

## APPENDIX A

### Summary of Botulism Cases Reported in 2006

A total of 170 cases of botulism were reported to CDC in 2006. Foodborne botulism accounted for 19 (11%) cases, infant botulism for 106 (62%) cases, and wound cases for 45 (26%) cases.

The 19 cases of foodborne intoxication were reported from six states. Of these foodborne cases, toxin type A accounted for 12 (63%) cases, toxin type B for 1 (5%) case, toxin type E for 1 (5%) case, and unknown toxin type for 5 (26%) cases. The median age of patients was 57 years, with a range of 6 years to 80 years; 8 (42%) cases were male and 11 (58%) were female. No deaths were reported. There were five outbreaks involving two or more cases. They were caused by commercially-produced canned chicken broth associated with two cases, commercial carrot juice caused three cases in GA and one case in FL as well as cases in Canada and led to an international product recall, home-canned carrots associated with two cases, home-prepared fermented tofu associated with two cases, and fish eggs associated with five cases in Alaska.

There were 106 cases of infant botulism reported by 23 states. Toxin type A accounted for 49 (46%) cases, toxin type B for 54 (51%) cases, toxin type E for 1 (1%) case, and toxin type F for 1 (1%) case. One infant case (1%) had an isolate that produced both neurotoxin types B and A, called type Ba. The three non-A, non-B cases occurred in AZ, IA, and NV. The median age of patients was 15 weeks with a range of <1 week to 39 weeks; 43 (41%) were male and 63 (59%) were female. No deaths were reported.

There were 45 cases of wound botulism reported by five health jurisdictions (CA [41], MD [1], NYC [1], TX [1], and WA [1]). Toxin type A accounted for 41 (91%) cases and toxin type B for 4 (9%) cases. All but two cases were injection drug users; the other two cases sustained a wound from a fall or from an injury that required a cast. The median age of patients was 46 years with a range of 14 years to 62 years; 34 (7%) were male and 11 (24%) were female. One death was reported in a wound case who was an injection heroin user.

**Table 1. Summary of Reported Botulism Cases - 2006**

**Foodborne**

19 cases

Median age: 57 years (range: 6-80 years)

Death: 0 confirmed, 0 without information

Gender: 8 (42%) male, 11 (58%) female

Toxin type: 12 (63%) type A, 1 (5%) type B, 1 (5%) type E, 5 (26%) not typeable

5 multi-case outbreaks

**Infant**

106 cases

Median age: 15 weeks (range: <1 - 39 weeks)

Death: 0 confirmed, 1 without information

Gender: 43 (41%) male, 63 (59%) female

Toxin type: 49 (46%) type A, 54 (51%) type B, 1 (1%) type Ba, 1 (1%) type E, 1 (1%) type F

**Wound**

45 cases

Median age: 46 years (range: 14 - 62 years)

Death: 1 confirmed, 0 without information

Gender: 34 (76%) male, 11 (24%) female

Toxin type: 41 (91%) type A, 4 (9%) type B

**Table 2. Cases of Botulism by State and Type  
January 1 – December 31, 2006**

<b>State/District</b>	<b>Food</b>	<b>Wound</b>	<b>Infant</b>
Alaska	6		
Arkansas			
Arizona			5
California	6	41	43
Colorado			1
Connecticut			
District of Columbia			
Florida	1		1
Georgia	3		
Hawaii			
Iowa			1
Illinois	1		1
Kansas			
Louisiana			
Massachusetts			1
Maryland		1	5
Michigan			
Minnesota			1
Missouri			
Mississippi			
Montana			1
Nebraska			
New Hampshire			
New Jersey			7
New Mexico			1
Nevada	2		2
New York			1
New York City		1	2
Ohio			2
Oklahoma			
Pennsylvania			11
South Carolina			
Tennessee			1
Texas		1	5
Utah			3
Washington		1	9
Wisconsin			
West Virginia			1
Wyoming			1
<b>TOTAL</b>	<b>19</b>	<b>45</b>	<b>106</b>

