National Botulism Surveillance Summary, 2018

In 2018, health departments reported 242 cases of botulism to CDC. Of those, 231 were laboratory-confirmed and 11 were probable. The cases were of the following types: 162 (67%) infant, 61 (25%) wound, 18 (7%) foodborne, and 1 (<1%) other, diagnosed as probable adult intestinal colonization.

Learn about the five main kinds of botulism

Infant botulism cases

Health departments reported 162 cases infant botulism, all of which were laboratory-confirmed (Table 1). Cases were reported from 31 states, with California (38 cases, 23%) and Pennsylvania (27, 17%) reporting the most. The toxin types were A (69, 43%), B (87, 54%), Ba (2, 1%), Bf (3, 2%), and F (1, <1%). Type Bf infant botulism is very uncommon; previously, only 13 U.S. cases had been reported (7 from California, 5 from Texas, 1 from New Mexico).

The median age of infants was 4 (range: 0–10) months; 89 (55%) were female. One death was reported. Three infants had used pacifiers containing honey purchased in Mexico. [1]

Wound botulism cases

Health departments reported 61 cases of wound botulism, 51 laboratory-confirmed and 10 probable.

The 51 cases of laboratory-confirmed wound botulism were reported from four states: 44 from California, 5 from Arizona, and 1 each from New Mexico and Oregon (Table 1). All cases occurred in persons who injected drugs. Most (47, 92%) were toxin type A and the remainder (4, 8%) were toxin type B. Six cases were part of outbreaks among persons who injected black tar heroin:

- California reported an outbreak of 3 cases in San Diego County within a 2-week period in April 2018 among persons who shared needles. [2]
- Arizona reported an outbreak of 3 cases in Gila County in a married couple and their friend within a 9-day period in June–July 2018. The three people involved shared black tar heroin.

The median age of patients with laboratory-confirmed wound botulism was 48 (range: 21–67) years; 36 (71%) were male. One death was reported. This year marks the highest annual case count of laboratory-confirmed wound botulism. The next highest years were 1999 (40 cases) and 2006 (45 cases).

The 10 cases of probable wound botulism were reported from 3 states: 8 from California, 1 from Arizona and 1 from Texas. All cases occurred in persons who injected drugs. The median age of patients was 46 (range: 24–62) years; five (50%) were men. No deaths were reported.

Foodborne botulism cases

Health departments reported 18 cases of foodborne botulism, 17 laboratory-confirmed and one probable.

The 17 cases of laboratory-confirmed foodborne botulism were reported from nine states; Alaska reported the most (4 cases) (Tables 1 and 2). Nine cases were part of outbreaks:

- New York reported a type A outbreak of 3 cases linked to home-canned peas and beans. [3]
- Pennsylvania reported a type B outbreak of 2 cases linked to homemade fermented bean curd.
- New Jersey reported a type E outbreak of 2 cases linked to home-prepared feseekh, a fermented salt-cured fish. [4]
- Oklahoma reported a type F outbreak of 2 cases linked to homemade turkey soup.

The 4 cases in Alaska were caused by toxin type E; they were linked to Native Alaskan foods served at unrelated events. Texas reported a type A case without an identified food source, but unsafe food practices were observed. The median age of patients with laboratory-confirmed botulism was 55 (range: 20–88) years; 13 (76%) were female. No deaths were reported.

The one case of probable foodborne botulism was reported from Alaska. The patient had recently eaten seal oil. The patient did not die.

Other cases of botulism

One case of laboratory-confirmed botulism caused by toxin type F reported from Texas was thought to be due to adult intestinal colonization. No risk factors were identified.

Table 1 Table 2 Table 3

Confirmed and probable botulism cases by transmission category—United States, 2018

Confirmed Cases

Transmission Category	Cases	Median Age (range)	Deaths	Sex, n (%)	Toxin Type, n (%)	Outbreaks*
Infant	162	4 (0–10) months	1	male 73 (45); female 89 (55)	A: 69 (43), B: 87 (54), Ba: 2 (1), Bf: 3 (2), F: 1 (<1)	0
Wound	51	48 (21–67) years	1	male 36 (71); female 15 (29)	A: 47 (92), B: 4 (8)	2
Foodborne	17	55 (20–88) years	0	male 4 (24); female 13 (76)	A: 6 (35), B: 3 (18), E: 6 (35), F: 2 (12)	4
Other‡	1	30 (30–30) years	0	male 1 (100)	F: 1 (100)	0

Probable Cases

Transmission Category	Cases	Median Age (range)	Deaths	Sex, n (%)	Toxin Type, n (%) type	Outbreaks*
Wound¶	10	46 (24–62) years	0	male 5 (50); female 5 (50)	not applicable	0
Foodborne§	1	59 (59–59) years	0	male 1 (100)	not applicable	0

*Outbreak defined as two or more cases resulting from a common exposure.
†IDU: injection drug use.
‡"Other" includes adult intestinal colonization, iatrogenic botulism, and unknown routes of transmission.
¶Probable wound botulism is defined as a clinically compatible case with no suspected exposure to contaminated food and with a history in the 2 weeks before illness began of either a fresh contaminated wound or injection drug use.
§Probable foodborne botulism is defined as a clinically compatible case with an epidemiologic link (e.g., ingestion of a home-canned food within the previous 48 hours).

Foods linked to laboratory-confirmed botulism cases (n=17 cases)—United States, 2018

Month	State	Confirmed or Suspected Food	Toxin Type	Cases
January	West Virginia	Home-canned soup	B	1
February	Washington	Home-pickled mushrooms*	A	1
March	Alaska	Eskimo salad with whale oil	E	1
April	Pennsylvania	Homemade fermented bean curd*	B	2
May	Alaska	Fermented white fish in seal oil	E	1
May	Texas	Unknown†	A	1
June	New York	Home canned peas/beans*	A	3
July	Alaska	Fermented fish heads & aged whale*	E	1
July	Alaska	Fermented king salmon head*	E	1
September	Indiana	Canned foods with storage concerns after opening	A	1
October	New Jersey	Home-prepared fermented fish*	E	2
November	Oklahoma	Homemade turkey soup	F	2

