



Botulism Investigation Guideline

Any case of suspected botulism is required by law to be reported within 4 hours to the state health department at 1-877-427-7317.

Contents

CASE DEFINITION.....	1
Botulism, Foodborne	1
Botulism, Infant	1
Botulism, Wound.....	1
Botulism, Other	2
LABORATORY ANALYSIS.....	2
EPIDEMIOLOGY	3
DISEASE OVERVIEW	3
NOTIFICATION TO PUBLIC HEALTH	5
INVESTIGATOR RESPONSIBILITIES *	7
STANDARD CASE INVESTIGATION AND CONTROL	8
Case Investigation.....	8
Contact Investigation (Foodborne Botulism Only).....	10
Isolation, Work and Daycare Restrictions	10
Case Management.....	10
Contact Management (Foodborne Botulism only).....	10
Environmental Measures	11
Education	11
MANAGING SPECIAL SITUATIONS.....	11
A. Outbreak Investigation.....	11
B. Intentional Contamination or Bioterrorism.....	12
DATA MANAGEMENT	14
ADDITIONAL INFORMATION.....	15
ATTACHMENTS	15
• Fact Sheet (vs. 09/2015)	

Attachments can be accessed through the Adobe Reader's navigation panel for attachments. Throughout this document attachment links are indicated by this symbol ; when the link is activated in Adobe Reader it will open the attachments navigation panel. The link may not work when using PDF readers other than Standard Adobe Reader.

Revision History:

Date	Replaced	Comments
10/2015	07/2012	Added table of contents and included notes on attachments. Updated links included the new CDC form with updates Case Investigation Section in reference to new form. Reformatted Standard Case Investigation section to assist with EpiTrax system data entry. Edits to Laboratory Analysis.
07/2012	07/2009	Changed format. Added notification section. Updated fact sheet.
02/2012	-	Removed references to KS-EDSS.

Botulism

Disease Management and Investigative Guidelines

CASE DEFINITION (CDC 1996)

Botulism, Foodborne

Clinical Description for Public Health Surveillance:

Ingestion of botulinum toxin results in an illness of variable severity. Common symptoms are diplopia, blurred vision, and bulbar weakness. Symmetric paralysis may progress rapidly.

Laboratory Criteria for Case Classification:

- Detection of botulinum toxin in serum, stool, or patient's food, or
- Isolation of *Clostridium botulinum* from stool.

Case Classification:

- **Confirmed:** A clinically compatible case that is laboratory confirmed or that occurs among persons who ate the same food as persons who have laboratory-confirmed botulism.
- **Probable:** A clinically compatible case with an epidemiologic link (e.g., ingestion of a home-canned food within the previous 48 hours).

Botulism, Infant

Clinical Description for Public Health Surveillance:

Illness of infants, characterized by constipation, poor feeding, and “failure to thrive” that may be followed by progressive weakness, impaired respiration, and death.

Laboratory Criteria for Case Classification:

- Detection of botulinum toxin in stool or serum, or
- Isolation of *Clostridium botulinum* from stool.

Case Classification:

- **Confirmed:** a clinically compatible case that is laboratory-confirmed, occurring in a child aged less than 1 year.

Botulism, Wound

Clinical Description for Public Health Surveillance:

Illness resulting from a toxin produced by *Clostridium botulinum* that has infected a wound. Common symptoms are diplopia, blurred vision, and bulbar weakness. Symmetric paralysis may progress rapidly.

Laboratory Criteria for Case Classification:

- Detection of botulinum toxin in serum, or
- Isolation of *Clostridium botulinum* from wound.

Case Classification:

- **Confirmed:** a clinically compatible case that is laboratory confirmed in a patient who has no suspected exposure to contaminated food and who has a history of a fresh, contaminated wound during the 2 weeks before onset.
- **Probable:** A clinically compatible case in a patient who has no suspected exposure to contaminated food and who has either a history of a fresh, contaminated wound during the 2 weeks before onset of symptoms, or a history of injection drug use within the 2 weeks before onset of symptoms.

Botulism, Other

Clinical Description for Public Health Surveillance:

Ingestion of botulinum toxin results in an illness of variable severity. Common symptoms are diplopia, blurred vision, and bulbar weakness. Symmetric paralysis may progress rapidly.

Laboratory Criteria for Case Classification:

- Detection of botulinum toxin in clinical specimen, or
- Isolation of *Clostridium botulinum* from clinical specimen.

Case Classification:

- **Confirmed:** a clinically compatible case that is laboratory confirmed in a patient aged greater than or equal to 1 year who has no history of ingestion of suspect food and has no wounds.

