

Botulism Investigation Guidelines

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Botulism

Disease Management and Investigative Guidelines

CASE DEFINITION

A. Clinical Description for Public Health Surveillance, Foodborne:

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.

B. Laboratory Criteria For Diagnosis:

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

C. 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).
-

A. Clinical Description for Public Health Surveillance, Infant:

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

B. Laboratory Criteria For Diagnosis:

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

C. Case Classification:

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

A. Clinical Description for Public Health Surveillance, Wound:

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

B. Laboratory Criteria For Diagnosis:

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

C. 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 of symptoms.
-

D. Laboratory Tests:

The State Public Health Laboratory does not provide testing and sends all isolates to the CDC. Specimens sent to CDC must have prior authorization from the State Epidemiology Program before they are processed. Specimens should be collected as early in the course of illness as possible and kept refrigerated (not frozen) during storage and transport.

- Stool Sample: A minimum of 25 grams of unpreserved stool.
- Serum: 15 ml of serum in a redtop tube.
- Food Specimen: A minimum of 25-50 grams of suspect food is required.
- Wound Culture: Samples must be placed on an anaerobic media.
- Remarks: For additional information and/or questions concerning isolate collection, sample transport and laboratory kits call (785) 296-1620. An online manual of laboratory tests is also available at <http://www.kdhe.state.ks.us/labs/links.html>

E. Bioterrorism Potential:

C. botulinum toxins are considered a potential bioterrorist agent. If acquired and properly disseminated, botulinum toxin may cause a serious public health challenge both in terms of the ability to limit the numbers of casualties and to control the long-term consequences from the attack.

F. Outbreak Definition:

A single case should be actively pursued to determine whether this is an outbreak with additional unidentified cases having been exposed to the same contaminated food. The situation should be treated as a public health emergency until additional cases and the possibility of unidentified contaminated food has been ruled out. A suspect case should be treated as a confirmed case for public health purposes until the diagnosis of botulism has been ruled out.

INVESTIGATOR RESPONSIBILITIES

A. Investigation Related Tasks and Activities:

- Conduct an epidemiological investigation to identify the possible source of infection and to locate additional cases and/or contacts in the community.
- Categorize confirmed case(s) as foodborne, infant, or wound botulism; foodborne botulism may be a true public-health emergency whereas infant and wound botulism are not.
- Identify potential contacts and refer to medical treatment (if necessary).

- If foodborne botulism, identify contaminated food(s), prevent others from eating it; assure the proper evaluation of others that may have eaten the implicated food.
- Identify cases and/or clusters of botulism that may be associated with a bioterrorist event.
- Report all confirmed and probable cases to the Bureau of Epidemiology & Disease Prevention, using established methods.
- Consult with KDHE epidemiologist's about the need for botulism antitoxin therapy and assist with logistic arrangements as necessary.

B. Notifications:

- Telephone report within 4 hours of suspect or confirmed cases to the Local Health Officer, the on-call epidemiologist (local) and KDHE (1-877-427-7317).
- Complete the CDC Botulism Antitoxin Request Form and Fax it to KDHE (1-877-427-7318).
- Mail or deliver notification letter and/or disease fact sheet to case, contacts and other appropriate individuals or groups (if appropriate and/or requested).

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 (*i.e.*, no oxygen) 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 and generalized weakness that is often described as “floppy baby” syndrome.

- Differential Diagnosis: Guillain-Barre syndrome, myasthenia gravis, cerebrovascular accident, tick paralysis, or chemical intoxication.

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 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:

The incubation period is variable, but neurologic symptoms of foodborne botulism usually appear 18-36 hours after eating contaminated foods with a range of 6 hours to 10 days. The median incubation period for wound botulism is 7 days with a range of 4-14 days. In general, the shorter the incubation period the more severe the disease. The incubation period for infant botulism is unknown.

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

All cases require monitoring of their respiratory status; aggressive supportive therapy is required in severe cases. Additional therapies depend on the type of botulism and are outlined below:

- **Foodborne botulism:** Botulinum antitoxin can halt the progression of symptoms if given promptly after exposure. Antitoxin therapy should never be delayed pending laboratory confirmation of the diagnosis. The CDC controls the distribution of botulinum antitoxin.
- **Infant botulism:** Most infants do well with supportive care.

- **Wound botulism:** Debridement of the wound is indicated to remove devascularized tissue that provides the anaerobic conditions required for growth of *C. botulinum*. Antitoxin should be administered and antimicrobial therapy may be necessary.

STANDARD CASE INVESTIGATION AND CONTROL METHODS

Standard investigation activities include the following: 1) Confirmation of the diagnoses (*i.e.*, case definition), 2) Collection of relevant demographic and clinical data (*e.g.*, age, sex, disease syndromes and/or symptoms), 3) Determination of the setting (*e.g.*, community, hospital, daycare or other facility), and 4) Investigation of possible epidemiologic links among cases (*e.g.*, cluster, household, co-workers, etc). This can be accomplished by completing the appropriate sections of the Botulism investigation form. Most of the information can be obtained from the case person, healthcare provider and/or the medical record. The investigator may want to also review previously reported cases in the region and/or state. Additional investigation activities include:

A. Identify Potential Source of Infection:

The type of investigation depends on whether it is foodborne, wound or infant botulism. A foodborne botulism investigation should be considered a public health emergency with ample resources allocated to the investigation. Further investigative activity should concentrate on the following:

- Date and hour of onset of symptoms.
- Duration of symptoms. Record symptoms in order of their development. Food history for past 96 hours and method of food preparation. For instance, did they taste any home-canned foods after opening, but before cooking the food? Ingestion of improperly home-canned or preserved foods poses a high risk. Commercially canned foods are rarely involved unless mishandled.
- Location of remaining suspect food. Names, addresses, and ages of others that ate suspected food and time this occurred.
- For wound botulism - onset of wound infection, how original wound occurred.

B. Identify Potential Exposed Individuals / Populations (Contacts):

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 that 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 food(s) in their possession.

C. Isolation, Work and Daycare Restrictions:

None.

D. Follow-up of Cases:

Follow-up to assure proper antitoxin treatment has been given.

