typhoid vaccine.

Q10

Can typhoid fever occur even after vaccinating my child?

Different person's body reacts differently to vaccines. Thus, vaccines cannot offer 100% protection from any disease. That is why typhoid might occur in children even after vaccination. Besides, paratyphoid fever which is very similar to typhoid fever might occur in children as the vaccines protect only against typhoid and not paratyphoid fever (**Fig. 10**).

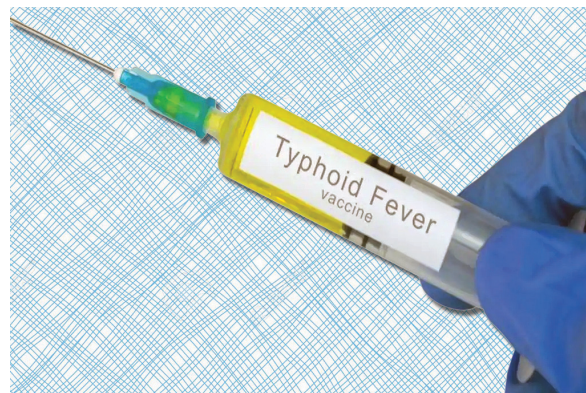


Fig. 10: Typhoid fever vaccine.