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 to 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 of illness because they have already eaten 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

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 (suspected food or wound botulism), stool (suspected food or infant botulism), and any other specimens available (i.e., foods submitted for suspected foodborne case, debrided tissue or wound swab submitted for suspected wound botulism) (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 (CDE) (877-539-4344).

C. Local Health Jurisdiction Investigation Responsibilities

1. Call CDE immediately to report suspect cases and discuss the need for antitoxin or for 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).

5. Report all probable and confirmed cases of wound botulism to CDE through PHIMS using the wound botulism case report form (http://www.doh.wa.gov/Portals/1/Documents/5100/210-017-ReportForm-BotWound.pdf).


7. Report all other confirmed cases of botulism to CDE through PHIMS as Botulism, Other. This category includes adult colonization botulism, inhalational botulism, and botulism from an unknown source.

2. THE DISEASE AND ITS EPIDEMIOLOGY

Background

Botulism is a neurological disease caused by absorbing botulinum toxin into the blood. Although all types described below are potentially fatal and demand emergency medical intervention, only foodborne and inhalational botulism are public-health emergencies.

- **Foodborne botulism** occurs when a person ingests pre-formed toxin, which leads to illness within a few hours to days. Outbreaks of foodborne botulism have potential to be a public health emergency because the contaminated food may be eaten by other people.

- **Wound botulism** is a rare disease that occurs when wounds infected with *C. botulinum* secrete the toxin, which is then absorbed into the bloodstream.

- **Infant botulism** occurs each year in a small number of susceptible infants who harbor *C. botulinum* in their intestinal tract. It occurs when an infant ingests spores of *C. botulinum*, which in turn colonize the intestinal tract and produce toxin, which is then absorbed.

- **Adult colonization botulism** is an even rarer type of intestinal colonization reported only a few times in the literature. It involves intestinal colonization with *C. botulinum* in a person older than one year of age. Most of these patients had a history of gastrointestinal surgery or illness, such as inflammatory bowel disease, which might have predisposed them to enteric colonization. No other specific risk factors have been identified.

- **Inhalational botulism** occurs after inhalation of botulism toxin. This does not occur naturally. There have been only three reported cases in humans world-wide, associated with laboratory exposure.

A. Etiologic Agent

Botulism is caused by immunologically distinct toxins (A-G, and potentially H) produced by the gram-positive bacillus *Clostridium botulinum*, or rarely *C. butyricum* (type E toxin) and *C. baratii* (type F toxin). The toxins irreversibly block acetylcholine transmission across the neuromuscular junction and cause a characteristic syndrome. Recovery reflects reinnervation of paralyzed muscle fibers, which can takes weeks or months in an adult.

*C. botulinum* forms spores which can survive under a wide range of adverse environmental conditions including boiling. The higher temperatures (>120.5°C/250.5°F) that can be achieved under pressure (e.g., in an autoclave or properly functioning home...
pressure cooker) are sufficient to kill even spores. Spore germination and bacterial growth occur only under anaerobic and low-acid to non-acidic (generally pH>4) conditions. Toxin is produced as the bacteria multiply. Botulinum toxin is heat-labile and can be inactivated by boiling for ten minutes. Toxin types A, B, and E are the most common sources of human disease; type E is highly associated with marine products (fish, seafood, or marine mammal meat). F is very rare in humans, and C, D and G are not known to cause human illness. The toxin is a potential agent of bioterrorism.

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, ptosis (drooping eyelids), and muscle weakness. A descending, symmetrical flaccid paralysis starts with the facial muscles and may progress downward. Respiratory distress may ensue if the muscles of breathing are compromised. Mental alertness and peripheral sensation are typically maintained. Neurologic symptoms may be preceded or accompanied by mild gastrointestinal disturbance such as constipation, vomiting, or diarrhea. Severity of symptoms and rate of progression are highly variable, depending on dose and other factors. In severe cases, patients may survive only after months on a ventilator. Residual fatigue and shortness of breath can persist for years.

Botulism is frequently misdiagnosed in adults, most often as polyradiculoneuropathy (Guillain-Barré or Miller-Fisher syndrome), myasthenia gravis, or other diseases of the central nervous system.

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 (the “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, Office of Communicable Disease Epidemiology (CDE) has received annually 0–2 reports of foodborne botulism, 0–6 reports of infant botulism and 0–7 reports of wound botulism. Nationally infant botulism is most common.

Recent foodborne botulism cases in Washington have been associated with improperly home-canned vegetables. Wound botulism is most frequently associated with injection drug use, particularly black tar heroin, usually as single cases but rarely clusters.

D. Reservoirs

*C. botulinum* spores are common in soil and elsewhere in the environment including on vegetables.

E. Modes of Transmission

Modes of transmission for foodborne, wound and infant botulism are described here.

1. Foodborne botulism

Foodborne botulism is caused by ingesting pre-formed toxin which is then absorbed into the blood. Most implicated foods are low acid, home-canned items inadequately processed during canning and not heated before consumption. Prison brewed alcohol has
caused outbreaks in other states. Rarely, commercial products are implicated, usually after a breakdown in standard canning procedures. Examples of implicated foods 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 processed (inadequate sodium nitrite) and improperly 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); products may be recalled even without cases if improper processing carries a risk of botulism.