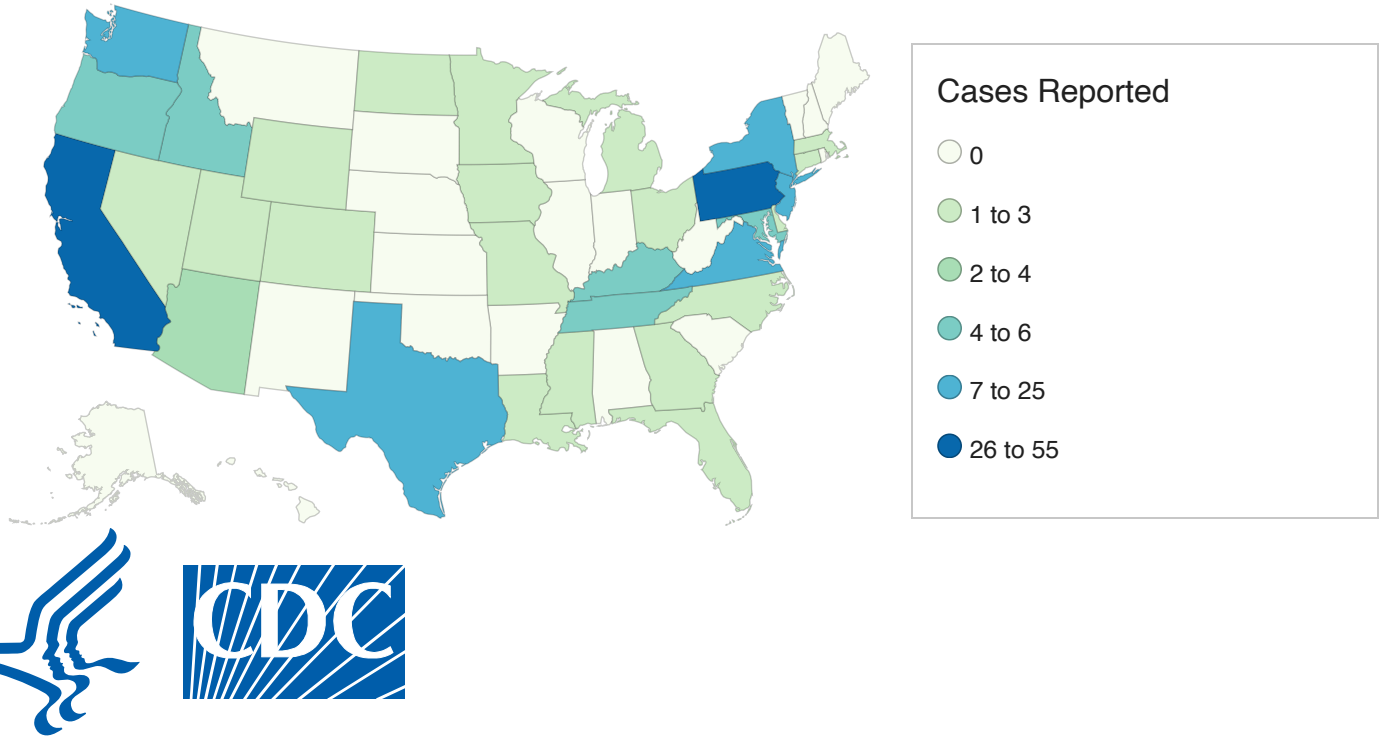
*Foods followed by an asterisk were confirmed as the source by detection of toxin in food. In foods without an asterisk, toxin was not detected, or food item was not available for testing; food vehicle was suspected based on clinical history, epidemiologic evidence, or reported method of preparation or storage.
†Unsafe food practices were observed.

Epidemiologic information for laboratory-confirmed wound botulism outbreaks (n=6 cases)—United States, 2018

Month	State	Activity Associated with Infection	Vehicle	Toxin Type	Cases
April	California	Injection drug use	Shared needles	A	3
June – July	Arizona	Injection drug use	Shared black tar heroin	A	3

Figure 1. Botulism Cases by State or Territory and Transmission Category —United States, 2018

Infant (n=162) | Wound (n=51) | Foodborne (n=17) | Other (n=1)



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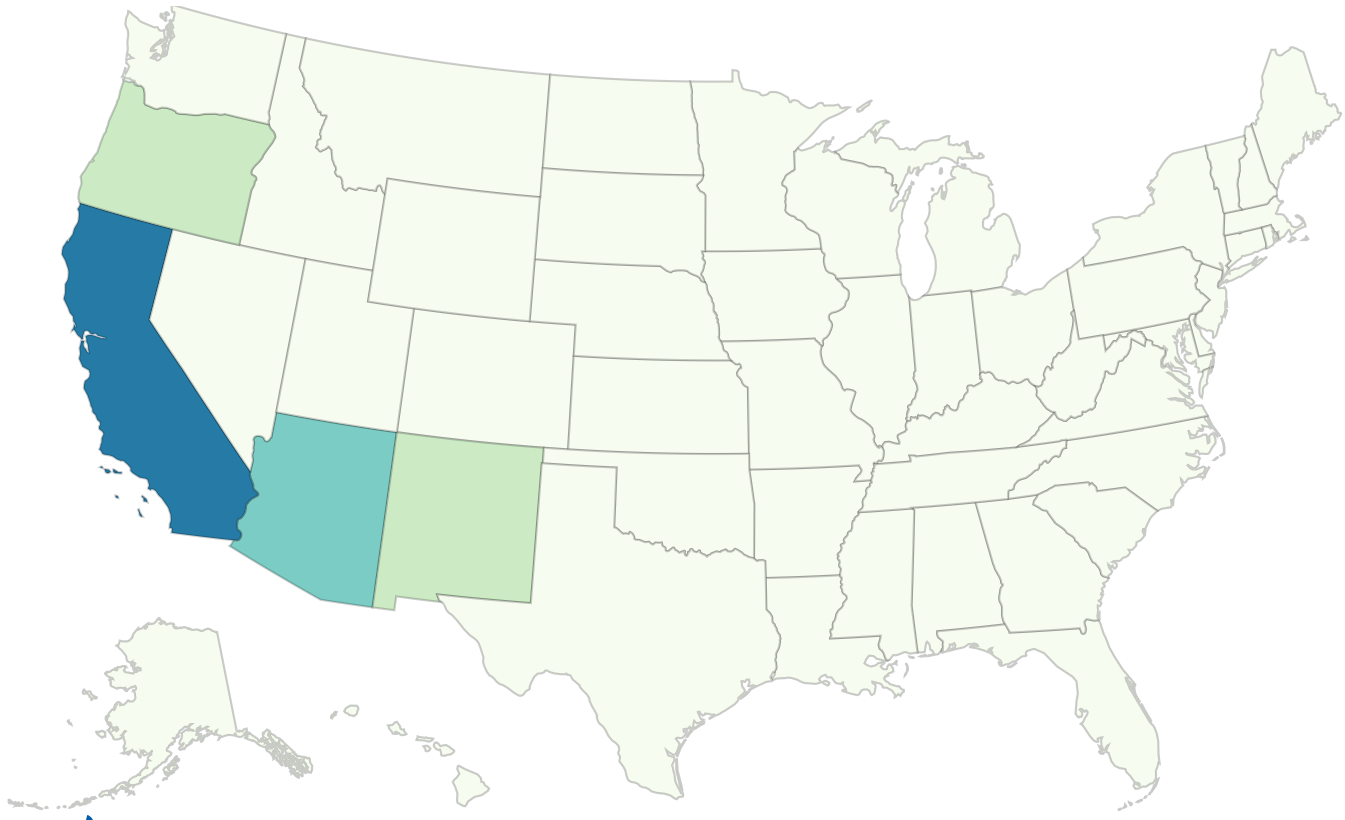
Arkansas	0
California	38
Colorado	1
Connecticut	1
Delaware	3
Florida	1
Georgia	1
Hawaii	0
Idaho	4
Illinois	0
Indiana	0
Iowa	1
Kansas	0

