



## BOTULISM SUMMARY LOS ANGELES COUNTY, 2005

A total of eleven patients were reported with suspected botulism in 2005, eight of which were confirmed with the disease (Table 1). Most cases were male (n=6), most were Hispanic (n=4) and ages ranged from 17 to 82 years (mean=45). Seven suspect cases were injection drug users. Suspect cases were reported throughout the year, with May having the greatest number of suspects (n=4). Antitoxin was administered to most suspect cases (n=8) based on their risk factors and presenting signs and symptoms.

The LAC Public Health Laboratory (PHL) performed analyses on eight suspect cases. After investigation, the following dispositions were made: two cases were confirmed as foodborne botulism, six were confirmed as wound botulism, and three were not tested because they were diagnosed with other central nervous system diseases. This report excludes cases of infant botulism, which is monitored by the California State Department of Health Services.

### CASE REPORTS

Confirmed Foodborne Botulism (n=2): An outbreak of foodborne botulism resulted in the death of an elderly Pacific Islander man and long-term illness of his grandson. Food samples removed from their home several days after onset were negative for toxin or clostridial growth; however the most likely food vehicle, reheated salmon, was discarded prior to testing.

Confirmed Wound Botulism (n=6): Six of seven injection drug users reported with possible botulism were confirmed; four were males and four were Hispanic. Four were confirmed by demonstration of botulinum type A toxin in serum, while another demonstrated toxin that could not be differentiated due to insufficient sample size. The sixth confirmed case had a negative serum screen but a wound that grew *C. botulinum* producing type B toxin. All six confirmed cases received botulinum antitoxin.

Other Central Nervous System Disease (n=3): Three patients reported with possible botulism were found to have another neurological disorder and were not tested for botulism. All three suspects occurred in May. Two had no risks for wound botulism; the first was a 48-year-old male with multiple small strokes, while the second was a 40-year-old male who suffered from a cervical spinal cord tumor. The third suspect was a 47-year old male with a history of injection drug use who was diagnosed with brain stem encephalitis of unknown etiology.

### COMMENTS

Botulism testing using the mouse bio-assay is available only in the PHL and state or CDC laboratories, and antitoxin is available in California only upon release by designated public health physicians in ACDC or the California DHS. For these reasons, reporting of hospitalized cases is felt to be complete. However, under-detection of mild cases is possible.

Botulism is one of seven biological agents classified as "Category A" for bioterrorism preparedness, requiring the highest priority for reporting. Heightened concern over bioterrorism should lead to increased consultations with Public Health for possible botulism cases.



**Table 1. Suspected Botulism Cases, LAC DHS, 2005**

Age/ Sex	Race/ Ethnicity	Month of onset	Injection drug user	Serum test*	Stool test	Other test – Result <sup>&amp;</sup>	Anti- toxin	Diagnosis
43 M	Hispanic	3	Y	Neg	-	Abscess culture Pos Type B	Y	Confirmed wound
40 M	Unk	5	Y	-	-	-	N	Cervical cord tumor
47 M	Hispanic	5	N	-	-	-	N	Brain stem encephalitis
48 M	African-Amer	5	N	-	-	-	N	Multiple strokes
54 F	Hispanic	5	Y	Pos Type A	-	-	Y	Confirmed wound
40 M	Hispanic	6	Y	Pos Type A	-	-	Y	Confirmed wound
35 M	Hispanic	8	Y	Pos Type unk	-	Wound aspirate culture neg.	Y	Confirmed wound
50 F	African-Amer	8	Y	Pos Type A	-	-	Y	Confirmed wound
36 M	African-Amer	9	Y	Pos Type A	-	Wound culture neg.	Y	Confirmed wound
17 M	Asian/PI	12	N	Pos Type A	-	Food items neg.	Y	Confirmed foodborne
82 M	Asian/PI	12	N	Pos Type A	Pos Type A	Food items neg.	Y	Confirmed foodborne, fatal

