

Info-MADO

NEWSLETTER OF THE NUNAVIK PUBLIC HEALTH DEPARTMENT ON NOTIFIABLE DISEASES

VOL. 6, NO. 2
JULY 2018

Foodborne Botulism

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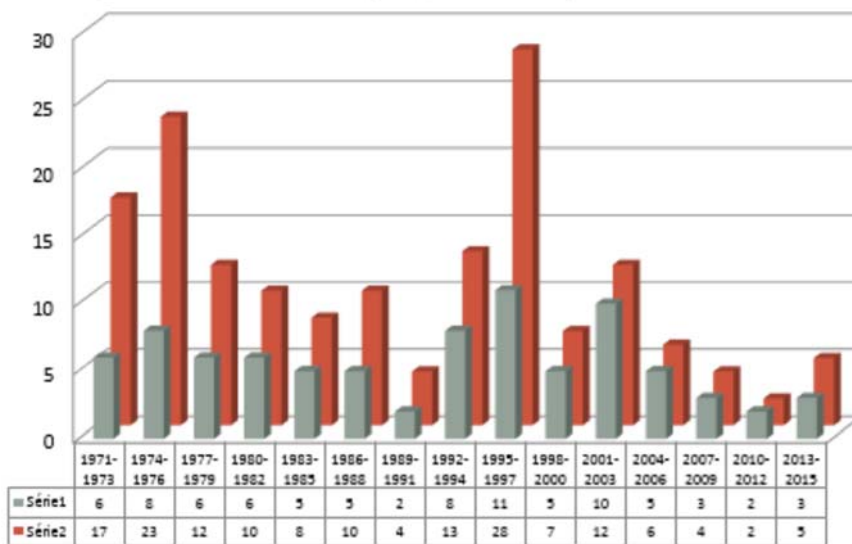
Jointly with Dr. Marie Rochette, Protection Coordinator,
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With the approach of summer, marine mammal hunting will be more intense during the coming months. Nunavik has been experiencing hotter summers in recent years, giving rise to greater risk of botulism. In light of this risk, a press release was recently issued to remind the public to keep marine mammal meat cold at all times to prevent the development of the botulism toxin. Given the significance of country food to Nunavimmiut and the importance of preserving this tradition, it is important to remain aware of the clinical signs of botulism in order to be able to take appropriate action.

BOTULISM IN NUNAVIK

Nunavik has a very high incidence of foodborne botulism. The Nunavik Public Health Dept. has documented 86 outbreaks that affected 163 people since 1971 (statistics reported as of May 2018). These figures give Nunavik the highest incidence of botulism both in Québec and in Canada.

Foodborne botulism. Nunavik
Number of confirmed outbreaks (n=85) and cases (n=161)
per three-year period. 1971-2015
(Source: Dr. Jean-François Proulx, Nunavik Public Health Dept., May 18, 2016)



¹ Nunavik Regional Board of Health and Social Services (NRBHSS).

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Some marine mammal preservation or preparation methods are associated with the development of the illness, especially fermentation (*igunaq*), and sometimes drying (*nikku*) or making oil from marine mammal fat (*misirag*). So far, walrus, seal, and occasionally beluga are the only food sources that have been identified in botulism outbreaks in Nunavik. Exposure to a temperature of 80°C for five minutes or 85°C for 1 minute is required to destroy this toxin in food. Freezing does not destroy the toxin.

Botulinum neurotoxins are produced by the anaerobic spores formed by the bacterium *Clostridium botulinum* and, more rarely by *Clostridium baratii* and *Clostridium butyricum*. There are seven types of botulism neurotoxins (A to G). Only the type E toxin has been identified in outbreaks in Nunavik. The toxins block the release of acetylcholine at the neuromuscular junction, resulting in flaccid paralysis, which Inuit refer to as *qasunniq* (to loosen). Elders are relatively familiar with the clinical symptoms of botulism. When patients are first seen for the illness, they or their escorts will frequently suggest that they might have this condition.

SIGNS AND SYMPTOMS

SYSTEMS	SYMPTOMS
General and digestive	<ul style="list-style-type: none"> • Normal mental status • Fatigue • Absence of fever
Visual	<ul style="list-style-type: none"> • Blurred vision² • Mydriasis • Palpebral ptosis • Xerophthalmia
Neuromuscular	<ul style="list-style-type: none"> • Diplopia², dysphonia, dysarthria, dysphagia² • Muscular weakness may extend to a descending symmetrical flaccid paralysis • Suppressed gag reflex
Respiratory	<ul style="list-style-type: none"> • Dyspnea followed by mechanical respiratory failure
Autonomic	<ul style="list-style-type: none"> • Dry mouth², intestinal obstruction (constipation) and urinary retention • Orthostatic hypotension and relative bradycardia

CLINICAL INVESTIGATION

Laboratory investigations include detection of the neurotoxin (and/or of *Clostridium botulinum*) in:

- the serum (at least 20 ml of serum taken PRIOR to administration of botulism antitoxin);
- faecal samples (10 g);
- vomitus or gastric contents;
- a specimen of each of the food items implicated; ideally 100 g per product type, placed in separate receptacles, labelled in Inuktitut (e.g. *igunaq*).

To submit the specimens, the physician must fill out the form indicated in Botulism – Guide for Healthcare Professionals, at <https://www.canada.ca/en/health-canada/services/food-nutrition/legislation-guidelines/guidance-documents/botulism-guide-healthcare-professionals-2012.html>. Instructions on how to submit specimens are provided in the guide.

². Often among the first reported signs.

TREATMENT

- ⇒ Treat according to the signs and symptoms presented.
- ⇒ Provide early administration of botulism antitoxin if indicated.

Note: Each CLSC has at least one dose of botulism antitoxin at all times. Additional doses are available from the laboratories of the health centres in Puvirnituq and Kuujuaq.

The monograph for botulism antitoxin is available at <https://www.drugs.com/monograph/botulism-antitoxin-equine.html>.

REPORT TO THE NUNAVIK PUBLIC HEALTH DEPT.

As botulism is a reportable disease requiring enhanced surveillance, the physician on duty at the Nunavik Public Health Dept. must be notified promptly if a case of botulism is suspected.

For further information, contact the infectious diseases team at **418 666-7000, poste 351**.

REFERENCES

Botulism – Guide for Healthcare Professionals. September 2016. Bureau of Microbial Hazards, Food Directorate, Health Products and Food Branch. <https://www.canada.ca/en/health-canada/services/food-nutrition/legislation-guidelines/guidance-documents/botulism-guide-healthcare-professionals-2012.html>.

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