

## Botulism

*Botulism is a Class A Disease. It must be reported to the state within 24 hours by calling the phone number listed on the website.*

Botulism is caused by toxins produced by *Clostridium botulinum*, a spore-forming bacteria. It is spread via airborne spores that mature and produce their toxins in anaerobic environments. Botulism is not transmissible from person-to-person.

Botulism infections fall into the following three categories:

**Foodborne botulism** is acquired by the ingestion of food in which toxin has been formed, predominantly after inadequate heating during preservation and without subsequent adequate cooking. Foods associated with botulism are mostly home-canned foods (65% of cases prior to 1960), and commercially processed foods (7% of pre-1960 cases) because these foods provide the anaerobic environment necessary for maturation of the spores and subsequent production of toxins.

The incubation period for foodborne botulism is 12 to 48 hours; initial symptoms may include blurred or double vision, dysphagia, dry mouth, vomiting and constipation, or diarrhea. The symptoms may extend to symmetrical flaccid paralysis. The case-fatality rate in the U.S. is 5% to 10%.

Prevention of foodborne botulism is best accomplished by proper preparation, handling and heating of canned or preserved foods. Commercial cans or home canned products with dents or bulging lids should not be opened. Foods exhibiting abnormal odors should not be consumed.

All cases of foodborne botulism are treated as public health emergencies because the responsible food may still be available for consumption.

**Infant botulism** is often attributed to the ingestion of fresh honey that is contaminated with spores. However, other sources of botulism in infants, such as exposure to soil contamination, have emerged since feeding honey to infants has been discouraged. (Honey should never be fed to infants younger than one year of age.) The incubation period for infant botulism is three to 30 days and illness typically begins with constipation, followed by lethargy, poor feeding, loss of head control and generalized weakness, difficulty swallowing and sometimes, respiratory insufficiency and arrest. The case-fatality rate of hospitalized cases in the U.S. is less than 1%.

**Wound botulism** results when the spores contaminate a wound in which anaerobic conditions develop. Wound botulism is often associated with illegal injectable drug use. The incubation period is four to 14 days and symptoms are similar to those of foodborne botulism. Prevention is best accomplished by properly seeking medical care for infected wounds and by not using injectable street drugs.

**Bioterrorism:** Botulinum toxin is also considered a potential biological weapon. Consideration of intentional use of the toxin should be suspected in the event of clusters of acute flaccid

muscular paralysis originating from common geographic locations or among attendees at identical public events or gatherings.

No vaccine for botulism is available; antitoxins are not useful in prevention and there is no natural immunity to the disease.

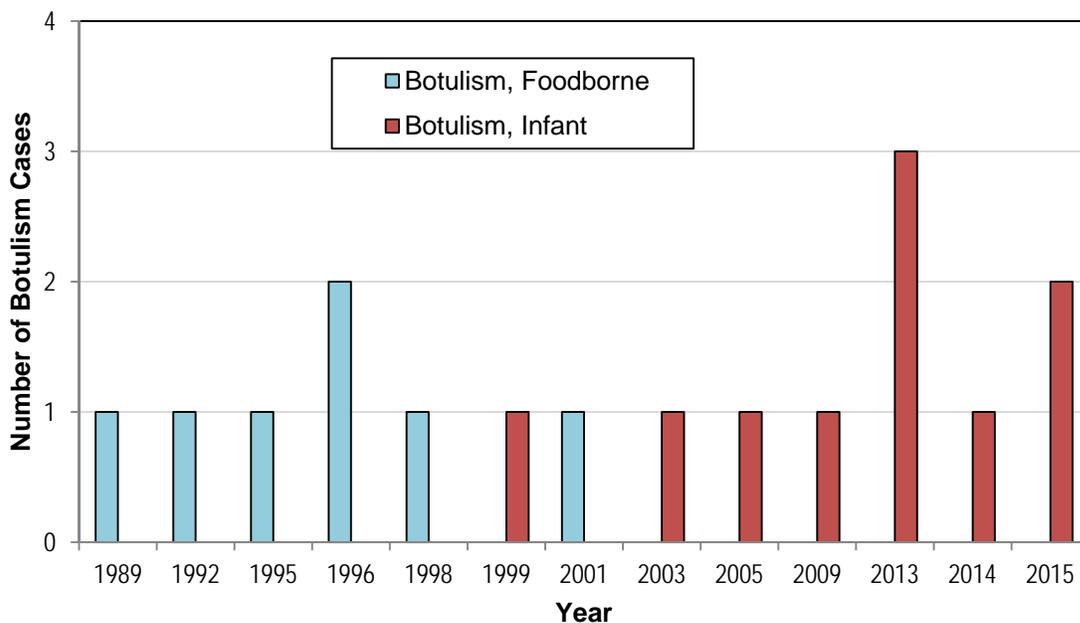
Clinical diagnosis, the foundation of early recognition, is confirmed by specialized testing. However treatment should not wait for laboratory confirmation. Routine laboratory tests and CSF studies remain essentially normal, although occasionally a borderline elevation in protein level is seen in CSF. Botulism is frequently misdiagnosed as polyradiculoneuropathy, Guillain-Barre syndrome, myasthenia gravis, or other central nervous system diseases. The paralysis caused by botulinum toxin always initially manifests itself as a cranial paralysis with a descending progression. An absence of sensory nerve damage also characterizes the intoxication.