E. Protection of Contacts:

If reachable \leq 6 hours of exposure, other persons who may have eaten implicated food should be purged, given gastric lavage to remove any unabsorbed toxin and consideration for receipt of antitoxin. They should be monitored for signs of botulism at least 2x daily for 3 days, and instructed to seek medical care immediately should symptoms develop.

F. Environmental Measures:

Samples of any implicated home-canned food should be sent to the CDC for testing and the remainder destroyed.

G. Education:

The person who prepared the home-canned food should be thoroughly instructed in proper canning techniques. The KSU Extension Service is a good resource for canning information (785) 532-2202.

MANAGING SPECIAL SITUATIONS

Bioterrorism:

The following contact numbers are staffed 24 hours a day. If there is a suspicion that a botulism case is due to an intentional act, contact in order of priority as shown:

- Kansas Epidemiologist on-call 877-427-7317
- CDC Bioterrorism response coordinator 404-639-0385
- An announced threat of dissemination should be taken seriously and the local FBI Duty Officer notified. 816-512-8200

A. Safety Considerations for Public Health and Other Health Care Professionals:

Because botulism is not transmitted person-to-person, public health, other health care, and emergency response personnel are not likely to be at risk during an investigation.

B. Definition of the Population-at-Risk:

Defining the population-at-risk 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 of the population-at-risk may have to be re-evaluated and redefined at various steps in the investigation, assessment and response to a bioterrorist event. Because of the potential of unidentified contaminated shelf products continuing to expose victims, emphasis must be placed on early

identification and removal of the vehicle. Once a mechanism and scope of delivery have been postulated, asymptomatic and potentially exposed individuals can be identified and evaluated for possible receipt of antitoxin. Since botulism is not transmitted person-to-person transmission, the population at risk will not expand from transmission but may expand with case finding efforts.

C. Specific Control Measures Include:

- Decontamination: All amounts of incriminated food products must be identified and secured to prevent continual human exposure. Environmental decontamination should not be an issue.
- Post-exposure prophylaxis: If reachable ≤ 6 hours of exposure, other persons who may have eaten implicated food should be purged, given gastric lavage to remove any unabsorbed toxin and considered for receipt of antitoxin. They should be monitored for signs of botulism at least 2x daily for 3 days, and instructed to seek medical care immediately should symptoms develop.
- Isolation: None
- Quarantine: None
- Line lists: A central responsibility of the investigative staff is to maintain detailed line lists of cases, suspect cases, exposed, and potentially exposed individuals with accurate identifying and locating information as well as appropriate epidemiological information. These lists will be essential for early identification of infection among the exposed.
- Pharmaceuticals: In the event of an outbreak of botulism, polyvalent botulism antitoxin will be procured from the Strategic National Stockpile. Procurement, storage, and distribution will be coordinated through the Kansas Department of Health and Environment. Local and state public health officials must play a central role in determining which individuals should have priority for receipt of limited pharmaceuticals.

ADDITIONAL INFORMATION / REFERENCES

- American Academy of Pediatrics. 2003 Red Book: Report of the Committee on Infectious Disease, 26th Edition. Illinois, Academy of Pediatrics, 2003.
- Heymann. D., ed., Control of Communicable Diseases Manual, 18th Edition. Washington, DC, American Public Health Association, 2004.
- Case definitions for Infectious Conditions Under Public Health Surveillance, Division of Public Health Surveillance and Informatics, Nationally Notifiable Infectious Diseases, United States 2005. Available at: <http://www.cdc.gov/epo/dphsi/PHS/infdis2005.htm>
- Kansas Department of Health and Environment, Bureau of Epidemiology. Disease Protocols, 2001.
- County of Los Angeles, Department of Health, Public Health Programs and Services, Communicable Diseases Manual, June 2003.

- Oklahoma State Department of Health, Communicable Diseases Division. The Epidemiologic Follow-up of Communicable Diseases in Oklahoma, 2001.
- Missouri Department of Health and Senior Services, Section of Communicable Disease Control & Veterinary Public Health, Communicable Disease Investigation Reference Manual. 2001.
- Oregon Health Services Website. Available at <http://www.ohd.hr.state.or.us>
- Commonwealth of Massachusetts, Department of Public Health Website. Available at <http://www.state.ma.us/dph/>
- CDC Website. Available at <http://www.cdc.gov/health/default.htm>

Botulism

Case # _____

- Confirmed
 Probable
 Suspect

Report Source

Lab Hospital Physician / HCP Other _____

County _____

Reporter Name _____

Report Date / / Phone () -

Primary M.D. / HCP _____

Phone () -

Case Identification

Name: _____
Last First InitialAddress: _____
Street CityZip: - Phone: () - Alternative Contact: Parent Spouse Other _____Name: _____
Last First InitialPhone: () -

Workplace / School / Daycare: _____

Occupation / Grade: _____

Demographics

Gender: Male FemaleBirth Date: / / Or if unknown, Age:

Race:

- White Black Asian
 American Indian / Alaska Native
 Native Hawaiian / Pacific Islander

Hispanic / Latino: Yes No

Clinical Information

Clinical Data Onset date / / Diagnosis date / / Illness duration: days

Foodborne Infant Wound

Signs and Symptoms

Y N UNK N/A

 Loss of facial expression Ptosis Extraocular muscle palsies Pupils dilated Pupils constricted Sluggish pupil reactivity Trouble swallowing Constipation Diarrhea Muscle weakness / Paralysis

Ascending Descending Unknown

 Poor head control Upper extremities Lower extremities "Floppy" Respiratory arrest Respiratory difficulty

Y N UNK N/A

 Deep Tendon Reflex Depressed Absent Dehydration Other, Specify _____ Other, Specify _____

Hospitalization

Y N UNK N/A

 Hospitalized for this illness

Hospital name _____

Admit date / / Discharge date / /

Y N UNK N/A

 Died from illness Death date / / Autopsy

Laboratory Data

Lumbar puncture Collection Date / / Pos. Neg. Not Done Results _____

RBC _____ WBC _____ Protein _____ Glucose _____

Tension test Collection Date / / Pos. Neg. Not Done Results _____

Epi-Linkage

During the exposure period, was the case...