2. **Wound botulism**

Wound botulism results from a local *C. botulinum* infection in devitalized tissue at a wound site, where semi-anaerobic conditions occur. As with intestinal botulism, the toxin is produced *in situ* and absorbed into the blood. Wound botulism is increasingly reported in western states, especially due to intramuscular injection (“muscling”) or subcutaneous injection (“skin popping”) of black-tar heroin primarily from Central America.

3. **Infant botulism**

Intestinal botulism occurs when *C. botulinum* spores, ingested in food or soil, germinate in an intestine that does not have a mature flora. Botulinum toxin is then produced in the intestine and enters the bloodstream. Although in the past an association was suggested for intestinal botulism in infants and honey, honey consumption is only rarely reported for recent cases. Most cases occur in infants less than three months old (almost always under six months old). Cases occur in both breast-fed and formula-fed infants.

**F. Incubation Period**

1. **Foodborne botulism:** The incubation period for foodborne botulism varies from 12 hours to several days, but is usually 12–36 hours. A short 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 of the diagnosis. All patients require close monitoring of ventilatory status, and severe cases need aggressive supportive therapy. Some patients require months on a ventilator. Fatigue and shortness of breath may persist. Additional therapies vary by type of botulism and are given below.
1. **Foodborne botulism**

   Foodborne botulism is treated with botulinum antitoxin. If antitoxin use is being considered, **IMMEDIATELY** consult with the CDE (877-539-4344).

   Antitoxin cannot reverse existing symptoms but prompt treatment will halt further progression by removing free toxin. Antitoxin therapy should never be delayed pending laboratory confirmation of the diagnosis, which often takes several days. Beginning March 13, 2010, a new heptavalent (for toxins A-G) botulinum antitoxin (HBAT, Cangene Corporation) became the only available product in the United States for treatment of all naturally occurring non-infant botulism with FDA approval in March 2013. HBAT is equine-derived but there is no skin test for sensitivity needed prior to administration. In the United States clinical experience with HBAT is limited but about 9% of recipients of earlier formulations of antitoxin derived from horse serum suffered allergic reactions. HBAT is administered intravenously at controlled rates to minimize allergic reactions. The half-life of HBAT is shorter than for earlier formulations of antitoxin so after HBAT treatment patients should be monitored for possible rebound of symptoms, particularly with potential ongoing toxin production such as with wound botulism or intestinal colonization botulism.

   Centers for Disease Control and Prevention (CDC) control the distribution of botulinum antitoxin, which is stocked at United States Public Health Service Quarantine Stations throughout the country. If antitoxin treatment is being considered, DOH will immediately consult with CDC. Personnel at CDC and SeaTac Quarantine station can arrange to have the antitoxin transported at no charge to the hospital where the patient is being treated.

2. **Wound botulism**

   Wound botulism is treated with heptavalent botulinum antitoxin. If antitoxin use is being considered, **IMMEDIATELY** consult with the CDE (877-539-4344). Antitoxin should be administered as for foodborne botulism. Wound debridement is indicated to remove devascularized tissue providing anaerobic conditions required for *C. botulinum* growth. There is a theoretical reason to postpone debridement until after antitoxin administration to avoid further toxin release. Antimicrobial therapy should also be considered.

3. **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 of BIG-IV found a 3-week reduction in the mean length of hospital stay with an accompanying reduction in the mean hospital charges. Consultation or BIG-IV can be obtained from the California Department of Health Services by **IMMEDIATELY** calling the 24-hour number at 510-231-7600. Also contact CDE to arrange for testing. Additional information about infant botulism is available at: [http://www.infantbotulism.org/](http://www.infantbotulism.org/)

4. **Adult colonization botulism**

   Heptavalent botulinum antitoxin is used to treat adult colonization botulism. More than one dose of antitoxin may be required. If antitoxin use is being considered, **IMMEDIATELY** consult with CDE (877-539-4344) as for food botulism.
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)

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 completed in one day but the confirmatory assay for toxin and cultures for *C. botulinum* take several days to complete. Therefore, treatment should never be delayed pending laboratory confirmation of the diagnosis. Office of Communicable Disease Epidemiology can arrange testing (877-529-4344).

   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. In contrast to foodborne and wound botulism, in cases of infant botulism, the toxin is rarely detected in serum and collection of serum is not recommended.

   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 CDE 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 the first serum prior to the administration of antitoxin or botulism immune globulin. Once treatment is administered, free toxin in the blood is bound and will not be detected by assay. At present, CDC is also requesting a second serum specimen collected 24 hours after antitoxin is given. Obtain all other clinical specimens as early in the course of illness as possible. Unlike serum, stool and wound specimens are acceptable after treatment is initiated. Collect all clinical 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.

3. For food testing, send as much implicated food as possible from the source suspected of being eaten, in original containers. Typically only opened jars or containers are tested, not others from the same batch. In the past, washed canning jars have tested positive. Packed each item individually in sterile unbreakable containers with secure seals.

