

<p>IN THIS ISSUE:</p> <ul style="list-style-type: none"> ▪ Travel Health Notice: Extensively drug resistant (XDR) typhoid fever in Pakistan 	<p>FROM:</p> <p>Nicholas Brandon, MD, MA, MSc, CCFP, FRCPC Acting Medical Officer of Health</p>
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<p>Key Messages:</p> <ul style="list-style-type: none"> ▪ Assess and advise patients travelling to Pakistan on typhoid and other recommended vaccines. ▪ Consider extensively drug resistant (XDR) typhoid fever in symptomatic patients returning from Pakistan. ▪ Note travel history on requisition on blood cultures and stool samples for bacterial culture, and request carbapenem and azithromycin susceptibility testing. ▪ <u>Do not treat empirically</u> with fluoroquinolones or ceftriaxone if XDR typhoid fever is suspected.
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Travel Health Notice: Extensively drug resistant (XDR) typhoid fever in Pakistan

All travellers to Pakistan are at an increased risk of infection with extensively drug resistant (XDR) typhoid fever. Extensively drug-resistant typhoid is resistant to at least five different antibiotic classes.

Physicians should educate patients contemplating travel to Pakistan and recommend appropriate preventive measures including vaccination.

Since February 2018, Pakistan has been experiencing an outbreak of extensively drug-resistant (XDR) typhoid fever (*Salmonella enterica ser. Typhi*). Pakistan is the second most common travel country among typhoid cases reported in Peel.

As of March 3, 2023, five cases of XDR typhoid fever in Ontario residents have been reported. Of those, three are Peel residents with recent travel to Pakistan.

Symptoms of typhoid fever include:

- Fever
- Weakness
- Abdominal pain
- Headache
- Constipation or diarrhea
- Cough
- Rash with flat rose-coloured spots
- Anorexia

More serious cases may experience:

- Bacteremia with sepsis
- Gastrointestinal complications like peritonitis
- Intestinal perforation
- Neurological complications like encephalopathy, and/or delirium

The strain of typhoid fever identified in the outbreak in Pakistan is **only** susceptible to azithromycin and carbapenem antibiotics. It is resistant to most antibiotics typically used to treat typhoid fever (ampicillin, chloramphenicol, trimethoprim-sulfamethoxazole, fluoroquinolones, and third generation cephalosporins).

Prior to travelling to Pakistan, physicians should advise travellers to:

- Book a pre-departure travel consultation to obtain typhoid and other recommended vaccines.
- Review safe food and water practices and hand hygiene while travelling.
 - Travellers visiting friends and relatives are at higher risk of getting typhoid than tourists and business travellers as they are more likely to eat local food and be exposed to untreated water.

- Review <https://travel.gc.ca> for current travel health advice and advisories.

Typhoid vaccines

There are three types of typhoid vaccines: parenteral (Typh-I), parenteral combined with hepatitis A (HA-Typh-I), and oral (Typh-O). These vaccines provide approximately 50% protection against clinical disease and lose effectiveness over time.

Protection following Typh-I vaccine lasts for three years; protection following Typh-O vaccine lasts for about seven years. Periodic booster doses in persons at repeated or continuous risk of typhoid may be expected to increase antibody titres and to maintain protection.

Typhoid vaccines are not publicly funded and are available by prescription from a pharmacy. Refer to the Canadian Immunization Guide for more information on typhoid vaccine.
<https://www.canada.ca/en/public-health/services/publications/healthy-living/canadian-immunization-guide-part-4-active-vaccines/page-23-typhoid-vaccine.html>

Symptomatic patients who have received the vaccine should still be assessed.

For all patients returning from Pakistan with symptoms compatible with typhoid fever, physicians should:

- Inquire about the nature of travel and any potential exposures.
- Send blood cultures and stool samples for bacterial culture.
 - **NOTE:** The requisition should include travel history to Pakistan and request carbapenem and azithromycin susceptibility testing.
- Treat symptomatic patients empirically with azithromycin or carbapenems based on clinical presentation pending full antimicrobial susceptibility testing results.

- **Do not treat** with fluoroquinolones or ceftriaxone.
- Consult infectious diseases specialist for patients with severe typhoid fever.

For laboratories:

- All isolates of *Salmonella enterica ser. Typhi* should be forwarded to a PHO laboratory for confirmation. Include travel history and note if isolate is XDR on the requisition. PHO will perform identification and full susceptibility testing including azithromycin and carbapenems.

References:

Government of Canada Travel Health Notice (Extensively drug-resistant typhoid in Pakistan):
<https://travel.gc.ca/travelling/health-safety/travel-health-notices/194>

Government of Canada – Eat and Drink Safely Abroad:
<https://travel.gc.ca/travelling/health-safety/food-water>

Centers for Disease Control and Prevention – Typhoid Fever and Paratyphoid Fever:
<https://www.cdc.gov/typhoid-fever/index.html>

Government of Canada – CATMAT Statement on International Travellers and Typhoid:
<https://www.canada.ca/en/public-health/services/reports-publications/canada-communicable-disease-report-ccdr/monthly-issue/2014-40/ccdr-volume-40-4-february-20-2014/ccdr-volume-40-4-february-20-2014-1.html>