LABORATORY ANALYSIS

Important: Contact [KDHE-BEPHI \(1-877-427-7317\)](tel:1-877-427-7317) by phone within 4 hours of a botulism case being suspected.

Physicians caring for infants are referred to the California Department of Public Health's Infant Botulism Treatment and Prevention Program for consultation, but all specimens are sent to and tested at *Centers of Disease Control (CDC)*.

Specimens sent to *Centers of Disease Control (CDC)* for testing **require** prior authorization from Kansas Department of Health and Environment (KDHE).

- Contact KDHE Bureau of Epidemiology and Public Health Informatics (BEPHI) at 877-427-7317;
 - BEPHI will help to coordinate with the National Botulism Surveillance and Reference Laboratory through the CDC EOC at 770-488-7100.
- Collect specimens as early in the course of illness as possible and do not delay transport.
- Specimens include:
 - Serum: 10-15 ml preferred; as little as 0.5 ml can confirm, but in many cases volumes less than 3 ml will provide inconclusive results.
 - Feces: 25-50 gm collected, preferably before antitoxin treatment
 - Confirmation has occurred with pea sized amounts and after antitoxin testing.
 - If enema is required, use minimal amount of fluid.
 - Notify laboratory if patient is taking any medication that might interfere with toxin assays or culturing.
 - Vomitus or gastric contents
 - Food specimen: minimum of 25-50 grams; left in original containers if possible or placed in sterile unbreakable containers and labeled carefully. Empty containers with remnants of suspected foods can sometimes be tested.
 - Wound Cultures: Use anaerobic transport devices such as Port-A-Cult tubes and send without refrigeration.
- Label each specimen properly, including the date specimen collected.
- Complete and submit a [CDC Form 50.34](#) with the specimens.

- Transport must not be delayed.
 - Package appropriately to meet transportation requirements.
 - Ship wound specimens at room temperature.
 - Ship all other specimens refrigerated (not frozen).
 - Label package with MEDICAL EMERGENCY, BIOLOGICAL HAZARD, REFRIGERATE ON ARRIVAL.
 - Ship by the most rapid means available.
 - Notify the receiving laboratory in advance by telephone as to when and how specimens will be shipped, and when they will arrive.
- For additional guidance, refer to CDC’s Botulism Manual at: www.cdc.gov/ncidod/dbmd/diseaseinfo/files/botulism_manual.htm
- For questions related to the Kansas Health and Environmental Laboratory, call (785) 296-1620 or refer to www.kdheks.gov/labs/lab_ref_guide.htm.

EPIDEMIOLOGY

Botulism occurs worldwide as sporadic cases, within families units and as outbreaks. In the United States, an average of 24 foodborne, 3 wound and 71 infant botulism cases are reported annually. Recently, black tar heroin use by intravenous drug users has led to an increase in the number of wound botulism cases.

DISEASE OVERVIEW

A. Agent:

Botulism is caused by a neurotoxin produced by *C. botulinum*, a spore-forming anaerobic bacillus bacterium. There are seven types of botulinum toxin (A-G); human botulism is caused by types A, B and E. The bacteria multiply under anaerobic and low acid conditions (i.e., pH ≤ 4).

B. Clinical Description:

Botulism is characterized by neurologic symptoms that include dysphasia, dry mouth, diplopia, dysarthria, ptosis and weakness. These symptoms are generally followed by a descending symmetrical flaccid paralysis beginning with the facial muscles. The case is usually alert. Mild constipation, vomiting or diarrhea may precede neurologic symptoms. The severity and rate of progression are dose dependent and only a few nanograms of botulism toxin are necessary to cause illness. Respiratory distress may occur if the muscles associated with breathing are compromised. Signs and symptoms of infant botulism include: constipation, lethargy, listlessness, difficulty feeding, weak cry, ptosis, loss of facial expression, dilated pupils, depression of deep tendon reflexes and generalized weakness often described as “floppy baby” syndrome.

Differential diagnoses to consider are listed in [Table 1](#).

Table 1

Differential Diagnoses for Adults:

- Guillain-Barre syndrome
- Myasthenia gravis
- Cerebrovascular accident (CVA)
- Bacterial and/or chemical food poisoning
- Tick paralysis
- Chemical intoxication (e.g., carbon monoxide)
- Mushroom poisoning
- Poliomyelitis
- Ingestion of marine biotoxins

Differential Diagnoses for Infants:

- Sepsis
- Meningitis
- Electrolyte-mineral imbalance
- Reye's syndrome
- Congenital myopathy
- Werdnig-Hoffman disease
- Leigh disease

C. Reservoirs:

Spores associated with *C. botulinum* are found in soils worldwide and survive for an indefinite period under most environmental conditions.