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 vomitus, 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 (CDE) IMMEDIATELY at (877-539-4344) (see Section 6).

A. Evaluate the Diagnosis and Arrange for Treatment

Obtain information from the provider and others regarding the patient’s history and physical exam findings, particularly neurologic exam findings (e.g., cranial nerve function) and call CDE IMMEDIATELY (877-539-4344) to discuss the case. For suspected foodborne or wound botulism, an epidemiologist at CDE will call CDC to release botulinum antitoxin if needed. For suspected intestinal botulism in an infant, the provider should be immediately referred to the California Department of Health Services (24-hour number 510-231-7600 or see: www.infantbotulism.org). Treatment should never be delayed pending laboratory confirmation of the diagnosis since laboratory confirmation can take several days and treatment needs to be given immediately.

While the antitoxin or botulism immune globulin (BIG-IV) is being released, 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 public health case follow-up is needed after the case receives treatment.
No contact follow-up is needed since botulism is not transmitted from person to person.

C. Identify Potential Sources of Infection

1. **Foodborne Botulism:** Interview the case and others who may be able to provide pertinent information about foods eaten. A home visit is strongly recommended when home-canned foods are implicated, or if the source is not readily apparent. Identify the following products that were consumed in the week prior to onset of symptoms:
   a. Home-canned, vacuum-packed, or traditionally preserved foods. The most suspect foods are those eaten less than two days before onset, those that are low in acid (fish, meat, and vegetables), and those that were not eaten by other persons who remain well. (Keep in mind that some cases may develop symptoms several days after the index case.) Identify and collect all remaining jars of the home-canned foods.
   b. Commercially canned or vacuum packed foods or mishandled commercial products (e.g., refrigerated soup not kept cold after purchase); such products are implicated only rarely. For implicated foods, determine the brand, manufacturer, package size, lot number, and place and date of purchase. When a commercial product or environmental exposure is implicated, see Section 5 Controlling Further Spread.
   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 meats, and inadequately refrigerated meats; such products are implicated only rarely.
   f. With the identification of more than one case of botulism without a likely source of exposure consider the possibility of intentional exposure through deliberately contaminated food. Interview the case and others who may be able to provide pertinent information about possible exposures such as locations where food and water were consumed, particularly at gatherings and public events.

2. **Wound Botulism:** Ask the patient about illicit injection drug use. Specifically, ask about the type of drugs used and how the drugs are used (e.g., injected into veins, injected into tissues, snorted, etc.). It is often 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:** If the type of botulism cannot be determined, identify public events and gatherings that the case attended.

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. Manage Other Potentially Exposed Persons

1. **Foodborne botulism**: If reachable within six hours of exposure, other persons who have eaten implicated food should be purged and given gastric lavage to remove any unabsorbed toxin. Persons who have eaten the implicated food should be monitored for signs of botulism at least twice daily for three days, and instructed to seek medical care immediately should 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 and urban hospital emergency departments.

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 CDE. If an environmental exposure is suspected, contact CDE for assistance with sampling and coordination with relevant internal and outside agencies (FDA, USDA, CDC, etc.)

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

6. MANAGING SPECIAL SITUATIONS

A. Outbreak

With the identification of more than one case of botulism without an obvious source of exposure, consider the possibility of a contaminated commercial food product. In such situations call Office of Communicable Disease Epidemiology (CDE) **IMMEDIATELY**: 877-539-4344. The cases will need to be extensively interviewed to identify possible exposures such as locations where food and water were consumed, particularly at gatherings and public events.

B. Bioterrorism

*Clostridium botulinum* toxin has been classified as a possible agent of bioterrorism because it is extremely potent and lethal. The toxin is also easy to produce and transport, and affected individuals often need extensive and prolonged intensive care. Dissemination through aerosol or food would be the most likely mode of spread. Aerosol dissemination could cause many cases in a geographic area. Therefore, inhalational botulism produced by an act of bioterrorism should be considered for 2 or more botulism cases linked temporally and geographically but without a likely common foodborne or drug exposure. In such situations call CDE **IMMEDIATELY**: 877-539-4344. The cases should be extensively
interviewed to identify 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 who do home canning should follow strict hygienic procedures to reduce contamination of foods and to properly sterilize products.
   - Oils infused with garlic, fresh herbs or similar moist flavoring should be refrigerated.
   - Potatoes which have been baked while wrapped in aluminum foil should be kept hot until served or refrigerated.
   - Because the botulism toxin is destroyed by high temperatures, 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. Pickling, sugar syrup, or sufficient brining should prevent the growth of \( C. botulinum \).
   - Instructions on safe home canning can be obtained from county extension services or from the United States Department of Agriculture.

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 health care 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
   - Because honey can contain spores of \( Clostridium botulinum \) and may have been a source of infection for infants, children less than 12 months old should not be fed honey (raw or otherwise). Honey is safe for persons one year of age and older.

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.


January 2011: The Legal Reporting Requirements section has been 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.
June 2014: Reviewed.
July 2014: Section 4 was updated to indicate that serum is not tested in cases of infant botulism,