



Botulism, Adult

Signs and Symptoms	<ul style="list-style-type: none"> • Cranial nerve palsies (dysphagia, dysarthria, diplopia, ptosis) with symmetric descending flaccid paralysis of face, then respiratory muscles and limbs • Constipation or diarrhea if foodborne • Abscess can be subtle • Deep tendon reflexes often normal, EMG potentiated • Can follow serial vital capacity measures and maximum inspiratory and expiratory pressures for progression 		
Incubation	Varies with dose and source, up to several days		
<u>Case classification</u>	<p>Clinical criteria: Common symptoms - double or blurred vision and difficulty swallowing or speaking. Descending symmetric paralysis may progress rapidly.</p> <table border="1"> <tr> <td>Confirmed: Clinical & lab positive or clinical & risk exposure</td> <td>Probable: Clinical & epi link for food; Clinical & risk exposure for wound</td> </tr> </table>	Confirmed: Clinical & lab positive or clinical & risk exposure	Probable: Clinical & epi link for food; Clinical & risk exposure for wound
Confirmed: Clinical & lab positive or clinical & risk exposure	Probable: Clinical & epi link for food; Clinical & risk exposure for wound		
Differential diagnosis	Stroke (abnormal scan), myasthenia gravis (abnormal Tensilon test), atypical Guillain-Barré (elevated CSF protein), PSP, Eaton-Lambert, tick paralysis.		
<u>Treatment</u>	CDC’s heptavalent (A-G) antitoxin given if suspected case; antibiotics if abscess; rare post-treatment rebound – heptavalent antitoxin half-life short (<36 hours)		
Duration	Antitoxin stops progression, rehab for paralysis can take months; not communicable		
Exposure	Abscess (drug use or garden injury), ingested (improperly canned low acid or fermented food), inhaled (bioterrorism); boiling deactivates toxin but not spores		
Laboratory testing	<p>LHJ and OCDE arrange testing if patient is being treated – urgent</p> <ul style="list-style-type: none"> • Takes 3-5 days to complete so treatment decision is made before results • Contact hospital laboratory to clarify collection and shipment • Obtain any suspect leftover food the case actually ate (open container) • Best specimens: stool (and food for foodborne); serum for wound <p><u>Stool:</u> 15+ g (volume of walnut; use plain saline enema if needed), <u>Serum:</u> 10 cc serum [20 cc blood] before treatment plus 10 cc after <u>Food:</u> well-sealed container with food actually eaten</p> <p>Hospital can do anaerobic wound culture</p> <p><i>Specimen shipping (Section 4):</i></p> <ul style="list-style-type: none"> • Hospital to keep all specimens cold, ship cold with Microbiology form http://www.doh.wa.gov/Portals/1/Documents/5230/302-013-Micro.pdf • Specimen Collection and Submission Instructions http://www.doh.wa.gov/Portals/1/Documents/5240/SCSI-Cbot-tox-V1.pdf 		
Public health actions	<p>LHJ immediately contacts OCDE 877-539-4344 for diagnosis and treatment</p> <ul style="list-style-type: none"> • Assess with provider consistent illness (above), incubation period, and risk factors (consider age, location, drug use or home canning) • Identify any suspected commercial food source if suspected foodborne • Control any suspected food to prevent additional exposures • Provide OCDE with case history (objective findings of facial paralysis or respiratory weakness), applicable exposures, and contact number for healthcare provider (neurologist) • OCDE calls CDC, CDC and provider decide about antitoxin treatment 		
EMERGENCY	<i>Infection Control:</i> none		



