



Botulism

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National Botulism Surveillance Summary, 2019

In 2019, health departments reported 215 cases of botulism to CDC. Of those, 201 cases were laboratory-confirmed and 14 were probable (Table 1). The cases were of the following types: 152 (71%) infant, 41 (19%) wound, and 21 (10%) foodborne, and 1 (<1%) other, diagnosed as probable adult intestinal colonization.

Infant botulism cases

Health departments reported 152 cases of infant botulism, all of which were laboratory-confirmed (Table 1). Cases were reported from 32 states, with California (43 cases, 28%) and Pennsylvania (17, 11%) reporting the most. The toxin types were A (50, 43%), B (97, 54%), Bf (2, 1%), Af (1, <1%), Ba (1, <1%), and F (1, <1%). Type Bf infant botulism is very uncommon; only 16 U.S. cases have been previously reported (7 from California, 6 Texas, 1 Maryland, 1 New Jersey, 1 New Mexico). The 2 type Bf cases in 2019 were identified in New York (1) and Texas (1). Toxin types Af, Ba, and Bf indicate bivalent strains, which means one strain can produce two types of toxin. The capital letter indicates the most abundant toxin type. No deaths were reported.

The median age of infants was 4 months (range: 2 weeks-10 months); 87 (57%) were male.

Wound botulism cases

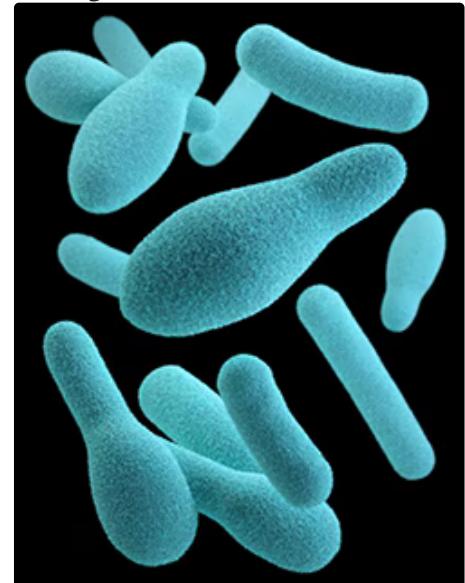
Health departments reported 41 cases of wound botulism, including 29 laboratory-confirmed and 12 probable (Table 1).

The 29 cases of laboratory-confirmed wound botulism were reported from 7 states: California (18 cases, 62%), New Mexico (4, 1%), Arizona (2, <1%), Texas (2, <1%), and Hawaii (1, <1%), Louisiana (1, <1%), and Washington (1, <1%) (Table 1). All cases occurred in persons who injected drugs; 19 (66%) reported black tar heroin use. Most cases (26, 90%) were toxin type A and the remainder (3, 10%) were toxin type B. The median age of patients with confirmed wound botulism was 44 years (range: 25-66); 26 (90%) were male. No deaths were reported.

The 12 cases of probable wound botulism were reported from California. All probable cases occurred in persons who injected drugs; 8 (67%) reported black tar heroin use. The median age of cases was 52 years (range: 27-64); 9 (75%) were men. One death was reported.

Foodborne botulism cases

Health departments reported 21 cases of foodborne botulism: 19 laboratory-confirmed and 2 probable (Table 1). Of the 19 laboratory-confirmed cases, 13 (68%) were type A, 5 (26%) type E, and 1 (5%) type F.



[Learn about the five main kinds of botulism](#)

The 19 cases of laboratory-confirmed foodborne botulism were reported from 7 states; Alaska reported the most (5 cases). [Table 2](#) includes foods linked to confirmed cases. Eleven confirmed cases were part of outbreaks:

- Alaska reported a type E outbreak of 4 cases linked to home-prepared fermented beluga flipper.
- Colorado reported a type A outbreak of 4 cases linked to commercially prepared, prepackaged roasted potatoes. ^[1]
- Texas reported a type A outbreak of 3 cases linked to commercially prepared preserved peppers produced and purchased in Mexico.