Kentucky	6
Louisiana	1
Maine	0
Maryland	4
Massachusetts	2
Michigan	1
Minnesota	1
Mississippi	1
Missouri	2
Montana	0
Nebraska	0
Nevada	1
New Hampshire	0
New Jersey	9
New Mexico	0
New York	7
North Carolina	1
North Dakota	1
Ohio	3
Oklahoma	0
Oregon	4
Pennsylvania	27
Rhode Island	0
South Carolina	0
South Dakota	0
Tennessee	4
Texas	12
Utah	2
Vermont	0
Virginia	9
Washington	7
West Virginia	0
Wisconsin	0
Wyoming	1



Cases Reported

- 0
- 1
- 5
- 44

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Data Table

Location	Count
Alabama	0
Alaska	0
Arizona	5
Arkansas	0
California	44
Colorado	0
Connecticut	0
Delaware	0
Florida	0
Georgia	0

Hawaii	0
Idaho	0
Illinois	0
Indiana	0
Iowa	0
Kansas	0
Kentucky	0
Louisiana	0
Maine	0
Maryland	0
Massachusetts	0
Michigan	0
Minnesota	0
Mississippi	0
Missouri	0
Montana	0
Nebraska	0
Nevada	0
New Hampshire	0
New Jersey	0
New Mexico	1
New York	0
North Carolina	0
North Dakota	0
Ohio	0
Oklahoma	0
Oregon	1
Pennsylvania	0
Rhode Island	0
South Carolina	0
South Dakota	0
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Texas	0
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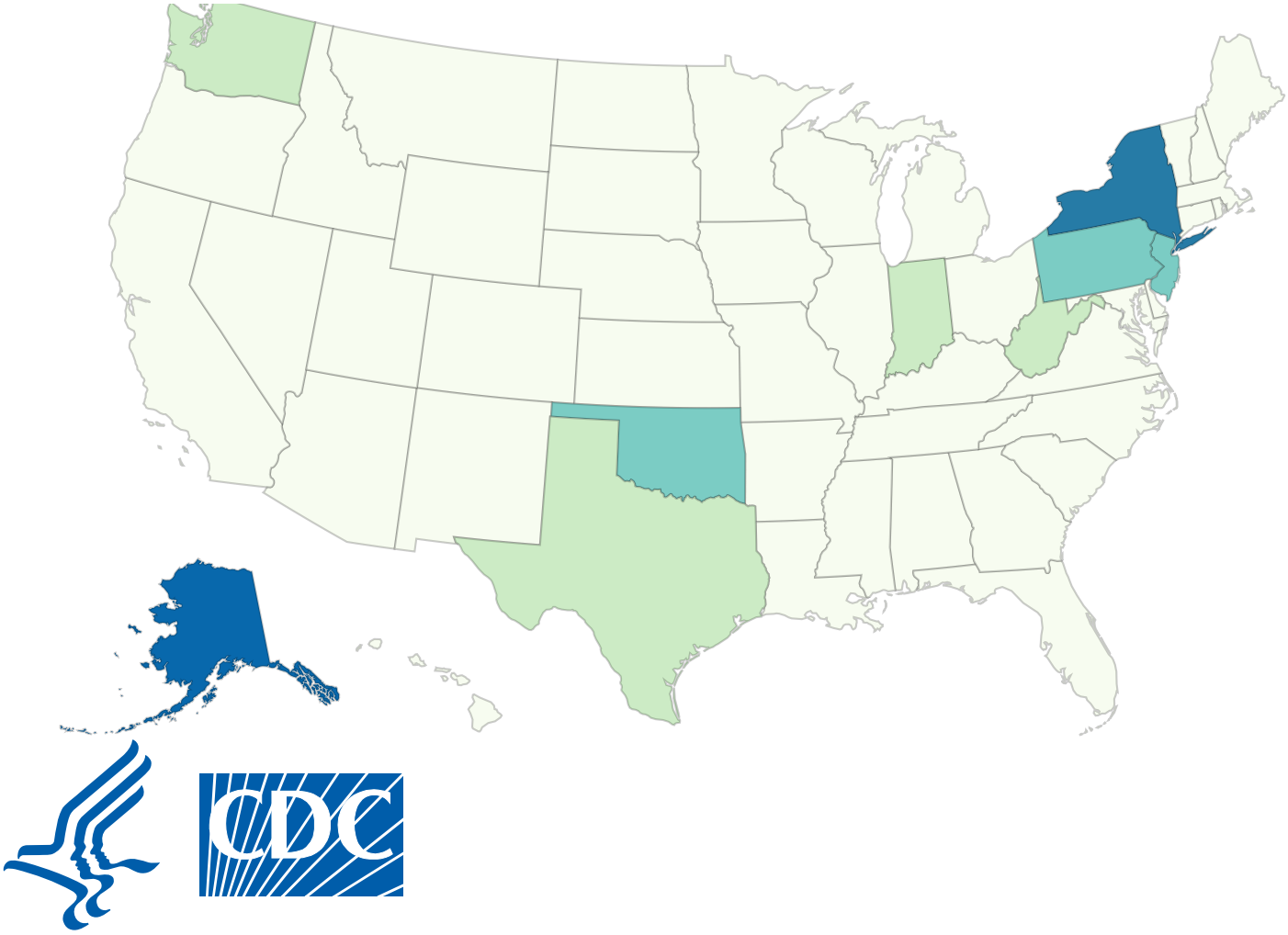
Virginia	0
Washington	0
West Virginia	0
Wisconsin	0
Wyoming	0