Botulism, Infant

Signs and symptoms	<ul style="list-style-type: none"> • Cranial nerve palsies (dysphagia, dysarthria, diplopia, ptosis) • Symmetric descending flaccid paralysis of face, then respiratory muscles, limbs • Often failure to thrive, constipation or diarrhea • Deep tendon reflexes often normal, EMG potentiated
Incubation	Unknown since exposure undefined
Case classification	<p>Clinical criteria: Infant (<1 year) commonly with constipation, poor feeding, and “failure to thrive”; may be progressive weakness, impaired respiration, and death.</p> <p>Confirmed: clinically compatible case, laboratory-confirmed, in a child aged < 1 year</p>
Differential diagnosis	Differential: neuromuscular and metabolic congenital conditions
Treatment	California’s hyperimmune globulin (BabyBIG [®]) given if suspected case; BabyBIG [®] persists 6 months but rare readmission if breathing and feeding still recovering
Duration	BabyBIG stops progression, rehab for paralysis can take months; infant may have extended excretion of <i>C. botulinum</i> spores
Exposure	Dust; need to rule out ingestion (improperly canned low acid or fermented food)
Laboratory testing	<p>LHJ and OCDE arrange testing if patient is being treated – urgent</p> <ul style="list-style-type: none"> • Takes 3-5 days to complete so treatment decision is made before results • Contact hospital laboratory to clarify collection and shipment • Best specimens: Stool: 15+ g (volume of walnut; can use plain saline enema) <p><i>Specimen shipping (Section 4):</i></p> <ul style="list-style-type: none"> • Hospital to keep all specimens cold, ship cold with Microbiology form http://www.doh.wa.gov/Portals/1/Documents/5230/302-013-Micro.pdf • Specimen Collection and Submission Instructions http://www.doh.wa.gov/Portals/1/Documents/5240/SCSI-Cbot-tox-V1.pdf
Public health actions	<p>LHJ immediately refers provider to California Department of Health Services at 510-231-7600, www.infantbotulism.org for consultation and BabyBIG[®]</p> <ul style="list-style-type: none"> • Provider arranges transport and payment for BabyBIG[®] • LHJ immediately contacts OCDE 877-539-4344 for diagnosis • LHJ and OCDE arrange testing if patient is being treated – urgent • Takes 3-5 days to complete so treatment decision is made before results • Contact hospital laboratory to clarify collection and shipment • Note that immunizations should be delayed until recovery, live-virus vaccines delayed at least five months after BabyBIG[®], and rotavirus vaccine not given <p><i>Infection Control:</i></p> <ul style="list-style-type: none"> • <i>C. botulinum</i> toxin and organism excreted in feces for weeks to months. <ul style="list-style-type: none"> • Wash hands thorough after each diaper change • Wear gloves for changing diapers if cuts or wounds on hands • Dispose of diapers to avoid contact with any person or animal (e.g., wrap and place in garbage can with a tight lid • Consider limiting close contact with other infants for several months
EMERGENCY	

Botulism (Foodborne, Wound, Infant, Other)

1. DISEASE REPORTING

A. Purposes of Reporting and Surveillance

1. To assist in the diagnosis of potential cases and facilitate prompt administration of either botulism antitoxin or botulism immune globulin when indicated.
2. For foodborne botulism, to identify contaminated food(s) and prevent further exposures.
3. For foodborne botulism, to identify and assure the proper evaluation and care of other persons who may be at immediate risk because they already ate the implicated food.
4. For wound botulism, to alert others at risk regarding the importance of promptly identifying illness and obtaining medical care.

B. Legal Reporting Requirements (suspected or confirmed cases)

1. Health care providers: **immediately notifiable to local health jurisdiction.**
2. Health care facilities: **immediately notifiable to local health jurisdiction.**
3. Laboratories: *Clostridium botulinum* **immediately notifiable to local health jurisdiction.** Specimen submission is required – serum (food or wound botulism), stool (food or infant botulism), and any other specimens available (i.e., implicated foods, debrided tissue or wound swab) (2 business days).
4. Local health jurisdictions: **suspected and confirmed cases immediately notifiable** to the Washington State Department of Health (DOH) Office of Communicable Disease Epidemiology (OCDE) (877-539-4344 or 206-418-5500).

C. Local Health Jurisdiction Investigation Responsibilities

1. Call OCDE immediately to report suspect cases and discuss the need for antitoxin or for infant botulism immune globulin intravenous (human) (BIG-IV).
2. Determine the most likely source of the exposure and prevent others from being exposed.
3. Facilitate the transport of appropriate specimens to the Washington State Department of Health Public Health Laboratories (PHL).
4. Report all *probable* and *confirmed* cases to OCDE through the Public Health Issues and Management System (PHIMS) using the appropriate form:
 - a. **Foodborne:** (<http://www.doh.wa.gov/Portals/1/Documents/5100/210-016-ReportForm-BotFood.pdf>)
 - b. **Wound:** (<http://www.doh.wa.gov/Portals/1/Documents/5100/210-017-ReportForm-BotWound.pdf>)

- c. **Infant:** (<http://www.doh.wa.gov/Portals/1/Documents/5100/210-018-ReportForm-BotInfant.pdf>).
5. Report all other *confirmed* cases of botulism (adult colonization, inhalational, and unknown type) to OCDE through PHIMS as Botulism, Other.

