CAHAN San Diego
California HEALTH ALERT NETWORK

To: CAHAN San Diego Participants
Date: March 21, 2014

**Wound Botulism Associated with Drug Injection**

Since March 1, 2014, two highly suspect cases of wound botulism associated with black tar heroin injection have been reported in San Diego County. The two hospitalized cases are apparently unknown to each other and presented with wound infections and a recent history of skin popping black tar heroin. Other symptoms included diplopia, bilateral ptosis, bilateral extraocular palsy, slurred speech, and generalized weakness. The patients were treated with botulism antitoxin released by the California Department of Public Health (CDPH). The sources of the black tar heroin remain unknown and additional cases may occur. Five (5) botulism cases associated with black tar heroin injection occurred in San Diego County in late 2010.

Supportive care is the mainstay of treatment for wound botulism. To reduce the incidence of respiratory failure, the botulism antitoxin should be administered as early as possible, prior to wound debridement, and ideally within 12 hours of presentation. Antibiotics are also recommended (e.g., penicillin or metronidazole). More information about botulism and guidance for clinicians are available on the Centers for Disease Control and Prevention (CDC) botulism website.

**San Diego County health care providers are requested to do the following:**

1. Be alert for suspect cases of wound botulism, especially in injection drug users.
2. Immediately report suspect cases to the Epidemiology Program at 619-692-8499 (Mon-Fri 8-5) or after hours at 858-565-5255. Epidemiology Program staff can facilitate release of botulism antitoxin from CDPH.
3. Conduct a thorough search for wounds when examining patients with a history of injection drug use.
4. Consider prompt Neurology, Infectious Disease, and surgical consultation as indicated.
5. Obtain pre-antitoxin serum for toxin assays (in serum separator tubes). Instructions for specimen collection and submission are attached to this alert.
6. Warn patients who inject drugs, particularly black tar heroin, about the risk of wound botulism and other potentially life-threatening infections and conditions associated with drug use. Cooking or cleaning the drug will not prevent botulism infection. Risk reduction strategies for patients are available here.
7. Educate patients about the symptoms of wound botulism and advise them to go to the nearest emergency department should symptoms develop. Fact sheets are available in English, Spanish, and Chinese.
8. Due to their higher risk for tetanus, patients who inject drugs should receive tetanus vaccine every 5 years.

A useful checklist developed by CDPH is available to health care providers relating to the diagnosis and management of wound botulism. A modified version of the checklist is attached to this alert (see next page). Providers are strongly encouraged to use this checklist when managing patients suspected to have wound botulism.

Thank you for your continued participation.

**CAHAN San Diego**
County of San Diego, Health & Human Services Agency
Epidemiology and Immunization Services Branch
Phone: (619) 692-8499, Fax: (858) 715-6458
Urgent Phone for pm/weekends/holidays: (858) 565-5255
E-mail: cahan@sdcounty.ca.gov
Secure Website: http://cahan.ca.gov
Public-Access Website: http://www.cahansandiego.com

# CHECKLIST: DIAGNOSIS AND MANAGEMENT OF WOUND BOTULISM

## Diagnosis

- ☐ Establish the presence of signs and symptoms consistent with the descending paralysis of botulism. *Did the symptoms begin with cranial nerve palsies (ptosis, diplopia, dysarthria) and progress distally?*
- ☐ If the diagnosis is in doubt, consider an infectious diseases consult, a neurology consult, and/or EMG testing which should show augmentation of muscle action potential at 20-50 Hz.
- ☐ Determine if the patient has risk factors for wound botulism. *Is the patient an injecting drug user, especially a person who skin-pops black tar heroin?*
- ☐ Look for infected wound(s). Some patients with wound botulism may not have an obvious site of infection.

## Obtaining antitoxin

- ☐ Call the County of San Diego Epidemiology Program at 619-619-8499 (after hours 858-565-5255).
- ☐ Receive call from the California Department of Public Health (CDPH) Division of Communicable Disease Control Duty Officer (DCDC DOD) who will discuss the case and release of antitoxin. (Note: the state's DCDC DOD should not be contacted directly from the hospital initially.)
- ☐ Alert the hospital pharmacy that antitoxin is being released from the Los Angeles Quarantine Station.
- ☐ Arrange for the transport of antitoxin (the admitting hospital is responsible for transport).