Cases Reported

- 0
- 1
- 2
- 3
- 4

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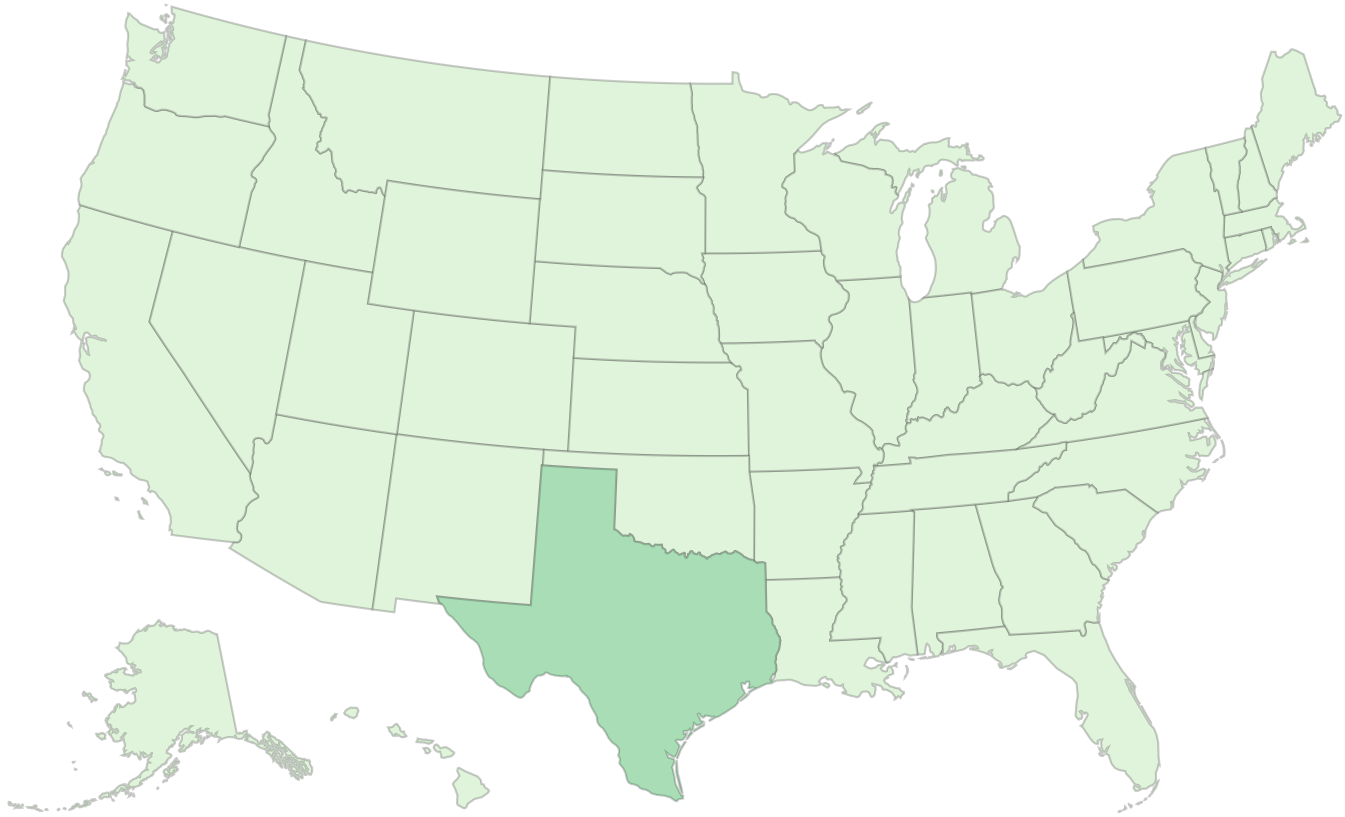
Data Table

Location	Count
Alabama	0
Alaska	4
Arizona	0
Arkansas	0
California	0
Colorado	0
Connecticut	0
Delaware	0
Florida	0

Georgia	0
Hawaii	0
Idaho	0
Illinois	0
Indiana	1
Iowa	0
Kansas	0
Kentucky	0
Louisiana	0
Maine	0
Maryland	0
Massachusetts	0
Michigan	0
Minnesota	0
Mississippi	0
Missouri	0
Montana	0
Nebraska	0
Nevada	0
New Hampshire	0
New Jersey	2
New Mexico	0
New York	3
North Carolina	0
North Dakota	0
Ohio	0
Oklahoma	2
Oregon	0
Pennsylvania	2
Rhode Island	0
South Carolina	0
South Dakota	0
Tennessee	0
Texas	1
Utah	0
Vermont	0
Virginia	0
Washington	1
West Virginia	1
Wisconsin	0
Wyoming	0



