Botulism is a severe illness affecting primarily the nervous system (neuroparalytic disorder) caused by the botulism toxin produced by *Clostridium botulinum*. Botulism can be classified into the following categories: foodborne, infant, wound, and undetermined.

The botulinum toxins are a group of seven related neurotoxins produced by the bacillus *Clostridium botulinum*. Botulism and tetanus toxins are very similar in structure and function, but differ dramatically in their clinical effects because they target different cells in the nervous system. Toxins are differentiated according to their antigenic differences: types A to G. Human botulism is almost always caused by neurotoxins A, B, E, and F. Type A botulism is found most commonly in the west and type B is more common in the east. Type E is associated with fish. Types C and D are associated primarily with botulism in birds and mammals. Almost all cases of infant botulism are caused by types A and B.

These toxins could be delivered by aerosol. When inhaled, these toxins produce a clinical picture very similar to foodborne intoxication. However, the botulinum toxin is so inherently toxic that this characteristic does not limit its potential as a biological weapon.

**Epidemiology**

Food botulism is caused by the ingestion of a preformed toxin in contaminated food. The toxin is produced when the bacteria grow in food that has been improperly preserved or stored under anaerobic conditions. Most poisonings in the U.S. are due to home-canned vegetables and fruits. Botulinum spores are often present in the environment; therefore identification of the organism in food is not necessarily diagnostic.

Not all foodborne botulism results from ingestion of improperly prepared home-canned food as demonstrated by restaurant-associated outbreaks from foods such as patty-melts, potato salad, and aluminum foil–wrapped baked potatoes. The word “botulism” comes from the Latin word *botulus*, or sausage.

Infant botulism: In contrast to classical foodborne botulism, which is intoxication due to ingestion of preformed botulinum toxin, infant botulism occurs after infants eat spore contaminated food. The spores grow in the intestines and then release the toxin in the body. Possible sources of spores for infants are multiple, including foods and dust. In most cases the precise source is not identified. Honey has been identified as one vehicle and should not be given to children under one year of age.

Botulism is not transmitted from person to person. *C. botulinum* spores are found throughout the world in soil samples and marine sediment.
The usual incubation period is
- for foodborne botulism 12 to 36 hours (range, 6 hours to 8 days)
- for wound botulism, 4 to 14 days between the time of injury and the onset of symptoms
- for infant botulism, the incubation period is estimated at 3 to 30 days from the time of exposure to spore-containing honey or other food.
- for exposure to the toxin in a bioterrorism incident symptom onset occur in 1 to 12 hours following exposure.

Clinical Description

Botulinum neurotoxins predominantly affect the peripheral neuromuscular junction and autonomic synapses, and its effects are primarily manifested as weakness.

Except for infant botulism, onset of symptoms occurs abruptly within a few hours or evolves gradually over several days. Botulism is a symmetric, descending, flaccid paralysis. Symmetric paralysis may progress rapidly with generalized weakness and hypotonia. Signs and symptoms include diplopia, blurred vision, dry mouth, dysphagia, dysphonia, and dysarthria.

Infant botulism occurs in infants younger than 6 months of age. It is preceded by constipation and includes lethargy, poor feeding, weak cry, diminished gag reflex, subtle ocular palsies, and generalized weakness and hypotonia (e.g., “floppy infant”). The spectrum of disease ranges from mild (e.g., constipation, slow feeding) to rapidly progressive (e.g., apnea, sudden infant death).

Wound botulism lacks the prodromal gastrointestinal disorder of the foodborne form, but it is otherwise similar in signs and symptoms.

Laboratory Tests

A toxin neutralization bioassay in mice is used to identify botulinum toxin in serum, stool, or suspect foods. To increase the likelihood of diagnosis, both serum and stool should be obtained from all persons with suspected botulism. In infant and wound botulism, the diagnosis is made by demonstrating *C. botulinum* organisms or toxin in feces or wound exudate or tissue samples. Toxin has been demonstrated in serum in approximately 1% of infants with botulism. In foodborne cases, serum specimens collected more than 3 days after ingestion of toxin usually are negative, at which time stool and gastric aspirates are the best diagnostic specimens for culture. Since obtaining a stool specimen may be difficult because of constipation, an enema using sterile nonbacteriostatic water can be given.

Enriched and selective media are used to culture *C. botulinum* from stool and foods. *C. botulinum* is a large, usually gram-positive, strictly anaerobic bacillus that forms a subterminal spore.

The most prominent electromyographic finding is an incremental increase of evoked muscle potentials at high-frequency nerve stimulation (20–50 Hz). In addition, a characteristic pattern of brief, small-amplitude, overly abundant motor action potentials can be seen.

The reporting source may request the assistance of the health department in sending specimens (stool and blood) to CDC for testing. Consult the Infectious Disease Epidemiology Section on guidelines/requirements for accepting specimens and the appropriate handling of them.
Stool and blood specimens must be sent to the Central Laboratory in New Orleans will be forwarded to the Centers for Disease Control. Stool specimens (1-2 gms) are to be collected in a clean container (no preservatives) and kept refrigerated. Serum specimens (at least 1 cc) are to be collected in a red-topped tube and either spun down and sera sent or the whole blood sent refrigerated.

**Surveillance**

Botulism is a class A reportable condition (to be reported in 24 hours). Furthermore, all of the syndromic surveillance systems currently deployed utilize sets of clinical signs and symptoms that have been crafted to capture cases of botulinum intoxication prior to the availability of laboratory test results.