2. THE DISEASE AND ITS EPIDEMIOLOGY

Background

All types of botulism are rare but potentially fatal and demand rapid medical intervention. Foodborne and inhalational botulism are public health emergencies.

- *Foodborne botulism* occurs from ingesting pre-formed toxin in food. Outbreaks of foodborne botulism are a public health emergency if others ate the contaminated food.
- *Wound botulism* occurs when *Clostridium botulinum* infecting a wound secretes toxin.
- *Infant botulism* occurs when an infant ingests spores of *C. botulinum* which produce toxin in the intestine.
- *Adult colonization botulism* occurs when ingested *C. botulinum* produce toxin in a person older than one year of age. Most cases had prior gastrointestinal surgery or illness, such as inflammatory bowel disease.
- *Inhalational botulism* occurs from inhaling botulism toxin. The only 3 known cases were associated with laboratory exposure. Toxin could be intentionally released in the air.

A. Etiologic Agent

Botulism is caused by immunologically distinct toxins (types A-G, and potentially H) produced by the gram-positive bacillus *Clostridium botulinum*, or rarely *C. butyricum* (E) or *C. baratii* (F). The toxins irreversibly block acetylcholine transmission across the neuromuscular junction, causing a characteristic syndrome. Recovery reflects muscle fiber reinnervation over weeks or months. The toxin is a potential agent of bioterrorism.

C. botulinum spores survive a wide range of adverse conditions including boiling. Higher temperatures (>120.5°C/250.5°F) achieved under pressure (e.g., in an autoclave or *properly functioning* home pressure cooker) deactivate spores. Spore germination and bacterial growth occur only under anaerobic and non-acidic to low-acid (generally pH>4) conditions. Toxins are heat-labile and can be inactivated by boiling for ten minutes.

B. Description of Illness

Botulism symptoms may include the "4 Ds" – dysphagia (difficulty swallowing), diplopia (double vision), dry mouth, and dysarthria (difficulty articulating) as well as blurred vision and ptosis (drooping eyelids). A descending, symmetrical flaccid paralysis starts with facial muscles. Compromise of muscles of breathing may cause respiratory failure. Mental alertness, peripheral sensation and tendon reflexes are unaffected. Constipation, vomiting, or diarrhea may occur early in illness. Severity of symptoms and rate of progression vary greatly depending on dose and other factors. Severe cases may require months on a ventilator. Residual fatigue and shortness of breath can persist for years.

Adult botulism is frequently misdiagnosed as polyradiculoneuropathy (Guillain-Barré or Miller-Fisher syndrome), myasthenia gravis, or other central nervous system disease.

In infants with intestinal botulism the first sign is often constipation, followed by lethargy, listlessness, a weak cry, ptosis, weight loss from difficulty feeding (weak or absent sucking response), and generalized weakness (“floppy baby” syndrome). The infant may present with “failure to thrive” and diagnosis may be difficult.

C. Botulism in Washington State

During the last 10 years, DOH received 0–2 reports of foodborne, 0–6 reports of infant and 0–7 reports of wound botulism a year. Nationally, infant botulism is most common. Botulism clusters are rare. Foodborne cases are mainly due to home-canned vegetables. Wound botulism is associated with injection drug use, particularly black tar heroin.

D. Reservoirs

C. botulinum spores are common in soil. Toxin types A, B, and E are most common; type E is highly associated with marine products (fish, seafood, or marine mammal meat). Type F is very rare in humans, and types C, D and G cause illness in other animals.