Cases Reported

- 0
- 1

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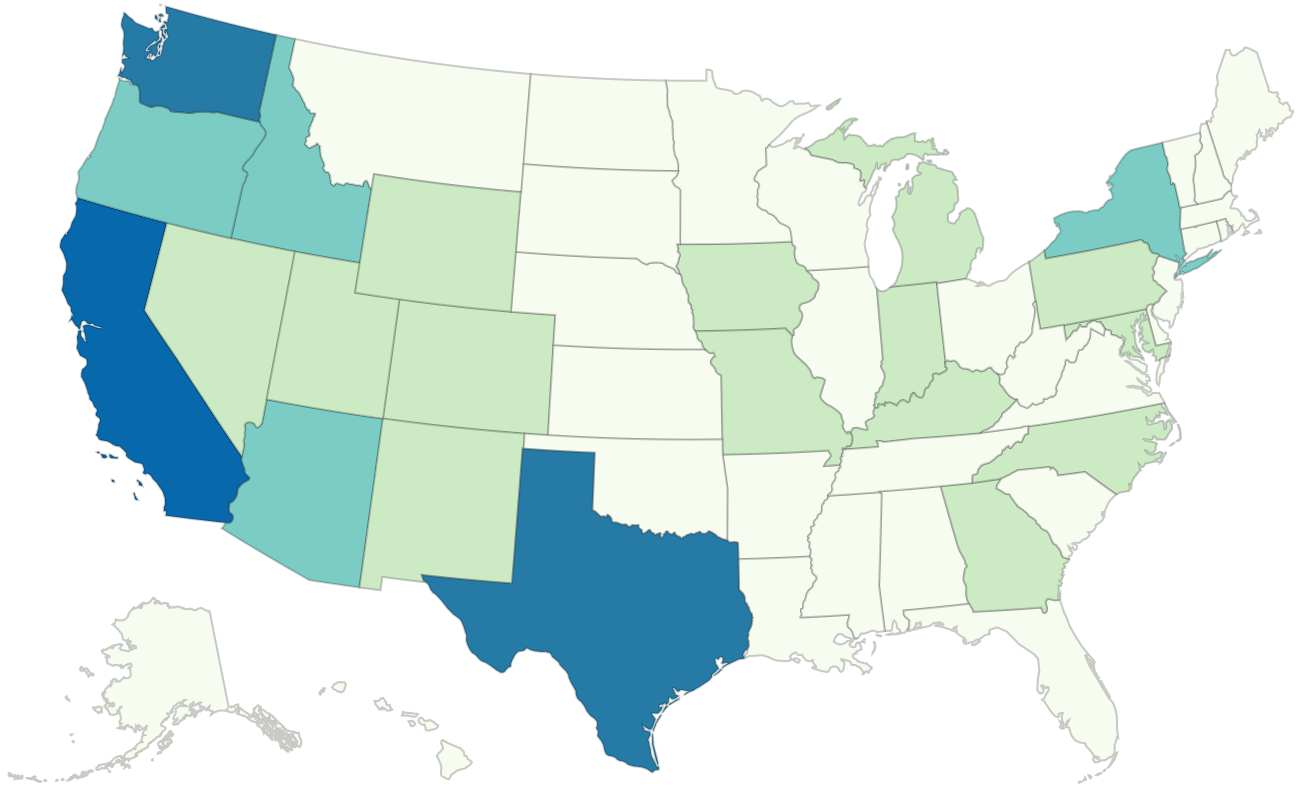
Data Table

Location	Count
Alabama	0
Alaska	0
Arizona	0
Arkansas	0
California	0
Colorado	0
Connecticut	0
Delaware	0
Florida	0
Georgia	0
Hawaii	0
Idaho	0

Illinois	0
Indiana	0
Iowa	0
Kansas	0
Kentucky	0
Louisiana	0
Maine	0
Maryland	0
Massachusetts	0
Michigan	0
Minnesota	0
Mississippi	0
Missouri	0
Montana	0
Nebraska	0
Nevada	0
New Hampshire	0
New Jersey	0
New Mexico	0
New York	0
North Carolina	0
North Dakota	0
Ohio	0
Oklahoma	0
Oregon	0
Pennsylvania	0
Rhode Island	0
South Carolina	0
South Dakota	0
Tennessee	0
Texas	1
Utah	0
Vermont	0
Virginia	0
Washington	0
West Virginia	0
Wisconsin	0
Wyoming	0

Figure 2. Laboratory-confirmed botulism cases by state/territory and toxin type—United States, 2018

Type: A (n=122) | Type: B (n=94) | Type: Bf (n=3) | Type: E (n=6) | Type: F (n=4) | Type: Ba (n=2)



Cases Reported

- 0
- 1 to 3
- 4 to 6
- 7 to 69
- >70

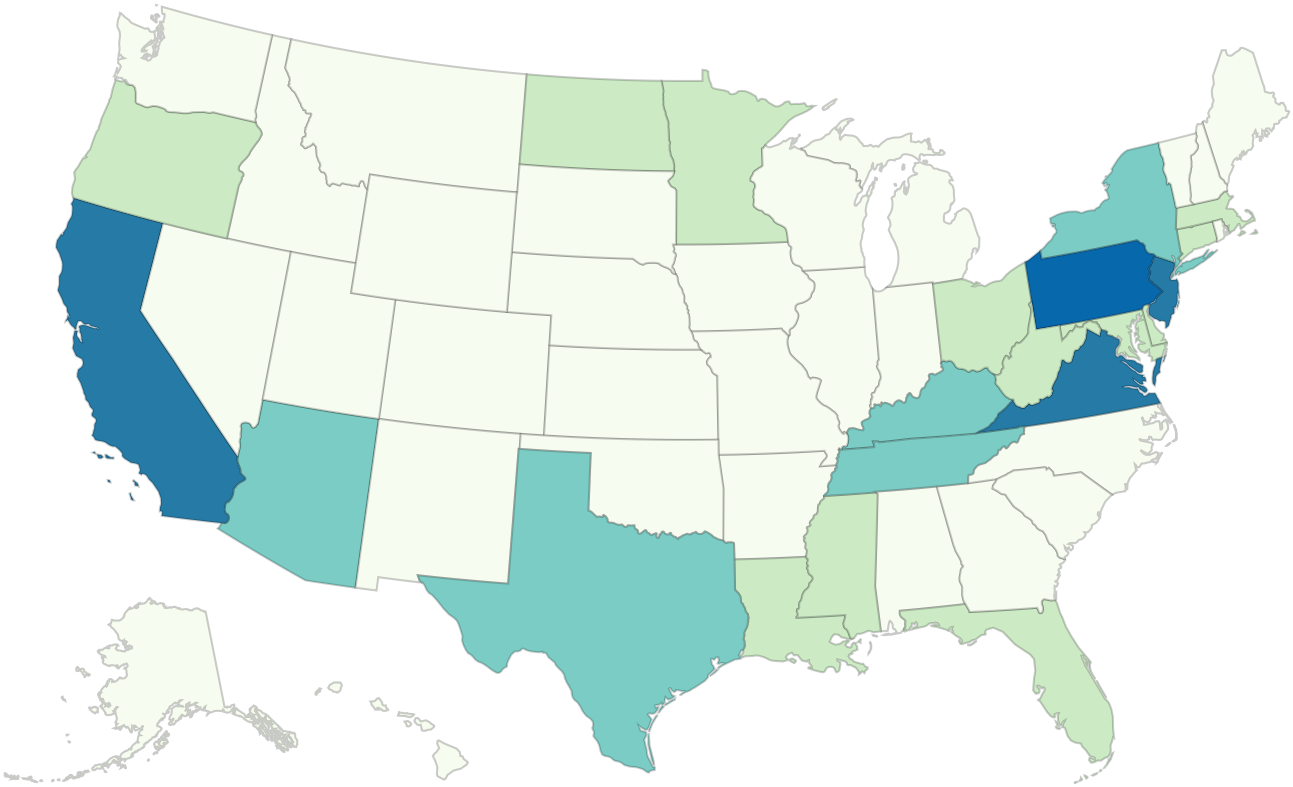
Download Data (CSV)

