Centers for Disease Control and Prevention
CDC 24/7: Saving lives, protecting people, reducing health costs

Emergency Preparedness and Response

Botulism Facts for Health Care Providers

Information and guidance for clinicians can be found on the Botulism: Clinical Guidance (/agent/botulism/clinicians/index.asp) site.

Agent

Toxin produced by *Clostridium botulinum*, an encapsulated, anaerobe, gram-positive, spore-forming, rod-shaped (bacillus) bacterium

Disease

Botulism is a neuroparalytic (muscle-paralyzing) disease. There are four forms of naturally occurring botulism:

- **Foodborne botulism**
  Caused by ingestion of pre-formed toxin
- **Infant botulism**
  Caused by ingestion of *C. botulinum* which produces toxin in the intestinal tract
- **Wound botulism**
  Caused by wound infection with *C. botulinum* that secretes the toxin
- **Adult intestinal colonization**
  Rare, caused when C. botulinum colonizes the intestinal tract of children or adults, usually with gastrointestinal abnormalities

Botulinum Toxin as a Biological Weapon

- Aerosolized botulinum toxin is a possible mechanism for a bioterrorism attack
- **Inhalational botulism does not occur naturally**
- Inhalational botulism cannot be clinically differentiated from the 3 naturally occurring forms
- Indications of intentional release of a biologic agent may include:
  - An unusual geographic clustering of illness (e.g., persons who attended the same public event or gathering)
  - A large number of cases of acute flaccid paralysis with prominent bulbar palsies, especially if occurring in otherwise healthy persons

Transmission

Botulism is not transmissible from person-to-person

Incubation

For foodborne botulism, symptoms begin within 6 hours to 10 days after exposure (often within 12-36 hours). Could be shorter in inhalational botulism.

Symptoms/ Signs

- Symmetrical cranial neuropathies
  - Difficulty swallowing or speaking, dry mouth
  - Diplopia (double vision), blurred vision, dilated or non-reactive pupils, ptosis (drooping eyelids)
- Symmetric descending weakness respiratory dysfunction (requiring mechanical ventilation)
- Descending flaccid paralysis
- Intact mental state
- No sensory dysfunction
- No fever
- Constipation more common in infant botulism

Diagnosis/Lab/ Reporting

- **Clinicians should immediately contact their state health departments to report suspected cases and inquire about testing and treatment**
- Diagnosis: history and clinical exam
- Laboratory confirmation:
  - Demonstrating the presence of toxin in serum, stool, or food
  - Culturing *C. botulinum* from stool, wound or food

Differential Diagnoses

Differential Diagnoses for Adults	***Differential Diagnoses for Infants***
• Guillain-Barre syndrome • Myasthenia gravis • Cerebrovascular accident (CVA) • Bacterial and/or chemical food poisoning • Tick paralysis	• Sepsis • Meningitis • Electrolyte -mineral imbalance • Reye's syndrome • Congenital myopathy

	• Chemical intoxication (e.g., carbon monoxide) • Mushroom poisoning • Poliomyelitis • Ingestion of marine biotoxins (eg paralytic shellfish poisoning)	• Werdnig-Hoffman disease • Leigh disease

Treatment	• Prompt diagnosis is essential • Antitoxin is effective in reducing the severity of symptoms, if administered early • A supply of antitoxin against infant botulism is maintained by the California Department of Public Health's Infant Botulism Treatment and Prevention Program, and a supply of antitoxin against other kinds of botulism is maintained by the CDC • State health departments should contact CDC to arrange for a clinical consultation by phone, and (if indicated) the release of the antitoxin • Supportive care as needed, including mechanical ventilation
Prophylaxis	• Botulism can be prevented by the administration of neutralizing antibody in the bloodstream • Passive immunity can be provided by equine botulinum antitoxin or by specific human hyperimmune globulin, while endogenous immunity can be induced by immunization with botulinum toxoid
Control Measures	• Medical personnel caring for patients with suspected botulism should use standard precautions • Patients with suspected botulism do not need to be isolated • If meningitis is suspected in a patient with flaccid paralysis, medical personnel should use droplet precautions • Heating to an internal temperature of 85°C for at least 5 minutes will detoxify contaminated food or drink • When inhalational exposure is anticipated, some protection may be conferred by covering the mouth and nose with clothing such as an undershirt, shirt, scarf, or handkerchief • In contrast with mucosal surfaces, intact skin is impermeable to botulinum toxin • After exposure to botulinum toxin, clothing and skin should be washed with soap and water • Contaminated objects or surfaces should be cleaned with 0.1% hypochlorite bleach solution if they cannot be avoided for the hours to days required for natural degradation
For more information	For more information, please visit the Botulism Emergency Preparedness and Response page (/agent/botulism/) . You may also contact 1-800-CDC-INFO, or e-mail coca@cdc.gov.

- Page last updated April 19, 2006

Centers for Disease Control and Prevention 1600 Clifton Rd. Atlanta, GA 30333, USA
800-CDC-INFO (800-232-4636) TTY: (888) 232-6348 - Contact CDC-INFO