**Table 3. Cases of Foodborne Botulism by Month (N=19)  
January 1 - December 31, 2006**

<u>Month</u>	<u>State</u>	<u>Age (years)</u>	<u>Gender</u>	<u>Toxin Type</u>	<u>Vehicle</u>	<u>Death</u>
January	CA*	73	Female	A	Home-canned carrots	No
January	CA*	74	Male	A	Home-canned carrots	No
May	IL	71	Male	B	Food prepared and consumed in Poland***	No
June	CA	29	Male	A	Commercial carrot juice***	No
July	CA	36	Female	A	Commercial soup***	No
September	GA*	77	Male	A	Commercial carrot juice	No
September	GA*	57	Female	A	Commercial carrot juice	No
September	GA*	42	Female	A	Commercial carrot juice	No
September	FL*	53	Female	A	Commercial carrot juice	No
September	AK	57	Male	E	Seal oil	No
October	AK*	54	Female	Unknown**	Fish eggs***	No
October	AK*	6	Male	Unknown**	Fish eggs***	No
October	AK*	80	Female	Unknown**	Fish eggs***	No
October	AK*	76	Female	Unknown**	Fish eggs***	No
October	AK*	49	Female	Unknown**	Fish eggs***	No
November	CA*	67	Female	A	Home-prepared fermented tofu	No
December	CA*	75	Male	A	Home-prepared fermented tofu	No
December	NV*	44	Male	A	Canned chicken broth	No
December	NV*	44	Female	A	Canned chicken broth	No

\*Cases involved in multi-case outbreaks

\*\*Serum quantity not sufficient for toxin typing

\*\*\*Food vehicle implicated based on epidemiologic evidence

**Table 4. Cases of Infant Botulism by Month (N=106)  
January 1 - December 31, 2006**

<u>Month</u>	<u>State</u>	<u>Age (weeks)</u>	<u>Gender</u>	<u>Toxin Type</u>	<u>Death</u>
January	CA	7	Female	B	No
January	IA	0	Female	F*	No
January	NJ	22	Female	B	No
January	NJ	22	Male	B	No
January	PA	15	Male	B	No
January	WA	34	Female	A	No
February	CA	10	Female	A	No
February	CA	14	Female	B	No
February	CA	7	Male	A	No
February	CA	31	Female	A	No
February	CA	20	Male	B	No
February	MN	5	Female	A	No
February	NYC	12	Male	B	No
February	NY	2	Male	B	No
February	PA	17	Female	B	No
February	WA	27	Male	A	No
March	AZ	1	Female	E**	No
March	AZ	14	Female	B	No
March	CA	25	Male	B	No
March	CA	22	Female	B	No
March	CA	22	Male	A	No
March	FL	22	Female	A	No
March	MD	15	Female	B	No
March	PA	15	Female	B	No
March	PA	22	Female	B	No
March	PA	8	Female	B	No
March	PA	22	Male	B	No
March	WA	21	Female	A	No
March	WA	23	Male	A	No
March	WV	8	Male	B	No
March	WY	23	Female	A	No
April	CA	16	Female	B	No
April	CA	24	Female	A	No
April	TX	2	Male	A	No
April	TX	4	Female	A	No
May	CA	12	Female	B	No
May	CA	14	Female	A	No
May	CA	10	Female	B	No
May	CA	7	Male	A	No
May	IL	24	Female	B	No
May	MD	7	Female	B	No
May	NJ	5	Female	B	No
May	PA	16	Male	B	No
May	TX	1	Female	A	No
May	WA	19	Female	A	No
June	AZ	3	Female	B	No
June	CA	8	Female	A	No