Data Table

Location	Count
Alabama	0
Alaska	0
Arizona	6
Arkansas	0

California	71
Colorado	1
Connecticut	0
Delaware	0
Florida	0
Georgia	1
Hawaii	0
Idaho	4
Illinois	0
Indiana	1
Iowa	1
Kansas	0
Kentucky	1
Louisiana	0
Maine	0
Maryland	2
Massachusetts	0
Michigan	1
Minnesota	0
Mississippi	0
Missouri	2
Montana	0
Nebraska	0
Nevada	1
New Hampshire	0
New Jersey	0
New Mexico	1
New York	5
North Carolina	1
North Dakota	0
Ohio	0
Oklahoma	0
Oregon	4
Pennsylvania	1
Rhode Island	0
South Carolina	0
South Dakota	0
Tennessee	0
Texas	7
Utah	2
Vermont	0
Virginia	0
Washington	8
West Virginia	0

Wisconsin	0
Wyoming	1



Cases Reported

- 0
- 1 to 3
- 4 to 6
- 7 to 26
- > 27

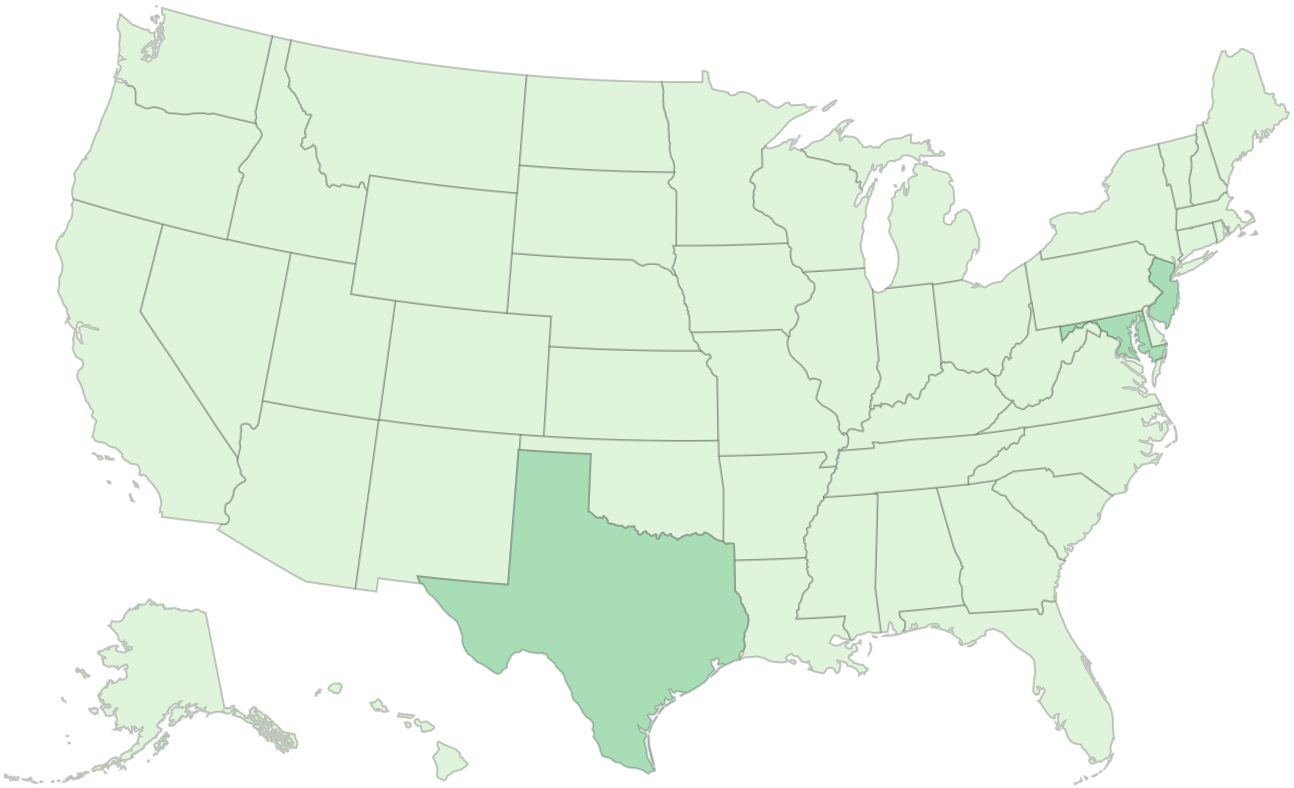
Download Data (CSV)

Data Table

Location	Count
Alabama	0
Alaska	0

Arizona	5
Arkansas	0
California	9
Colorado	0
Connecticut	1
Delaware	3
Florida	1
Georgia	0
Hawaii	0
Idaho	0
Illinois	0
Indiana	0
Iowa	0
Kansas	0
Kentucky	5
Louisiana	1
Maine	0
Maryland	1
Massachusetts	2
Michigan	0
Minnesota	1
Mississippi	1
Missouri	0
Montana	0
Nebraska	0
Nevada	0
New Hampshire	0
New Jersey	8
New Mexico	0
New York	5
North Carolina	0
North Dakota	1
Ohio	3
Oklahoma	0
Oregon	1
Pennsylvania	28
Rhode Island	0
South Carolina	0
South Dakota	0
Tennessee	4
Texas	4
Utah	0

Vermont	0
Virginia	9
Washington	0
West Virginia	1
Wisconsin	0
Wyoming	0



Reported Cases

0

1

Download Data (CSV)

Data Table

Location	Count
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Arkansas	0

California	0
Colorado	0
Connecticut	0
Delaware	0
Florida	0
Georgia	0
Hawaii	0
Idaho	0
Illinois	0
Indiana	0
Iowa	0
Kansas	0
Kentucky	0
Louisiana	0
Maine	0
Maryland	1
Massachusetts	0
Michigan	0
Minnesota	0
Mississippi	0
Missouri	0
Montana	0
Nebraska	0
Nevada	0
New Hampshire	0
New Jersey	1
New Mexico	0
New York	0
North Carolina	0
North Dakota	0
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Oregon	0
Pennsylvania	0
Rhode Island	0
South Carolina	0
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Virginia	0