Pos – test was performed and result was positive  
 Neg – test was performed and result was negative  
 \* Botulinum toxin screen by mouse bio-assay  
 & Culture for clostridia (wound material, food item)



## BOTULISM SUMMARY LOS ANGELES COUNTY, 2004

A total of eleven patients were reported with suspected botulism in 2004. Most reported cases were male (n=9), most were Hispanic (n=8) and ages ranged from 27 to 55 years (mean 45.2). Ten reported suspect cases were injection drug users (IDU). Suspect cases were reported throughout the year with March having the most reported suspect cases (n=4). Antitoxin was provided to most suspect cases (n=9) based on their risk factors and presenting signs and symptoms. The LAC Public Health Laboratory (PHL) performed analyses on ten suspect cases. After investigation, the following dispositions were made. Three cases were confirmed as wound botulism, five were diagnosed clinically as cases of wound botulism and three cases were diagnosed with other central nervous system diseases. This report excludes cases of infant botulism, which is monitored by the State Department of Health Services.

ACDC provided consultation on at least four other botulism suspects (data not shown). Two were dismissed initially as inconsistent with botulism and no further workup was done. Two were Long Beach residents whose evaluations were referred to the Long Beach Department of Health and Human Services for follow-up. Of the two Long Beach cases, one was found to have Guillain-Barré syndrome and the other (an adult injection drug user) was confirmed to have wound botulism by the PHL.

### CASE REPORTS

Confirmed Wound Botulism (n=3): The three confirmed cases were male heroin IDUs with infected wounds. All three had botulinum toxin demonstrated in serum by the mouse bioassay; two were due to type A toxin and the third could not be sub-typed due to insufficient specimen content. One case was also positive for *C. botulinum* in his wound.

Suspected Wound Botulism (n=5): These cases were diagnosed clinically with wound botulism but all tests – i.e. serum and/or wound aspirate – were negative for botulinum toxin or *C. botulinum* organisms. All five cases were male IDUs ranging in age from 27-55, and were treated with botulinum antitoxin. Since these cases are not laboratory confirmed, they do not meet the surveillance case definition and are not counted in official statistics.

Other Central Nervous System Disease (n=3): Three patients reported with possible botulism were eventually found to have another neurological disorder. The first case was a 49-year old female who was an IDU with endocarditis caused by group A Streptococcus; the patient suffered an embolic stroke and unspecified polyneuropathy. The second case was a 38-year old female who had no risks for wound botulism; her final diagnosis was Guillain-Barré syndrome. The third case was a 49-year old male with a history of injection drug use who was diagnosed with myasthenia gravis.

### COMMENTS

Since botulinum toxin testing with the mouse bio-assay is available only in the PHL, most initial reports are made by hospital laboratorians seeking permission to submit specimens for testing. ACDC then contacts the treating physician for further details.

Frequently the patient suffers with mild symptoms for several days before seeking medical treatment—in 2004 the average delay from symptom onset to hospital admission was 2 days (range 0-5). In addition, there was another delay from hospital admission to consultation with ACDC, averaging 3.5 days (range 0-12). Often in such situations other diagnoses have been ruled out and only botulism remains in the differential, prompting the request for testing. It is also possible for wound botulism to develop in a patient previously hospitalized for other reasons, such as detoxification or withdrawal; that was not the case with any of the suspected cases occurring in 2004—all had neurological complaints and findings on admission.



Botulism is one of seven biological agents classified as “Category A” for bioterrorism preparedness, requiring the highest priority for reporting. Heightened concern over bioterrorism should lead to increased consultations with Public Health for possible botulism cases. Immediate reporting of suspected botulism cases will achieve two important goals. First, the rate of confirmation should increase as specimens are obtained sooner when toxin levels are higher and cultures are obtained prior to antibiotic administration. Second, should botulism toxin ever be used as a terrorist’s tool, rapid case reporting will permit faster recognition of the problem and increase the likelihood of determining the source.

