Epidemiology Unit
Ministry of Health & Mass Media
231, De Saram Place, Colombo 10
Tel: (011) 2695112, 4740490 Fax: (011) 2696583 e-mail: epidunit@sltnet.lk

Enteric Fever Fact Sheet

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Introduction

Enteric Fever is a systemic infection primarily caused by Salmonella enterica serovars *Typhi* and *Paratyphi* A and B. These are Gram-negative bacilli transmitted through the ingestion of contaminated food or water. Typhoid fever is a serious public health issue in many developing countries due to poor sanitation and limited access to safe water.

Clinical Features

Clinical features of enteric fever, caused by *Salmonella Typhi* or *Paratyphi A and B*, typically begin insidiously with a sustained high fever, marked headache, malaise, fatigue, anorexia, and a dry cough in the early stages. Abdominal discomfort is common, with constipation more frequently observed in adults and diarrhoea more common in children. Around 25% of fair-skinned individuals may develop rose spots on the trunk. Additional signs can include relative bradycardia and splenomegaly. Severe complications may arise if untreated, particularly in typhoid fever, with about 1% of cases developing ulceration of Peyer's patches, leading to intestinal haemorrhage or perforation. While paratyphoid fever presents similarly, it tends to be milder with a significantly lower fatality rate.

Diagnosis

The causative organisms of enteric fever can be isolated from blood during the early phase of illness, making blood culture the gold standard for diagnosis. After the first week, Salmonella species may also be isolated from stool or urine samples. Serological tests such as the Widal test, which detect agglutinating antibodies, have limited sensitivity and specificity and are generally unreliable for diagnosis. However, a four-fold rise in antibody titers in paired sera may be considered confirmatory of Salmonella infection. Definitive confirmation requires laboratory isolation of the causative organism.

Period of Communicability

It is communicable as long as typhoid or paratyphoid bacilli are present in excreta. Some patients become permanent carriers.

Reservoir

Humans are the reservoir for both typhoid and paratyphoid fever. Rarely do domestic animals act as a reservoir for paratyphoid. A carrier state may follow an acute illness, or mild or even subclinical infection.

Mode of transmission

Enteric fever is transmitted through the ingestion of food and water contaminated by faeces and urine of patients and carriers.

Incubation period

The usual incubation period for typhoid fever is between 8 – 14 days, and paratyphoid is between 1 – 10 days.

Burden

Typhoid fever remains a significant public health issue in many low- and middle-income countries, particularly in the WHO African, Eastern Mediterranean, South-East Asia, and Western Pacific Regions. Despite improved control in industrialised countries due to better living conditions and antibiotics, typhoid still causes an estimated 9 million cases and 110,000 deaths annually (2019 data). The disease disproportionately affects populations without access to safe water, sanitation, and hygiene (WASH), with children being the most vulnerable group.

Treatment

Typhoid fever is treatable with antibiotics, but the rise of antimicrobial resistance (AMR) complicates management, often requiring more expensive and prolonged treatment. Infected individuals can continue to carry and shed *Salmonella Typhi* even after symptoms resolve, posing a risk of ongoing transmission. Effective treatment includes:

- Completing the full course of antibiotics as prescribed.
- Avoid food preparation or handling until cleared.
- Undergoing follow-up testing to confirm bacteria

Preventive measures

Typhoid fever is prevalent in areas with inadequate sanitation and unsafe drinking water. A combination of vaccination, safe water, proper sanitation, and personal hygiene is key to prevention.

Polysaccharide Injectable Vaccine:

For individuals aged 2 years and above, a booster every 3 years.

- Food handlers should be vaccinated with the Typhoid Polysaccharide vaccine (single dose IM, booster every 3 years). Maintain a vaccination register and issue a special typhoid vaccination card.
- Travellers to endemic areas should be vaccinated before travel.
- Risk is higher in regions with poor sanitation, especially outside of tourist/business centres.

Water Safety and Sanitation

- Drink only boiled, bottled, or disinfected water & avoid ice, unless made with safe water.
- Prevent contamination of public and household water sources.
- Use safe and sanitary latrines for the disposal of human waste.
- Dispose of children's stools properly using sanitary latrines.

Safe Food Practices

- Eat only properly cooked and hot food.
- Avoid raw milk and unpasteurized dairy; drink only pasteurised or boiled milk.
- Avoid raw vegetables and fruits unless thoroughly washed or peeled.
- Prevent fly contamination of food and water.
- Ensure hygienic food preparation and clean food storage.

Personal and Environmental Hygiene

- Wash hands frequently with soap and safe water: After using the toilet, before eating or feeding others and after handling animals or dirty items.
- Ensure good hygiene among food handlers, especially to prevent transmission from chronic carriers.
- Promote community awareness on sanitation and typhoid prevention.