## Required pre-antitoxin administration laboratory testing

- ☐ Draw 30 cc's of whole blood into red top tubes (this will take more than one tube).
- ☐ Label each tube with the patient's name, "pre-antitoxin serum," and the date and time of collection.
- ☐ Bundle the tubes.
- ☐ Indicate if the patient is taking any of the following interfering medications: neostigmine bromide, neostigmine methyl sulfate, pyridostigmine bromide, edrophonium chloride, ambenonium chloride.
- ☐ Send the tubes to the hospital laboratory with instructions to refrigerate and ship to the San Diego County Public Health Laboratory.

## Antitoxin administration

- ☐ The only antitoxin currently available is the BAT [Botulism Antitoxin Heptavalent (A, B, C, D, E, F, G) – (Equine)]. It is a mixture of immune globulin fragments indicated for the treatment of symptomatic botulism following documented or suspected exposure to botulinum neurotoxin serotypes A, B, C, D, E, F, or G in adults and pediatric patients. The most current information on BAT can be found here. The package insert which includes information on dosage and administration, and how to report adverse events is also included on this site.

## Wound debridement

- ☐ Debride the patient's wound(s) if any. (CDPH recommends hanging antitoxin prior to wound debridement.)

## Other considerations

- ☐ Treat with high-dose antibiotics effective against anaerobes.
- ☐ Vaccinate against tetanus if not up to date.

## Post antitoxin laboratory testing

This is no longer done routinely as the amount of antitoxin is generally much more than needed to neutralize the circulating toxin. If the patient does not respond to antitoxin or has an exacerbation of symptoms consider whether there may be an ongoing source of toxin such as an ongoing infection or abscess. Repeat toxin testing can be considered on a case by case basis.

# Physician Instructions for *C. botulinum* Toxin Detection in Adult Specimens

☐ **Notify:** Contact the local public health department on each case of suspected botulism for which specimens will be collected. **The patient's physician must have discussed the case and received approval from the local health department and the State's Communicable Disease Control Duty Officer of the Day PRIOR to submission of specimens.**

**Background**: Botulism toxin detection is an "in-vivo reference test". Time to a positive result varies with the specimen and the toxin concentration. After testing begins, typical cases may be confirmed within 4 days; others may take 15 days. Patient management and antitoxin administration should be based on clinical findings and not await lab results.

**Keep all specimens under refrigeration.** A prolonged holding time above 20 C or exposure to heat may degrade the toxin to undetectable levels. **Do not freeze any specimens.**

□ Interfering drugs: cholinesterase inhibitors, ie. ambenonium, neostigmine, pyridostigmine (Mestinon/Timespan), edrophonium (Tensilon). Sera containing these drugs require additional analytical or procedure time. Record on the lab submittal form and notify the health department PRIOR to submission of specimens, if the patient received any of these interfering drugs.

□ Pre-antitoxin: Draw 30 ml of whole blood from a free flowing site. Label the blood with the patient's name, "pre-antitoxin" serum, date and time collected. Refrigerate.

□ Feces or enema or gastric aspirate: When recommended by the public health epidemiologist, collect 25 gm feces unpreserved or 25 ml from a sterile water enema. In some cases, a 25 ml gastric aspirate, obtained within 72 hours of symptom onset, is appropriate. Refrigerate.

□ **Specimen submission:** The hospital lab should centrifuge and separate the clot from the serum. Specimens should be packaged to remain at 4-10 C during travel to the local public health laboratory. Do not use dry ice or place cold packs in direct contact with specimens. Hemolyzed or low volume sera will not be tested. Allow 2-4 days transit time before test initiation at the reference laboratory.

□ **Results:** Positive results will be phoned to the physician by a representative of the local health department.

Further instructions: _____

_____

_____

☐ Instructions faxed to physician

**Public Health Contact: _____Pager/Phone_____**

# Hospital Laboratory Instructions-Adult Botulism Specimen Submission

□ **Notify:** the local public health lab (PH Lab) on each case of botulism for which specimens will be collected. **NOTE: The patient's physician must have discussed the case and received approval from the local health department and the State's Communicable Disease Control Duty Officer of the Day PRIOR to submission of specimens**.