D. Mode(s) of Transmission:

- **Foodborne botulism** is usually acquired by ingesting pre-formed toxin from food that has been inadequately processed and prepared. The most frequent source is home-canned foods.
- **Infant botulism** occurs as a result of ingestion of the spore form of the bacteria, which then germinate and produce toxin in the intestines. This happens through ingestion of food, soil or dust contaminated with *C. botulinum* spores; some cases of infant botulism have occurred in children living in areas of construction and earth disruption. Honey may contain *C. botulinum* spores.
- **Wound botulism** occurs when open wounds are contaminated with dirt or gravel containing botulism spores.

E. Incubation Period:

In general, the shorter the incubation period the more severe the disease. Neurologic symptoms of foodborne botulism usually appear 12-72 hours after toxin ingestion with a range of 2 hours to 8 days. The incubation period for intestinal botulism in infants is up to 30 days, but for adults is unknown. The median incubation period for wound botulism is generally 4-14 days. Incubation period of inhalation botulism is uncertain but is believed to be similar to foodborne botulism and is dependent on the dose.

F. Period of Communicability:

No instances of person-to-person spread been documented.

G. Susceptibility and Resistance:

Susceptibility is general. The medical symptoms associated with botulism are related to a toxin; therefore, there is no resistance.

H. Treatment:

- (1) Clinicians should immediately contact KDHE at 1-877-427-7317 to report suspected cases. State public health officials will assist with arranging physician consultation with CDC.
 - (2) For infant botulism, physicians will be referred directly to the Infant Botulism Treatment and Prevention Program (IBTPP) on-call physician at (510) 231-7600 to arrange shipment of BabyBIG botulinum immune globulin. [Specimens still need to be sent to the CDC, not the IBTPP for diagnosis – See [Laboratory Analysis](#) section.]
- Prompt diagnosis and treatment is essential. Supportive care is used; particularly respiratory and nutritional support. Antitoxin reduces the severity of symptoms, if administered early.
 - Antitoxin for infant botulism is maintained by the California Department of Public Health's Infant Botulism Treatment and Prevention Program, and
 - Antitoxin for non-infant kinds of botulism is maintained by the CDC.

NOTIFICATION TO PUBLIC HEALTH AUTHORITIES

Botulism shall be designated as infectious or contagious in their nature, and all cases or **suspected** cases shall be reported within **4 hours by phone**:

1. Health care providers and hospitals: report to the local public health jurisdiction or KDHE-BEPHI (see below)
2. Local public health jurisdiction: report to KDHE-BEPHI (see below)
3. Laboratories: report to KDHE-BEPHI (see below)
4. KDHE-BEPHI will contact the local public health jurisdiction by phone within one hour of receiving a Botulism report

**Kansas Department of Health and Environment (KDHE)
Bureau of Epidemiology and Public Health Informatics (BEPHI)
Phone: 1-877-427-7317**

- *The local public health jurisdiction will report information requested in the Kansas electronic surveillance system, as soon as possible, ensuring that the electronic form is completed within 7 days of receiving a notification of a report.*

Further responsibilities of state and local health departments to the CDC:

When contacted by a physician of a suspected case, the KHDE will do the following:

- 1) For infant botulism, refer the physician to the Infant Botulism Treatment and Prevention Program (IBTPP) on-call physician at (510) 231-7600. If anti-toxin is released from IBTPP, KDHE will encourage the [collection and shipment of specimens](#) to CDC for testing.
- 2) KDHE will notify the CDC EOC at 770-488-7100 of testing requests and will arrange for a physician consultation for other forms of botulism.
- 3) KDHE will maintain contact with the physician to identify the results of the consultation: if antitoxin was released and administer and if specimens are sent to the CDC.

As a nationally notifiable condition, botulism cases require an IMMEDIATE, EXTREMELY URGENT or IMMEDIATE, URGENT report to the Center of Disease Control and Prevention (CDC), depending on the case's clinical presentation.

1. As a nationally notifiable condition, all Botulism cases that are “foodborne”, “intentional or suspected intentional”, “clusters or outbreaks of infant botulism” or “of unknown etiology” (i.e., not wound or sporadic infant cases) require an IMMEDIATE, EXTREMELY URGENT report to the Center of Disease Control and Prevention (CDC) even before classification.
 - KDHE epidemiologist must call the CDC EOC at 770-488-7100 within 4 hours of a being notified of the confirmed case.
 - KDHE-BEPHI will notify the **Local public health jurisdiction** immediately to coordinate on follow-up for the report information needed to complete the electronic form(s) before the next business day.
 - KDHE-BEPHI will file an electronic case report the next business day.