The median age of patients with laboratory-confirmed foodborne botulism was 58 years (range: 31-80); 11 (58%) were male and 8 (42%) were female. Three deaths were reported.

Two probable foodborne botulism cases were reported. One probable case was reported from Hawaii, with a suspected link to a commercial canned soup prepared in a mason jar that was not available for testing. The other probable case was reported from Oregon; pickled herring was implicated; however, it was not available for testing. Neither of the patients died.

Other cases of botulism

One case of laboratory-confirmed botulism caused by toxin type F reported from Wisconsin was presumed to be due to adult intestinal colonization, a rare form of botulism thought to have a similar mechanism as infant botulism.

Table 1

Table 2

Confirmed and probable botulism cases by transmission category—United States, 2019

Confirmed Cases (n=201)

Transmission Category	Cases	Median Age (range)	Deaths	Sex, n (%)	Toxin Type, n (%)	Outbreaks*
Infant	152	4 (0.5–10) months	0	Male: 87 (57); Female: 65 (43)	A: 50 (33), B: 97 (64), Ba: 1 (1), Bf: 2 (1), Af: 1 (<1), F: 1 (<1)	0
Wound	29	44 (25–66) years	0	Male: 26 (90); Female: 3 (10)	A: 26 (90), B: 3 (10)	0
Foodborne	19	58 (31–80) years	3	Male: 11 (58); Female: 8 (42)	A: 13 (68), E: 5 (26), F: 1 (5)	3
Other or Unknown	1		0		F: 1 (100)	0

Probable Cases (n=14)

Transmission Category	Cases	Median Age (range)	Deaths	Sex, n (%)	Toxin Type, n (%)	Outbreaks*
Wound†	12	52 (27–64) years	1	Male: 9 (75); Female: 3 (25)	Not applicable	0
Foodborne‡	2	68 (62–74) years	0	Male: 2 (100)	Not applicable	0

*Outbreak defined as two or more cases resulting from a common exposure.

†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).

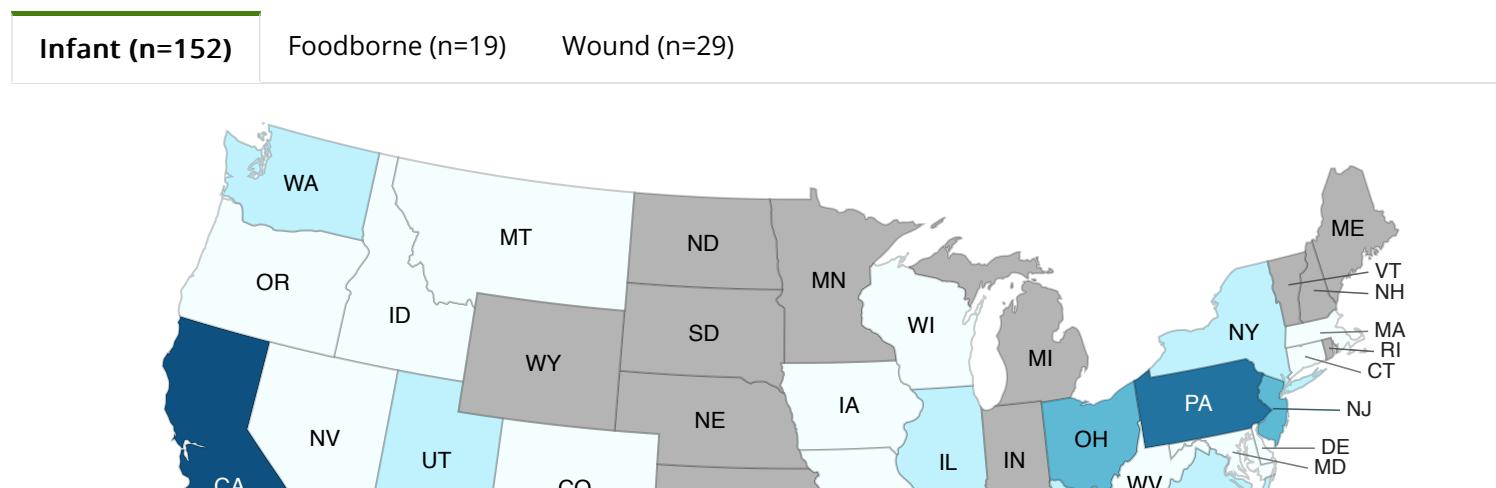
Foods linked to confirmed foodborne botulism cases (n=19 cases)—United States, 2019

