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## What is botulism?

Botulism is a rare but serious disease that affects the nervous system and can cause paralysis. It is caused by a toxin that is usually produced by *Clostridium botulinum* bacteria, but other *Clostridium* bacteria (*Clostridium butyricum* and *Clostridium baratii*) can also produce the botulism toxin. Botulism toxins are among the most potent toxins found in nature; tiny quantities can cause life-threatening illness. The bacteria that make the toxins are found in the soil, and sometimes in water, and can form spores that can survive in the environment for a long time.

There are multiple forms of botulism. All forms can be fatal and are considered medical emergencies. The three main forms of botulism are as follows:

- Foodborne botulism is caused by eating foods that contain the botulism toxin. It is considered a public health emergency, as action can be taken to prevent others from eating a contaminated food.
- Infant botulism is caused by consuming the spores of botulism bacteria, which then grow in the intestines and release toxin.
- Wound botulism is caused by toxin produced from a wound infected with botulism bacteria

Two other forms of botulism also have occurred. Adult intestinal botulism is very rare and occurs among adults by the same route as infant botulism. Iatrogenic botulism is also very rare and can occur as a complication from injecting botulism toxin for cosmetic or medical purposes.

## Who gets botulism?

Anyone can get botulism with about 200 cases reported in the United States each year. Most cases involve infant botulism which occurs in babies younger than 12 months of age. Infant botulism has been associated with honey, a natural product that can contain botulism spores. Foodborne botulism can occur after eating home-canned, preserved or fermented foods that are contaminated with botulism toxin. Foods with low acid content (e.g., asparagus, green beans, beets, corn, and potatoes) are the most common sources of home-canning related botulism. Wound botulism can occur more often in people who inject drugs or who have open wounds that are exposed to soil or gravel.

## How is botulism spread?

Botulism does not spread from person to person. A person can get foodborne botulism from eating food that contains botulism toxin if the food is not heated or processed properly. Foodborne botulism is most frequently caused by eating improperly processed home-canned, preserved or fermented foods. Infants get botulism by swallowing something (e.g., honey, dust, soil) that contains botulism spores, which then grow and produce toxin in the gastrointestinal tract. Wound botulism occurs when botulism spores grow and produce toxin in wounds.

## What are the symptoms of botulism?

The classic symptoms of botulism include double vision, blurred vision, drooping eyelids, slurred speech, difficulty swallowing, dry mouth, and muscle weakness. Muscle paralysis starts with the face and progresses down the body to the trunk, arms, and legs. Infants with botulism appear very tired, 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 can progress to cause paralysis of the muscles used for breathing.

## How soon after exposure do symptoms appear?

Symptoms of foodborne botulism usually appear 12–72 hours after eating the toxin-containing food but can occur as early as 2 hours or as late as 8 days after exposure. For infant botulism, the time from exposure to symptom onset can be up to 30 days. For wound botulism, the time from exposure to symptom onset is usually 4–14 days.

## How is botulism diagnosed?

Doctors might suspect botulism based on the nature of the illness, especially if paralysis is seen to move down the body. Other illnesses, however, can also cause similar symptoms. Special tests have to be conducted to rule out other diagnoses and detect the presence of *Clostridium* bacteria or botulism toxin.

## What is the treatment for botulism?

Botulism can be treated with an antitoxin that blocks the action of botulism toxin in the body. If given before paralysis is complete, antitoxin can prevent worsening of symptoms, but it will not reverse paralysis that has already occurred. Wound botulism usually needs to be treated by surgically removing the source of the toxin-producing bacteria and then putting the patient on antibiotics. The respiratory failure and paralysis that can occur with severe botulism might require a patient to be on a breathing machine (ventilator) for weeks or months and intensive medical and nursing care. Good supportive care in a hospital is the mainstay of therapy for all forms of botulism.

## Should people who have been in contact with someone with botulism be tested and treated?

Botulism can not be transmitted from one person to another, so people who have been in contact with a person with botulism do not need to be tested and treated.

## How can botulism be prevented?

Foodborne botulism is usually associated with improperly processed home-canned foods. Persons who do preserve, can, or ferment their own foods should follow safe home canning and storage procedures (such as those provided by the U.S. Department of Agriculture (USDA)) to reduce

contamination of foods. This includes the use of pressure canners or cookers as recommended through county extension services or from the USDA. Because the botulism toxin is destroyed by high temperatures, persons who eat home-canned foods should consider boiling the food for 10 minutes before eating it to ensure safety. Bulging containers of commercially canned food should not be opened and goods with off-odors should not be eaten. Most infant botulism cases cannot be prevented because the bacteria that causes this disease are in the soil and dust and can be found inside homes on floors, carpet, and countertops even after cleaning. Honey should not be fed to infants younger than 12 months because it can contain the bacteria that cause infant botulism. Honey is safe for persons one year of age and older. Wound botulism can be prevented by keeping wounds clean, promptly seeking medical care for infected wounds, and by not injecting drugs.

## Could botulism be used for bioterrorism?

Yes. Botulism toxin could potentially be used for bioterrorism because it is easy to obtain, transport, and misuse. Many people could get sick and need medical care for a long time. Botulism toxin could be released in food or water. It could also be released in the air, where it could be breathed in by people in the area of the release, causing a rare form of botulism called inhalational botulism.

## How can I get more information about botulism?

- If you have concerns about botulism, contact your healthcare provider.
- Call your local health department. Find your local health department at [vdh.virginia.gov/local-health-districts/](http://vdh.virginia.gov/local-health-districts/).
- Visit the CDC's page on botulism at [cdc.gov/botulism/](http://cdc.gov/botulism/).

### **Botulism: Overview for Health Care Providers** (Updated August 2023)

Two page summary of: Organism, Reporting, Infectious Dose, Occurrence, Natural Reservoir, Route of Infection, Communicability, Case-fatality Rate, Risk Factors, Incubation Period, Clinical Manifestations, Differential Diagnosis, Laboratory Tests/Sample Collection, Treatment, Vaccine

### **Botulism: Guidance for Health Care Providers**

Key Medical and Public Health Interventions After Identification of a Suspected Case

### **Clinical Guidance for Infant Botulism**

CDC guidance for diagnosis and treatment, and video for administering antitoxin

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