2. Cases of “wound” or “sporadic infant botulism” require a STANDARD report to the CDC before classification.
 - KDHE epidemiologist will call the CDC EOC at 770-488-7100 within 24 hours of a case meeting the confirmed criteria.
 - **Local public health jurisdiction** will report information requested on the disease reporting forms as soon as possible, completing the forms within 3 days of receiving a notification of a botulism report.
 - KDHE-BEPHI will file an electronic case report the next regularly scheduled electronic transmission.
(KDHE-BEPHI files electronic reports weekly with CDC.)

INVESTIGATOR RESPONSIBILITIES *

- 1) Suspect botulism in the following scenarios:
 - Adults with acute onset of gastrointestinal, autonomic (i.e. dry mouth, blurry vision) and cranial nerve dysfunction (diplopia, dysarthria, dysphagia).
 - Infants (<1 year) with poor feeding, diminished sucking and crying ability, neck and peripheral muscle weakness, and/or respiratory distress.
- 2) [Report](#) all confirmed, probable and suspect cases to the KDHE-BEPHI.
 - Additional [notifications](#) will occur as described.
- 3) Begin the public health investigation within 1 day of receiving a report; completing the investigation within 3 days.
- 4) Conduct a [case investigation](#) to identify potential source of infection.
 - Review any initial information collected and then contact the medical provider to collect additional information needed to confirm diagnosis using current [case definition](#).
 - The method of [case investigation](#) depends on the type of botulism.
 - Foodborne botulism should be considered a public health emergency with ample resources allocated to the investigation.
 - o Suspicion is increased if an adult has recently eaten home-canned foods or if meal companions are similarly ill.
 - o If the typical syndrome is present and no food item can be pinpointed, a contaminated wound should be examined.
 - Wound botulism should be investigated to determine the site of the wound and how it happened. If illicit drug use is suspected and additional cases are possible, [notify](#) KDHE.
 - If no wound or food source is identified, [notify](#) KDHE.
 - Attach copies of medical records to the case in EpiTrax.
- 5) Identify whether the source of infection is major public health concern.
 - *Commercially available food, [bioterrorism](#) or mass exposure is indicated?*
- 6) Conduct [contact investigation](#) to identify additional cases, as needed.
- 7) Initiate [control and prevention](#) measures to prevent spread of disease.
- 8) Conduct [Case](#) or [Contact Management](#) as needed.
- 9) [Record](#) data, collected during the investigation, in the KS EpiTrax system under the data's associated [\[tab\]](#) in the case morbidity report (CMR).
- 10) As appropriate, use the disease [fact sheet](#)  for notification and education.

As necessary, the local public health official may also need to:

- Consult with KDHE about the need for botulism antitoxin therapy, and
- Assist with the logistics of antitoxin delivery.

Please note the red [\[tab\]](#) names listed in this investigation guideline are notations on the location in EpiTrax where the collected data should be recorded.

Morbidity Event		Route to Local Health Depts.	Investigator:
Show Print Delete Add Task Add Attachment Export to CSV Create a new event from this one Events			
Disable Tabs]			
Demographic	Clinical	Laboratory	Contacts
Epidemiological	Reporting	Investigation	Notes
Administrative			

STANDARD CASE INVESTIGATION AND CONTROL METHODS

Case Investigation

- 1) Consult with a KDHE Epidemiologist to determine what information has already been collected; and, as necessary, contact the medical provider who ordered testing or antitoxin for the case to obtain additional information. If hospitalized: obtain admission/progress notes and discharge summary.
 - Use the [rapid assessment form](#) to record the following:
 - Onset date [Clinical] and hour of first neurological sign or, for foodborne, date and hour of first gastrointestinal symptom.
 - Signs and symptoms.
 - Progression of muscle weakness and paralysis.
 - Review laboratory testing that has already been done; specimens that have been/should be collected; ensure proper procedure was completed for submitting specimens to the CDC.
 - Initial laboratory testing is used for differential diagnosis. Botulism is usually (but not always) characterized by:
 - Normal CSF examination (although a slightly elevated protein in CSF is occasionally seen);
 - Normal tensilon test;
 - Normal neuroradiologic studies;
 - EMG results that were administered with repetitive stimulation and interpreted by an experienced person as indicative of botulism.
 - Specimens that can be sent to CDC **after approval** include:
 - Pretreatment serum for toxin.
 - Gastric aspirate for anaerobic culture and toxin
 - Stool for anaerobic culture and toxin
 - Food item, for anaerobic culture and toxin
 - Wound aspirate for anaerobic culture and toxin
 - Biopsy of abscess for anaerobic culture and toxin
 - Post-treatment serum for toxin (in wound botulism only)
 - Presumptive (initial) Diagnosis Date and final Diagnosis date [Clinical]
 - Hospitalizations: location and duration of stay [Clinical]
 - Pregnancy [Clinical]
 - Illness outcomes:
 - Recovered or date of death [Clinical]
 - Treatment with botulinum antitoxin; date treatment started [Notes]
 - Was patient intubated or placed on ventilator? [Notes]
 - Collect case's demographics and contacting information (address, birth date, gender, race/ethnicity, primary language, and phone number(s)) [Demographic]
- 2) Interview the case or proxy to determine source and risk factors; focus on incubation period based on the type of botulism.
 - Occupation; specific job duties, industry type and location. [Epidemiologic]
 - Travel history prior to onset. [Notes]
 - Additional information to collect will depend on type of botulism:

Foodborne Botulism (including intestinal in Adults)

- Focus on a period of time, 8 days before illness onset. Most suspect foods are eaten less than two days before onset and are low in acid (vegetables, fish, and meat).
- Identify any history of abdominal surgery, gastrointestinal tract abnormalities, Crohn's disease or recent treatment with antibiotics.
 - Cases older than 1 year of age with any of these risk factors may be experiencing **intestinal botulism**. Their altered intestinal flora makes them vulnerable to the same sources of *C. botulinum* spores as infants.
 - For such cases, a food source may not ever be identified and is most likely not a risk to other individuals.
- Information on any unusual/high risk food items that were consumed:
 - Home-canned foods.
 - Commercially canned foods.
 - Sausage and other preserved meats or meat products that have not been adequately refrigerated.
 - Preserved fish eaten.
 - Items stored in oil (e.g. onions, garlic) or foil (e.g. baked potatoes).
- For highly suspected food items, report:
 - When were the items consumed? (Date/time)
 - Did / could others eat the same food? (record number exposed and ill)
 - Where was food obtained (home, commercial, restaurant, other)
 - For commercial foods, determine the brand, manufacturer, package size, lot number, and place and date of purchase.
- A home visit may be required if source is not readily apparent or if remaining jars of home-canned foods need to be collected.
- Collect information from case for the [Contact Investigation](#). (See below).

Wound Botulism

- Focus on a period of time, 2 weeks before illness onset.
- Site of wound/ reason; date of injury
- History of illicit drug use. (Type and mode of use)
- For additional information, refer to [Additional Information / References](#).

Infant Botulism

- Collect general about infant's diet including formula use, pacifier and antibiotic use and environmental exposures.

- 3) Examining the epidemiological information, record where the infection was most likely imported from. (Indigenous or out-of-county, out-of-state, or out-of-U.S.) [\[Epidemiologic\]](#)
- 4) Collect information from case for the [Contact Investigation](#). (See below).
- 5) Investigate epi-links among cases (clusters, household, co-workers, etc).
 - Highly suspected food source should be investigated. Refer to [Environmental Measures](#).
 - For suspected [outbreaks](#) to [Managing Special Situations](#) section.

Contact Investigation (Foodborne Botulism Only)

For cases of intestinal botulism (i.e. adults with altered intestinal flora placing them at risk of botulism), there is no reason to do a contact investigation.

For other cases of foodborne botulism, until a specific food item has been incriminated, anyone who has shared food with a case within 5 days prior to onset of symptoms should be considered a contact. Once a food has been identified only those known to have eaten the implicated food are considered contacts.

- Obtain the name, address, and telephone number of every person who may have eaten the suspected food item.
 - Obtain the name, address, and telephone number of every person who may have the suspect home-processed food in his or her possession.
- 1) If a risk of transmission exists a listing of contacts at-risk of developing disease should be entered into EpiTrax. [\[Contact\]](#)
 - Enter high risk contact on the [\[Contact\]](#) tab, indicate the disposition of contact (treatment or infection status), and contact type.
 - After the CMR is saved and updated successfully, click 'Edit' beside the contact on the listing to enter any further details on the contact.
 - 2) Refer to [Contact Management](#) for further instructions.

Isolation, Work and Daycare Restrictions

In general, there is no isolation or restriction measures for those with botulism, but Kansas Food Code should always be enforced for excluding food handlers with gastrointestinal symptoms.

Kansas Food Code 2005:

- Food handlers with diarrhea, fever or vomiting must be restricted from handling food, or be excluded from work if they serve high risk groups, until symptoms have resolved for 24 hours.
- Workers in schools, residential programs, daycare and healthcare facilities, who feed, give mouth care or dispense medications to clients, are subject to the same restrictions as food handlers.

Case Management

- 1) Report on any changes in patient status (i.e., discharge, death). [\[Clinical\]](#)
- 2) The person who prepared any suspect home-canned food should be instructed in proper canning techniques.