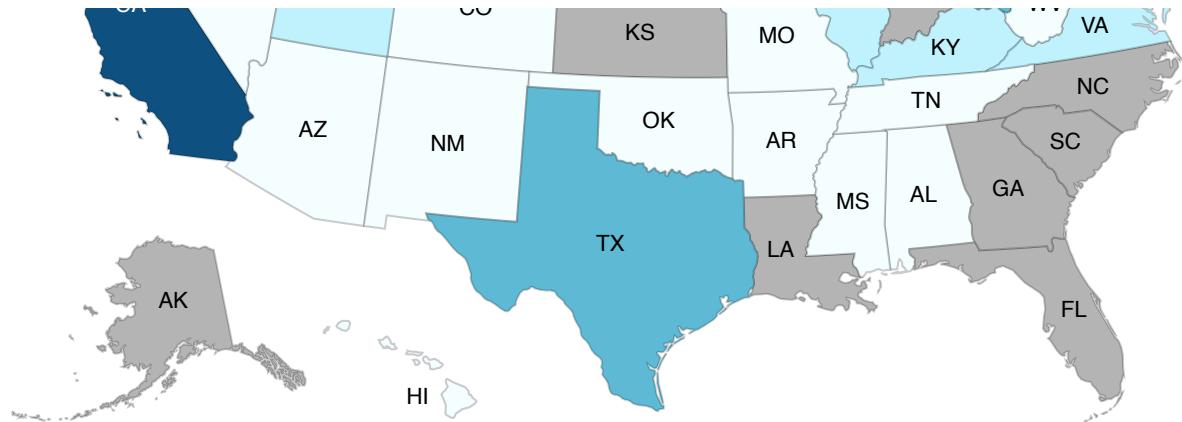
Month	State	Confirmed or Suspected Food	Toxin Type	Cases
January	Alaska	Fermented beluga flipper	E	4
January	Utah	Home-canned green beans	A	1
January	California	Unknown	A	1
May	Florida	Homemade pickled eggs	A	1
May	Maryland	Home-canned mushrooms and apples	A	1
June	Maryland	Inadequately refrigerated macaroni & cheese and green beans from a fast-food restaurant*	A	1
August	Alaska	Home-canned salmon	E	1
August	California	Home-canned food (exact item not identified)	F	1
September	Colorado	Commercial pre-packaged roasted potatoes	A	4
October	Texas	Homemade food (exact food item not identified)	A	1
December	Texas	Commercially prepared preserved peppers†	A	3

*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.

†This food item was purchased in Mexico.

Figure 1. Confirmed Botulism Cases by State or Territory and Transmission Category—United States, 2019





