



Botulism

Fact Sheet

What is Botulism?

Botulism is a rare but serious paralytic illness caused by a nerve toxin that is produced by the bacterium *Clostridium botulinum* and sometimes by strains of *Clostridium butyricum* and *Clostridium baratii*. There are five main kinds of botulism. Foodborne botulism is caused by eating foods that contain the botulinum toxin. Wound botulism is caused by toxin produced from a wound infected with *Clostridium botulinum*. Infant botulism is caused by consuming the spores of the botulinum bacteria, which then grow in the intestines and release toxin. Adult intestinal toxemia (adult intestinal colonization) botulism is a very rare kind of botulism that occurs among adults by the same route as infant botulism. Lastly, iatrogenic botulism can occur from accidental overdose of botulinum toxin. All forms of botulism can be fatal and are considered medical emergencies. Foodborne botulism is a public health emergency because many people can be poisoned by eating a contaminated food item. In the United States, averages of 145 cases are reported each year. Of these, approximately 15% are foodborne, 65% are infant botulism and 20% are wound botulism.

How is Botulism Spread?

Most foodborne botulism cases are the result of improperly home-canned foods, especially foods with a low acid content, such as asparagus, green beans, beets, and corn. Outbreaks of botulism involving two or more persons have also occurred from improperly preserved food sources such as chopped garlic in oil, chili peppers, tomatoes, and improperly handled baked potatoes wrapped in aluminum foil. Wound botulism often results from contamination of wounds from soil or gravel or from improperly treated open fractures. Infant botulism occurs from ingestion of spores that germinate in the colon, rather than through ingestion of performed toxin. Botulism is not spread person to person.

What are symptoms of Botulism?

The classic symptoms of botulism include double vision, blurred vision, dropping eyelids, slurred speech, difficulty swallowing, dry mouth, and muscle weakness. Infants with botulism appear lethargic, feed poorly, are constipated, and have a weak cry and poor muscle tone. These are all symptoms of the muscle paralysis caused by the bacterial toxin. If untreated, these symptoms may progress to cause paralysis of the respiratory muscles, arms, legs and trunk. In foodborne botulism, symptoms generally begin 18 to 36 hours after eating a contaminated food, but they can occur as early as 6 hours or as late as 10 days. If the illness is severe, breathing muscles are involved, leading to respiratory failure and death unless assistance with breathing is provided.

Can Botulism be used as a biological weapon?

Several Nations are believed to have biological weapons programs. The potential use of botulism toxin is of great concern due to its ease of mass production, ability to affect a large number of people, and the need for prolonged care. A bioterrorist event involving botulism could be caused by the deliberate contamination of a food or beverage. Experts believe that the development of botulism toxin is beyond the capability of individuals or groups without access to advance biotechnology.

Is there a treatment for Botulism?

The respiratory failure and paralysis that occur with sever botulism may require a patient to be on a breathing machine for weeks or months, plus intensive medical and nursing care. The paralysis slowly improves. Botulism can be treated with an antitoxin which blocks the action of toxin circulating in the blood. Antitoxin for infants is available from the California Department of Public Health, and antitoxin for older children and adults is available through CDC. If given before paralysis is complete, antitoxin can prevent worsening and shorten recovery time. Physicians

may try to remove contaminated food still in the gut by inducing vomiting or by using enemas. Wounds should be treated, usually surgically, to remove the source of the toxin-producing bacteria followed by administration of appropriate antibiotics. Good supportive care in a hospital is the mainstay of therapy for all forms of botulism.

How can Botulism be prevented?

- Persons who do home canning should follow strict hygienic procedures to reduce contamination of foods, and carefully follow instructions on safe home canning including the use of pressure canners/cookers as recommended through county extension services or from the US Department of Agriculture
 - http://www.uga.edu/nchfp/publications_usda.html
- To reduce the risk for botulism when pickling, food items should be washed and cooked adequately, and utensils, containers, and other surfaces in contact with food, including cutting boards and hands, should be cleaned thoroughly with soap and warm water.
- Oils infused with garlic or herbs should be refrigerated.
- Potatoes which have been baked while wrapped in aluminum foil should be kept hot until served or refrigerated.
- Botulinum may cause container lids to bulge and the contents to have “off-odors”. Commercial cans and home-canned products that are bulging or rusted around the rim or seam should not be consumed.
- Botulinum toxin is destroyed by high temperature; persons who eat home canned foods should consider boiling the food for 10 minutes before eating it to ensure safety.
- Wound botulism can be prevented by promptly seeking medical care for infected wounds and by not using injectable street drugs.
- Most infant botulism cases cannot be prevented because the bacteria that causes this disease is in soil and dust. The bacterium that causes infant botulism so, children less than 12 months old should not be fed honey. Honey is safe for persons 1 year of age and older.

How is Botulism diagnosed?

Physicians may consider the diagnosis if the patient's history and physical examination suggest botulism. However, these clues are usually not enough to allow a diagnosis of botulism. Other diseases such as Guillain-Barre syndrome, stroke, and myasthenia gravis can appear similar to botulism, and special tests may be needed to exclude these other conditions. These tests may include a brain scan, spinal fluid examination, nerve conduction test (EMG), and a tension test for myasthenia gravis. Test for botulism toxin and for bacteria that cause botulism can be performed at some state health department laboratories and at CDC.