Y N UNK N/A

- Associated with a known outbreak?
- A close contact of a confirmed or probable case?

Has the initial case been reported? Yes No

Specify nature of contact: Household Sexual

Daycare Other _____

If yes to any question, specify relevant names days, places, etc:

Notes: _____

- Case could not be interviewed
- No risk factors or exposures could be identified

Most likely exposure/site: _____ Site name/address: _____

Where did exposure probably occur? In State, County: _____ Out of state Not in US UNK

Contact Management and Follow-up

Name: _____
Last First Initial

Address: _____
Street City
Zip: [][][][][] - [][][][] Phone: ([][][]) [][][] - [][][][]

Date of Birth [][]/[][]/[][][][]

Exhibiting Signs/Symptoms: Yes No

Contact Type: Household Sexual

Daycare Other _____

Call Back Date: [][]/[][]/[][][] N/A

Name: _____
Last First Initial

Address: _____
Street City
Zip: [][][][][] - [][][][] Phone: ([][][]) [][][] - [][][][]

Date of Birth [][]/[][]/[][][][]

Exhibiting Signs/Symptoms: Yes No

Contact Type: Household Sexual

Daycare Other _____

Call Back Date: [][]/[][]/[][][] N/A

Name: _____
Last First Initial

Address: _____
Street City
Zip: [][][][][] - [][][][] Phone: ([][][]) [][][] - [][][][]

Date of Birth [][]/[][]/[][][][]

Exhibiting Signs/Symptoms: Yes No

Contact Type: Household Sexual

Daycare Other _____

Call Back Date: [][]/[][]/[][][] N/A

Name: _____
Last First Initial

Address: _____
Street City
Zip: [][][][][] - [][][][] Phone: ([][][]) [][][] - [][][][]

Date of Birth [][]/[][]/[][][][]

Exhibiting Signs/Symptoms: Yes No

Contact Type: Household Sexual

Daycare Other _____

Call Back Date: [][]/[][]/[][][] N/A

Name: _____
Last First Initial

Address: _____
Street City
Zip: [][][][][] - [][][][] Phone: ([][][]) [][][] - [][][][]

Date of Birth [][]/[][]/[][][][]

Exhibiting Signs/Symptoms: Yes No

Contact Type: Household Sexual

Daycare Other _____

Call Back Date: [][]/[][]/[][][] N/A

Notes: _____

Botulism Investigation and Documentation Checklist

TASK	DATE	INITIAL
Report Received:	___/___/___	_____
Health Officer and State Notified:	___/___/___	_____
Assigned to Investigator:	___/___/___	_____
Reported to State Surveillance System:	___/___/___	_____
Met Case Definition: <input type="checkbox"/> Yes <input type="checkbox"/> No	___/___/___	_____
Case Interview Completed: <input type="checkbox"/> Yes <input type="checkbox"/> No MOGE Reason: _____	___/___/___	_____
Biologic Sample to CDC Laboratory: <input type="checkbox"/> Yes <input type="checkbox"/> No	___/___/___	_____
Antitoxin Ordered from CDC: <input type="checkbox"/> Yes <input type="checkbox"/> No	___/___/___	_____
Cases and/or Contacts Received Antitoxin: <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> None	___/___/___	_____
Contacts Identified and/or Interviewed: <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> None	___/___/___	_____
Names: _____		

New Case(s) Identified: <input type="checkbox"/> Yes <input type="checkbox"/> No	___/___/___	_____
Names: _____		

Letter/Information Sheet(s) Sent:	___/___/___	_____
Completed Investigation Worksheet:	___/___/___	_____
Case Closed and Filed:	___/___/___	_____
Botulism Type: <input type="checkbox"/> Foodborne <input type="checkbox"/> Infant <input type="checkbox"/> Wound		

Notes: _____

Case Name: _____	Number: _____
Principal Investigator: _____	Initials: _____
Case Reviewed By: _____	Date: ___/___/___

KANSAS NOTIFIABLE DISEASE FORM

Today's Date: ___ / ___ / ___

Patient's Name: _____
Last First Middle

Day Phone: _____ Evening Phone: _____

Residential Address: _____

City: _____ Zip: _____ County: _____

Ethnicity: Hispanic or Latino Not Hispanic or Latino Unknown

Race: American Indian/Alaska Native Asian Black or African American
Native Hawaiian or Other Pacific Islander White Unknown
(Circle all that apply)

Sex: M F Date of Birth: ___ / ___ / ___ Age if DOB unknown: _____

Disease Name: _____

Symptoms:
Onset: ___ / ___ / ___ State the 3 most prominent symptoms:
Symptom 1: _____ Symptom 2: _____ Symptom 3: _____

Outbreak associated? Y N Died? Y N

Institutional Residence? None Nursing Home Correctional Residential Hospital Psych

Physician Name: _____ **Physician Phone:** _____

Laboratory Information:
Specimen Collection Date: ___ / ___ / ___ Date Reported To You: ___ / ___ / ___
Name of Test Performed: _____ Results of Test: _____
Name of Laboratory: _____ Laboratory Results Attached? Y N

Treatment Information:
Date of Treatment: ___ / ___ / ___ Treatment Type and Dosage: _____
Treatment Status: Complete On-going Discontinued

Name of person reporting: _____ Phone: _____

Comments: _____

Mail reports to your local health department or to: BEDP – Disease Surveillance, 1000 SW Jackson, Suite 210, Topeka, KS 66612-1274. Reports can also be *faxed toll free* to: 1-877-427-7318. (Rev. 04/2004)

Case and Contact(s) Management Worksheets

Contents:

- **Case Activity and Travel Worksheet – Infectious Period**
To be used to track activities and travel of a case during the infectious period.
- **Case Transportation Worksheet – Infectious Period**
To be used to track detailed travel activities of a case during the infectious period.
- **Primary Contact(s) / Site Worksheet**
To be used to create a line listing of contacts of a case. May also be used to identify sites and/or places that infections may have occurred (e.g., daycare, school, etc.).
- **Contact Tracking / Tracing Form**
To be used for individual tracking of all contacts identified on the Primary Contact(s) / Site Worksheet.
- **Contact Surveillance Form**
To be used to track the signs and symptoms associated with the disease amongst the contacts.

