

# Typhoid Fever

## Reporting Obligations

Confirmed and suspected cases shall be reported immediately to the local Health Unit.

### REPORTING FORM

## Epidemiology

### Aetiologic Agent:

Typhoid fever is caused by the Gram negative bacillus known as *Salmonella enterica* subspecies *enterica* serotype Typhi (commonly *S. Typhi*).

### Clinical Presentation:

Highly variable, ranging from fever with little other morbidity, to sepsis and complications involving many body systems. A typical case of acute non-complicated typhoid fever is associated with prolonged low-grade fever, and may have any of the following: dull frontal headache, malaise, myalgia, a dry bronchitic cough, anorexia, nausea, and abdominal discomfort. Constipation is more common than diarrhea in adults but diarrhea is more common in children and those with HIV.

In up to 25% of fair-skinned people small erythematous maculopapular lesions (rose spots) on the trunk are seen in the first week of fever. More severe symptoms include confusion and delirium.

### Modes of transmission:

Fecal-oral route. Ingestion of food and water contaminated by feces and urine of patients and carriers. Common vehicles include contaminated water and beverages made with contaminated water, shellfish, particularly oysters, milk, ice-cream, raw fruit and vegetables grown in fields fertilized with sewage. Other established risk factors include history of contact with other cases especially contact with feces or urine of persons infected from schistosomiasis endemic areas. Risk of transmission increases by not using soap for washing hands and poor sanitation.

### Incubation Period:

From 3 days to over 60 days; usual range is 8-14 days depending on inoculum size and on host factors.

### Period of Communicability:

Typhoid is communicable as long as *S. Typhi* is being excreted in stools or urine, usually from one week after symptom onset, through convalescence, and for a variable period thereafter. About 10% of untreated typhoid fever cases have detectable bacteria in their stool for three months after onset of symptoms; 2-5% become chronic carriers (carriage for more than one year following illness). The frequency of long-term carriage is higher for women, those older than 50 years, and patients with cholelithiasis, carcinoma of the gall bladder, other gastrointestinal malignancies, persons with biliary abnormalities, or concurrent bladder infection with *Schistosoma haematobium*. In cases treated with appropriate antibiotics, fewer than 2% become carriers, or relapse.

## Risk Factors/Susceptibility

Susceptibility is general and is increased in individuals with gastric achlorhydria and possibly in those who are HIV positive. Relative specific immunity follows recovery from clinical disease, inapparent infection and active immunization. In endemic area, typhoid fever is most common in preschool children and children 5-19 years of age.

Travellers should be referred to travel clinics to assess their personal risk and appropriate preventive measures.

## Diagnosis & Laboratory Testing

A confirmed case of *Salmonella Typhi* is based upon laboratory confirmation of infection with or without clinically compatible signs and symptoms: Isolation of *Salmonella Typhi* from an appropriate clinical specimen (e.g., sterile site, stool, urine, bone marrow).

### TESTING INFORMATION & REQUISITION

## Treatment & Case Management

Treatment with antibiotics and follow up is under the direction of the attending health care provider. Where possible, physicians should be encouraged to request antibiotic sensitivity testing due to resistant strains.

Inform cases of *S. Typhi* that they will be excluded from certain activities/occupations including food handling, healthcare and daycare activities until 3 consecutive negative stool samples are collected at least 48 hours apart AND at least 48h after completion of antibiotic treatment (for ciprofloxacin) OR at least 2 weeks after completion of antibiotic treatment (for ceftriaxone and azithromycin).

With appropriate antibiotic treatment, infected individuals with typhoid or paratyphoid fever usually recover within 10 to 14 days.

Public Health will be involved in case investigation and management.

## Patient Information

### PATIENT FACT SHEET

## Additional Resources

1. PHAC. "Canadian Immunization Guide. Typhoid Vaccine."
2. CDC. "Typhoid Fever."

## References

1. Ministry of Health and Long Term Care, Infectious Diseases Protocol, 2017
2. Public Health Ontario, Monthly Infectious Diseases Surveillance Report, Typhoid Fever and Paratyphoid Fever, February 2013.