E. Modes of Transmission

1. Foodborne botulism

Foodborne botulism occurs with ingesting pre-formed toxin. Most implicated foods are low acid, improperly home-canned items not heated before eating. Prison-brewed alcohol caused outbreaks elsewhere. Commercial products are implicated rarely, usually after a breakdown in procedures. Exposures include:

- home-canned asparagus, beans, and other vegetables (including low-acid tomatoes and salsa), usually processed inadequately by the water-bath method;
- fish that has been improperly canned, dried, or stored;
- sausage or other prepared meats that are improperly preserved or stored;
- chopped garlic or eggplant bottled in oil;
- among Alaska Natives, traditionally preserved foods including fermented (putrefied) whale blubber, salmon heads, salmon eggs, and other marine products;
- rare commercial canned products (e.g., commercially canned chili in 2007).

2. Wound botulism

Wound botulism results from *C. botulinum* infection and toxin production in devitalized tissue in a wound resulting from a dirt-contaminated injury or from intramuscular (“muscling”) or subcutaneous (“skin popping”) injection of black-tar heroin.

3. Infant botulism (Intestinal botulism)

Intestinal botulism occurs with ingesting *C. botulinum* spores from food or soil that germinate and produce toxin. A past link with honey is not supported by recent data. Most infant cases occur at age under 3 months (almost always under 6 months) among both breast-feeding and formula-feeding babies, and no specific risk factors are known.

F. Incubation Period

1. **Foodborne botulism:** The incubation period varies from 12 hours to several days, but is usually 12–36 hours. A shorter incubation is associated with more severe disease.
2. **Wound botulism:** The incubation period can be up to two weeks or longer.
3. **Infant botulism:** The incubation period is unknown.

G. Period of Communicability

Botulism is not communicable from person to person.

H. Treatment

Treatment should **never be delayed pending laboratory confirmation**. Patients need close monitoring of ventilatory status and may require aggressive supportive therapy.

Additional therapies vary by type of botulism and are given below.

1. Botulism in Adults (food, wound, adult intestinal)

Adults are treated with botulinum antitoxin. If testing or antitoxin use is being considered, **IMMEDIATELY** consult with OCDE (877-539-4344 or 206-418-5500).

Antitoxin cannot reverse existing symptoms but halts progression by removing free toxin. Heptavalent (for toxins A-G) botulinum antitoxin (HBAT) is the only available product in the United States for treating non-infant botulism. HBAT is equine-derived but no skin test for sensitivity is needed prior to administration. Clinical experience with HBAT is limited but about 9% of recipients of earlier formulations experienced allergic reactions. HBAT is administered intravenously at controlled rates to minimize allergic reactions. The half-life of HBAT is shorter than for previous antitoxins so monitor patients after HBAT treatment for possible rebound of symptoms, particularly with potential ongoing toxin production such as for wound or intestinal colonization botulism.

Centers for Disease Control and Prevention (CDC) stock botulinum antitoxin at United States Public Health Service Quarantine Stations including at SeaTac Airport. If antitoxin treatment is being considered, DOH immediately consults with CDC which will arrange antitoxin transport to the hospital where the patient is being treated. CDC does not charge for the antitoxin and its shipment.

With wound botulism, debridement removes devascularized tissue that supports *C. botulinum* growth. There is a theoretical reason to delay debridement until after antitoxin administration to avoid further toxin release. Also consider antimicrobial therapy.

2. Infant Botulism

A human-derived botulism hyper-immune globulin (BIG-IV or BabyBIG) was approved by FDA in 2003 for treatment of infants. Though the cost for BIG-IV is substantial, its use may be cost-effective. A randomized, double-blind, placebo-controlled trial found BIG-IV gave a 3-week reduction in the mean length of hospital stay and hospital charges. Consultation or BIG-IV are available from the California Department of Health Services by **IMMEDIATELY** calling the 24-hour number at 510-231-7600 (<http://www.infantbotulism.org/>). Also contact OCDE (877-539-4344) to arrange testing.

3. CASE DEFINITIONS

A. Case Definition for Foodborne Botulism (2011)

1. Clinical Criteria for Diagnosis: Ingestion of botulinum toxin results in an illness of variable severity. Common symptoms are double or blurred vision, and difficulty swallowing or speaking. Descending symmetric paralysis may progress rapidly.
2. Laboratory Criteria for Diagnosis: Detection of botulinum toxin in serum, stool, or patient's food, or isolation of *Clostridium botulinum* from stool.
3. Case Definition
 - a. *Probable*: A clinically compatible case with an epidemiologic link (e.g., ingestion of a home-canned food within the previous 48 hours).
 - b. *Confirmed*: A clinically compatible case that is laboratory confirmed or that occurs among persons who ate the same food as persons with laboratory-confirmed botulism.