Worksheet Instructions

- **Case Activity and Travel Worksheet — Infectious Period:** This worksheet is to be used to track the case’s daily activities and travel during the infectious period. It is intended to help the investigator capture detailed information in an organized format.
 - The upper portion of the worksheet contains information specific to the case including name and information specific to the disease including incubation period, treatment dates, etc.
 - The upper portion also contains a Case Number. The Case Number is a number assigned by the investigator to each case. It is important to assign this number as it serves as the link between this worksheet and the Case Transportation, Primary Contact, Contact Tracking and Contact Surveillance Worksheets.
 - The lower portion of the worksheet is a “blank” calendar that the investigator may use to record the case’s activities and travel during the infectious period. The “key” to the checkboxes is located on the bottom of the worksheet.
- **Case Transportation Worksheet - Infectious Period:** This worksheet is to be used if there is a need to capture detailed travel information (*i.e.*, airline flight information) about a case and/or contacts. It is anticipated that this worksheet may never be used but is included in the case/contact management worksheets for use should the situation arise.
 - The upper portion of the worksheet contains information specific to the case including name and information specific to the disease including incubation period, treatment dates, etc.
 - The upper portion also contains a Case Number. The Case Number is a number assigned by the investigator to each case. It is important to assign this number as it serves as the link between this Worksheet and the Case Activity, Primary Contact, Contact Tracking and Contact Surveillance Worksheets.
 - The lower portion of the worksheet is structured to allow the investigator to capture detailed travel information.
- **Primary Contact(s) / Site Worksheet:** This worksheet is to be used to create a line listing of the contacts of a case.
 - The upper portion of this worksheet contains information about the case and the lower portion contains the names and key information about the contacts. The Case Number is a number assigned by the investigator to each case. It is important to assign this number as it serves as the link between this worksheet and the Case Activity, Case Transportation, Contact Tracking and Contact Surveillance Worksheets.
 - The Contact Information portion of the worksheet contains the column entitled “Contact Worksheet #“. Each contact is assigned a number by the investigator and detailed information about the contact is captured on the Contact Tracking / Tracing Worksheet. It is important to assign this number as it serves as the link between these two Worksheets.
- **Contact Tracking / Tracing Worksheet:** This worksheet is used to capture detailed information about each contact identified on the Primary Contacts / Site Worksheet.
 - The case information portion of this worksheet contains two data fields. The Case Number is a number assigned by the investigator to each case and links this worksheet to the Case Activity, Case Transportation and Contact Surveillance Worksheets. The Contact Worksheet # links this Worksheet to an individual line listing on the Primary Contacts / Site Worksheet.
 - The remaining sections of the Worksheet are intended to provide specific contact identification, exposure data, follow-up and disposition information about each contact.
- **Contact Surveillance Worksheet:** This worksheet is used to track the signs and symptoms associated with the disease amongst the contacts. It is intended to be “self reported” and used by the contact(s) during quarantine.
 - The case information portion of this worksheet contains two data fields. The Case Number is a number assigned by the investigator to each case and links this worksheet to the Case Activity, Case Transportation and Contact Surveillance Worksheets. The Contact Worksheet # links this Worksheet to an individual line listing on the Primary Contacts / Site Worksheet.

Case Activity and Travel Worksheet – Infectious Period (Please Print)

CASE INFORMATION

Name of Primary Case: _____
Last First Middle Nickname / Alias: _____

Case Number: _____ Interview Date: ____/____/____ Interviewer Name: _____

Infectious Period Start Date:¹ ____/____/____ Symptom Onset Date: ____/____/____ Treatment Start Date: ____/____/____

Clinical Improvement Date: ____/____/____ Disease or Condition Under Surveillance: _____

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
Date: <input type="checkbox"/> F <input type="checkbox"/> R <input type="checkbox"/> C <input type="checkbox"/> O	Date: <input type="checkbox"/> F <input type="checkbox"/> R <input type="checkbox"/> C <input type="checkbox"/> O	Date: <input type="checkbox"/> F <input type="checkbox"/> R <input type="checkbox"/> C <input type="checkbox"/> O	Date: <input type="checkbox"/> F <input type="checkbox"/> R <input type="checkbox"/> C <input type="checkbox"/> O	Date: <input type="checkbox"/> F <input type="checkbox"/> R <input type="checkbox"/> C <input type="checkbox"/> O	Date: <input type="checkbox"/> F <input type="checkbox"/> R <input type="checkbox"/> C <input type="checkbox"/> O	Date: <input type="checkbox"/> F <input type="checkbox"/> R <input type="checkbox"/> C <input type="checkbox"/> O
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Key: F = Fever, R = Rash, C = Cough, O = Other

¹The period of infectiousness may begin before the case is symptomatic and last after symptoms have abated. Refer to the disease specific protocols for detailed information.

Case Transportation Worksheet – Infectious Period (Please Print)

CASE INFORMATION

Name of Primary Case: _____ Nickname / Alias: _____
Last First Middle

Case Number: _____ Interview Date: ____/____/____ Interviewer Name: _____

Infectious Period Start Date:² ____/____/____ Symptom Onset Date: ____/____/____ Treatment Start Date: ____/____/____

Clinical Improvement Date: ____/____/____ Disease or Condition Under Surveillance: _____

TRAVEL INFORMATION Complete as much information as possible for each type of public transportation used by case during infectious period.

Date of Travel	Time of Travel (AM/PM Circle)	Transport Type (e.g., bus, plane, etc)	Carrier / Company Name	Route / Flight #	Origin City	Origin State	Origin Country	Destination City	Destination State	Destination Country
____/____/____	____:____ AM PM									
____/____/____	____:____ AM PM									
____/____/____	____:____ AM PM									
____/____/____	____:____ AM PM									
____/____/____	____:____ AM PM									
____/____/____	____:____ AM PM									

Page _____ of _____

²The period of infectiousness may begin before the case is symptomatic and last after symptoms have abated. Refer to the disease specific protocols for detailed information.