Contact Management (Foodborne Botulism only)

- 1) If within six hours of exposure, other persons who have eaten implicated food should be purged and given gastric lavage to remove unabsorbed toxin.
- 2) All contacts should be monitored for signs of botulism at least twice daily for three days and instructed to seek medical care immediately should symptoms.
- 3) Update the [\[Contact\]](#) tab, as needed.

Environmental Measures

- 1) Implicated food items must be removed from the environment and destroyed.
- 2) A decision about testing implicated food items can be made in consultation with the state epidemiologist.
- 3) If a commercial product is suspected, a detailed trace back investigation may need to occur. The state health department will coordinate follow-up with relevant outside agencies.

Education

- 1) To provide education on home-canning, consult:
 - K-State extension resources on canning: www.rrc.k-state.edu/preservation/canning.html
 - USDA's Home Canning Guide: www.uga.edu/nchfp/publications/publications_usda.html
- 2) To handle increases in cases of wound botulism associated with illicit drug use, it may be necessary to use press releases and provided informational materials to physicians and community-based organizations that offer outreach to drug users.

MANAGING SPECIAL SITUATIONS

A. Outbreak Investigation:

- 1) Outbreaks have been reported with:
 - Ingestion of contaminated food (foodborne botulism)
 - Illicit drug use; i.e., black tar heroin (wound botulism)
- 2) A foodborne disease outbreak is defined in the following ways:
 - Two or more individuals (from different households) who experience a similar illness after eating a common food or food from a common place.
 - An unexplained, unexpected increase of a similar illness and food is a likely source.
- 3) Other outbreaks may be defined as unexplained, unexpected increase in botulism cases that are clustered in person, place, or time.
- 4) Notify KDHE immediately, 1-877-427-7317.
- 5) Active case finding will be an important part of any investigation.
- 6) References that will assist with investigations include:
 - CDC Foodborne Outbreaks Response Toolkit: www.cdc.gov/foodsafety/outbreaks/surveillance-reporting/investigation-toolkit.html
 - KDHE Foodborne Illness and Outbreak Manual: www.kdheks.gov/epi/download/kansas_foodborne_illness_manual.pdf

B. Intentional Contamination or Bioterrorism

Botulism toxin is a category B biological warfare agent. An attack may take the form of dissemination of an aerosol among a gathering of a large number of people or by the contamination of food or water. Features of an outbreak that would suggest a deliberate release of botulinum toxin, include:

1. Outbreak of a large number of cases of acute flaccid paralysis with prominent bulbar palsies
2. Outbreak with an unusual botulinum toxin type (i.e., type C, D, F, or G, or type E toxin not acquired from an aquatic food)
3. Outbreak with a common geographic factor among cases (but without a common dietary exposure (i.e., features suggestive of an aerosol attack))
4. Multiple simultaneous outbreaks with no common source

Note: A careful travel and activity history, as well as dietary history, should be taken in any suspected botulism outbreak. Patients should also be asked if they know of other persons with similar symptoms.

If suspected:

- 1) Notify local law enforcement and state public health officials.
- 2) Implement “[Chain of Custody](#)” procedures for all samples collected, as they will be considered evidence in a criminal investigation.
- 3) Work to define population at risk which is essential to guide response activities. Public health authorities will play the lead role in this effort, but must consult with law enforcement, emergency response and other professionals in the process. The definition may have to be re-evaluated and redefined at various steps in the investigation and response.
- 4) Once the mechanism and scope of delivery has been defined, identify symptomatic and asymptomatic individuals among the exposed and recommend treatment or medical monitoring for surveillance.
- 5) Establish and maintain a detailed line listing of all cases and contacts with accurate identifying and locating information.

Safety Considerations:

- Risks to public health, health care and emergency response personnel are not significant. Standard infection control precautions in hospitals.

Risk Communications:

- KDHE Factsheets: Health and Medical Standard Operating Guides: Public Information and Communication SOG – Annex F – Public Information
www.kdheks.gov/cphp/operating_guides.htm

Vaccine

- In the U.S., an investigational pentavalent (ABCDE) botulinum toxoid is used by laboratory workers at high risk of exposure to botulinum toxin and by the military for protection of troops against attack.
- Mass immunization is neither feasible nor desirable for reasons that include scarcity of the toxoid, rarity of natural disease, and elimination of the potential therapeutic benefits of medicinal botulinum toxin.

- Pre-exposure immunization currently is neither recommended for nor available to the general population.

