



# Botulism Backgrounder

Botulism is a rare but serious paralytic illness caused by a nerve toxin that is produced by the bacterium *Clostridium botulinum* (*C. botulinum*). Botulism toxin is the most potent lethal substance known to man. Spores of *C. botulinum* are found in the soil worldwide.

There are three main kinds of botulism. **Foodborne botulism** is caused by eating foods that contain the botulism toxin. **Cutaneous botulism** is caused by toxin produced from a wound infected with *C. botulinum*. Intestinal (**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. Foodborne botulism can be especially dangerous because many people can be poisoned by eating a contaminated food.

In the United States, an average of 110 cases of botulism is reported each year. Of these, approximately 25% are foodborne, 72% are infant botulism, and the rest are cutaneous botulism. Outbreaks of foodborne botulism involving two or more persons usually occur every year, the usual cause is 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.

Terrorists with the technical capacity to grow cultures of the bacterium, and harvest and purify the toxin could therefore use it as a bioterrorism agent. Contaminating food with botulism toxin could cause a devastating event. If people have intentionally been exposed, in a bioterrorist attack, breathing in the toxin or ingesting the toxin via contaminated food or water are the most likely routes of exposure that might lead to a serious illness (foodborne botulism). The current practice of treating water, through chlorination and airing, effectively neutralizes the toxin.

Botulinum toxin poses a major biological threat because of its extreme potency and lethality; its ease of production, transport, and misuse; and the need for prolonged intensive care among affected persons. It is feasible to weaponize the neurotoxins as was done by Russia and Iraq as late as 1995. In Japan, in 1990 and 1993, the Aum Shinrikyo cult attempted to spray botulinum toxin and other agents on government and other public buildings as well as on facilities belonging to other religious sects in Tokyo. In these attempts, the cult used a car specially designed to serve as a sprayer. No human illnesses are known to have occurred, although some claim that a few pets died. The cult obtained their *C.botulinum* from soil that they had collected in northern Japan.

Deliberate release of botulinum toxin in a civilian population could cause substantial disruption and distress.