Primary Contact(s) / Site Worksheet (Please Print)

CASE INFORMATION

Name of Primary Case: _____ Nickname / Alias: _____
Last First Middle

Case Number: _____ Interview Date: ____/____/____ Interviewer Name: _____

Site Name or Place: _____ Disease or Condition Under Surveillance: _____

CONTACT INFORMATION

Name of Person (Last, First) and/or Name of Site	Location	Phone Number	Date of First Exposure	Date of Last Exposure	Contact Form #	Call Back Date
		()	___/___/___	___/___/___		___/___/___ <input type="checkbox"/> N/A
		()	___/___/___	___/___/___		___/___/___ <input type="checkbox"/> N/A
		()	___/___/___	___/___/___		___/___/___ <input type="checkbox"/> N/A
		()	___/___/___	___/___/___		___/___/___ <input type="checkbox"/> N/A
		()	___/___/___	___/___/___		___/___/___ <input type="checkbox"/> N/A
		()	___/___/___	___/___/___		___/___/___ <input type="checkbox"/> N/A
		()	___/___/___	___/___/___		___/___/___ <input type="checkbox"/> N/A
		()	___/___/___	___/___/___		___/___/___ <input type="checkbox"/> N/A
		()	___/___/___	___/___/___		___/___/___ <input type="checkbox"/> N/A
		()	___/___/___	___/___/___		___/___/___ <input type="checkbox"/> N/A

Contact Tracking / Tracing Form (Please Print)

CASE INFORMATION

Name of Primary Case: _____ Case Number: _____
Last First Middle

Contact Form Number: _____
 This number ties this form to the Primary Contact(s) / Site Worksheet

CONTACT INFORMATION

Contact Name: _____ Nickname/Alias: _____
Last First Middle

Address: _____ Phone Number: () _____
Street City State Zip

Alternative Contact: _____ Parent Spouse Friend Other
Last First Middle

Address: _____ Phone Number: () _____
Street City State Zip

School/Employer Name: _____ Address: _____
Street City State Zip

DEMOGRAPHICS

Date of Birth: ___/___/___ Age: ___ Gender: Male Female
 Height: _____ Weight: _____ Hair Color: _____ Complexion: _____

Race: White Black Asian
 Am. Indian / AK Native Native HI. / Pacific Islander

Hispanic / Latino
 Yes No

EXPOSURE INFORMATION

Date of 1st Exposure: ___/___/___
 Date of Final Exposure: ___/___/___
 Case/Contact Type: _____
 1 = Household contact, family member, others spending ≥ 3hrs in household with an infectiousness case.
 2 = Non-household contact with contact < 6 feet with an infectious case ≥ 3 hrs.
 3 = Non-household contact with contact < 6 feet with an infectious case ≤ 3 hrs.
 4 = Non-household contact with contact ≥ 6 feet with an infectious case ≥ 3 hrs.
 5 = Non-household contact with contact ≥ 6 feet with an infectious case ≤ 3 hrs.
 6 = Other, specify: _____

CONTACT / FOLLOW UP DATES

Date Contact Form Initiated: ___/___/___
 Date of Contact Notification: ___/___/___
 Follow up Date: ___/___/___
 N/A
 Disposition Date: ___/___/___
 Notes: _____

DISPOSITION

Located:
 Referred for Treatment
 Referred for Assessment
 Already Hospitalized
 Isolated
Other: _____

Not Located:
 Unable to Locate
 Moved to Another Jurisdiction
 Location: _____
Deceased:
 Disease Suspected
 Unrelated to Disease

Contact Surveillance Form (Please Print)

CASE INFORMATION (Filled out by interviewer)

Case Number: _____

HOUSEHOLD / CONTACT INFORMATION (Filled out by interviewer)

Contact Name: _____ Nickname/Alias: _____
Last First Middle

Address: _____ Phone Number: () _____
Street City State Zip

Sex: Male Female Age: _____ Date of Household Visit: ___/___/___ Contact Form Number: _____
This number ties this form to the Primary Contact(s) / Site Worksheet

MISC. INFORMATION (Filled out by interviewer)

Date of Last Exposure to Case: ___/___/___ Date Vaccinated or Prophylaxis: ___/___/___ Call Back Date: ___/___/___

HOUSEHOLD OR CONTACT CLINICAL SIGNS TRACKING (Filled out by contact or household member)

Instructions: Record Your Temperature Each Day In The Boxes Below. If Fever Is Greater Than 101°F Call The Following Telephone Number Immediately: () _____

Daily Temp	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7	Day 8	Day 9	Day 10	Day 11	Day 12	Day 13	Day 14	Day 15	Day 16	Day 17	Day 18	Day 19	Day 20	Day 21	Day 22	Day 23	Day 24	Day 25	Day 26	Day 27	Day 28

Instructions: If Symptoms Develop, Mark The Symptoms Started And Call The Telephone Number Listed Above Immediately

Symptoms	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7	Day 8	Day 9	Day 10	Day 11	Day 12	Day 13	Day 14	Day 15	Day 16	Day 17	Day 18	Day 19	Day 20	Day 21	Day 22	Day 23	Day 24	Day 25	Day 26	Day 27	Day 28

NOTES (Record any additional symptoms, observations or questions for the investigator)

FDDB BOTULISM ANTITOXIN RELEASE REPORT

Fill out whenever botulism antitoxin is released, except to PAHO
(Give completed form to botulism surveillance officer)

Person releasing antitoxin _____ Today's Date _____

Date of Antitoxin Release _____ Quarantine Station _____

Is this the first release for this outbreak? Yes No

If re-release, reason _____

Patient (s) (Patient Number one should be index case)

- 1.) _____ age _____ sex _____
- 2.) _____ age _____ sex _____
- 3.) _____ age _____ sex _____
- 4.) _____ age _____ sex _____

(Continue on back if necessary)

Physician who was main contact _____ Phone _____ Fax _____

Hospital _____

City _____ State _____

Other contacts/consultants	Specialty	Phone	Fax
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

State health department contact _____ Phone _____

INFORMATION REGARDING CASE NUMBER _____
(use additional forms if more than one case)
(only include information available at time of antitoxin release)