**Table 1. Suspected Botulism Cases, LAC DHS, 2004**

Age/ Sex	Race/ Ethnicity	Month of onset	Injection drug user	Serum test*	Stool test†	Other test <sup>&amp;</sup>	Anti- toxin	Diagnosis
54 M	White Hispanic	February	Yes	Pos Type A	--	Gastric aspirate – Neg Wound aspirate – Neg	Yes	Wound botulism, type A
37 M	White Hispanic	March	Yes	Pos Type unk.	Neg	Gastric aspirate – Neg	Yes	Wound botulism, type unk.
27 M	White Hispanic	March	Yes	Neg	--	Wound aspirate – Neg	Yes	Wound botulism, clinical
52 M	White non-Hispanic	March	Yes	Neg	--	--	Yes	Wound botulism, clinical
49 F	White Hispanic	March	Yes	Neg	Neg	--	No	Polyneuropathy, embolic stroke
54 M	Black non-Hispanic	April	Yes	Neg	--	Wound aspirate – <i>C. perfringens</i>	Yes	Wound botulism, clinical
34 M	White Hispanic	June	Yes	Pos Type A	Neg	Gastric aspirate – Neg Wound aspirate – Pos	Yes	Wound botulism, type A
48 M	White Hispanic	July	Yes	Neg	--	--	Yes	Wound botulism, clinical
38 F	Asian non-Hispanic	October	No	Neg	--	--	Yes	GBS
55 M	White Hispanic	November	Yes	Neg	--	--	Yes	Wound botulism, clinical
49 M	White Hispanic	November	Yes	--	--	--	No	MG

Pos – test was performed and result was positive  
Neg – test was performed and result was negative  
GBS – Guillain-Barré syndrome  
MG – Myasthenia gravis

\* Botulinum toxin screen by mouse bio-assay

† Botulinum toxin screen by mouse bio-assay; culture for clostridia

& Botulinum toxin screen by mouse bio-assay (wound aspirate, gastric aspirate) or culture for clostridia (wound aspirate or biopsy)



## BOTULISM SUMMARY LOS ANGELES COUNTY, 2003

No confirmed cases of botulism were reported among LAC residents during 2003, although 11 suspected cases were investigated in depth (see Table below). Most reported cases were male (n=7), most were Hispanic (n=6), and ages ranged from 19 to 73 years (mean 48.6). Five suspected cases were injection drug users (IDU). Five suspected cases occurred in summer, while no cases were reported in winter. After investigation, the following dispositions were made. Three were diagnosed clinically as cases of wound botulism and one as foodborne botulism; seven received an alternative diagnosis -- four of these were diagnosed with Guillain-Barré syndrome (GBS) including one case of GBS Miller-Fischer variant, and three cases were diagnosed with other central nervous system diseases. This report excludes cases of infant botulism, which is monitored by the State Department of Health Services.

### CASE REPORTS

Suspected Wound Botulism (n=3): These cases were diagnosed clinically with wound botulism but all their tests -- i.e. serum, stool, wound and/or gastric aspirate -- were negative for botulinum toxin or *Clostridium botulinum* organisms. All three cases were Hispanic males ranging in age from 43 to 46; they presented with classic descending motor paralysis and all injected drugs. None was treated with botulinum antitoxin because of delayed reporting ranging from 5 to 14 days after admission and clinical stability.

Suspected Foodborne Botulism (n=1): The only case was a 42 year old Hispanic male with no risk factors for wound botulism, whose illness was clinically consistent with botulism. He received botulinum antitoxin; tests on serum, gastric aspirate, and food (canned beans) were negative for botulinum toxin and organisms.

Guillain-Barré Syndrome (n=4): Four suspected botulism cases received a final diagnosis of GBS or GBS Miller-Fischer variant. Two cases were female; three were Hispanic and the other Asian. Their mean age was 42 (range 19-62). Only one case received antitoxin treatment. Tests of stool and serum from three cases were negative. Two patients used injected drugs; one had a negative wound culture and serum toxin screen, while no tests were performed on the second IDU. Stool cultures of the two non-IDU cases were positive for campylobacter species, a frequent predecessor of GBS.