B. Case Definition for Wound Botulism (2011)

1. Clinical Criteria for Diagnosis: Toxin produced by *C. botulinum* that has infected a wound results in an illness of variable severity. Common symptoms are double or blurred vision, and difficulty swallowing or speaking. Descending symmetric paralysis may progress rapidly.
2. Laboratory Criteria for Diagnosis: Detection of botulinum toxin in serum or isolation of *C. botulinum* from wound.
3. Case Definition
 - a. *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, or a history of injection drug use within the 2 weeks before onset of symptoms.
 - b. *Probable*: a clinically compatible case in a patient who has no suspected exposure to contaminated food and who has either a history of a fresh, contaminated wound during the 2 weeks before onset of symptoms, or a history of injection drug use within the 2 weeks before onset of symptoms.

C. Case Definition for Infant Botulism (2011)

1. Clinical Criteria for Diagnosis: An illness of infants (<1 year) resulting from intestinal growth of *C. botulinum*, characterized by constipation, poor feeding, and "failure to thrive" that may be followed by progressive weakness, impaired respiration, and death.
2. Laboratory Criteria for Diagnosis: Detection of botulinum toxin in serum or stool, or isolation of *C. botulinum* from stool.
3. Case Definition

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

D. Case Definition for Botulism, Other (2011)

1. Clinical description: See Foodborne Botulism.
2. Laboratory criteria for diagnosis: Detection of botulinum toxin in clinical specimen or isolation of *C. botulinum* from clinical specimen.
3. Case classification

Confirmed: a clinically compatible case that is laboratory confirmed in a patient aged ≥ 1 year who has no history of ingestion of suspect food and has no wounds.

4. DIAGNOSIS AND LABORATORY SERVICES

A. Diagnosis

Presumptive tests for botulism toxin may be complete in one day but confirmatory work takes several days. Botulism treatment should never be delayed pending laboratory confirmation. Office of Communicable Disease Epidemiology will arrange laboratory testing (877-529-4344). **Collect serum before treatment.**

1. **Foodborne botulism:** Diagnosis is made by detecting botulism toxin in serum, stool, or implicated food or by culturing *C. botulinum* from stool. Vomitus or gastric aspirate can be tested for toxin if obtained within a few hours of food ingestion.
2. **Wound botulism:** Diagnosis is made by detecting botulism toxin in serum or by culturing *C. botulinum* from an infected wound. Stool should be obtained in addition to rule out foodborne botulism if patient history is unavailable or implicates risk foods.
3. **Infant botulism:** Diagnosis is made by detecting botulism toxin in stool or by culturing *C. botulinum* from stool. Toxin is rarely detected in serum and collection of serum is not recommended from infants.

B. Tests Available at Washington State Public Health Laboratories (PHL)

PHL perform presumptive (ELISA) and confirmatory botulism toxin assays, and *C. botulinum* cultures from clinical specimens (e.g., stool, wound swab) or environmental specimens (e.g., implicated food). Consult with OCDE to arrange testing.

Note that PHL require all clinical specimens have two patient identifiers, a name **and** a second identifier (e.g., date of birth) both on the specimen label and on the submission form. Due to laboratory accreditation standards, specimens will be rejected for testing if not properly identified. Also include specimen source and collection date.

C. Specimen Collection

Collect serum before administration of antitoxin or botulism immune globulin. With treatment, free toxin in the blood is bound so will not be detected by assay. CDC may also request a second serum specimen collected 24 hours after antitoxin is given. Obtain all other clinical specimens as soon possible but stool or wound specimens are acceptable after treatment is initiated. Collect all specimens in sterile leak-proof containers.

1. For stool testing, submit at least 15 grams of stool, if possible 50 grams (ping-pong ball sized). If the patient is constipated, as is common with botulism, a small amount (5-30 cc) of sterile, nonbacteriostatic fluid may be used for an enema. For post-mortem testing, collect multiple 15 gram specimens from different parts of the small and large intestine.

