



BOTULINUM TOXIN

- Agent Information:** Botulinum toxin is a potent neurotoxin produced from *Clostridium botulinum*, an anaerobic, spore-forming bacterium. There are three forms of naturally occurring human botulism: foodborne, wound, and intestinal (infant and adult). A fourth man-made form results from intentionally aerosolized botulinum toxin, which produces inhalation botulism.
- Transmission:** Botulism and botulinum toxin are not contagious and cannot be transmitted from person to person. Transmission occurs naturally or intentionally through:
- Ingestion of the pre-formed toxin (foodborne botulism)
 - Wound infection
 - Ingestion of bacterial spores (not toxin) that germinate and produce the toxin in the colon (intestinal)
 - Aerosolization of toxin as a result of intentional exposure.
- Signs and Symptoms:** Characterized by symmetric, descending flaccid paralysis of motor and autonomic nerves, beginning with the cranial nerves. Symptoms include diplopia, blurred vision, ptosis, dysphasia, dysphagia, dry mouth, and muscle weakness. Recognized by its classic triad: (1) symmetric, descending flaccid paralysis with prominent bulbar palsies in (2) an afebrile patient with (3) a clear sensorium. Incubation periods for the different types of botulism are:
- Foodborne botulism: within 12-72 hours of toxin ingestion.
 - Wound botulism: 4-14 days.
 - Intestinal botulism: in infants, up to 30 days. In adults, unknown.
 - Inhalation: 1-3 days after exposure and is dose dependent.
- Protective Measures:** Follow appropriate Body Substance Isolation (BSI) precautions, with use of Personal Protective Equipment (PPE).
Standard Precautions: Hand washing before and after all patient contacts and contact with patient care equipment.
Contact Precautions: Use of gloves, gown, and eye protection.
Airborne Precautions: Initiate inhalation precautions including wearing masks (fit tested, NIOSH approved N-95 respirator) in the event of suspected release. Victims presenting immediately after aerosolized exposure require decontamination.
- Decontamination of PPE and equipment:** Equipment can be decontaminated using soap, water and 0.5 percent hypochlorite solution (one part household bleach to 10 parts water) can be used as appropriate or if gear had any visible contamination. Note that bleach may damage some types of firefighter turnout gear (one reason why it should not be used for biological agent response actions). After taking off gear, response workers should shower using copious quantities of soap and water.



Prophylaxis:

- Use of antitoxin for post-exposure prophylaxis is limited by its scarcity and its reactogenicity. Due to the risk of the equine antitoxin, it is less certain how to best care for persons who may have been exposed to the toxin but who are not yet ill.
- Foodborne -- monitor persons who may have been exposed and treat promptly with antitoxin at first signs of illness.
- Intentional -- asymptomatic persons who may have been exposed should remain under close medical observation, preferably near critical care services.

Treatment:

Therapy consists of supportive care and administration of equine antitoxin. Patients may require weeks to months of ventilator support. *Administration of the antitoxin will minimize subsequent nerve damage and the severity of disease but will not reverse existing paralysis.* Antitoxin is maintained by the Centers for Disease Control and Prevention (CDC) and can be obtained through the Division of Public Health. Antibiotics are not recommended.

Reporting:

Report any suspect cases immediately to the Division of Public Health, Epidemiology Branch: 1-888-295-5156.

For additional information, visit the CDC website:
www.cdc.gov/botulism.