□ **Test Criteria:** Botulism toxin detection is not a rapid or STAT test. It is an "in-vivo reference test". The time to a positive result varies with the specimen and the toxin concentration. Sera containing anticholinesterase drugs (ie., Mestinon/Timespan), drugs from the Tensilon test, or Ambenonium chloride require additional procedures or analytical time; if known, these substances should be reported on the lab submission slip.

- □ **Required:** Pre-antitoxin Serum
  - □ Draw 30 ml whole blood from a free flowing site. Hemolyzed or low volume sera will not be tested.
  - □ Label with patient's name, "pre-antitoxin" serum, date and time collected. Refrigerate.
  - □ Centrifuge and transfer the serum (about 15 ml) to a separate tube. Label and refrigerate.

- □ **Other:** when recommended by the public health epidemiologist
  - □ 25 gm feces unpreserved or 25 ml of a sterile water enema. Refrigerate.
  - □ 25 ml gastric aspirate, if taken within 72 hours of symptom onset. Refrigerate.

□ **Storage: Keep specimens refrigerated. Do not expose to heat. Do not freeze.**

□ **Transport:** Samples should be maintained at 4-10 C during transit. Do not pack with dry ice or allow cold packs to directly contact the samples. Ship or courier the specimens to the local public health lab along with appropriate paperwork. Allow 2-4 days transit time before test initiation at the reference laboratory.

□ **Results:** Positive results are conveyed from the local health department representative to the physician. Verbal and written reports from the local PH Lab are sent to the hospital lab. After testing begins, typical cases may be confirmed within 4 days; others may take up to 15 days.

Local Public Health Contact

Name: _____
San Diego County Public Health Laboratory
Mail Stop: P511M
3851 Rosecrans Street
San Diego CA 92110
Phone (619) 692-8500 – Fax (619) 692-8558

Phone: _____

□ **Instructions faxed to hospital lab**

STATE OF CALIFORNIA - HEALTH AND HUMAN SERVICES AGENCY DEPARTMENT OF PUBLIC HEALTH
Microbial Diseases Laboratory
Tel (510) 412-3700 Fax (510) 412-3706

# Adult *C. botulinum* Toxin Detection
## Laboratory Request and FINAL REPORT FORM

Note: Submit specimens through the local public health laboratory with appropriate shipping labels and refrigerant. Advanced approval of the case is required from the local public health epidemiologist and the Division of Communicable Disease Control Duty Officer of the Day PRIOR to submission of specimens.

| | | | |
|---|---|---|---|
| Submitting Lab Number | | State Lab Number (L.S.#) | |
| **Patient's Name** | | | |
| Sex | Date of Birth | SS# | Medical Record # |
| Onset of Symptoms | Additional info | | |
| Is patient on medication known to interfere in the analysis? □ YES □ NO (See list of Meds) | | | |
| **Specimen type** □ = Serum (□ Pre or □ Post-Antitoxin) □ = Stool □ = Gastric □ = Tissue □ = Implicated Food □ = Other ( ) Comments: | | | |
| Collection Date: | | Time: | |
| For additional patient information: Contact Dr._____ Fax ( )- - Phone ( )- - | | | |

==========

**THIS SECTION FOR STATE LABORATORY USE ONLY**

| | |
|---|---|
| RECEIVED IN LAB (Date/Time) | By: (Initials)_____ |
| Sample Integrity □ Acceptable □ Unacceptable □ Marginal □ QNS □ Submit new specimen<br>Comments: | |

==========

## FINAL RESULTS

□ **No *Clostridium botulinum* toxin detected.**
□ ***Clostridium botulinum* toxin, type_____ detected.**

□ **No *Clostridium botulinum* organisms were detected.**
□ ***Clostridium botulinum* type_____ organisms**, were isolated.

□ Other Findings_____

□ **UNSATISFACTORY SAMPLE**: _____ _____

| | |
|---|---|
| Analyst: | Date Reported: |
| Supervisory Review: | Date: |

SUBMITTING LABORATORY

**San Diego County Public Health Laboratory**
**3851 Rosecrans Street**
**San Diego CA 92110**

cc: DCDC
Submitting PH Lab
MDL file