

# Biothreat: Botulism

What You Need to Know

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**A microscopic view of botulism bacteria**

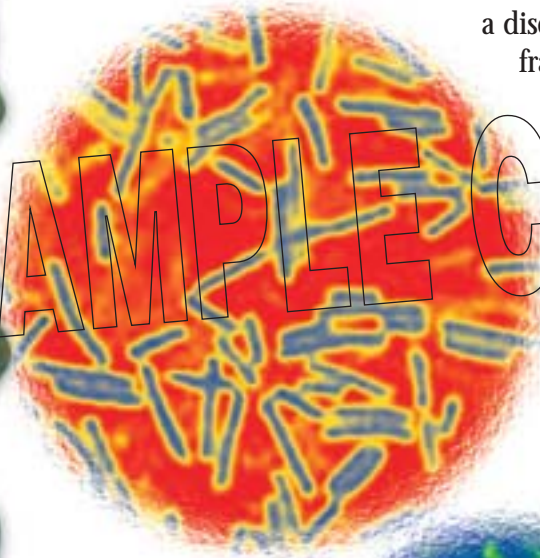
# Diseases as Weapons

Many diseases could be used as weapons, but most are hard to obtain, preserve, and spread. Terrorists first have to buy or steal a sample of the disease. This alone can be difficult and expensive.

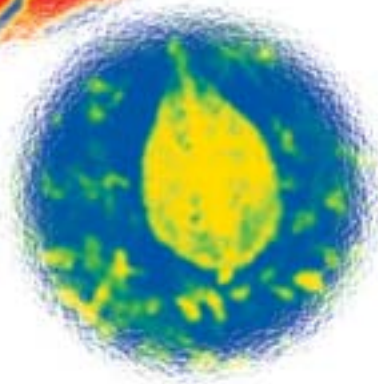
Terrorists must protect themselves from the disease, which can require complex, expensive equipment.

Changing a test tube sample of a disease into a form that can be spread easily is hard to do. Terrorists need large amounts of the disease to hurt many people.

A laboratory version of a disease is usually fragile. Outside of a test tube, it would die quickly. For a disease to be spread, it has to be "weaponized," which is a complicated scientific task.



**Microscopic  
views of  
botulism  
bacteria**



# Is Botulism a Serious Threat?

Botulism is a disease that causes muscle paralysis. The bacteria produce a toxin (poison) that attacks nerves. A person affected with botulism will lose sensation and muscle movement, including the ability to breathe, resulting in death.

The bacteria that cause botulism, *Clostridium botulinum*, are usually found in soil. The bacteria grow better in low oxygen settings. The bacteria form spores that can keep them inactive until they come into contact with conditions that can help them grow. Protected by the spores, bacteria last a long time.

As a biological weapon, botulism is in the same group as anthrax. That is, both are easier to obtain than other diseases.

Botulism may be spread in food or in the air to large numbers of people. Terrorists in Japan have already tried unsuccessfully to use botulism as an airborne bioweapon. They failed because of poor technology and equipment. However, other groups could be more successful.



**“Botulism causes paralysis and the inability to breathe.”**

# Types of Botulism

There are four types of botulism. The natural forms of the disease are foodborne (eating infected foods), wound (direct contact into open wound or cut), and intestinal or infant (bacteria develop in the intestines of children). The only man-made form of botulism is inhalation botulism (sprayed in air).

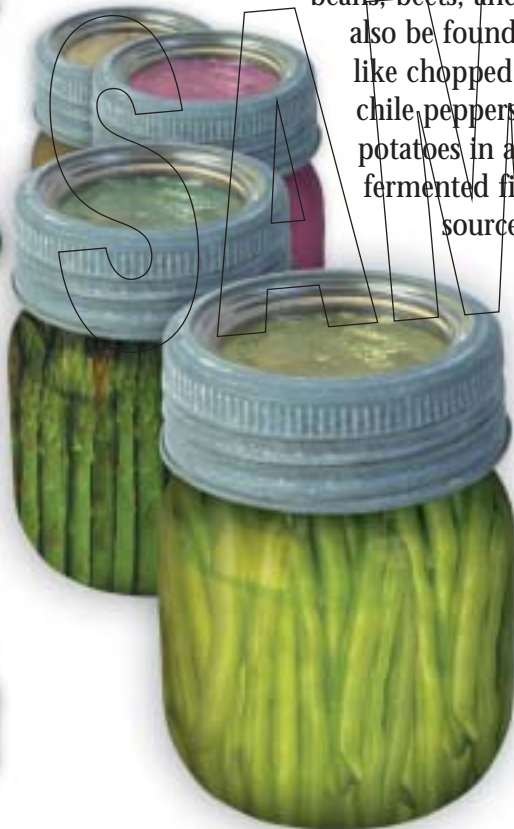
All forms of botulism can cause death and should be handled as medical emergencies.

