

Botulism

Your questions answered

What is botulism?

Botulism is a rare, but serious paralytic illness caused by a nerve toxin that is produced by the bacterium *Clostridium botulinum*.

There are three main kinds of botulism:

Foodborne botulism is caused by eating foods that contain the botulism toxin. Foodborne botulism can be especially dangerous because many people can be poisoned by eating a contaminated food.

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.

All forms of botulism can be fatal and are considered medical emergencies.

What kind of germ is *Clostridium botulinum*?

Clostridium botulinum is the name of a group of bacteria commonly found in soil. These rod-shaped organisms grow best in low oxygen conditions. The bacteria form spores which allow them to survive in a dormant state until exposed to conditions that can support their growth. There are seven types of botulism toxin designated by the letters A through G; only **types A, B, E and F cause illness in humans**.

How common is botulism?

In the United States, an average of 145 cases are reported each year. Of these, approximately 15 percent are foodborne, 65 percent are infant botulism and 20 percent are wound. Adult intestinal colonization and iatrogenic botulism also occur, but rarely.

Outbreaks of foodborne botulism involving two or more persons occur most years and are usually caused by eating contaminated home-canned foods. The number of cases of foodborne and infant botulism has changed little in recent years, but wound botulism has increased because of the use of black-tar heroin, especially in California.

What are the symptoms of botulism?

The symptoms of botulism include double vision, blurred vision, drooping 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 arms, legs, trunk and respiratory muscles. In foodborne botulism, symptoms generally begin 18 to 36 hours after eating a contaminated food, but they can occur as early as six hours or as late as 10 days.

What Can **YOU** Do?

How is the disease 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-Barré 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 (electromyography or EMG) and a tensilon test for myasthenia gravis. The most direct way to confirm the diagnosis is to demonstrate the botulinum toxin in the patient's serum or stool by injecting serum or stool into mice and looking for signs of botulism. The bacteria can also be isolated from the stool of persons with foodborne and infant botulism. These tests can be performed at some state health department laboratories and at CDC.

How can botulism be treated?

The respiratory failure and paralysis that occur with severe botulism may require a patient to be on 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 equine antitoxin which blocks the action of toxin circulating in the blood. This can prevent patients from worsening, but recovery still takes many weeks. 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. A human-derived antitoxin is used to treat cases of infant botulism is available.

Are there complications from botulism?

Botulism can result in death due to respiratory failure. However, in the past 50 years, the proportion of patients with botulism who die has fallen from about 50 percent to 3.5 percent. A patient with severe botulism may require a breathing machine as well as intensive medical and nursing care for several months. Patients who survive an episode of botulism poisoning may have fatigue and shortness of breath for years and long-term therapy may be needed to aid recovery.

How can botulism be prevented?

Botulism can be prevented. Foodborne botulism has often been from home-canned foods with low acid content, such as asparagus, green beans, beets and corn. However, outbreaks of botulism from more unusual sources such as chopped garlic in oil, chile peppers, tomatoes, carrot juice, improperly handled baked potatoes wrapped in aluminum foil and home-canned or fermented fish. Persons who do home canning should follow strict hygienic procedures to reduce contamination of foods. Oils infused with garlic or herbs should be refrigerated. Potatoes which have been baked while wrapped in alu-

What are public health agencies doing to prevent or control botulism?

minum foil should be kept hot until served or refrigerated. 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. Instructions on safe home canning can be obtained from the county extension service or from the U.S. Department of Agriculture. Because honey can contain spores of *Clostridium botulinum* and this has been a source of infection for infants, children less than 12 months old should not be fed honey. Honey is safe for persons 1 year of age and older. Wound botulism can be prevented by promptly seeking medical care for infected wounds and by not using injectable street drugs.

Public education about botulism prevention is an ongoing activity. Information about safe canning is widely available for consumers. State health departments and the CDC have persons knowledgeable about botulism available to consult with physicians 24 hours a day. If antitoxin is needed to treat a patient, it can be quickly delivered to a physician anywhere in the country.

Suspected outbreaks of botulism are quickly investigated, and if they involve a commercial product, the appropriate control measures are coordinated among public health and regulatory agencies. Physicians should report suspected cases of botulism to the Lawrence-Douglas County Health Department (785) 843-0721 or the Kansas Department of Health and Environment at 1-877-427-7317.



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This fact sheet is for information only and is not intended for self-diagnosis or as a substitute for consultation. If you have any questions about the disease described above or think that you may have an infection, consult with your health-care provider. This fact sheet is based on the Centers for Disease Control and Prevention's Health and Safety topic fact sheets.

For more information on botulism, call the Lawrence-Douglas County Health Department at (785) 843-0721 or visit us on the web at: www.ldchealth.org