

County of Riverside Department of Public Health
Disease Control Branch
Botulism Fact Sheet

Background

Botulism is a bacterial toxin mediated disease characterized clinically by a classic triad of symmetrical descending flaccid paralysis with prominent bulbar palsies, lack of fever, and a clear and intact sensorium. The initial symptoms are often the acute onset of visual difficulties, dysphagia, and dry mouth. The paralysis of motor and autonomic nerves, usually beginning with the cranial nerves, may progress downward in and otherwise alert person. Vomiting and constipation or diarrhea may be present initially. Fever is not usually present. Cerebrospinal fluid is normal in botulism. About 5% die, usually from respiratory failure. Those who survive may have fatigue and shortness of breath for years.

The diagnosis is confirmed by the demonstration of toxin in serum, stool, gastric aspirate, or incriminated food. The standard confirmatory test is a mouse bioassay that requires days to complete. Consequently, careful consideration of the clinical picture is essential. Botulism may be distinguished from other flaccid paralyses with an electromyogram with repetitive nerve stimulation at 20 to 50 Hz. In botulism, nerve conduction velocity and sensory nerve function are normal. There is a characteristic incremental response to repetitive stimulation. The caustic agent is the spore-forming *Clostridium botulinum*.

Reporting:

As soon as the diagnosis of botulism is suspected, Riverside County Public Health should be notified immediately by calling (951) 358-5107, or after hours at (951) 782-2974. Riverside County Department of Public Health will contact the California Department of Health Services. Botulism is a public emergency because the contaminated food may still be available to other persons.

Mode of Transmission:

Four routes of transmission are recognized. Most cases in the United States are the result of ingestion of preformed toxin in food. The most frequent source is home-canned or home-fermented foods, prepared in an unsafe manner. In vivo production of toxin may occur in the intestinal tract (infant botulism) or in wounds (wound botulism). "Infant" botulism is something of a misnomer since in vivo production of botulism toxin may occur in a person of any age. Finally, in the case of bioterrorist events, the toxin may be transmitted by aerosol and is designated as a **category A BT** agent.

Incubation Period:

The incubation period is usually between 12 and 36 hours and varies with the dose of botulinum toxin. In some cases, the incubation period may extend to several days.

Medical Management:

The treatment of botulism consists of supportive care and passive immunization. Respiratory failure due to paralysis of the respiratory muscles must be treated aggressively with ventilatory support. A supply of antitoxin is effective in reducing the severity of symptoms if administered early in the course of the disease. Most patients eventually recover after weeks to months of supportive care.

Instructions for C Botulinum Toxin Detection in Adult Specimens

Botulism toxin detection is an "in-vivo reference test". Time to a positive result varies with the specimen and the toxin concentration. After testing begins, typical cases may be confirmed within 4 days; others may take 15 days. Patient management and antitoxin administration should be based on clinical findings and not await lab results.

Keep all specimens under refrigeration. A prolonged holding time above 20 C or exposure to heat may degrade the toxin to undetectable levels. Do not freeze any specimens.

Interfering drugs: Cholinesterase inhibitors (ambenonium, neostigmine, pyridostigmine) or Mestinon/Timespan (Tensile test). Sera containing these drugs require additional analytical or procedure time. Record on the lab submittal form and notify the health department PRIOR to submission of specimens, if the patient received any of these interfering drugs.

Pre-antitoxin:

Draw 30 ml of whole blood from a free flowing site. Label the blood with the patient's name, "pre-antitoxin" serum, date and time collected. Refrigerate.

Post-antitoxin:

At 6-12 hours after completion of antitoxin administration, draw 20 ml of whole blood from a free flowing site. Label the blood with the patient's name, "post-antitoxin" serum, date and time collected. Refrigerate.

Specimen submission:

The hospital lab should centrifuge and separate the clot from the serum. Specimens should be packaged with cold packs to remain at 4-10 C during travel to local public health laboratory. Hemolyzed or low volume sera will not be tested. Allow 2-4 days transit time before test initiation at the reference laboratory.

References: www.bt.cdc.gov & www.tdh.state.tx.us/bioterrorism