2. For serum testing, submit at least 8 ml of serum (not blood), 10 ml preferred. Extra serum from other tests may be used if collected before treatment.
3. For food testing, send as much implicated food as available in the original containers. Typically only open containers are tested, not others from a batch. Rinsed jars have tested positive. Pack each item individually in sterile unbreakable securely sealed containers.
4. For wound testing, send wound swab or tissue for culture in anaerobic transport medium. Anaerobic cultures from another laboratory can also be submitted for identification.
5. For gastric aspirate or vomit (rarely tested), send at least 20 ml.

All specimens should be kept refrigerated (*not frozen*) during storage and transport. Use cold packs to maintain a shipping temperature of 4° C (39° F). Specimens must be properly packaged using guidelines for shipping and packaging of diagnostic specimens. Be sure to use absorbent material around the primary container, particularly food specimens, which could have high levels of toxin and present a danger if there is leakage. Include a completed DOH Reference Bacteriology form (available at: <http://www.doh.wa.gov/Portals/1/Documents/5230/302-013-Micro.pdf>) with specimens.

5. ROUTINE CASE INVESTIGATION

If you identify more than one case of botulism without an obvious source of infection, consider the possibility of an outbreak associated with a commercial product or an act of bioterrorism and call Office of Communicable Disease Epidemiology (OCDE) IMMEDIATELY at 877-539-4344 (see Section 6).

A. Evaluate the Diagnosis and Arrange for Treatment

Obtain information from the provider and others about the patient's history and physical exam findings, particularly neurologic exam findings (e.g., cranial nerve function). Call OCDE IMMEDIATELY (877-539-4344). For an adult case, OCDE will discuss botulinum antitoxin with CDC. For suspected infant botulism, the provider should immediately call California Department of Health Services (510-231-7600; see: www.infantbotulism.org). Treatment should never be delayed pending laboratory confirmation.

If antitoxin or botulism immune globulin (BIG-IV) is being given, arrange for diagnostic specimens to be sent to Washington State Public Health Laboratories (Section 4 above).

B. Manage the Case

Hospitalized patients should be treated with standard precautions. After treatment an infant may excrete the toxin and bacteria for weeks to months. Limit close contact with other infants and children during this time and have an adult supervise any such contacts.

No contact follow-up is needed unless there is shared exposure.

C. Identify Potential Sources of Infection

1. Foodborne Botulism: Interview the case and others with pertinent information about foods eaten. A site visit is strongly recommended if home-canned foods are implicated or no source is identified. Determine pertinent exposures in the week before symptom onset:
 - a. Home-canned, home vacuum-packed, or traditionally preserved foods. Most suspect are foods eaten within two days of onset, those that are low in acid (fish, meat, and

- vegetables), and those that were not eaten by other persons who remain well. (Note that incubation periods can vary greatly.) Identify and collect all remaining jars of the home-canned foods. Almost all foodborne cases are due to home processed foods.
- b. Commercially canned or vacuum-packed foods or mishandled commercial products (e.g., refrigerated item not kept cold after purchase). For implicated foods, determine the brand, manufacturer, package size, lot number, and place and date of purchase.
 - c. Preserved or traditionally prepared fish and marine products.
 - d. Items stored in oil (e.g. onions, garlic) or foil (e.g. baked potatoes.)
 - e. Sausage, preserved or traditionally preserved meat, or meat inadequately refrigerated.
2. Wound Botulism: Ask about illicit injection drug use, specifically, the type of drugs and how they are used (e.g., injected into veins or tissues, snorted, etc.). It is difficult to specifically identify sources of heroin. Testing of heroin or drug paraphernalia is not offered. In addition to illicit drug use, interview regarding potential foodborne exposures.
 3. Infant Botulism: No specific exposures are well described. Although honey was associated with intestinal botulism in the past, it is rarely implicated in cases.
 4. Botulism, Other: For botulism cases without likely exposure sources consider the possibility of intentionally contaminated food or airborne release (Section 6A).

D. Identify Other Potentially Exposed Persons

1. Obtain the name, address, and telephone number of every person who may have eaten the suspected food item or shared an environmental exposure.
2. Obtain the organization name, contact telephone number, and attendance lists (particularly e-mail or telephone lists) for every suspected gathering, public event, or other shared environmental exposure.
3. Obtain the name, address, and telephone number of every person who may have the suspect home-processed food in his or her possession (e.g., food gifts given to relatives).

