



Botulism

(*Clostridium botulinum*)

What is botulism?

Botulism is a serious paralytic illness caused by a nerve toxin produced by the bacteria *Clostridium botulinum*. *Clostridium botulinum* is commonly found in soil. The bacteria forms spores that help it survive in an inactive state for long periods of time until the environmental conditions can support its growth. People may develop disease when the bacteria or its toxin enters a wound or is swallowed. The bacteria grow best in low-oxygen conditions, such as canned foods or deep wounds.

The three main kinds of botulism are foodborne, wound and infant botulism. Foodborne botulism is caused by eating food contaminated with the botulism toxin. The bacteria grow best in food at room temperatures. Wound botulism is caused by the botulism toxin being produced in a wound infected with *Clostridium botulinum*. Infant botulism is caused by ingestion of the spore-form of *Clostridium botulinum*, which then grows in the intestine and releases toxin. All three forms can be fatal.

Who is at risk for botulism?

Everyone is at risk for foodborne botulism, especially those who eat home-canned, low-acid foods. Drug users, especially those who use black-tar heroin, may be at risk of wound botulism. Infants younger than 12 months who are fed honey are at risk of infant botulism.

What are the symptoms of botulism?

Symptoms of botulism include double vision, blurred vision, drooping eyelids, slurred speech, difficulty swallowing, dry mouth and muscle weakness. Infant botulism often is recognized by the infant appearing lethargic, poor feeding, constipation, having a weak cry and poor muscle tone. If not treated, these symptoms may progress into paralysis of the arms, legs, trunk and respiratory muscles.

How soon do symptoms appear?

In foodborne botulism, symptoms usually begin 18 to 36 hours after eating contaminated food, but may occur as early as six hours.

How is botulism spread?

Foodborne botulism is caused by eating food contaminated with the botulism toxin. Foodborne botulism has been associated with home-canned foods such as asparagus, green beans, beets and corn. Outbreaks of botulism have been documented in chopped garlic in oil, chile peppers, tomatoes, improperly handled baked potatoes wrapped in aluminum foil and home-canned or fermented fish. Infant botulism is most commonly caused by ingestion of bacteria spores naturally found in honey.

When and for how long is a person able to spread the disease?

Botulism is not spread from person to person.

How is a person diagnosed?

Consult a health-care professional. Laboratory tests can look for the bacteria or the toxin in blood or stool.

What is the treatment?

If the infection is severe and respiratory difficulty and paralysis occurs, the patient may require a breathing machine (ventilator). Recovery is slow and may take several weeks to months. If diagnosed early enough, an antitoxin can be used to treat foodborne and wound botulism. This may prevent the condition from worsening, but recovery may still take many weeks. Currently, antitoxin is not routinely given for treatment of infant botulism.

Does past infection make a person immune?

No. The illness may recur if the person is exposed again.

Should children or others be excluded from child care, school, work or other activities if they have botulism?

Not applicable; most likely, anyone infected with botulism will require hospitalization and intensive care.

What can be done to prevent the spread of botulism disease?

- All canned and preserved foods must be properly processed and prepared.
- People who do home canning should wash hands and utensils thoroughly with soap and water.
- Home-canned products should be heated to 241° F (116° C) using a pressure cooker to kill the spores of *Clostridium botulinum*.
- Home-canned foods can be boiled for 10 minutes before eating to ensure its safety; this will destroy the botulism toxin.
- Oils infused with garlic or herbs should be refrigerated.
- Potatoes wrapped in aluminum foil and baked should be kept hot (135° F) until served or refrigerated.
- Reheated foods should be heated to 165° F.
- Children younger than 12 months should not be fed honey.
- Frozen foods should be thawed in the refrigerator, rather than at room temperature.
- Bulging containers should not be opened, and commercial cans that are dented should be returned to the store where they were purchased.
- Promptly seek medical care for infected wounds.
- Avoid using injectable street drugs.

Additional Information

For additional information, call the North Dakota Department of Health at 800.472.2180.

This disease is a reportable condition. As mandated by North Dakota law, any incidence of this disease shall be reported to the North Dakota Department of Health.

Resources:

American Academy of Pediatrics. [Children In Out-of-Home Child Care]. In: Pickering LK, ed. Red Book: 2003 Report of the Committee on Infectious Diseases. 26th ed. Elk Grove Village, IL: American Academy of Pediatrics; 2003:[123-137].
Control of Communicable Disease Manual, 18th Edition-2004, Heymann, David, MD ed.
USDA Home Canning Guide <http://foodsafety.psu.edu/canningguide.html>.