Postexposure prophylaxis (PEP):

- Use of antitoxin for postexposure prophylaxis is limited by its scarcity.
- To facilitate distribution of scarce antitoxin following the intentional use of botulinum toxin, asymptomatic persons who are believed to have been exposed should remain under close medical observation and, if feasible, near critical care services
- Botulinum toxoid is not effective as post-exposure prophylaxis as it immunity is induced over several month period.

Decontamination

- Food and drink: heating to an internal temperature of 85°C for at least 5 minutes will detoxify contaminated food or drink. All foods suspected of contamination should be promptly removed from potential consumers and submitted to public health authorities for possible testing (see chain of custody procedures mentioned above.)
- Clothing and skin: After exposure to toxin, wash with soap and water. Protect mucosal surfaces when removing clothing. Intact skin is impermeable to toxin; while mucosal surfaces are not.
- 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.
- Natural degradation: Determined by atmospheric conditions and the particle size of the aerosol; aerosolized toxin has been estimated to decay between <1% to 4% per minute. At a decay rate of 1% per minute, substantial inactivation of toxin occurs by 2 days after aerosolization.

Surveillance:

- Arrange for active surveillance of signs or symptoms of botulism in the population at risk for 2 weeks after exposure.

For additional information on [treatment](#), [incubation period](#) and [diagnosis](#) refer to previous sections.

For more details on subjects mentioned above, refer to JAMA article: Botulinum Toxin as a Biological Weapon: Medical and Public Health Management, available on-line at <http://jama.jamanetwork.com/article.aspx?articleid=193600>

DATA MANAGEMENT AND REPORTING TO THE KDHE

- A. Accept the case assigned to the LHD and record the date the LHD investigation was started on the [\[Administrative\]](#) tab.
- B. Organize and collect data, using appropriate data collection tools including:
 - [Botulism Rapid Assessment Form](#) (A paper-based form that allows the collection of all required information without being logged into EpiTrax.)
 - Alternatively, investigators can collect and enter all required information directly into EpiTrax [\[Investigation\]](#), [\[Clinical\]](#), [\[Demographics\]](#), [\[Epidemiological\]](#) and [\[Notes\]](#) tabs.
 - During outbreak investigations, refer to guidance from a KDHE epidemiologist for appropriate collection tools.
- C. Report data collected during the course of the investigation via EpiTrax.
 - Verify that all data requested has been recorded on an appropriate EpiTrax [\[tab\]](#), or that actions are completed for a case lost to follow-up as outlined below.
 - Some data that cannot be reported on an EpiTrax [\[tab\]](#) may need to be recorded in [\[Notes\]](#) or scanned and attached to the record.
 - Paper report forms do not need to be sent to KDHE after the information is recorded and/or attached in EpiTrax. The forms should be handled as directed by local administrative practices.
- D. If a case is lost to follow-up, after the appropriate attempts to contact the case have been made:
 - Indicate 'lost to follow-up' on the [\[Investigation\]](#) tab with the number of attempts to contact the case recorded.
 - Record at least the information that was collected from the initial reporter.
 - Record a reason for 'lost to follow-up' in [\[Notes\]](#).
- E. Once the investigation is completed, the LHD investigator will record the date the investigation was completed on the [\[Administrative\]](#) tab and click the "Complete" button. This will trigger an alert to the LHD Administrator so they can review the case before sending to the state.
 - The LHD Administrator will then "Approve" or "Reject" the CMR.
 - Once a case is "Approved" by the LHD Administrator, BEPHI staff will review and close the case after ensuring it is complete and that the case is assigned to the correct event, based on the reported symptoms reported.
(Review the [EpiTrax User Guide, Case Routing](#) for further guidance.)

Notes on classification/reporting of cases:

Case description	Report as
< 1 year of age.	Botulism, Infant
≥ 1 year of age and consumed suspected food item	Botulism, Foodborne
≥ 1 year of age no food association but has wounds	Botulism, Wound

- After a detailed investigation with no associated food, wound, or age identified; classify / report the case as "Botulism, Other".

