

Botulism

Reporting Obligations

Botulism is designated as a disease of public health significance and is reportable under the *Ontario Health Protection and Promotion Act*. Report all suspect and confirmed cases **immediately by phone** to the health unit.

Epidemiology

Aetiologic Agent:

Botulism is caused by toxins, produced by *Clostridium botulinum* (*C. botulinum*), which is a Gram positive, spore-forming obligate anaerobic bacillus.

Clinical Presentation:

There are 3 forms of botulism:

Foodborne botulism is a severe intoxication resulting from ingestion of preformed toxin present in contaminated food. The usual first signs and symptoms include fatigue, weakness, and vertigo, followed by blurred or double vision, dysphasia, and dry mouth. Vomiting, diarrhea, constipation, and abdominal swelling may occur. Acute bilateral cranial nerve impairment and descending weakness or paralysis characterize the illness. Recovery may take months; the case fatality rate in Canada is less than 5%.

Wound botulism occurs when spores penetrate an open wound and reproduce in an anaerobic environment. Symptoms are similar to food borne botulism but may take up to 2 weeks to appear.

Intestinal (infant and adult) botulism occurs following spore ingestion, subsequent outgrowth, and in-vivo toxin production in the intestine; it affects children under one year but can also affect adults who have altered GI anatomy and microflora. Clinical symptoms in infants include constipation, loss of appetite, weakness, lethargy, altered cry, and a striking loss of head control known as "floppy head".

Modes of transmission:

Foodborne botulism is transmitted by the ingestion of improperly prepared, stored, or cooked food containing the toxin. The foods most often implicated are canned foods (vegetables and fruits), home preserved foods, smoked fish, seal meat and other arctic marine mammals such as whale meat.

Wound botulism results from contamination of traumatized tissue by *C. botulinum* found in soil that grows in the wound and produces toxin.

Intestinal (infant and adult) botulism is typically associated with the ingestion of spores that germinate and produce toxin in-vivo that may be present in items such as foods, soil, dust, unpasteurized honey, and peanut butter.

Incubation Period:

In food borne botulism neurological symptoms usually appear within 12 to 36 hours after ingestion of contaminated food, or up to several days after eating contaminated food. The shorter the incubation period, the more severe the disease and the higher the case-fatality rate.

For wound botulism, symptoms may take up to 2 weeks to appear after infection, with an average of about 10 days. The incubation period of intestinal botulism in infants is unknown. Since the precise time of ingestion often cannot be determined.

Period of Communicability:

No instance of secondary person to person transmission has been documented despite excretion of *C. botulinum* toxin and organisms in the feces.

Risk Factors/Susceptibility

Adults with special bowel problems leading to unusual gastrointestinal flora may be susceptible to intestinal botulism.

- Foodborne: Ingestion of certain foods (fermented fish, raw mushrooms, garlic/onion/root vegetable in oil mixture, home canned foods)
- Wound: Injection drug use, recent flesh wound
- Intestinal: solid food introduction within last 30 days (infant), consumption of certain foods (honey, maple syrup, corn syrup)

Diagnosis & Laboratory Testing

Diagnosis of foodborne botulism is made by demonstration of botulinum toxin in serum, stool, gastric aspirate or incriminated food or isolation of *C. botulinum* from stool or gastric aspirate. Refer to ["Botulism Guide for Healthcare Professionals, includes Information on obtaining anti-toxin"](#).

TESTING INFORMATION & REQUISITION

Treatment & Case Management

Immediate medical treatment is required; do not await laboratory confirmation. Botulism antitoxin can be accessed through the Ministry of Health and Long-Term Care (MOHLTC). Refer to ["Botulism Guide for Healthcare Professionals, includes Information on obtaining anti-toxin"](#). Public Health staff will be involved in case and exposure investigations.

Patient Information

PATIENT FACT SHEET

References

1. [Ministry of Health, Infectious Diseases Protocol - Ontario Public Health Standards, 2022.](#)

Additional Resources

1. [Ministry of Health and Long-Term Care. "Botulism Guide for Health Care Professionals."](#)
2. Heymann, D.L. Control of Communicable Disease Manual (21st Ed.). Washington, American Public Health Association, 2022.
3. [PHO. "Botulism", Dec 2022.](#)