Cases Reported

- 0
- 1 to 3
- 4 to 6
- 7 to 15
- 16 to 25
- >25

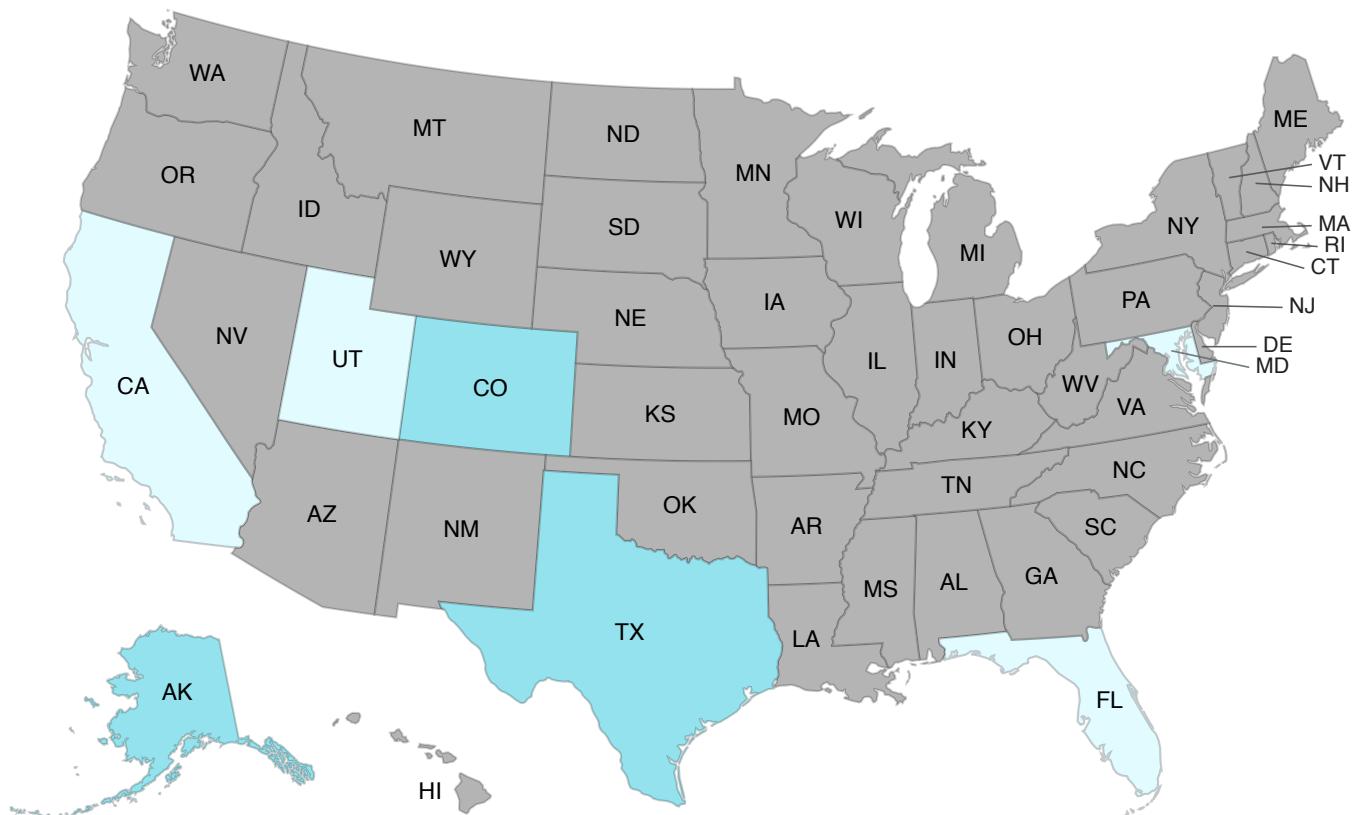
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Data Table



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● Alaska	0
● Arizona	1
● Arkansas	1
● California	43
● Colorado	2
● Connecticut	1
● Delaware	2
● Florida	0
● Georgia	0
● Hawaii	1
● Idaho	3
● Illinois	4
● Indiana	0
● Iowa	2
● Kansas	0

Kentucky	6
Louisiana	0
Maine	0
Maryland	2
Massachusetts	1
Michigan	0
Minnesota	0
Mississippi	1
Missouri	3
Montana	1
Nebraska	0
Nevada	2
New Hampshire	0
New Jersey	10
New Mexico	1
New York	4
North Carolina	0
North Dakota	0
Ohio	9
Oklahoma	1
Oregon	1
Pennsylvania	17
Rhode Island	0
South Carolina	0
South Dakota	0
Tennessee	2
Texas	12
Utah	4
Vermont	0
Virginia	6
Washington	4
West Virginia	3
Wisconsin	1
Wyoming	0