**Table 4. Cases of Infant Botulism by Month (N=106) (continued)**  
**January 1 - December 31, 2006**

<u>Month</u>	<u>State</u>	<u>Age (weeks)</u>	<u>Gender</u>	<u>Toxin Type</u>	<u>Death</u>
June	CA	11	Female	B	No
June	CA	28	Male	A	No
June	CA	12	Male	A	No
June	CA	12	Female	A	No
June	CA	6	Female	A	No
June	NJ	7	Male	B	No
June	NV	19	Male	Ba***	No
July	CA	11	Female	A	No
July	CA	8	Male	B	No
July	CA	5	Male	B	No
July	CA	9	Male	B	No
July	CA	25	Female	A	No
July	CA	8	Female	A	No
July	OH	7	Female	B	No
July	PA	10	Female	B	No
July	TX	17	Male	B	No
July	UT	21	Female	A	No
July	UT	2	Male	A	No
August	CA	8	Female	A	No
August	CA	12	Female	B	No
August	CA	15	Female	A	No
August	CO	15	Male	B	No
August	NV	21	Female	A	No
August	OH	22	Male	B	No
August	TN	7	Female	B	No
August	WA	29	Male	A	No
September	AZ	4	Female	B	No
September	CA	17	Male	A	No
September	CA	7	Male	A	No
September	CA	18	Female	B	No
September	MD	25	Female	B	No
September	PA	19	Female	B	No
September	UT	25	Male	A	No
September	WA	31	Female	A	No
October	AZ	19	Male	B	No
October	CA	3	Female	B	No
October	CA	5	Female	A	No
October	CA	9	Female	A	No
October	MD	27	Male	B	No
October	WA	39	Female	A	No
November	CA	26	Male	A	No
November	CA	9	Female	A	No
November	CA	3	Male	A	No
November	MA	34	Male	B	No
November	MT	20	Male	A	No
November	NJ	2	Female	B	No
November	NM	30	Male	A	No
November	NYC	24	Female	B	No
November	PA	4	Male	B	No

**Table 4. Cases of Infant Botulism by Month (N=106) (continued)**  
**January 1 - December 31, 2006**

<u>Month</u>	<u>State</u>	<u>Age (weeks)</u>	<u>Gender</u>	<u>Toxin Type</u>	<u>Death</u>
December	CA	20	Male	A	No
December	CA	4	Male	A	No
December	CA	25	Female	A	No
December	CA	7	Female	A	No
December	MD	8	Female	B	No
December	NJ	14	Male	B	No
December	NJ	26	Female	B	No
December	PA	27	Male	B	No
December	TX	22	Female	B	No
December	WA	18	Male	A	No

\*Botulinum toxin Type F produced by *Clostridium baratii*

\*\*Suspect *Clostridium butyricum* type E

\*\*\*Dual toxin type

**Table 5. Cases of Wound Botulism by Month (N=45)  
January 1 - December 31, 2006**

<u>Month</u>	<u>State</u>	<u>Age (years)</u>	<u>Gender</u>	<u>Toxin Type</u>	<u>Exposure*</u>	<u>Death</u>
January	CA	57	Male	A	IDU	No
January	CA	45	Male	A	IDU	No
January	CA	37	Female	A	IDU	No
January	CA	31	Male	A	IDU	No
January	CA	43	Male	A	IDU	No
January	CA	52	Male	A	IDU	No
January	CA	56	Male	A	IDU	No
January	CA	39	Female	A	IDU	No
January	CA	38	Male	A	IDU	No
January	CA	58	Male	A	IDU	No
January	CA	52	Male	A	IDU	No
February	CA	62	Male	A	IDU	No
February	CA	57	Male	A	IDU	No
February	CA	39	Female	A	IDU	No
March	CA	51	Female	A	IDU	No
March	CA	30	Female	A	IDU	No
March	CA	38	Male	A	IDU	No
March	NYC	14	Male	B	Trauma <sup>1</sup>	No
April	CA	47	Male	B	IDU	No
April	CA	61	Male	A	IDU	No
April	TX	45	Male	A	IDU	Yes
May	CA	49	Male	A	IDU	No
May	CA	47	Female	A	IDU	No
May	CA	61	Female	A	IDU	No
May	CA	41	Male	A	IDU	No
May	CA	41	Female	A	IDU	No
June	CA	55	Female	A	IDU	No
June	CA	51	Male	A	IDU	No
June	CA	40	Male	A	IDU	No
June	CA	37	Male	A	IDU	No
June	CA	37	Male	A	IDU	No
June	CA	33	Male	A	IDU	No
July	CA	48	Female	A	IDU	No
July	CA	45	Male	A	IDU	No
July	CA	46	Male	A	IDU	No
July	MD	52	Male	B	Trauma <sup>2</sup>	No
July	WA	46	Male	B	IDU	No
August	CA	35	Male	A	IDU	No
August	CA	53	Male	A	IDU	No
August	CA	34	Female	A	IDU	No
October	CA	39	Male	A	IDU	No
October	CA	52	Male	A	IDU	No
October	CA	48	Male	A	IDU	No
November	CA	50	Male	A	IDU	No
November	CA	52	Male	A	IDU	No

\*IDU = injection drug user

<sup>1</sup>Acquired an injury that required a cast

<sup>2</sup>Wound sustained from a fall