Preliminary History

Date received first call at branch _____ / _____ / _____
 Onset date of symptoms _____ / _____ / _____
 Date first seen by physician _____ / _____ / _____
 Patient hospitalized Yes No Don't know
 Date hospitalized _____ / _____ / _____

Recent Medication History (please circle the answer)

phenothiazine	Yes	No	Don't know	Comment
aminoglycoside	Yes	No	Don't know	Comment
anticholinergic	Yes	No	Don't know	Comment
other	Yes	No	Don't know	Comment

if other, name _____

Clinical History

Symptoms

Describe general symptom progression _____

Circle the answer

Abdominal pain	Yes	No	Don't know
Nausea	Yes	No	Don't know
Vomiting	Yes	No	Don't know
Diarrhea	Yes	No	Don't know
Blurred vision	Yes	No	Don't know
Diplopia	Yes	No	Don't know
Dizziness	Yes	No	Don't know
Slurred speech	Yes	No	Don't know
"Thick tongue"	Yes	No	Don't know
Change in sound of voice	Yes	No	Don't know
Hoarseness	Yes	No	Don't know
Dry mouth	Yes	No	Don't know
Difficulty swallowing	Yes	No	Don't know
Shortness of breath	Yes	No	Don't know
Subjective weakness	Yes	No	Don't know
Fatigue	Yes	No	Don't know
Paresthesia	Yes	No	Don't know

site _____

Signs

Vital signs: Temp _____ BP _____ HR _____ RR _____

Circle the answer

Altered Mental State	Yes	No	Don't know	<u>If yes, bilateral</u>
Extraocular palsy	Yes	No	Don't know	<u>If yes, bilateral</u>
Ptosis	Yes	No	Don't know	<u>If yes, bilateral</u>
Pupils dilated	Yes	No	Don't know	<u>If yes, bilateral</u>
Pupils constricted	Yes	No	Don't know	<u>If yes, bilateral</u>
Pupils fixed	Yes	No	Don't know	<u>If yes, bilateral</u>
Pupils reactive	Yes	No	Don't know	<u>If yes, bilateral</u>
Facial paralysis	Yes	No	Don't know	<u>If yes, bilateral</u>
Palatal weakness	Yes	No	Don't know	
Impaired gag reflex	Yes	No	Don't know	
Wound	Yes	No	Don't know	

if yes, describe _____

Sensory deficit(s)	Yes	No	Don't know
--------------------	-----	----	------------

if yes, describe _____

Abnormal deep tendon reflexes	Yes	No	Don't know
-------------------------------	-----	----	------------

if yes, describe _____

Weakness/paralysis:

Please indicate if weakness or paralysis was noted in the patient before the antitoxin was released.

Circle the answer

Upper extremities	Yes	No	Don't know	<u>If yes, bilateral</u>
upper distal	Yes	No	Don't know	<u>If yes, bilateral</u>
upper proximal	Yes	No	Don't know	<u>If yes, bilateral</u>
Lower extremities	Yes	No	Don't know	<u>If yes, bilateral</u>
lower distal	Yes	No	Don't know	<u>If yes, bilateral</u>
lower proximal	Yes	No	Don't know	<u>If yes, bilateral</u>

Describe weakness/paralysis:

ascending (beginning in lower extremities, progressing to upper extremities, then cranial nerves)

Yes	No	Don't know	<u>If yes, bilateral</u>
-----	----	------------	--------------------------

Descending (beginning with cranial nerves, progressing to upper extremities, then (in some cases) to lower extremities)

Yes	No	Don't know	<u>If yes, bilateral</u>
-----	----	------------	--------------------------

Comments _____

Laboratory Results

Please list the laboratory results which were available before the antitoxin was released.

Lumbar puncture:

done _____ (if done, date ___/___/___) not done _____ results pending _____
RBC _____ WBC _____ Protein _____ Glucose _____

Tensilon test (Edroptonium chloride):

done _____ (if done, date ___/___/___) not done _____ results pending _____
Results _____

Electromyography (EMG):

done _____ (if done, date ___/___/___) not done _____ results pending _____

Muscle group _____

Nerve conduction results _____

Was Rapid repetitive stimulation conducted: Yes No Don't know

If yes, hertz _____

Results: _____

Differential Diagnosis by Clinician

- 1.) _____
- 2.) _____
- 3.) _____

Morbidity

Please list morbidity which was present before the antitoxin was administered.

Circle the answer

Admitted to intensive care: Yes No Don't know if yes, date ___/___/___

Ventilator: Yes No Don't know if yes, date ___/___/___

Tracheostomy: Yes No Don't know if yes, date ___/___/___

Other: _____

Pertinent Food History

Please list pertinent food history which was available before the antitoxin was released.

Circle the answer

Home-canned food Yes No Don't know

If yes, type of food _____

Samples available for testing: Yes No Don't know

Other food history _____

Comments

Follow-up

Please contact the physician the day after antitoxin is released and verify that the antitoxin was given. If antitoxin was administered, please complete form 2 (version 2).

BOTULISM ANTITOXIN QUESTIONNAIRE

The Foodborne and Diarrheal Diseases Branch of the Centers for Disease Control and Prevention is the national center for consultation of suspected botulism and is responsible for providing botulism antitoxin for therapy. **If you have given botulism antitoxin to a patient, we need your assistance.** Please complete and return this form for each patient receiving antitoxin.

Patient's name _____ / _____ age _____ (years) sex _____
last first

Person filling out this form _____ Date _____

Attending Physician _____ State _____

Hospital _____ Phone _____ Fax _____

BOTULISM ANTITOXIN

Sensitivity Testing (please circle the answer)

Was sensitivity testing done prior to antitoxin administration? yes no don't know

If yes, at what site (i.e. skin, eye)? _____
what route (i.e. subcutaneously)? _____
what dosage and diluent? _____
result _____

Antitoxin Administration

Was any antitoxin given by intravenous (IV) injection?

