

What is botulism?

Botulism is a serious paralytic illness caused by a nerve toxin produced by the bacterium *Clostridium botulinum*, which is commonly found in soil. The bacteria forms spores that help it survive in an inactive state for long periods of time until 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 types 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 *C. botulinum*. Infant botulism is caused by ingestion of the spore-form of *C. botulinum*, which then grows in the intestine and releases toxin. All three types 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 are the same, regardless of the type of botulism. Symptoms 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, symptoms may progress into paralysis of the arms, legs, trunk and respiratory muscles.

How soon do symptoms appear?

In foodborne botulism, symptoms usually begin 12 to 48 hours after eating contaminated food, but may occur as early as six hours or as late as eight days. Symptoms of wound botulism are similar to foodborne botulism, but can appear four to 14 days from the time of injury. In infant botulism, symptoms appear three to 30 days from the time of exposure to the spore-containing material.

How is botulism spread?

Foodborne botulism is caused by eating food contaminated with *C. Botulinum* that has produced toxin without sufficient heating or cooking to inactivate the toxin. The most frequent source is home-canned foods that have been prepared in an unsafe manner. Outbreaks of botulism have been documented in chopped garlic in oil, chili peppers, tomatoes, improperly handled baked potatoes wrapped in aluminum foil, and home-canned or fermented fish. Wound botulism results from contamination of wounds with the bacteria. Wound botulism can also occur among injection drug users. Infant botulism is most commonly caused by ingestion of bacteria spores from the environment and sometimes from ingestion of 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 detect the bacteria or the toxin in blood or stool.

What is the treatment?

If the infection is severe and respiratory difficulty and paralysis occur, the patient may require a breathing machine (ventilator). Recovery is slow and may take several weeks to months. If diagnosed early enough, an antitoxin that blocks the action of the toxin circulating in the blood can be given. This may prevent the condition from worsening, but recovery may still take many weeks.

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 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.
- 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.
- Children younger than 12 months should not be fed honey.
- Promptly seek medical care for infected wounds.
- Do not use 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:

1. *Red Book: 2015 Report of the Committee on Infectious Diseases*. 30th ed. [Children in Out-Of-Home Care]. Kimberlin, DW; Brady, MT; Jackson, MA; Long, SS. American Academy of Pediatrics. 2015: 132-151.
2. *Red Book: 2015 Report of the Committee on Infectious Diseases*. 30th ed. [Botulism and Infant Botulism]. Kimberlin, DW; Brady, MT; Jackson, MA; Long, SS. American Academy of Pediatrics. 2015: 294-297.
3. Heymann, D. L. (2015). *Control of Communicable Diseases Manual, 20th Edition*. Botulism. American Public Health Association. 2015: 71-77.
4. Centers for Disease Control and Prevention. (2016). Botulism. www.cdc.gov/botulism.