E. Manage Other Potentially Exposed Persons

1. Foodborne botulism: If reachable within six hours of exposure, other persons who ate implicated food should be purged and given gastric lavage to remove any unabsorbed toxin. Persons who ate the implicated food should self-monitor for signs of botulism at least twice daily for three days, and seek medical care immediately if symptoms develop.
2. Wound botulism: When possible, provide education to risk groups and to health care providers serving them regarding typical symptoms of botulism and the importance of rapid diagnosis and treatment. Potential routes for education include needle exchange programs, urban hospital emergency departments, and free clinics.

F. Environmental Evaluation

1. Restaurant is implicated: conduct an immediate inspection to identify home canned or mishandled product in the facility.
2. Commercial product is implicated: **IMMEDIATELY** notify OCDE for assistance and coordination with Food Program and outside agencies (FDA, USDA, CDC).

3. Home-canned food is implicated: Send samples of implicated home-canned food (item eaten) to Public Health Laboratories for testing, and destroy any remaining containers. To avoid risk to trash haulers or others, have the remainder autoclaved before discarding; as an alternative, boil contents and empty containers for at least ten minutes. The person who did the home canning should be thoroughly instructed in proper techniques.

6. MANAGING SPECIAL SITUATIONS

A. Outbreak

For more than one case of botulism without an obvious source of exposure, consider the possibility of a contaminated commercial food product or intentional exposure. **In such situations IMMEDIATELY call Office of Communicable Disease Epidemiology (OCDE): 877-539-4344.** The cases will need to be extensively interviewed about possible exposures at gatherings and public events.

B. Bioterrorism

C. botulinum toxin has been classified as a potential agent of bioterrorism. The toxin is also easy to produce and dissemination through aerosol or food, and affected individuals often need extensive and prolonged intensive care. Inhalational botulism as an act of bioterrorism should be considered for two or more botulism cases linked temporally and geographically but without a likely common foodborne or drug exposure. **Call OCDE IMMEDIATELY: 877-539-4344.** The cases will need extensive interviews about possible exposures such as gatherings, public events, specific geographic locations, large buildings, shopping areas, and public transportation.

7. ROUTINE PREVENTION

A. Vaccine Recommendations: None

B. Prevention Recommendations

1. Foodborne botulism

- Persons doing home canning should properly sterilize products. Pickling, sugar syrup, or sufficient brining should prevent the growth of *C. botulinum*. County extension services or the United States Department of Agriculture have instructions on safe home canning.
- Oils infused with garlic, fresh herbs or similar moist flavoring should be refrigerated.
- Potatoes baked wrapped in aluminum foil should be kept hot until served or chilled.
- Persons who eat risky home-canned foods (i.e., low acidic, non-pickled foods) should consider boiling the food for ten minutes before eating it to ensure safety.

2. Wound botulism

- Wound botulism can be prevented by promptly seeking medical care for infected wounds and by not using injectable street drugs.
- Injection drug users and healthcare providers serving them should be educated regarding typical symptoms of botulism and the importance of rapid diagnosis and

treatment. Potential routes for education include needle exchange programs, urban hospital emergency departments, or free clinics.

3. Infant botulism

- Honey (raw or processed) can contain spores of *Clostridium botulinum* and should not be fed to children less than 12 months old.

ACKNOWLEDGEMENTS

This document is a revision of the Washington State Guidelines for Notifiable Condition Reporting and Surveillance published in 2002 which were originally based on the Control of Communicable Diseases Manual (CCDM), 17th Edition; James Chin, Ed. APHA 2000. We would like to acknowledge the Oregon Department of Human Services for developing the format and select content of this document.

UPDATES

Section 2F: The incubation period for wound botulism can be up to two weeks or longer.

March 2010: New heptavalent antitoxin replaced existing AB and ABF antitoxin treatment.

January 2011: Legal Reporting Requirements were revised to reflect the 2011 Notifiable Conditions Rule revision.

June 2012: Minor clarifications in Section 4, Diagnosis and Laboratory Services. Prior Section 5 and 6 combined.

July 2014: Section 4 was updated to indicate that serum is not tested in cases of infant botulism.

July 2015: Reorganized

April 2016: Front pages added