Cases Reported

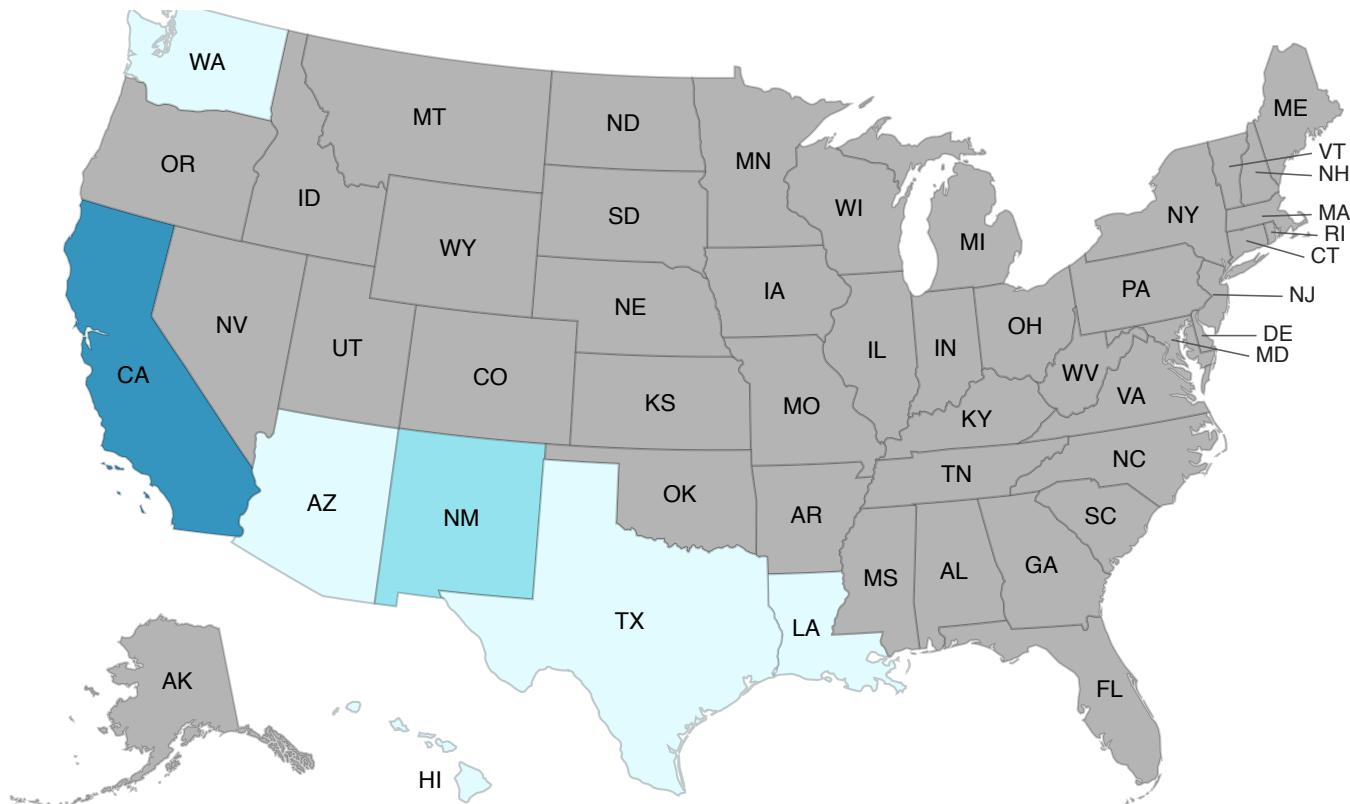
- 0
- 1 to 3
- 4 to 6

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Data Table

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Alabama	0
Alaska	5
Arizona	0
Arkansas	0
California	2
Colorado	4
Connecticut	0
Delaware	0
Florida	1
Georgia	0
Hawaii	0

Idaho	0
Illinois	0
Indiana	0
Iowa	0
Kansas	0
Kentucky	0
Louisiana	0
Maine	0
Maryland	2
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	4
Utah	1
Vermont	0
Virginia	0
Washington	0
West Virginia	0
Wisconsin	0
Wyoming	0



Cases Reported

- 0
- 1 to 3
- 4 to 6
- >6

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Data Table

State	Number of Cases
Alabama	0
Alaska	0
Arizona	2
Arkansas	0
California	18
Colorado	0
Connecticut	0
Delaware	0
Florida	0
Georgia	0