Lot #	# of vials given	date	time (military time)
_____	_____	_____	_____
_____	_____	_____	_____

Antitoxin Reactions (excluding reactions during sensitivity testings)

Please circle "yes" or "no" or don't know (dk) to each of the following reactions. For each "yes" answer, please indicate how soon the reaction began after the start of the antitoxin treatment, and how long the reaction lasted.

	Circle the answer	If yes, how soon after (hours)	Lasting how long (hours)?
Fever:	yes no dk	_____	_____
Chills:	yes no dk	_____	_____
Rash:	yes no dk	_____	_____
If rash, describe _____			

	Circle the answer	If yes, how soon after (hours)	Lasting how long (hours)?
Urticaria:	yes no dk	_____	_____
If urticaria, describe _____			

	Circle the answer	If yes, how soon after (hours)	Lasting how long (hours)?
Swelling/edema:	yes no dk	_____	_____
If swelling/edema, describe _____			

	Circle the answer	If yes, how soon after (hours)	Lasting how long (hours)?
Other hypersensitivity:	yes no dk	_____	_____
If other, describe _____			

	Circle the answer	If yes, how soon after (hours)	Lasting how long (hours)?
Anaphylaxis:	yes no dk	_____	_____
If anaphylaxis, describe _____			

	Circle the answer	If yes, how soon after (hours)	Lasting how long (hours)?
Serum sickness:	yes no dk	_____	_____
If serum sickness, describe _____			

	Circle the answer	If yes, how soon after (hours)	Lasting how long (hours)?
Other reactions:	yes no dk	_____	_____
If other reactions, describe _____			

If the patient received any treatment for a reaction, or antitoxin administration was stopped, please describe _____

Laboratory Results

Please list the laboratory results which were available before the patient received antitoxin.

Were the lumbar puncture results available? Circle the answer
yes no don't know
RBC _____ WBC _____ Protein _____ Glucose _____

Were Tensilon (edrophonium chloride) test results available? yes no don't know
Results _____

Were electromyography (EMG) results available? yes no don't know
Which muscle groups were used _____
Results _____

Was rapid repetitive stimulation performed? yes no don't know
At what hertz _____ Results _____

Severity of Illness

Circle the answer
Was the patient hospitalized? yes no don't know
Is the patient still hospitalized? yes no don't know
If no, how long was the patient hospitalized? _____ days

Was the patient admitted to the ICU? yes no don't know
Is the patient still in the ICU? yes no don't know
If no, how long was the patient in the ICU? _____ days

Was the patient intubated? yes no don't know
Is the patient still intubated? yes no don't know
If no, how long was the patient intubated? _____ days

Please FAX form to: Foodborne and Diarrheal Diseases Branch at (404) 639-2205

or mail form to: Foodborne and Diarrheal Diseases Branch
 Mailstop A-38, Centers for Disease Control and Prevention
 1600 Clifton Road
 Atlanta, GA 30333

BOTULISM ANTITOXIN FOLLOW-UP QUESTIONNAIRE

Person filling out form _____ Date _____

Patient's name _____ State _____

Physician who was
main contact _____ Phone _____

Antitoxin Administration

Was any antitoxin given by intravenous (IV) injection?

of vials given date time (military time)

Clinical Outcome

Please circle the answer

Was the diagnosis of botulism confirmed? yes no don't know

If no, what was the final diagnosis? _____

Did the patient develop pneumonia? yes no don't know

Did the patient survive? yes no don't know

If no, what was the cause of death? _____

Describe the clinical course after administration of the antitoxin

Number of days in hospital _____

Number of days in intensive care _____

Number of days on ventilator _____

Circle the answer

Did the patient require a tracheostomy: yes no don't know

Discharged from hospital to:

home yes no don't know

nursing home yes no don't know

rehabilitation facility yes no don't know

other yes no don't know

When did patient return to work or other normal activities month _____ year _____

Antitoxin Reactions

Through today's date, has the patient experienced any of the following reactions to the antitoxin? Please circle the appropriate answer. If yes, how soon after antitoxin administration and lasting for how long?

	Circle the answer	If yes, how soon after?	Lasting how long?
Fever:	yes no dk	_____	_____
Chills:	yes no dk	_____	_____
Rash:	yes no dk	_____	_____
If rash, characterize _____			

	Circle the answer	If yes, how soon after?	Lasting how long?
Urticaria:	yes no dk	_____	_____
If urticaria, characterize _____			

	Circle the answer	If yes, how soon after?	Lasting how long?
Swelling/edema:	yes no dk	_____	_____
If swelling, characterize _____			

	Circle the answer	If yes, how soon after?	Lasting how long?
Other hypersensitivity:	yes no dk	_____	_____
If other, characterize _____			

	Circle the answer	If yes, how soon after?	Lasting how long?
Anaphylaxis:	yes no dk	_____	_____
If anaphylaxis, characterize _____			

	Circle the answer	If yes, how soon after?	Lasting how long?
Serum sickness:	yes no dk	_____	_____
If serum sickness, characterize _____			

	Circle the answer	If yes, how soon after?	Lasting how long?
Other reactions:	yes no dk	_____	_____
If other reactions, characterize _____			

If the patient received any treatment for a reaction, please describe

Botulism Laboratory Testing
Contact state public health laboratory or CDC laboratory

Tested at CDC laboratory ____
at state laboratory ____ (state _____)

Serum:

date(s) collected _____
results _____

Stool:

date(s) collected _____
results _____

Gastric aspirate:

date(s) collected _____
results _____

Food items:

date(s) collected _____
results _____

Please FAX form to: Foodborne and Diarrheal Diseases Branch at (404) 639-2205

or mail form to: Foodborne and Diarrheal Diseases Branch
Mailstop A-38, Centers for Disease Control and Prevention
1600 Clifton Road
Atlanta, GA 30333

Date: _____

Dear: _____,

I am writing in regards to some recent laboratory test results that you should have received. I work with the Local Health Department and as part of my job I provide information and answer questions about certain diseases that are reported to us.* I would like to speak to you about your laboratory tests and provide information to you as well as to obtain some additional information about your results. Everything we receive from you or your healthcare provider is **STRICTLY CONFIDENTIAL**. The purpose for collecting this information is to educate patients and to collect information for public health planning and support our disease prevention activities.

