

# Appendix B: Provincial Case Definitions for Diseases of Public Health Significance

**Disease: Botulism**

Effective: February 2019

# Botulism

## 1.0 Provincial Reporting

Confirmed, probable and suspect cases of disease.

## 2.0 Type of Surveillance

Case-by-case.

## 3.0 Case Classification

### 3.1 Confirmed Case

A confirmed case requires definitive laboratory evidence.

#### Confirmed Case of Foodborne Botulism

Laboratory confirmation of intoxication with clinically compatible signs and symptoms:

- Detection of botulinum toxin in serum, stool, gastric aspirate or food;

**OR**

- Isolation of *Clostridium botulinum* (*C. botulinum*) from stool or gastric aspirate.

#### Confirmed Case of Wound Botulism

Laboratory confirmation of infection with clinically compatible signs and symptoms:

- Detection of botulinum toxin in serum;

**OR**

- Isolation of *C. botulinum* from a wound;

**AND**

- Presence of a freshly infected wound in the 2 weeks before clinically compatible signs and symptoms **and** no evidence of consumption of food contaminated with *C. botulinum*.

#### Confirmed Case of Intestinal/Colonization Botulism

Laboratory confirmation with clinically compatible signs and symptoms in a patient aged one year of age or older:

- Detection of botulinum toxin in stool or serum;

**OR**

- Isolation of *C. botulinum* from the patient's stool over a prolonged period of time or at autopsy.

### Confirmed Case of Infant Botulism

Laboratory confirmation with clinically compatible signs and symptoms in a person less than one year of age:

- Detection of botulinum toxin in stool or serum;

**OR**

- Isolation of *C. botulinum* from the patient's stool, or at autopsy.

## 3.2 Probable case

Clinically compatible signs and symptoms in a person with an epidemiologic link to a laboratory-confirmed case of foodborne botulism.

## 3.3 Suspect Case

Clinical evidence strongly suggestive of botulism, as determined by a medical officer of health or attending physician, in the absence of laboratory confirmation or an epidemiologic link.

# 4.0 Laboratory Evidence

## 4.1 Laboratory Confirmation

Any of the following will constitute a confirmed case of botulism:

- Detection of botulinum toxin, with or without culture;
- Isolation of *C. botulinum* from stool or gastric aspirate.

## 4.2 Approved/Validated Tests

- Standard culture for *C. botulinum* with demonstration of neurotoxin where neurotoxin is detected in culture supernatant using mouse bioassay.
- *C. botulinum* neurotoxin mouse bioassay.

## 4.3 Indications and Limitations

- *C. botulinum* neurotoxin may not be detectable in serum. Administration of antitoxin prior to withdrawal of blood will result in a negative assay.
- Two other species of the genus, *Clostridium baratii* and *Clostridium butyricum*, may produce the neurotoxin and should be entered as a case.
- Culture without toxin assay by mouse bioassay is not useful. Group I *C. botulinum* cannot be distinguished from *Clostridium sporogenes* without toxin assay.

- Isolates and/or clinical specimens should be referred to the Botulism Reference Service for Canada.
- Enzyme immunoassay (EIA) for botulinum toxin is not as sensitive as the mouse bioassay and therefore should not replace the mouse bioassay for neurotoxin detection in clinical specimens; consideration should also be given to cultures using PCR targeted to detect the neurotoxin genes.

## 5.0 Clinical Evidence

**Foodborne/Wound/Intestinal:** Ingestion of botulinum toxin results in an illness of variable severity. Common symptoms are diplopia, blurred vision, bulbar weakness, dry mouth and difficulty swallowing and speaking. Descending and symmetric paralysis may progress rapidly, often requiring respiratory support.

**Infant:** Clinically compatible signs and symptoms in infants are characterized but not limited to the following: constipation, lethargy, loss of appetite, weakness, altered/weak cry, decreased gag reflex, ptosis, hypotonia and loss of head control.

## 6.0 ICD-10 Code(s)

A05.1 Botulism

## 7.0 Comments

- One case is considered an outbreak.
- Note that infants under the age of one can also be diagnosed with foodborne botulism if the illness is due to toxin in the food.
- Botulism toxin can be inhaled or ingested through water. These cases must also be reported.

## 8.0 Sources

Centers for Disease Control and Prevention. National Notifiable Disease Surveillance System: Botulism (*Clostridium botulinum*) - 2011 Case Definition [Internet]. Atlanta, GA: U.S. Department of Health & Human Services; 2011 [cited March 2018]. Available from: <https://wwwn.cdc.gov/nndss/conditions/botulism/case-definition/2011/>

Heymann DL, editor. Control of Communicable Diseases Manual. 20 ed. Washington, D.C: American Public Health Association; 2015.

Public Health Agency of Canada. Botulism. In: Case Definitions for Communicable Diseases under National Surveillance. Canada Communicable Disease Report. 2009;35S2.

## 9.0 Document History

**Table 1: History of Revisions**

<b>Revision Date</b>	<b>Document Section</b>	<b>Description of Revisions</b>
December 2014	General	New template. Title of Section 8.0 changed from “References” to “Sources” Section 9.0 Document History added.
December 2014	3.1.3 Confirmed Case of Intestinal/Colonization Botulism	First bullet entirely revised. Third (last) bullet: following “...from the patient’s stool...” addition of “...over a prolonged period of time...”
December 2014	3.3 Suspect Case	Removal of “Overwhelming...” at beginning of sentence and addition of “...strongly suggestive...” Following “...determined by a medical officer of health...” addition of “...or attending physician...”
December 2014	4.1 Laboratory Confirmation	At end of second (last) bullet addition of “...from stool or gastric aspirate.”
December 2014	4.3 Indications and Limitations	At end of fifth (last) bullet removal of “...however EIA could be used to detect neurotoxin production from cultures” and addition of “...consideration should also be given to cultures using PCR targeted to detect the neurotoxin genes.”
December 2014	8.0 Sources	Updated.
April 2018	General	Minor revisions were made to support the regulation change to Diseases of Public Health Significance.
February 2019	Entire document	Formatting changes only.