Hawaii	1
Idaho	0
Illinois	0
Indiana	0
Iowa	0
Kansas	0
Kentucky	0
Louisiana	1
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	4
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	2
Utah	0
Vermont	0
Virginia	0
Washington	1
West Virginia	0
Wisconsin	0
Wyoming	0

Figure 2. Confirmed botulism cases by state/territory and toxin type—United States, 2019

Type: A (n=89)

Type: Af (n=1)

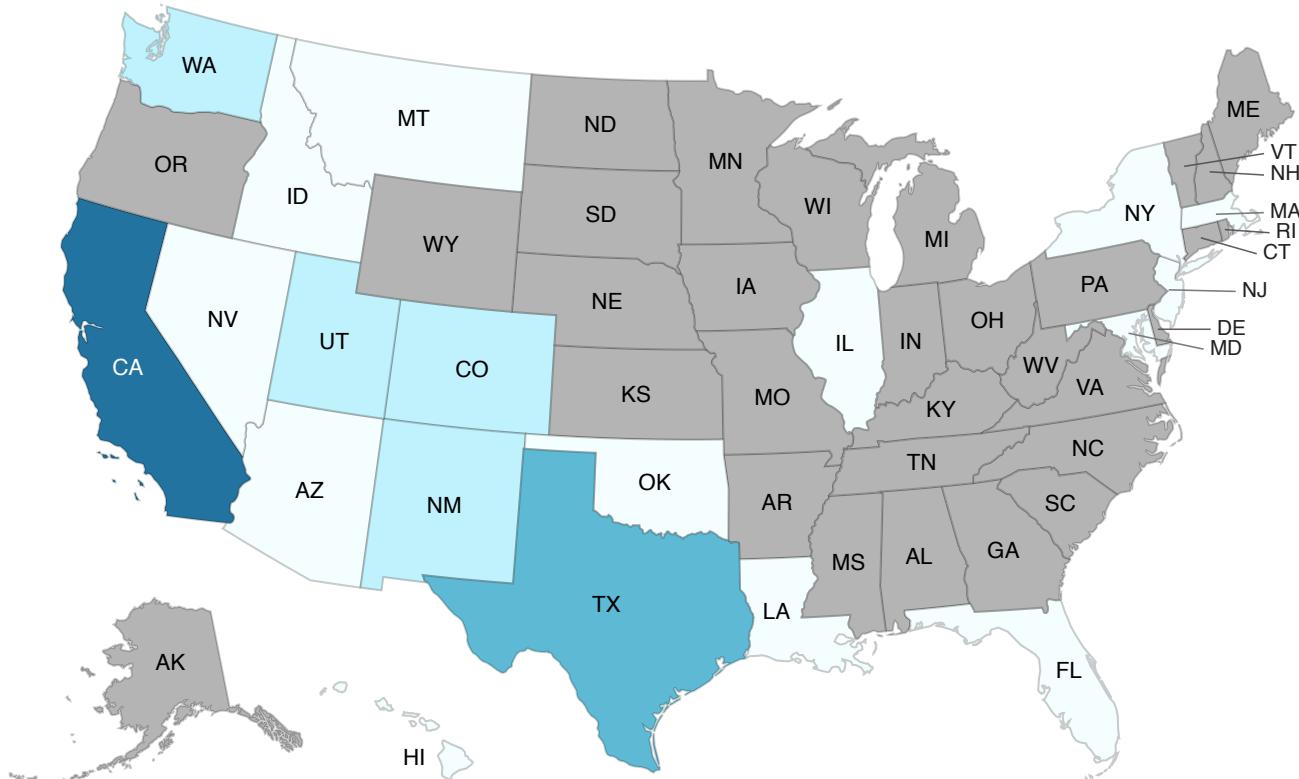
Type: B (n=100)

Type: Ba (n=1)

Type: Bf (n=2)

Type: E (n=5)

Type: F (n=3)