**Case Definition**

A case of *food-borne botulism* is defined as:

1. An illness characterized by clinical manifestations relating to the nervous system (ptosis, blurred or double vision, dry mouth and sore throat are usually the first symptoms followed by descending paralysis) that is laboratory confirmed;
2. or a clinically compatible illness that occurs in a person who ingested the same food as someone with laboratory confirmed botulism.

A case of *infant botulism* is defined as a syndrome compatible with botulism in a person less than one year of age and detection of botulinum toxin in serum or *C. botulinum* organisms in the patient’s stool.

A case of botulism is confirmed:
1. by identifying the specific toxin in serum or stool, or
2. rarely, by culturing *C. botulinum* from a wound in a clinical case.

A case of infant botulism is confirmed by:
1. identification of *Clostridium botulinum* spores in stool specimens.
2. identification of botulinum toxin in serum or stool specimens.

**Case investigation**

The purpose of the investigation is

- to identify sources of contaminated food,
- to identify other individuals who shared the suspected food,
- to identify clusters related to a possible bioterrorism event.

- Because of the serious nature of this disease and the difficulty of diagnosing, the notification of the case would come from a major hospital or medical center.
- Upon receipt of a report of botulism, contact the physician and/or hospital to confirm the diagnosis. (See Laboratory Tests).
- An immediate concern would be to determine the source of the toxin. Check recent food history of ill individuals and recover all suspected foods for appropriate testing.
• Suspicion of a single case of botulism should immediately raise the question of a group outbreak involving a family or others who may have shared a common food or be associated with a cluster event.

**Case Management - Treatment**

1- Treatment with Botulism Immune Globulin (BIG) should be started as early in the illness as possible and **should not be delayed while awaiting laboratory confirmation**. Antitoxin therapy is usually carried out with a trivalent (types A, B, and E) equine serum. Equine botulinum antitoxin also is obtainable and can be administered to adults after testing for hypersensitivity to equine sera if BIG is not available. Approximately 9% of treated persons experience some degree of hypersensitivity reaction to equine sera.

To obtain antitoxin call directly CDC. A CDC staff member will ask questions to determine whether antitoxin therapy is indicated

**404-639-2206 during workdays,**

**404-639-2888 other times**

**Prevention**

When a food item has been identified by epidemiologic evidence or laboratory tests, immediate recall of the product is necessary. This will be done by the Infectious Disease Epidemiology Section working in conjunction with CDC and/or the FDA.

Education to improve home-canning methods should be promoted, but cases also may be restaurant-acquired. Use of a pressure cooker (at 116°C = 240.8°F) is necessary to kill spores of *C. botulinum*. Boiling for 10 minutes will destroy the toxin. Time-temperature-pressure requirements vary with the product being heated. In addition, food containers that appear to bulge may contain gas produced by *C. botulinum* and should be discarded. Other foods that appear to be spoiled should not be tasted.

**Hospital precaution and isolation:** Standard precautions.
Infectious Disease Epidemiology: Epidemiologic Response Checklist

Consultation/ Confirmation
✔ Discuss bioterrorism event definitions with key public health personnel (health officer, communicable disease control staff, laboratorians, etc.)

Laboratory Confirmation
✔ Identify point of contact (POC) at appropriate state public health laboratory in a potential bioterrorist event

Notification
✔ Establish local notification network to be activated in case of a possible bioterrorist event; disseminate contact information and notification protocol
✔ Establish relationships with local Office of Emergency Preparedness and FBI contacts to be notified in a suspected bioterrorist event and maintain up-to-date contact information

Coordination
✔ Establish Epidemiologic Response as a part of local Incident Command System
✔ Identify personnel available for epidemiologic investigation and perform inventory of skills and duties
✔ Establish contacts at regional and Parrish health units identify potential personnel resources available for epidemiologic “mutual aid”
✔ Establish contacts at the local FBI office for coordination with epidemiologic/ criminal Investigation

Communication
✔ Identify epidemiologic investigation spokesperson and Public Information Officer (PIO)
✔ Establish communication protocol to be implemented during an epidemiologic investigation between PIO and epidemiologic investigation spokesperson
✔ Establish a plan for rapid dissemination of information to key individuals: FAX, Email, website on the internet (if capability exists)

Epidemiologic Investigation
A. Case Finding
✔ Establish plans/ capacity to receive a large number of incoming telephone calls
✔ Develop telephone intake form
✔ Identify individuals available to perform telephone intake duties
✔ Identify potential reporting sources (persons/ facilities) to receive case definition
☑ Establish a plan for rapid dissemination of case definition to potential reporting sources

B. Case Interviews
☑ Obtain appropriate case investigation questionnaires
☑ Identify personnel available to conduct case interviews
☑ Establish a protocol for training case interviewers
☑ Obtain template outbreak disease-specific investigation questionnaires

C. Data Analysis
☑ Obtain template database for data entry
☑ Assure Epi Info software is installed on data entry computers
☑ Identify personnel available for data entry
☑ Identify personnel with skills to perform descriptive and analytic epidemiologic analysis
☑ Develop/ obtain data analysis plan
☑ Develop/ obtain outbreak investigation monitoring tool

Contact Tracing
☑ Establish a system for locating contacts and familiarize personnel with contact tracing protocol(s)
☑ Obtain Contact Tracing Forms
☑ Obtain contact management algorithms for diseases that are communicable from person-to-person
☑ Obtain treatment/ prophylaxis guidelines
☑ Develop local drug and vaccine distribution plan
☑ Establish a system for daily monitoring of all contacts under surveillance