Prompt diagnosis of this disease is imperative. A supply of antitoxin is maintained by the Centers for Disease Control and Prevention (CDC), and the agency maintains intensive surveillance for the disease. Use of antitoxin early in the course of the disease is effective in reducing the severity of symptoms.

**Number of Cases:** An average of 145 cases of botulism is reported annually in the United States. Infant botulism accounts for 65% of reported cases.

Since 1965, isolated cases of botulism in Louisiana have been reported for foodborne botulism in the years 1984, 1989, 1992, 1995, 1996, 1998, 2001 and infant botulism in the years 1984, 1999, 2003, 2005, 2009, 2013, 2014, and 2015 (Figure).

**Figure:** Botulism cases - Louisiana, 1989-2015



The single case reported in Louisiana in 2005 involved a three-week old infant from the Shreveport/Bossier region who presented to the emergency department with constipation, weakness and lethargy that progressed to neurological involvement. The physician noted a weak gag reflex and decreased respiration; testing indicated botulism. The infant was treated with anti-toxin and recovered. The baby had been fed infant formula and honey had been used as a sweetener.

The case reported in 2009 involved a five-month old infant from the Shreveport/Bossier region who presented with flaccid paralysis, weak muscle tone, lethargy and respiratory arrest. Testing confirmed botulism and the child was treated with anti-toxin and recovered. The mother had added syrup to the child's formula to treat constipation, but stated that she had never fed the infant honey.

In 2013, three infant botulism cases were reported in Louisiana. One case was a two-month old child from Baton Rouge area who presented with congestion, unable to swallow, diffuse weakness, cyanosis around the mouth during feeding and weak muscle tone. The second case was a four-month old infant from the Shreveport/Bossier region who presented with constipation, a groggy appearance, difficulty swallowing, respiratory distress, slack jaw, flaccid paralysis and facial drooping. The third case was an 18-day old child from Lake Charles area who presented with difficulty feeding and swallowing, aspiration pneumonia, spit-up during feeding, gag, choking, gargling, mild difficulty breathing, unusual cry (very low pitch, not strong), and tiring as feeding progressed. All three cases were confirmed by laboratory testing. The first two children received anti-toxin. The third case recovered on its own.

The case reported in 2014 involved a one-month old infant from the Saint Tammany parish who presented with constipation, not feeding, altered cry, irritable, poor head control, weakness, significant diffuse hypotonia on vertical and horizontal suspension with significant head lag. Botulism was confirmed by laboratory testing.

In 2015, two infant botulism cases were reported in Louisiana. One case was a nine-month old child from the DeSoto parish area who presented with fatigue, shortness of breath, vomiting, and weakness. The other case was a four-month old child from the Baton Rouge area who presented with dry mouth, fatigue, and weakness and altered mental status. Both cases were confirmed by laboratory testing.