Central Nervous System Disease (n=3): Three suspected cases of botulism were found to have a disorder of the central nervous system; botulism tests were not performed on any of these three because their clinical presentations suggested another diagnosis. The first case was a 73-year old Asian male who developed quadriplegia; repeated imaging tests disclosed a brain stem infarct not seen during initial testing. The next case was a 73-year old woman first suspected of having GBS-MFV and who received botulinum antitoxin; her final diagnosis was paraneoplastic cerebellitis. The third case was a 47-year old woman ultimately diagnosed with an unspecified tumor in the brain stem.

### COMMENTS

Since botulinum toxin testing with the mouse bio-assay is available only in the DHS Public Health Laboratory (PHL), most initial reports are made by hospital laboratorians seeking permission to submit specimens to the PHL. ACDC then contacts the treating physician for further details.

Frequently the patient suffers with mild symptoms for several days before seeking medical treatment. The average delay from hospital admission to consultation with ACDC was 5 days (range 2-14), but for injection drug users it was slightly longer, averaging 6.5 days (range 3-14). In such situations other diagnoses have been ruled out and only botulism remains in the differential, prompting the request for testing. It is also possible for wound botulism to develop in a patient previously hospitalized for other



reasons, such as detoxification or withdrawal; that was not the case with any of the suspected cases occurring in 2003—all had neurological complaints and findings on admission.

Botulism is one of seven biological agents classified as “Category A” for bioterrorism preparedness, requiring the highest priority for reporting. Heightened concern over bioterrorism should lead to increased consultations with Public Health for possible botulism cases. Prompt reporting of suspected botulism cases will achieve two important goals. First, the rate of confirmation should increase as specimens are obtained sooner when toxin levels are higher and cultures are obtained prior to antibiotic administration. Second, should botulism toxin ever be used as a terrorist’s tool, rapid case reporting will permit faster recognition of the problem and increase the likelihood of determining the source.

**Table 1. Suspected Botulism Cases, LAC DHS, 2003**

Age/ Sex	Race/ Ethnicity	Month of onset	Injection drug user	Serum test*	Stool test†	Other test – Result&	Anti- toxin	Diagnosis
47 F	Unk	March	No	--	--	--	No	Neoplasm
73 M	Asian non-Hispanic	May	No	--	--	--	No	Cerebral infarct
73 F	White non-Hispanic	May	No	--	--	--	Yes	Paraneo- plastic cerebellitis
62 F	White Hispanic	July	No	Neg	Neg	Stool – campylobacter	No	GBS
37 F	White Hispanic	August	Yes	--	--	--	No	GBS-MFV
49 M	White Hispanic	August	Yes	Neg	--	Wound aspirate – Neg	Yes	GBS
46 M	White Hispanic	August	Yes	QNS	Neg	Wound aspirate – Neg Wound biopsy – Neg	No	Wound botulism
19 M	Asian non-Hispanic	September	No	Neg	Neg	Stool – campylobacter	No	GBS
44 M	White Hispanic	October	Yes	Neg	Neg	--	No	Wound botulism
42 M	White Hispanic	October	No	Neg	QNS	Gastric Aspirate – Neg Food – Neg	Yes	Foodborne botulism
43 M	White non-Hispanic	November	Yes	Neg	Neg	--	No	Wound botulism

Neg – test was performed and result was negative

QNS – quantity not sufficient

GBS – Guillain-Barré syndrome

MFV – Miller-Fischer variant of GBS

\* Botulinum toxin screen by mouse bio-assay

† Botulinum toxin screen by mouse bio-assay; culture for clostridia

& Culture for clostridia (wound material, gastric aspirate, food item) or enteric bacteria (stool); botulinum toxin screen (gastric aspirate, wound aspirate)