Public Health Recommendations
☑ Obtain treatment and prophylaxis recommendations for bioterrorist threat agents
☑ Develop or obtain bioterrorist disease-specific fact sheets
☑ Establish contact with key health care providers/ facilities and establish protocol for rapid dissemination of recommendations regarding treatment, prophylaxis, personal protective equipment, infection control, and isolation/ quarantine
Consultation / Confirmation
☑ Disease scenario meets the bioterrorist event definition

Laboratory Confirmation
☑ Lab specimens are en route to the local public health laboratory/ Laboratory Response Network

Notification
☑ Department of Health and Human Services
☑ State Medical Officer
☑ (225)342-3417 (regular business hours)
☑ (800)990-5366 pin 6710 (pager for evenings, weekends, holidays)
☑ State Epidemiologist (504)458-5428 Mobile
☑ Public Health Lab (504)568-5371
☑ Public Health Lab Pager (800)538-5388
☑ OPH Regional Offices (Internal Notification Network)
☑ Louisiana EOC (225)-925-7500
☑ Louisiana State Police (800)469-4828 (Crisis Management Center)

Coordination
☑ Epidemiology personnel identified for investigation
☑ Additional epidemiology personnel support requested (From other regions) Investigation activities coordinated with FBI

Communication
☑ Epidemiology investigation spokesperson identified
☑ Communication protocol established between epidemiologic investigation spokesperson and Public Information Officer (PIO)

Epidemiologic Investigation
☑ Hypothesis-generating interviews conducted
☑ Preliminary epidemiologic curve generated
☑ Case definition established

A. Case finding
☑ Telephone hotline established
☑ Telephone intake form distributed
☑ Case definition disseminated to potential reporting sources
  • Hospitals
  • Physicians
• Laboratories
• EMS
• Coroner
• Media

B. Case interviews
☑ Interviewers trained
☑ Uniform multi-jurisdictional outbreak investigation form(s) obtained

C. Data Analysis
☑ Uniform multi-jurisdictional database template for data entry obtained
☑ Epidemiologic curve generated
☑ Cases line-listed
☑ Case descriptive epidemiology completed
  • Age
  • Gender
  • Illness onset
  • Clinical profile
  • % Laboratory confirmed
  • Hospitalization rate
  • Case fatality rate
  • Case geographic distribution mapped (GIS mapping if available)
☑ Analytic epidemiology completed
  • Disease risk factors identified
  • Mode of transmission identified
  • Source of transmission identified
  • Population at continued risk identified

Contact Tracing
☑ Contact tracing forms distributed
☑ Health education materials available
☑ Contact management triage algorithm reviewed with staff
☑ Treatment/ prophylaxis guidelines available
☑ Treatment/ prophylaxis distribution plan in place
☑ System in place for locating contacts
☑ Tracking system in place to monitor contacts’ trends/ gaps

Laboratory
☑ Establish point of contact (POC) at appropriate Level A and/ or Level B public health laboratory to refer queries regarding specimen packaging, storage and shipping guidelines in a potential bioterrorist event [See Laboratory Section’s Bioterrorism Plan]
Public Health Recommendations

☑️ See Medical Response Section Bioterrorism Plan
Botulism Investigation Algorithm

One or more cases of suspected Botulism in persons > 1 year of age

History of wound or injection drug use

Exposure to home canned or suspicious commercial or restaurant food

Possible foodborne botulism or adult form of infant botulism

Other suspected cases

Risk factors for adult form of infant botulism (e.g. intestinal surgery, inflammatory bowel disease, antibiotics)

No confirmed foodborne exposure AND other suspected cases

No risk factors for adult form of infant botulism identified

Probable adult form of infant botulism

Probable foodborne botulism

Other suspected cases

No other suspected cases identified

Possible wound botulism (Ask about health of others sharing drug supply)

Yes

Probable foodborne botulism

Other suspected cases

No other suspected cases identified

Continue investigation and keep possibility of intentional food contamination in mind

No

Yes

No

Yes

No

Yes

No

Yes

Meets event definition for possible bioterrorism. Continue epidemiologic investigation and notification procedures
BOTULISM INTOXICATION

CASE INVESTIGATION FORM

ID NUMBER: ____________  JOB TITLE: ____________________________
INTERVIEWER: _______________  DATE OF INTERVIEW: ____/____/____
PERSON INTERVIEWED:  Patient  Other
IF OTHER, NAME OF PERSON _______________________________________
TELEPHONE ______- ______- _________  DESCRIBE RELATIONSHIP __________

DEMOGRAPHIC INFORMATION

LAST NAME: ___________________________  FIRST NAME: _________________________
DRIVER LICENSE OR SOCIAL SECURITY NUMBER (Circle one): _______________________
SEX:  Male  Female  DATE OF BIRTH: ____/____/____  AGE____
RACE:  White  Black  Asian  OTHER, specify __________  Unknown
ETHNICITY:  Hispanic  Non-Hispanic  Unknown
HOME PHONE: (       ) ______-_________  WORK/OTHER PHONE: (        ) _____ - ________
HOME ADDRESS STREET: _____________________________________
CITY:________________________________  STATE:_______________  ZIP:______________
EMPLOYED:  Yes  No  Unknown
BRIEF DESCRIPTION OF
JOB: _____________________________________________
SCHOOL/PLACE OF
EMPLOYMENT: _______________________________________
DEPARTMENT ______________________  FLOOR:_________  ROOM:____________
WORK/SCHOOL ADDRESS: STREET: ______________________  CITY: _____________
STATE:______________  ZIP:______________