Washington	0
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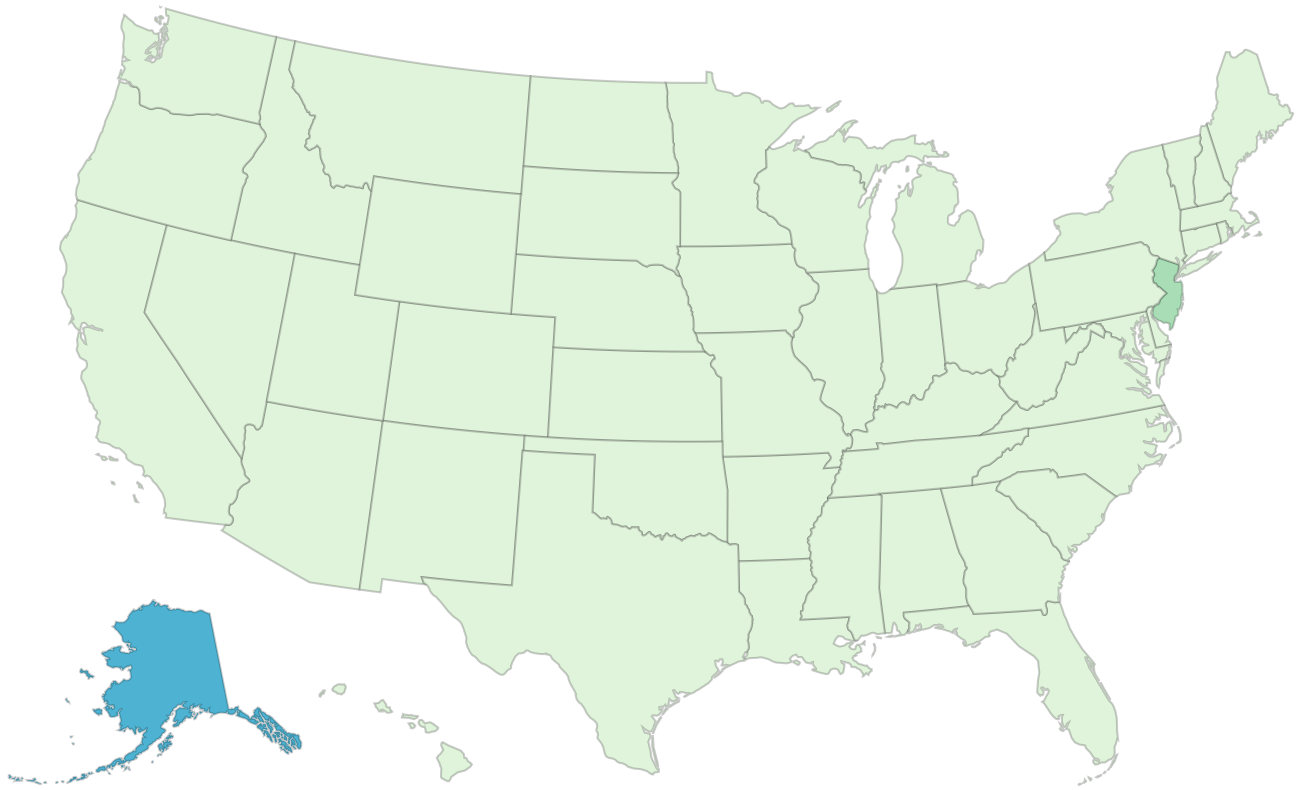
Wisconsin	0
Wyoming	0



Reported Cases

- 0
- 2
- 4

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Data Table

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Colorado	0
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Delaware	0
Florida	0
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Hawaii	0
Idaho	0
Illinois	0
Indiana	0
Iowa	0
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Louisiana	0
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Oregon	0
Pennsylvania	0
Rhode Island	0
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West Virginia	0
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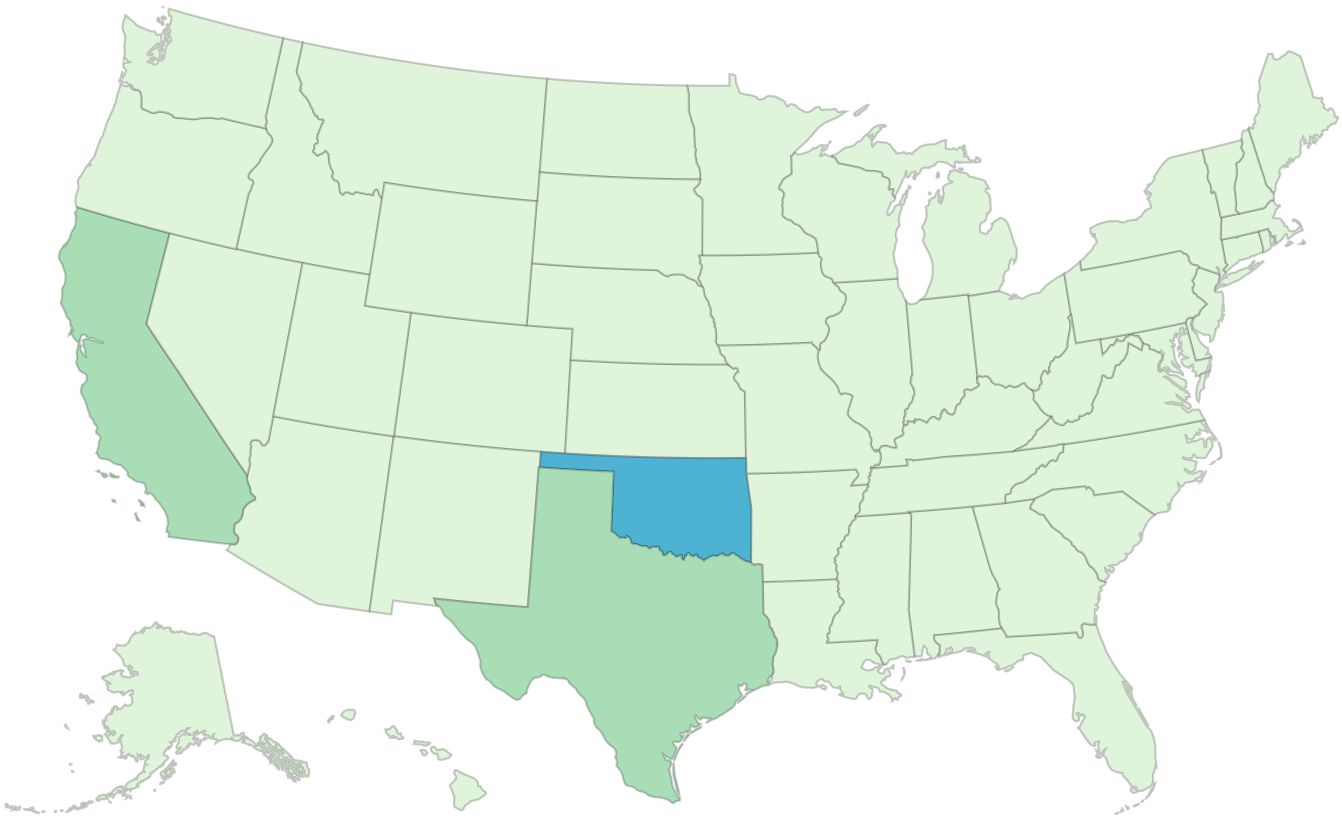
Wyoming	0