Cases Reported

- 0
- 1 to 3
- 4 to 6
- 7 to 15
- >25

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Data Table

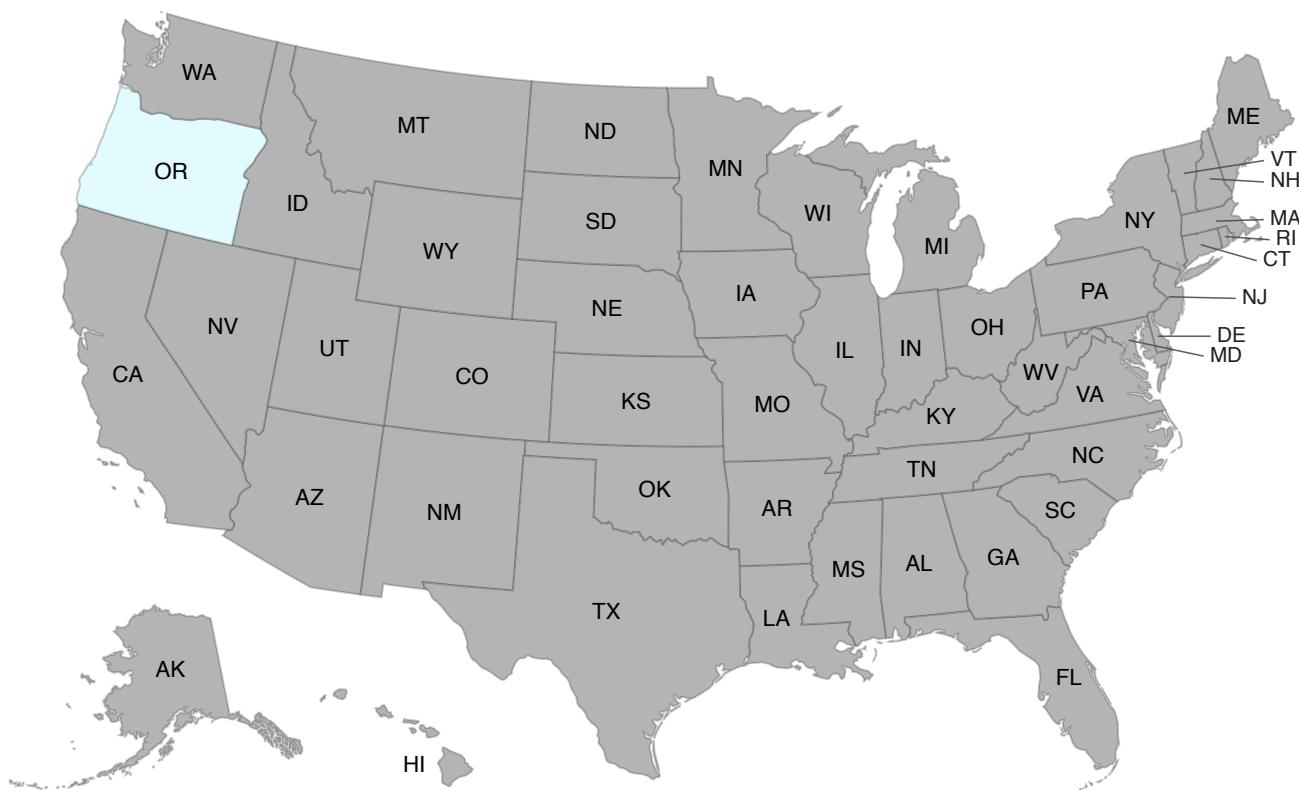


State	Number of Cases
Alabama	0
Alaska	0

○ Arizona	1
● Arkansas	0
● California	44
● Colorado	6
● Connecticut	0
● Delaware	0
○ Florida	1
● Georgia	0
○ Hawaii	1
○ Idaho	3
○ Illinois	1
● Indiana	0
● Iowa	0
● Kansas	0
● Kentucky	0
○ Louisiana	1
● Maine	0
○ Maryland	2
○ Massachusetts	1
● Michigan	0
● Minnesota	0
● Mississippi	0
● Missouri	0
○ Montana	1
● Nebraska	0
○ Nevada	1
● New Hampshire	0
○ New Jersey	1
● New Mexico	5
○ New York	2
● North Carolina	0
● North Dakota	0
● Ohio	0
○ Oklahoma	1
● Oregon	0
● Pennsylvania	0
● Rhode Island	0
● South Carolina	0
● South Dakota	0
● Tennessee	0
● Texas	7
● Utah	5

