



**Botulism Vaccination Program  
Question and Answers**

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## **Botulism Vaccination Program Questions and Answers**

### **Botulism - The Disease**

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*Adapted from the Immunization Action Coalition (with permission) and the Centers for Disease Control and Prevention (CDC).*

## Botulism - The Disease

### Overview

#### 1) What is botulism?

Botulism is a rare but serious illness involving paralysis of the muscles. Botulism is caused by a toxin produced by bacteria called *Clostridium botulinum*.

#### 2) What is *Clostridium botulinum*?

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

#### 3) How do people get botulism?

There are three main kinds of botulism: Foodborne botulism, wound botulism, and infant botulism.. Foodborne botulism occurs after eating food contaminated with botulism toxin. Botulism is a concern with home-canned foods. The reason for the careful boiling and other precautions during canning is to avoid botulism.

Wound botulism is caused by toxin produced within a wound infected with *Clostridium botulinum* bacteria. For example, if soil containing botulism spores fell into an open wound, the spores could turn back into bacteria and produce toxins.

Infant botulism is caused by consuming the spores of botulism bacteria, which then grow in the intestines and release toxin. The reason you shouldn't feed honey to an infant is because of the risk the honey might contain botulism spores.

All three forms of botulism can be life-threatening and should be treated as medical emergencies. Foodborne botulism is especially dangerous, because many people can be poisoned by eating from the same contaminated food source.

#### 4) Can botulism be prevented?

Botulism can be prevented. Food-borne botulism often occurs 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, chili peppers, tomatoes, improperly handled baked potatoes wrapped in aluminum foil, and home-canned or fermented fish.

People who do home canning should follow strict hygienic procedures to reduce contamination of foods. Oils infused with garlic or herbs should be refrigerated. Potatoes that have been baked while wrapped in aluminum foil should be kept hot until served or refrigerated. Because the botulism toxin is destroyed by high temperatures, people who eat home-canned food should consider boiling the food for 10 minutes before eating it to ensure safety. Instructions on safe home canning can be obtained from county extension services or from the US Department of Agriculture.

Because honey can contain spores of *Clostridium botulinum* (a source of infection in infants), children less than 12 months old should not be fed honey. Honey is safe for people 1 year of age and older.

Wound botulism can be prevented by promptly seeking medical care for infected wounds, cleaning

wounds with soap and water, and not using injectable street drugs.

## Symptoms

### 1) 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. Infants with botulism appear lethargic, feed poorly, are constipated, and have a weak cry and poor muscle tone. These are all symptoms resulting from muscle paralysis caused by the bacterial toxin. If untreated, these symptoms may progress to 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 can occur as early as 6 hours or as late as 10 days after exposure.

### 2) How is botulism diagnosed?

The most direct way to confirm the diagnosis of botulism is to test for botulism toxin in a patient's blood or stool, by injecting blood or stool into mice and watching for signs of botulism. The bacteria can also be isolated from the stool of people with foodborne and infant botulism. These tests can be performed at some state health department and at Centers for Disease Control (CDC) laboratories.

### 3) 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 for weeks, plus intensive medical and nursing care. After several weeks, the paralysis slowly improves.

If diagnosed early, botulism can be treated with an antitoxin that blocks the actions of the toxin circulating in the blood. This can prevent patients from worsening, but recovery still takes many weeks. Physicians may try to remove contaminated food remaining 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. Good supportive care in a hospital is the core therapy for all forms of botulism.

The bacterium *Clostridium botulinum* is the same bacterium that is used to produce Botox or Myobloc, pharmaceuticals for clinical and cosmetic use. However, what is used in Botox treatments is the purified and diluted neurotoxin A. Treatment is administered according to the needs and tolerance of the patient.

## Complications

### 1) 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% to 8%. 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.

Sources:

CDC Disease Information: [Botulism](#)

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