ARE YOU A:
LAB WORKER/TECHNICIAN:  Yes  No  Unknown
TAXIDERMIST:  Yes  No  Unknown
VETERINARIAN:  Yes  No  Unknown
FARMER:  Yes  No  Unknown
ABATTOIR:  Yes  No  Unknown
BUTCHER:  Yes  No  Unknown
OTHER FOOD PREPARATION:  Yes  No  Unknown

State of Louisiana Office of Public Health- Infectious Disease Epidemiology Section

Bioterrorism Manual
HOBBY:

Do you work with fibers/wool/animal skin/or other animal product?  Yes  No  Unknown
Have you been camping in past two months?  Yes  No  Unknown
Have you stayed in cabins in the past two months?  Yes  No  Unknown
Have you been hunting?  Yes  No  Unknown
Have you skinned or dressed and animal?  Yes  No  Unknown
Have you had an animal stuffed or mounted?  Yes  No  Unknown

HOW MANY PEOPLE RESIDE IN THE SAME HOUSEHOLD? __________

LIST NAME(S), AGE(S), AND RELATIONSHIPS (use additional pages if necessary):

<table>
<thead>
<tr>
<th>PERSON 1</th>
<th>PERSON 2</th>
<th>PERSON 3</th>
<th>PERSON 4</th>
<th>PERSON 5</th>
<th>PERSON 6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td></td>
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<tr>
<td>Age</td>
<td></td>
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<tr>
<td>Relationship</td>
<td></td>
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</tr>
</tbody>
</table>

HOUSEHOLD PETS:

Does your household have any pets (indoor or outdoor)?  Yes  No  Unknown

If so what type of pet: _______________________________________________________

Have any of the pets been ill or died recently?  Yes  No  Unknown

If so describe: ______________________________________________________________

CLINICAL INFORMATION (as documented in admission history of medical record or from case/proxy interview)

CHIEF COMPLAINT: __________________________________________________________

DATE OF ILLNESS ONSET: ____/____/____

Briefly summarize History of Present Illness:

__________________________________________________________________________
__________________________________________________________________________
__________________________________________________________________________
__________________________________________________________________________
__________________________________________________________________________

__________________________________________________________________________
__________________________________________________________________________

__________________________________________________________________________
SIGNS AND SYMPTOMS

Fever . Yes . No . Unknown

If yes, Maximum temperature ______ °F
Antipyretics taken . Yes . No . Unknown

Headache . Yes . No . Unknown
Stiff neck . Yes . No . Unknown
Photophobia . Yes . No . Unknown
Fatigue . Yes . No . Unknown
Altered mental status . Yes . No . Unknown
Unconscious/unresponsive . Yes . No . Unknown
Seizures . Yes . No . Unknown
Sensory changes . Yes . No . Unknown
Muscle weakness . Yes . No . Unknown

If yes, specify: Upper Extremities Lower Extremities Both
Unilateral Bilateral
Pattern of progression: Ascending Descending Unknown

Blurred or double vision . Yes . No . Unknown
Difficulty swallowing . Yes . No . Unknown
Difficulty speaking . Yes . No . Unknown
Dry mouth . Yes . No . Unknown
Excess salivation . Yes . No . Unknown
Sore throat . Yes . No . Unknown
Muscle pains . Yes . No . Unknown
Nausea . Yes . No . Unknown
Diarrhea . Yes . No . Unknown
Vomiting . Yes . No . Unknown
Shortness of breath . Yes . No . Unknown
Cough . Yes . No . Unknown
Rash . Yes . No . Unknown

If yes, describe:____________________________________________________________________

Other abnormality:__________________________________________________________________

PAST MEDICAL HISTORY:

Do you have a regular physician? . Yes . No . Unknown
If yes, Name:_____________________________ Phone Number: (_____) ______-__________

Are you allergic to any medications? . Yes . No . Unknown
If yes, list:_______________________________________________________________________
Are you currently taking any medication:  , Yes  , No  , Unknown  
If yes, list:____________________________________

Have you had any wound or lesion in the past several months?  
, Yes  , No  , Unknown  
If yes, where:________________________________ Appearance: _______________________

<table>
<thead>
<tr>
<th>Condition</th>
<th>Yes</th>
<th>No</th>
<th>Unknown</th>
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</thead>
<tbody>
<tr>
<td>Hypertension</td>
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<tr>
<td>Pulmonary Disease</td>
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<tr>
<td>Diabetes</td>
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<tr>
<td>Cardiac disease</td>
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<tr>
<td>Seizures</td>
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<td></td>
</tr>
</tbody>
</table>

Other neurologic condition  , Yes  , No  , Unknown  
If yes, describe:____________________________________

Malignancy  , Yes  , No  , Unknown  
If yes, specify type: __________________________________

Currently on treatment:  , Yes  , No  , Unknown  

HIV infection  , Yes  , No  , Unknown  

Currently pregnant  , Yes  , No  , Unknown  

Other immunocompromising condition (e.g., renal failure, cirrhosis, chronic steroid use)  
, Yes  , No  , Unknown  
If yes, specify disease or drug therapy: __________________________________________

Other underlying condition(s):
____________________________________________________________________________
____________________________________________________________________________
____________________________________________________________________________
____________________________________________________________________________

Prescription medications:
____________________________________________________________________________
____________________________________________________________________________
____________________________________________________________________________
____________________________________________________________________________
**SOCIAL HISTORY:**

