HASTINGS PRINCE EDWARD
Public Health

Botulism
Fact Sheet

What is Botulism?
Clostridium botulinum is a bacterial spore found in soil, water, honey, and in the stomachs of animals and fish. In the spore form, it is fairly harmless. The problem occurs when the spores grow and multiply and become active. As the cells die, they produce a toxin that causes botulism. All forms of botulism can be fatal and are considered medical emergencies. It is not spread from person to person.

There are four naturally occurring forms of botulism:

- foodborne caused by the ingestion of foods contaminated with the botulism toxin;
- wound botulism caused by the contamination of a wound by *C. botulinum* spores that germinate and produce toxin;
- infant botulism caused by intestinal colonization of the infant gastrointestinal tract;
- adult intestinal toxemia botulism.

Foodborne
Botulism is a serious and often deadly form of food poisoning caused by eating the toxin or poison present in contaminated food. One of the first symptoms may be vomiting and/or diarrhea, then one or more of drooping eyelids, visual disturbances, dilated and fixed pupils, difficulty in swallowing, dry mouth or difficulty speaking. Paralysis may also occur in a person who has no fever. Constipation is also a common symptom later on. Symptoms begin 6 hours to 10 days (usually12 to 36 hours) after eating contaminated food.

Several conditions must be present for the spores to grow:

- The acid level is an important factor. Growth cannot occur in very acidic food. Less acidic food requires more cooking time to kill the spores.
- Refrigeration temperatures below 3.3 C (38 F) will reduce the growth.
- The bacteria cannot grow if air (oxygen) is present.

Diagnosis of food botulism is made by finding the toxin in blood, stool, vomit or food, or by finding the bacteria in stool or vomit. Other conditions with similar symptoms like stroke must be ruled out.
Improper home canning creates the perfect environment to grow botulism toxin. The food may look and smell normal. When the bacteria grow it can produce a gas, therefore never eat or even taste:

- food from leaking, bulging or damaged cans, cracked jars or jars with loose or bulging lids, or containers that spurt liquid when opened;
- any canned food that has an off odour or appearance;
- food that develops a bad odour during cooking;
- food that you are not sure was properly canned. Proper canning methods must be used for preserving low acid foods.

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Wound Botulism
Wound botulism occurs when a wound is contaminated by soil or gravel or by injection of contaminated illicit intravenous drugs. Symptoms are similar to foodborne botulism, except there is no vomiting or diarrhea. Presence and description of the wound is useful to note. The incubation of wound botulism can be as long as 10 days.

Infant Botulism
Infant intestinal botulism is a rare disease that can affect otherwise healthy children who are less than a year old. The incubation period is unknown. The earliest and most common symptom of botulism is constipation followed by lethargy, poor feeding, drooping eyelids, difficulty swallowing and generalized weakness. Colonization is believed to occur because normal bowel flora that could compete with *C.botulinum* have not been fully established. Only honey has been identified as a foodborne source of infant botulism in Canada. Never put honey on a baby's bottle or soother.

Adult Intestinal Toxemia Botulism
Similar to infant botulism, it is extremely rare and occurs mainly in adults with specific underlying medical problems.

Deliberate Use as a Bioweapon
Botulinum toxins could be used in bioterrorism. The greatest threat may be aerosol use, however the more common threat would be intentional food or drink contamination.

How is it treated?
The respiratory failure and paralysis that can occur with severe botulism may require a breathing machine (ventilator) for weeks, plus intensive medical and nursing care. After several weeks, the paralysis slowly improves. If diagnosed early, foodborne and wound botulism can be treated with an antitoxin which blocks the action of toxin circulating in the blood. Once paralysis occurs, antitoxin will not reverse it.

Other Questions?
Talk to your health care provider or call our Communicable Disease Program at 613-966-5500 or 1-800-267-2803, ext. 349. | TTY Dial 711 (1-800-267-6511) | hpePublicHealth.ca

References

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- Health Canada, Food Safety, February 2009.
- Heymann, D. L. (2008). *Control of Communicable Disease Manual* (19th Ed). Washington, DC: American Public Health Association.
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