Please contact me at your earliest convenience so that we may discuss this matter further. If your healthcare provider has not yet discussed this with you, I would encourage you to make an appointment or call them as soon as possible.

I look forward to discussing this matter with you and will be happy to answer any questions that you may have regarding this investigation at that time. My telephone number is _____. Thank you in advance for your assistance.

Sincerely,

Investigator Name, Title

Phone #

Address Line 1

Address Line 2

City, State Zip Code

*The Kansas Department of Health and Environment (KDHE) has the authority to define what diseases are of public health importance and to require the reporting of such diseases. Under this authority KDHE has established regulations making certain diseases reportable (K.S.A. 65-118 and K.S.A. 65-128, and amendments thereto). These regulations outline reporting requirements and control measures that apply to both confirmed cases of such diseases and contacts of confirmed cases. Local health departments are required to collect information for the KDHE and implement control measures.

Date: _____

Dr: _____,

I am writing to you in regards to your patient, _____. The Health Department recently received notice that this patient may have been diagnosed with _____, which is a reportable disease under State rules and regulations. The Health Department routinely contacts patients with reportable diseases to gain more information, provide education, and make necessary referrals and support. In order to do this, I would like to speak to you regarding the laboratory results and risk history of this patient.

Please contact me at your earliest convenience so that we may obtain the information required for this report. If it is more convenient for you to fill out the report form on your own and mail or fax it to me, please feel free to do so. I have enclosed a copy of it with this letter. I would also like to remind you that during our investigation we may be contacting your patient directly, it is strongly recommended that you contact your patient to discuss this diagnosis and inform them of our investigation. All of the information that we obtain from either you or your patient is **STRICTLY CONFIDENTIAL**.

I look forward to discussing this matter with you and will be happy to answer any questions that you may have regarding this investigation at that time. My telephone number is _____. Thank you in advance for your assistance.

Sincerely,

Investigator Name, Title
Phone #
Fax #
Address Line 1
Address Line 2
City, State Zip Code

*The Kansas Department of Health and Environment (KDHE) has the authority to define what diseases are of public health importance and to require the reporting of such diseases. Under this authority KDHE has established regulations making certain diseases reportable (K.S.A. 65-118 and K.S.A. 65-128, and amendments thereto). These regulations outline reporting requirements and control measures that apply to both confirmed cases of such diseases and contacts of confirmed cases. Local health departments are required to collect information for the KDHE and implement control measures.

	Public Health Fact Sheet Botulism
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What is botulism?

Botulism is a paralytic illness caused by a nerve toxin that is produced by the bacterium *Clostridium botulinum*. Eating foods that contain the botulism toxin causes foodborne botulism. Wound botulism is caused by toxin produced from a wound infected with *C. botulinum*. Consuming the botulism spores that then grow in the intestines and release toxin causes infant botulism. All forms of botulism can be fatal and are considered medical emergencies.

How is botulism spread?

C. botulinum is naturally found in soil and may get into food and under certain circumstances produce toxin. For food botulism, a person must swallow contaminated food after the toxin has been produced. For infant botulism, the infant needs to eat food that contains the bacteria; certain foods, such as honey, are more likely to be contaminated. For wound botulism, the bacteria need to get into a wound and then have the proper conditions to allow the toxin to be produced. Botulism is not spread from person-to-person. The toxin can be destroyed by heat.

What are the symptoms?

Foodborne and wound botulism produce symptoms that affect the nervous system, including: blurred or double vision, dry mouth, difficulty swallowing, muscle weakness, muscle paralysis, and slurred speech. In some cases, the disease may cause respiratory paralysis and death. Infants with botulism often become constipated, stop eating and become sluggish; these symptoms may then be followed by the more severe nervous system symptoms.

How soon do symptoms appear after exposure?

Symptoms for foodborne botulism usually develop in 12-36 hours after ingestion of the contaminated food. Infant botulism symptoms appear between 3-30 days after ingestion of the bacteria. Symptoms appear in wound botulism between 4-14 days after exposure.

How is botulism diagnosed?

A doctor may consider the diagnosis if the patient's food history and physical examination suggest botulism. However, these clues are usually not enough to diagnose botulism. There are other diseases that can appear similar to botulism, and special tests may be needed to exclude these other conditions. The most direct way to confirm botulism is by testing a stool sample for foodborne or infant botulism or by testing the wound or blood for wound botulism.

How is botulism treated?

Botulism is a very serious disease and can be deadly if not treated. If the disease is caught early, the person may receive an antitoxin that may decrease the symptoms of the illness. Antitoxin is not given in the case of infant botulism.

What foods are commonly associated with botulism?

Botulism is most often associated with home-canned foods that have low-acid content, such as asparagus, green beans, beets and corn. However, outbreaks of botulism have been reported from unusual sources such as chopped garlic in oil, chili peppers, improperly handled baked potatoes wrapped in aluminum foil and home-canned or fermented fish. Honey can contain the botulism bacteria and may be a problem for children under 1 year of age.

How can botulism be prevented?

Persons who do home canning should follow strict hygiene procedures to reduce contamination of foods. Oils made with garlic and herbs should be refrigerated. Potatoes that have been baked while wrapped in aluminum foil should be kept hot until served or refrigerated. Because high temperatures destroy the botulism toxin, persons who eat home-canned food should consider boiling the food for 10 minutes before eating to ensure safety. More information on safe home canning can be found on the Utah State University Extension School's website at: <http://extension.usu.edu/publica/foodpubs.htm>.

Children under 1 year of age should not be fed honey. Wound botulism can be prevented by promptly seeking medical care for infected wounds and by not using injectable street drugs.

Where can I get more information?

- Your Local Health Department
- Kansas Department of Health and Environment, Epidemiologic Services Section (877) 427-7317
- <http://www.cdc.gov/health/default.htm>
- Your doctor, nurse, or local health center

This fact sheet is for information only and is not intended for self-diagnosis or as a substitute for consultation. If you have any questions about the disease described above or think that you may have an infection, consult with your healthcare provider. This fact sheet is based on the Centers for Disease Control and Prevention's Health and Safety topic fact sheets.