<table>
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<tr>
<th>Current alcohol abuse:</th>
<th>Yes</th>
<th>No</th>
<th>Unknown</th>
</tr>
</thead>
<tbody>
<tr>
<td>Past alcohol abuse:</td>
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<td>No</td>
<td>Unknown</td>
</tr>
<tr>
<td>Current injection drug use:</td>
<td>Yes</td>
<td>No</td>
<td>Unknown</td>
</tr>
<tr>
<td>Past injection drug use:</td>
<td>Yes</td>
<td>No</td>
<td>Unknown</td>
</tr>
<tr>
<td>Current smoker:</td>
<td>Yes</td>
<td>No</td>
<td>Unknown</td>
</tr>
<tr>
<td>Former smoker:</td>
<td>Yes</td>
<td>No</td>
<td>Unknown</td>
</tr>
<tr>
<td>Other illicit drug use:</td>
<td>Yes</td>
<td>No</td>
<td>Unknown</td>
</tr>
</tbody>
</table>

If yes, specify: ________________________________________________________________

**HOSPITAL INFORMATION:**

**HOSPITALIZED:** Yes No

**NAME OF HOSPITAL:**

_______________________________________________

**DATE OF ADMISSION:** ____/____/____ **DATE OF DISCHARGE** ____/____/____

**ATTENDING PHYSICIAN:**

LAST NAME:_______________________ FIRST NAME:____________________

Office Telephone: (      )____-______ Pager: (      )____-______ Fax: (      )____-______

**MEDICAL RECORD ABSTRACTION:**

**MEDICAL RECORD NUMBER:** ____________________________

**HOSPITAL NAME:** ____________________________

**WARD/ROOM NUMBER:** ____________________________

**ADMISSION DIAGNOSIS(ES):**

1) ____________________________________________

2) ____________________________________________

3) ____________________________________________
PHYSICAL EXAM:

Admission Vital Signs:

Temp: _____ (Oral / Rectal F / C ) Heart Rate: _____ Resp. Rate: _____ B/P: _____ / _____

Neurologic examination:

Meningismus (neck stiffness): Present Absent Not Noted

Mental Status: Normal Abnormal Not Noted

If abnormal, level of consciousness:

  Lethargic
  Unconscious
  Other __________________________

Agitation: Present Absent Not Noted

Cranial nerve function: Normal Abnormal Not Noted

If abnormal, specify:__________________________________________________________

Motor Exam: Normal Abnormal Not Noted

  Left Arm: Absent Decreased Normal increased
  Right Arm: Absent Decreased Normal increased
  Left Leg: Absent Decreased Normal increased
  Right Leg: Absent Decreased Normal increased

Sensory exam: Normal Abnormal Not Noted

Respiratory status: Normal Abnormal Not Noted

If abnormal, describe:__________________________________________________________

Skin: Normal Abnormal Not Noted

If rash present, describe type and location:_______________________________________

DIAGNOSTIC STUDIES:

<table>
<thead>
<tr>
<th>Test</th>
<th>Results of tests done on Admission (<em><strong>/</strong></em>/___)</th>
<th>Abnormal test result at any time (specify date mm/dd/yyyy)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hemoglobin (Hb)</td>
<td></td>
<td>(<em><strong>/</strong></em>/___)</td>
</tr>
<tr>
<td>Hematocrit (HCT)</td>
<td></td>
<td>(<em><strong>/</strong></em>/___)</td>
</tr>
<tr>
<td>Platelet (plt)</td>
<td></td>
<td>(<em><strong>/</strong></em>/___)</td>
</tr>
<tr>
<td>Test</td>
<td>Results of tests done on Admission (<em><strong>/</strong></em>/___)</td>
<td>Abnormal test result at any time (specify date mm/dd/yyyy)</td>
</tr>
<tr>
<td>----------------------------------</td>
<td>--------------------------------------------------</td>
<td>----------------------------------------------------------</td>
</tr>
<tr>
<td>Total white blood cell (WBC)</td>
<td></td>
<td>(<em><strong>/</strong></em>/___)</td>
</tr>
<tr>
<td>WBC differential:</td>
<td></td>
<td>(<em><strong>/</strong></em>/___)</td>
</tr>
<tr>
<td>% granulocytes (PMNs)</td>
<td></td>
<td>(<em><strong>/</strong></em>/___)</td>
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<tr>
<td>% bands</td>
<td></td>
<td>(<em><strong>/</strong></em>/___)</td>
</tr>
<tr>
<td>% lymphocytes</td>
<td></td>
<td>(<em><strong>/</strong></em>/___)</td>
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<tr>
<td>Blood cultures:</td>
<td>positive (specify____________________)</td>
<td>positive (specify____________________)</td>
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<tr>
<td></td>
<td>negative</td>
<td>negative</td>
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<td></td>
<td>(<em><strong>/</strong></em>/___)</td>
<td>(<em><strong>/</strong></em>/___)</td>
</tr>
<tr>
<td>Botulinum toxin testing—serum:</td>
<td>positive (specify____________________)</td>
<td>positive (specify____________________)</td>
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<tr>
<td></td>
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<tr>
<td>Botulinum toxin testing—stool:</td>
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<td>positive (specify____________________)</td>
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<tr>
<td>Test</td>
<td>Results of tests done on Admission (<em><strong>/</strong></em>/___)</td>
<td>Abnormal test result at any time (specify date mm/dd/yy)</td>
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<tr>
<td>Lumbar puncture—cerebrospinal fluid (CSF) analysis: Gram stain (check all that apply)</td>
<td>no organisms gram positive cocci gram positive rods gram negative coccobacilli gram negative rods acid-fast bacilli fungal forms other __________</td>
<td>no organisms gram positive cocci gram positive rods gram negative coccobacilli gram negative rods acid-fast bacilli fungal forms other __________ (<em><strong>/</strong></em>/___)</td>
</tr>
<tr>
<td>Lumbar puncture—CSF analysis: Bacterial culture</td>
<td>positive (specify __________) negative pending not done</td>
<td>positive (specify ___<em><strong><strong><strong>) negative pending not done (</strong><em>/</em></strong>/</strong></em>)</td>
</tr>
<tr>
<td>Lumbar puncture—CSF analysis: Viral culture</td>
<td>positive (specify __________) negative pending not done</td>
<td>positive (specify ___<em><strong><strong><strong>) negative pending not done (</strong><em>/</em></strong>/</strong></em>)</td>
</tr>
<tr>
<td>Lumbar puncture—CSF analysis: Other culture</td>
<td>positive (specify __________) negative pending not done</td>
<td>positive (specify ___<em><strong><strong><strong>) negative pending not done (</strong><em>/</em></strong>/</strong></em>)</td>
</tr>
<tr>
<td>Lumbar puncture—CSF analysis: Other test (e.g., herpes PCR)</td>
<td></td>
<td>(<em><strong>/</strong></em>/___)</td>
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<tr>
<td>Chest radiograph</td>
<td>normal unilateral, lobar/consolidation bilateral, lobar/consolidation interstitial infiltrates widened mediastinum pleural effusion other __________</td>
<td>normal unilateral, lobar/consolidation bilateral, lobar/consolidation interstitial infiltrates widened mediastinum pleural effusion other __________ (<em><strong>/</strong></em>/___)</td>
</tr>
<tr>
<td>CT Scan of brain</td>
<td>normal abnormal (describe: __________)? not done</td>
<td>normal abnormal (describe: ___<em><strong><strong><strong>)? not done (</strong><em>/</em></strong>/</strong></em>)</td>
</tr>
<tr>
<td>MRI Scan of brain</td>
<td>normal abnormal (describe: __________)? not done</td>
<td>normal abnormal (describe: ___<em><strong><strong><strong>)? not done (</strong><em>/</em></strong>/</strong></em>)</td>
</tr>
<tr>
<td>Test</td>
<td>Results of tests done on Admission (<em><strong>/</strong></em>/___)</td>
<td>Abnormal test result at any time (specify date mm/dd/yy)</td>
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<tr>
<td>----------------------------</td>
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<tr>
<td>Tensilon test</td>
<td>normal abnormal (describe:____________________)</td>
<td>normal abnormal (describe:____________________)</td>
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<td></td>
<td>not done</td>
<td>not done (<em><strong>/</strong></em>/___)</td>
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<tr>
<td>Electromyelogram (EMG)</td>
<td>normal abnormal (describe:____________________)</td>
<td>normal abnormal (describe:____________________)</td>
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<td></td>
<td>not done</td>
<td>not done (<em><strong>/</strong></em>/___)</td>
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<tr>
<td>Other pertinent study results (e.g., toxin assays)</td>
<td>(<em><strong>/</strong></em>/___)</td>
<td>(<em><strong>/</strong></em>/___)</td>
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<tr>
<td>Other pertinent study results (e.g., toxin assays)</td>
<td>(<em><strong>/</strong></em>/___)</td>
<td>(<em><strong>/</strong></em>/___)</td>
</tr>
</tbody>
</table>

NEUROLOGY CONSULTED:  Yes   No   Unknown
Date of Exam:__/__/__
Name of neurologist: Last Name ___________________ First Name ___________________
Telephone or beeper number ( ) _____ - _______

INFECTIOUS DISEASE CONSULT:  Yes   No   Unknown
Date of Exam:___/___/___
Name of ID physician: Last Name ___________________ First Name ___________________
Telephone or beeper number ( ) _____ - _______
HOSPITAL COURSE:

A. antibiotics: Yes No Unknown
If yes, check all that apply:
- Ampicillin
- Cefepime (Maxipime)
- Cefotaxime (Claforan)
- Ceftazidime (Fortaz, Tazicef, Tazidime)
- Ceftriaxime (Cefizox)
- Ceftriaxone (Rocephin)
- Chloramphenicol
- Gentamicin (Garamycin)
- Penicillin G
- Trimethaprim-sulfamethoxazole (Bactrim, Cotrim, TMP/SMX)
- Vancomycin (Vancocin)
- other_____________________________

B. antivirals: Yes No Unknown
If yes, check all that apply:
- Acyclovir (Zovirax)
- other____________________________________________________________

C. botulinum anti-toxin: Yes No Unknown

D. Did patient require intensive care: Yes No Unknown
If patient was admitted to Intensive Care Unit:
  a. Length of stay in ICU, in days:__________
  b. Was patient on mechanical ventilation: Yes No Unknown

WORKING OR DISCHARGE DIAGNOSIS(ES):

1) _________________________________________________________________________
2) _________________________________________________________________________
3) _________________________________________________________________________

OUTCOME:
- Recovered/discharged
- Died
- Still in hospital: improving ? worsening ?