Legend

- 0
- 1
- 2

Download Data (CSV)

Data Table

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Colorado	0
Connecticut	0
Delaware	0
Florida	0
Georgia	0
Hawaii	0
Idaho	0
Illinois	0
Indiana	0
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Louisiana	0
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Oregon	0
Pennsylvania	0
Rhode Island	0
South Carolina	0
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Virginia	0
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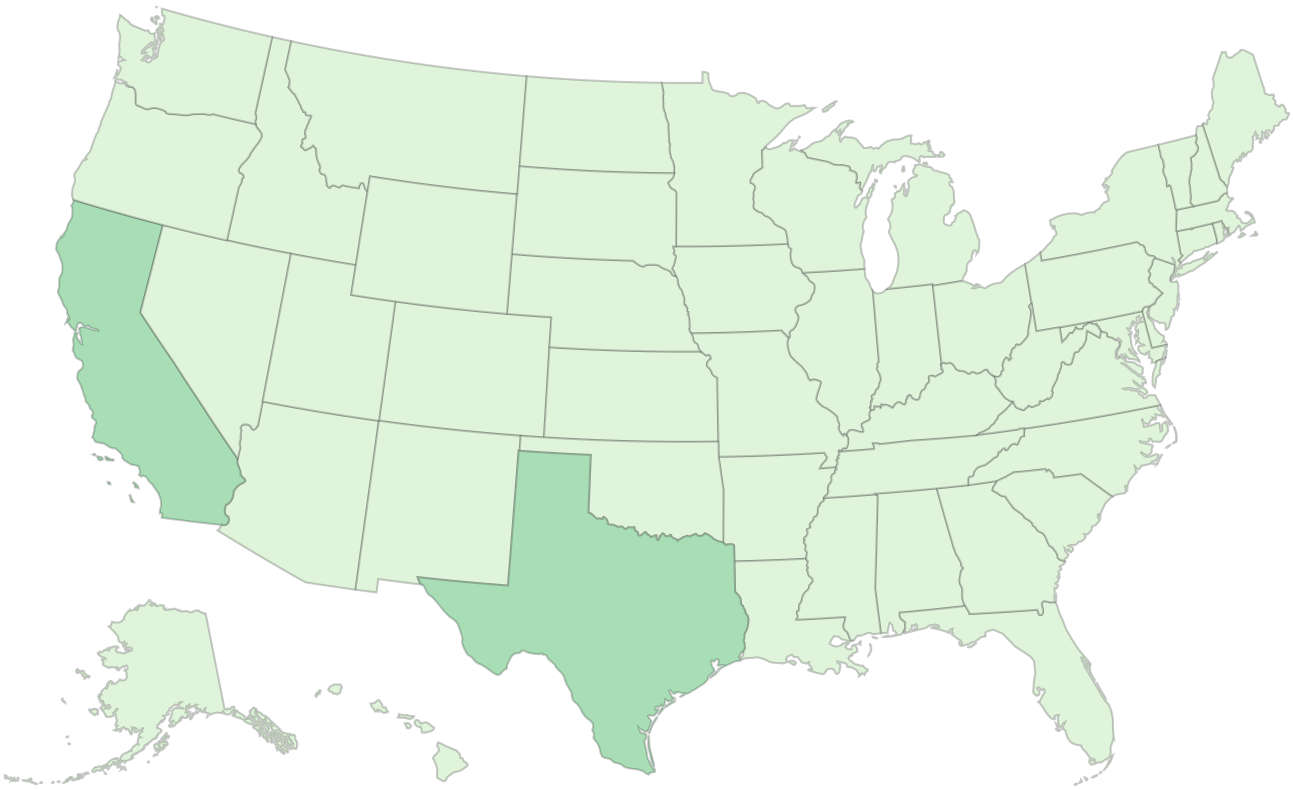

Reported Cases

0

1

Download Data (CSV)

Data Table

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Connecticut	0

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Florida	0
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Hawaii	0
Idaho	0
Illinois	0
Indiana	0
Iowa	0
Kansas	0
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Louisiana	0
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Pennsylvania	0
Rhode Island	0
South Carolina	0
South Dakota	0
Tennessee	0
Texas	1
Utah	0
Vermont	0
Virginia	0
Washington	0
West Virginia	0
Wisconsin	0

Wyoming	0

References

1. Food and Drug Administration, *FDA Reminds Parents Not to Feed Honey to Children Younger Than 1 Year*. 2018.
2. Peak, C.M., et al., *Wound Botulism Outbreak Among Persons Who Use Black Tar Heroin – San Diego County, California, 2017-2018*. MMWR Morb Mortal Wkly Rep, 2019. **67**(5152): p. 1415-1418.
3. Bergeron, G., et al., *Notes from the Field: Botulism Outbreak Associated with Home-Canned Peas – New York City, 2018*. MMWR Morb Mortal Wkly Rep, 2019. **68**(10): p. 251-252.
4. Ganapathiraju PV, Gharpure R, Thomas D, et al. Notes from the Field: Botulism Type E After Consumption of Salt-Cured Fish — New Jersey, 2018. MMWR Morb Mortal Wkly Rep. 2019; 68: p. 1008–1009. DOI: http://dx.doi.org/10.15585/mmwr.mm6844a3

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