## Foodborne Botulism

A common source of botulism is home-canned foods with little acid in them, such as asparagus, green beans, beets, and corn. Botulism can also be found in other foods like chopped garlic in oil, chile peppers, tomatoes, baked potatoes in aluminum foil, and fermented fish. Honey is another source of botulism. It is unsafe for children under 1 year of age to eat honey.

High heat destroys the botulism bacteria.

It is possible that terrorists could poison a food supply with the botulism toxin. However, this has never been tried on a large scale.



## Wound Botulism

Botulism cannot enter the body through skin contact. But it can enter the body by an open wound, like a cut. This can happen if the wound comes into contact with botulism-infected dirt or air.



## Infant or Intestinal Botulism

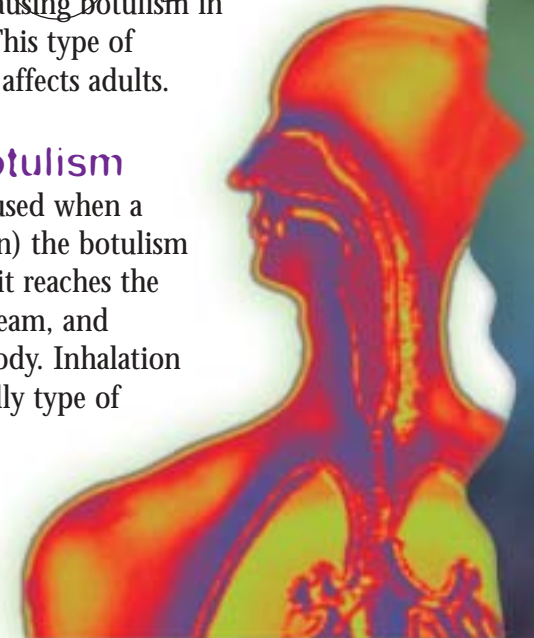
If a child eats botulism spores, the spores may lie inactive in the intestines (gut) for a long time. The low level of oxygen in the intestines is the perfect condition for botulism spores to grow, causing botulism in the child. This type of botulism rarely affects adults.



## Inhalation Botulism

Inhalation botulism is caused when a person inhales (breathes in) the botulism toxin. Once breathed in, it reaches the lungs, enters the bloodstream, and spreads throughout the body. Inhalation botulism is the most deadly type of the disease.

Terrorist groups have tried unsuccessfully to use inhalation botulism in the past.



# Avoiding Botulism Exposure

Botulism can be avoided as follows:

- Keep food refrigerated and sanitized (clean) before eating.
- Boil home-canned foods for at least 10 minutes.
- If eating baked potatoes wrapped in aluminum foil, keep hot until ready to eat.
- Keep open wounds or cuts clean and free of dirt.
- Avoid feeding honey to infants under 1 year of age.
- Don't let children put soil in their mouths when playing outside.



**If You Have Symptoms**

Be alert for signs of botulism:

- Dizziness
- Double vision
- Blurred vision
- Drooping eyelids
- Slurred speech
- Difficulty swallowing
- Dry mouth
- Weakened muscles

Infants with botulism act slow (lethargic), eat poorly, are constipated, cry weakly, and have weak muscles.

If left untreated, the toxin will travel in the body and cause paralysis of the arms, legs, torso, and breathing muscles. Inability to breathe causes death.



## Treatment

If found in time, botulism can be treated with medicines called antitoxins. Botulism usually takes from 24 to 36 hours to affect the body. It is possible to find botulism infection before it is too late. If someone suddenly develops any of the early signs of botulism infection, he or she should go to the hospital right away. If treated, only 8 out of 100 persons might die of botulism.

Botulism is treated in intensive hospital care and patients undergo long-term therapy. A person with paralyzed breathing muscles will need a ventilator (breathing machine) for several weeks.

People who eat food infected with botulism will be made to vomit and given an enema to help bowel movement if the food is still in the gut.

Areas around infected wounds will be removed through surgery to stop the spread of the disease in the body.

Recovery from botulism takes a long time. Persons who are treated quickly and survive botulism may feel tired and have shortness of breath for many years. If left untreated, a person will die.

**A vaccine is available to prevent infection and may be distributed if necessary.**



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## Keep in Mind

A mass exposure of botulism would be difficult for terrorists to carry out. Although terrorist groups have attempted to use botulism before, the attacks have been unsuccessful. In order for botulism to be spread it needs to be in the toxin form, which requires special conditions to develop. Botulism can be cured if found early.

### **For More Information:**

#### **Online Terrorism Resource Site**

[www.syndistar.com/terrorism](http://www.syndistar.com/terrorism)

#### **Centers for Disease Control and Prevention (CDC)**

[www.cdc.gov](http://www.cdc.gov)

1-800-311-3435

#### **U.S. Department of Health and Human Services (DHHS)**

[www.os.dhhs.gov](http://www.os.dhhs.gov)

1-877-696-6775

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