ADDITIONAL COMMENTS:
_____________________________________________________________________
_____________________________________________________________________
_____________________________________________________________________
_____________________________________________________________________
The following questions pertain to the 2 week period prior to the onset of your illness/symptoms:

**Occupation (provide information for all jobs/ volunteer duties)**
1. Please briefly describe your job/ volunteer duties: ____________________________________________

2. Does your job involve contact with the public? :  Yes   No
   If “Yes”, specify ____________________________________________

3. Does anyone else at your workplace have similar symptoms?
   Yes   No   Unknown
   If ”Yes”, name and approximate date on onset (if known)____________

**Knowledge of Other Ill Persons**
4. Do you know of other people with similar symptoms? :  Yes   No   Unknown
   (If Yes, please complete the following questions)

<table>
<thead>
<tr>
<th>Name of ill Person</th>
<th>AGE</th>
<th>Sex</th>
<th>Address</th>
<th>Phone</th>
<th>Date of Onset</th>
<th>Relation To you</th>
<th>Did they seek Medical care? Where</th>
<th>Diagnosis</th>
</tr>
</thead>
<tbody>
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</table>

**Travel**
*Travel is defined as staying overnight (or longer) at somewhere other than the usual residence*

8. Have you traveled anywhere in the last two weeks? :  Yes   No   Unknown
   Dates of Travel: _____/____/____ to _____/____/____
   Method of Transportation for Travel: ____________________________
   Where Did You Stay? ____________________________________________
   Purpose of Travel?
   Did You Do Any Sightseeing on your trip? :  Yes   No
   If yes, specify: ____________________________________________
   Did Anyone Travel With You? :   Yes   No
   If yes, specify: ____________________________________________
   Are they ill with similar symptoms? :   Yes   No   Unknown
   If yes, specify: ____________________________________________

**Public Functions/Venues (during 2 weeks prior to symptom onset)**
<table>
<thead>
<tr>
<th>Category</th>
<th>Y/N/U</th>
<th>Description of Activity</th>
<th>Location of Activity</th>
<th>Date of Activity</th>
<th>Time of Activity (start, end)</th>
<th>Others ill? (Y/N/U)</th>
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<tbody>
<tr>
<td>9. Airports</td>
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<td>10. Beaches</td>
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<td>11. Bars/Clubs</td>
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<td>12. Campgrounds</td>
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<td>13. Carnivals/Circus</td>
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<td>14. Casinos</td>
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<td>15. Family Planning Clinics</td>
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<td>16. Government Office Building</td>
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<td>17. Gym/Workout Facilities</td>
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<td>18. Meetings or Conferences</td>
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<td>19. Movie Theater</td>
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<td>20. Museums</td>
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<td>21. Parks</td>
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<td>22. Parties (including Raves, Prom, etc)</td>
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<tr>
<td>23. Performing Arts (ie Concert, Theater, Opera)</td>
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<td>24. Picnics</td>
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<tr>
<td>25. Political Events</td>
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<td>26. Religious Gatherings</td>
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<td>27. Shopping Malls</td>
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<td>28. Sporting Event</td>
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<tr>
<td>29. Street Festivals, Flea Markets, Parades</td>
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</tbody>
</table>
30. Tourist Attractions (ie French Quarter, Aquarium)

Transportation
Have you used the following types of transportation in the 2 weeks prior to onset?

31. Bus/Streetcar: Yes No Unknown
Frequency of this type of transportation: Daily Weekly Occasionally Rarely
Bus Number: ________________ Origin:___________________________
Any connections? Yes No (Specify: Location__________ Bus#___________)
Company Providing Transportation: ________________________________ Destination:____________

32. Train: Yes No Unknown
Frequency of this type of transportation: Daily Weekly Occasionally Rarely
Route Number: ________________ Origin:__________________________
Any connections? Yes No (Specify: Location____________________ Route #__________)
Company Providing Transportation: ______________________________ Destination:____________

33. Airplane: Yes No Unknown
Frequency of this type of transportation: Daily Weekly Occasionally Rarely
Flight Number: ________________ Origin:________________________
Any connections? Yes No (Specify: Location__________ Flight #__________)
Company Providing Transportation: ______________________________ Destination:____________

34. Ship/Boat/Ferry: Yes No Unknown
Frequency of this type of transportation: Daily Weekly Occasionally Rarely
Ferry Number: ________________ Origin:________________________
Any connections? Yes No (Specify: Location__________ Ferry #__________)
Company Providing Transportation: ______________________________ Destination:____________

35. Van Pool/Shuttle: Yes No Unknown
Frequency of this type of transportation: Daily Weekly Occasionally Rarely
Route Number: ________________ Origin:________________________
Any connections? Yes No (Specify: Location__________ Route #__________)
Company Providing Transportation: ______________________________ Destination:____________
Food & Beverage
36. During the 2 weeks before your illness, did you eat at any of the following food establishments or private gatherings with food or beverages?

<table>
<thead>
<tr>
<th>Food Establishment</th>
<th>Y/N/U</th>
<th>Name of Establishment</th>
<th>Location of Meal</th>
<th>Date of Meal</th>
<th>Time of Meal (start, end)</th>
<th>Food and Drink items consumed</th>
<th>Others ill? (Y/N/U)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cafeteria at School, hospital, or other</td>
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<td>Casino or mall food court</td>
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<td>Grocery Store or Corner Store</td>
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<td>Concert, movie, or other entertainment</td>
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<td>Dinner party, birthday party or other celebration</td>
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<td>Gas station or convenience store</td>
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<td>Plane, boat, train, or other</td>
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<tr>
<td>Picnic, Barbecue, Crawfish boil, or potluck</td>
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<td>Outdoor farmers market, festival, or swap meet</td>
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<td>Restaurant, fast-food, or deli</td>
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<td>Sporting event or snack bar</td>
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<td>Street vended food</td>
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<tr>
<td>Other food establishment</td>
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<tr>
<td>Other Private Gathering</td>
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</table>

37. During the 2 weeks before your illness, did you consume any free food samples from:
   - Grocery store? Yes , No Unknown
   - Race/competition? Yes , No Unknown
   - Public gathering? Yes , No Unknown
Private gathering?  Yes  No  Unknown

If “YES” for any in question #37, provide date, time, location and list of food items consumed:
Date/Time: ___________________
Location (Name and Address): ______________________________________________________
Food/drink consumed: ________________________________________________________________
Others also ill?  Yes  No  Unknown
(Explain): ____________________________________________________________