ADDITIONAL INFORMATION / REFERENCES

- A. Treatment / Differential Diagnosis:** Red Book: 2015 Report of the Committee on Infectious Diseases. 30th ed. Elk Grove Village, IL: American Academy of Pediatrics; 2015:294-297.
- B. Epidemiology, Investigation and Control:** Heymann. D., ed., Control of Communicable Diseases Manual (CCDM), 20th Edition. Washington, DC, American Public Health Association, 2015.
- C. Case Definitions:** CDC Division of Public Health Surveillance and Informatics, Available at: wwwn.cdc.gov/nndss/
- D. Kansas Regulations/Statutes Related to Infectious Disease:** www.kdheks.gov/epi/regulations.htm
- E. KDHE Foodborne Illness and Outbreak Manual:** www.kdheks.gov/epi/download/kansas_foodborne_illness_manual.pdf
- F. KDHE Foodborne Illness Resources:** www.kdheks.gov/epi/foodborne.htm
- G. Wound Botulism Additional Information:**
- CDC MMWR Wound Botulism -- California, 1995: www.cdc.gov/mmwr/preview/mmwrhtml/00039732.htm
 - CDC MMWR Wound Botulism Among Black Tar Heroin Users --- Washington, 2003: www.cdc.gov/mmwr/preview/mmwrhtml/mm5237a3.htm
 - Yuan J, et al. Recurrent wound botulism among injection drug users in California. Clin Infect Dis. 2011. <http://cid.oxfordjournals.org/content/52/7/862.short>
- H. Additional Information (CDC):**
- www.cdc.gov/health/default.htm
 - Botulism: Handbook for Epidemiologists, Clinicians & Laboratory Workers: www.cdc.gov/ncidod/dbmd/diseaseinfo/files/botulism.pdf

ATTACHMENTS

To view attachments in the electronic version:

1. Go to <View>; <Navigation Pane>; <Attachments> – OR – Click on the “Paper Clip”  icon in the Navigation Pane..
2. Double click on the document to open.

Botulism Rapid Assessment Worksheet

(Please refer to the Disease investigation Guideline for additional guidance.)

Symptom Information (Highlighted * are typical of botulism. Those marked with an (I) are associated to infant botulism.)

Symptoms	Yes	No	Unk.	Comments / Specifics		
Alert and oriented *				* Typical Symptoms or signs.		
Ataxia (lack of coordination) NOT present						
Dilated pupils (I)						
Diminished /absent deep tendon reflexes (I)						
Dizziness not present						
Double or blurry vision *						
Droopy eyelids *					Details and progression of muscle weakness or paralysis	
Dry mouth *						<input type="checkbox"/> Bilateral cranial nerves affected *
Dysphagia (Trouble swallowing) *						<input type="checkbox"/> Symmetrical *
Dysphonia (Speech difficulty) *						<input type="checkbox"/> Descending (beginning with cranial) *
Muscle Weakness *				<input type="checkbox"/> Ascending (ending with cranial)		
Parasthesia (tingling/numbness) NOT present				<input type="checkbox"/> Ventilatory Distress or Compromise		
Sensation to touch/vibration normal				Onset Date		
Vomiting				Onset Hour		
Diarrhea				First neurologic symptom:		
Constipation (I)				First GI Symptom:		
Afebrile (fever not present)						

Initial Laboratory Testing

CSF Findings		Normal	Abnormal	Not Done	EMG Test Result: (repetitive stimulation is recommended)
WBC count (Highest) _____	Tensilon	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Suggestive /consistent with botulism
Protein (Highest) _____	Neuroradiologic studies	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Not consistent with botulism
Opening pressure _____					<input type="checkbox"/> Not done

Initial Information to Collect (for those over the age of 1 year)

Initial questions	Yes	No	Unk.	If yes, comments / specifics
Does the patient have a history of ingesting any unusual/high risk food items? (examples: home-canned food, commercially canned food, sausage or other preserved meats, preserved fish, items stored in oil, baked potato stored in foil)				Suspect Food: Date/Time Eaten: Anyone else consumed:
Does the patient have any visible wounds?				Site of wound/reason: Date of injury:
Does the patient have any history of abdominal surgery, gastrointestinal tract abnormalities, Crohns disease or recent treatment with antibiotics that would put them at risk of intestinal botulism?				
Does patient have a history of illicit drug use?				Type & mode of use (i.e. infection, skin popper):

Botulism Rapid Assessment Worksheet
(Please refer to the Disease investigation Guideline for additional guidance.)

Notes on Antitoxin:

1. Physician Contact _____ Phone _____

2. Pharmacist Contact _____ Phone _____

3. CDC Contact _____ Phone _____

4. Additional Contacts:

_____ Phone _____

_____ Phone _____

5. Antitoxin Released? Yes No If yes: Date ___/___/___ Time: _____

If no, reason: _____

6. Details of antitoxin shipping/delivery (i.e. when, where, who):

7. Antitoxin Administered? Yes No If yes: Date ___/___/___ Time: _____ No. of vials: _____

If no, reason: _____

Notes on Approved Specimen Testing:

1. Contact at KHEL: _____ Date: ___/___/___ Time: _____

2. Additional Contacts:

_____ Phone _____

_____ Phone _____

3. Details on specimen being sent (i.e., type, where, when):

Notifications:

Notification to State Health Department Date: ___/___/___ Time: _____

Notification to Local Health Department Date: ___/___/___ Time: _____

Notification to CDC Date: ___/___/___ Time: _____