This information is current as of the date faxed and for the patient specified ONLY. Do not use this information for other patients without contacting the Poison Center at 1-800-222-1222.

BOTULINUM TOXIN: Health Care Information

Botulinum toxin is produced by the bacteria *Clostridium botulinum*. Botulinum toxin may be used as a weapon of mass destruction as an aerosol release or through intentional or accidental food contamination. Patients may be exposed through absorption through the pulmonary or gastrointestinal tracts. There is no significant dermal absorption. Botulinum toxin causes muscle weakness by decreasing acetylcholine release in the neuromuscular junction.

Recognition and Triage: There are no immediate symptoms after exposure to botulinum toxin. After a **delay of 12 to 48 hours**, cranial nerve dysfunction (**diplopia, dysphagia, dysphonia, facial weakness, ptosis, fixed/dilated pupils, dry mouth**) occurs, followed by truncal paralysis (**dyspnea, weakness of neck muscles, unsteady gait**) and **respiratory paralysis**. Patients may be triaged as follows:

Immediate: Respiratory muscle weakness, respiratory rate>30, ptosis or other facial weakness, dysphagia/dysphonia/diplopia
Delayed: Dry mouth, constitutional symptoms or exposed patients who are asymptomatic
Minor: Asymptomatic (patients must be observed for delayed symptoms)

Personal Protective Equipment (PPE) (at the health care site): The primary risk to the health care worker is the inhalation of the toxin that is aerosolized from the patients' skin (low risk). Personnel who decontaminate patients should wear splash-proof PPE (waterproof outer garment and chemical-resistant gloves) and a surgical mask. Personnel treating decontaminated patients require no PPE other than universal precautions.

Decontamination (at the health care site): Sufficient decontamination includes removal of ALL clothing and jewelry and thorough washing of the skin and hair with water for 3 to 5 minutes.

Diagnosis and Treatment: The diagnosis is clinical and can be confirmed by obtaining serum and nasal swab samples and sending them to the Regional Public Health Laboratory.

It is important to **differentiate botulinum** (which causes bulbar palsy and dry mouth) **from nerve agents** (which cause diffuse paralysis and increased production of saliva, rhinorrhea, sweat and lacrimal fluid) since both cause paralysis and treatment of botulism with atropine may be harmful.

Decontaminate any exposed skin with copious water. **Endotracheal intubation and mechanical ventilation** may be required to support respiration in patients with respiratory paralysis or weakness. Elevations of pCO2 on arterial blood gas analysis may denote significant respiratory weakness. Respiratory muscle strength may be ideally analyzed at the bedside by negative inspiratory effort using peak inspiratory flow rate.

Botulinum Antitoxin may be available for a limited number of patients from the State Health Department or the Centers for Disease Control and Prevention (CDC). Antitoxin should be given early in the progression of disease because it merely halts the progression of paralysis, but does not reverse it. If available, the antitoxin can be given to all patients with significant muscular weakness or may be given to asymptomatic patients with confirmed inhalational exposure to the toxin. Several antitoxins exist. If available, the heptavalent antitoxin (A-G) should be given in a terrorist event until appropriate typing has been completed. If heptavalent antitoxin is not available, then trivalent (A,B,E) should be given. Trivalent antitoxin should be used in all food-borne outbreaks. The antitoxins are of equine origin and

patients should be screened for allergies to horses or horse serum. Airway equipment and epinephrine should be readily available during antitoxin use. Doses are below. Contact the Poison Center (**1 800 222 1222**) for specific questions or advice on individual patients.

Antitoxin dosing recommendations:

Heptavalent F(ab)2 antitoxin:	1 vial diluted 1:10 in normal saline IV over 40 to 60 minutes
Trivalent antitoxin:	1 vial diluted 1:10 in normal saline IV over 30 to 60 minutes

Patient Monitoring: Symptomatic patients should have continuous pulse oximetry monitoring and end-tidal CO_2 monitoring, if available.

Disposition Criteria: Patients with any symptoms, or who are asymptomatic but were exposed, should be treated and admitted to the hospital. Asymptomatic patients with questionable exposure should also be observed and may be discharged only if they are able to return to the hospital immediately if they develop symptoms.

Reporting/Coordination Link: Call the **Poison Center (1 800 222 1222)** for information on specific patients. Contact the local or state public health authority to report a mass casualty incident. (see attached contact list).