38. During the 2 weeks before your illness, did you consume any of the following products?
Vitamins  Yes  No  Unknown
Specify (Include Brand Name): ______________________________________________________
Herbal remedies  Yes  No  Unknown
Specify (Include Brand Name): ______________________________________________________
Diet Aids  Yes  No  Unknown
Specify (Include Brand Name): ______________________________________________________
Nutritional Supplements  Yes  No  Unknown
Specify (Include Brand Name): ______________________________________________________
Other ingested non-food  Yes  No  Unknown
Specify (Include Brand Name): ______________________________________________________

39. During the 2 weeks before your illness, did you consume any unpasteurized products (ie milk, cheese, fruit juices)?  Yes  No  Unknown
If yes, specify name of item: _______________________________________________________
Date/Time: ___________________
Location (Name and Address): _____________________________________________________
Others also ill?  Yes  No  Unknown
(Explain): ____________________________________________________________

40. During the 2 weeks before your illness, did you purchase food from any internet grocers?  Yes  No  Unknown
If yes, specify date / time of delivery: ____________________ Store/Site: _______________________
Items purchased: _________________________________________________________________
______________________________________________________________________________
______________________________________________________________________________
______________________________________________________________________________

41. During the 2 weeks before your illness, did you purchase any mail order food?  Yes  No  Unknown
If yes, specify date/time of delivery: ________________ Store purchased from: ________________
Items purchased: _________________________________________________________________
______________________________________________________________________________
______________________________________________________________________________

42. Please check the routine sources for drinking water (check all that apply):
Community or Municipal
Well (shared)
Well (private family)
Bottled water (Specify Brand: ________________)
Other (Specify: ________________)

Aerosolized water
43. During the 2 weeks prior to illness, did you consume water from any of the following sources (check all that apply):
   Wells
   Lakes
   Streams
   Springs
   Ponds
   Creeks
   Rivers
   Sewage-contaminated water
   Street-vended beverages (Made with water or ice and sold by street vendors)
   Ice prepared w/unfiltered water (Made with water that is not from a municipal water supply or that is not bottled or boiled)
   Unpasteurized milk
   Other
   (Specify: ____________________________)

If “YES” for any in question #43, provide date, time, location and type of water consumed:
Date/Time: ______________________
Location (Name and Address): ______________________
Type of water consumed: ______________________
Others also ill?: Yes  No  Unknown
(Explain): ______________________

44. During the 2 weeks prior to illness, did you engage in any of the following recreational activities (check all that apply):
   Swimming in public pools (e.g., community, municipal, hotel, motel, club, etc)
   Swimming in kiddie/wading pools
   Swimming in sewage-contaminated water
   Swimming in fresh water, lakes, ponds, creeks, rivers, springs, sea, ocean, bay (please circle)
   Wave pools? Waterslides? Surfing?
   Rafting? Boating? Hot tubs (non-private)? Whirlpools (non-private)?
   Jacuzzis (non-private)? Other (Specify: ______________________)

If “YES” for any in question #44, provide date, time, location and type of activity:
Date/Time: ______________________
Location (Name and Address): ______________________
Type of water consumed: ______________________
Others also ill?: Yes  No  Unknown
(Explain): ______________________

45. During the 2 weeks prior to illness, were you exposed to aerosolized water from any of the following non-private (i.e., used in hospitals, malls, etc) sources (check all that apply):
   Air conditioning at public places
   Vaporizers
   Misters
   Respiratory devices
   Humidifiers
   Whirlpool spas
Hot tub
Creek and ponds
Other (Explain) ___________________________________________________________________

Spa baths
Decorative fountains

If “YES” for any in question #45, provide date, time, and location of exposure to aerosolized water:
Date/Time: ____________________________
Location (Name and Address): ________________________________________________________
Explanation of aerosolized water: _____________________________________________________
Others also ill: Yes . No Unknown
(Explain): ________________________________________________________________________

Recreation (Activities that are not related to work)
46. In the past two weeks, did you participate in any outdoor activities?
   . Yes . No Unknown

   (If “yes”, list all activities and provide locations)
   _______________________________________________________________________________
   _______________________________________________________________________________
   _______________________________________________________________________________
   ____________________________________________________

47. Did you participate in other indoor recreational activities (i.e. clubs, crafts, etc that did not occur in a private home)?
   . Yes . No Unknown

   (List all activities and provide location)
   _______________________________________________________________________________
   _______________________________________________________________________________
   _______________________________________________________________________________
   ____________________________________________________

Vectors

48. Do you recall any insect or tick bites in the last 2 weeks?
   . Yes . No Unknown

   Date(s) of bite(s): ____________________________

   Bitten by: Mosquito . Tick . Flea . Fly . Other: __________________________
   Where were you when you were bitten? _____________________________________________

49. Have you had any contact with wild or domestic animals, including pets?
   . Yes . No Unknown

   Type of Animal: __________________

   Explain nature of contact: __________________

   Is / was the animal ill recently; Yes . No Unknown

   If yes please describe the animal’s symptoms:
   _______________________________________________________________________________
   _______________________________________________________________________________
   ____________________________________________________

   Date / Time of contact: ___________________________________________________________
Location of contact:_________________________________________________

50. To your knowledge, have you been exposed to rodents/rodent droppings in the last 2 weeks?
   . Yes . No Unknown  
   If yes, explain type of exposure:________________________________________  
   Date/Time of exposure:_______________________________________________  
   Location where exposure occurred: ________________________________