- Vermont
- Virginia
- Washington
- West Virginia
- Wisconsin
- Wyoming

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0
0



Cases Reported

- 0
- 1 to 3

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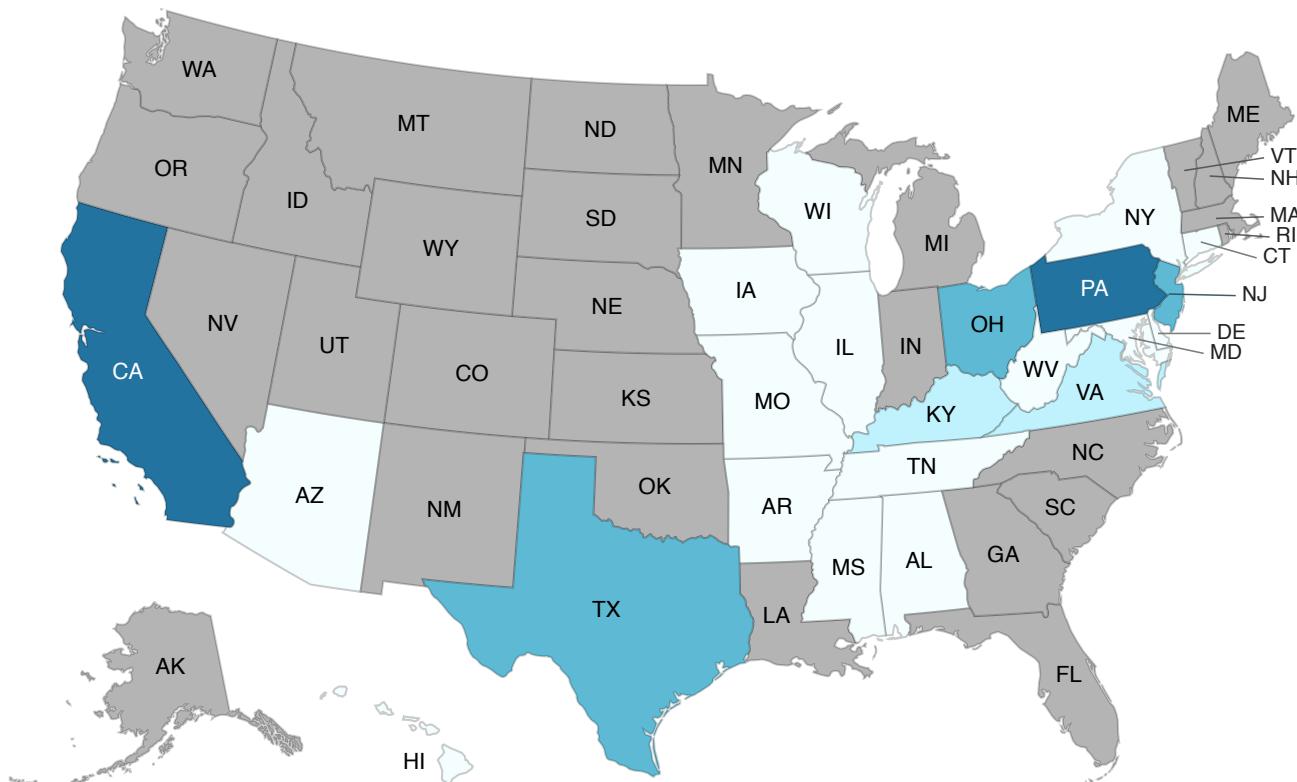
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Alaska	0
Arizona	0

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	1
Pennsylvania	0
Rhode Island	0
South Carolina	0
South Dakota	0
Tennessee	0
Texas	0
Utah	0
Vermont	0

- Virginia
- Washington
- West Virginia
- Wisconsin
- Wyoming

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Cases Reported

- 0
- 1 to 3
- 4 to 6
- 7 to 15
- 16 to 25

[Download Data \(CSV\)](#)

Data Table

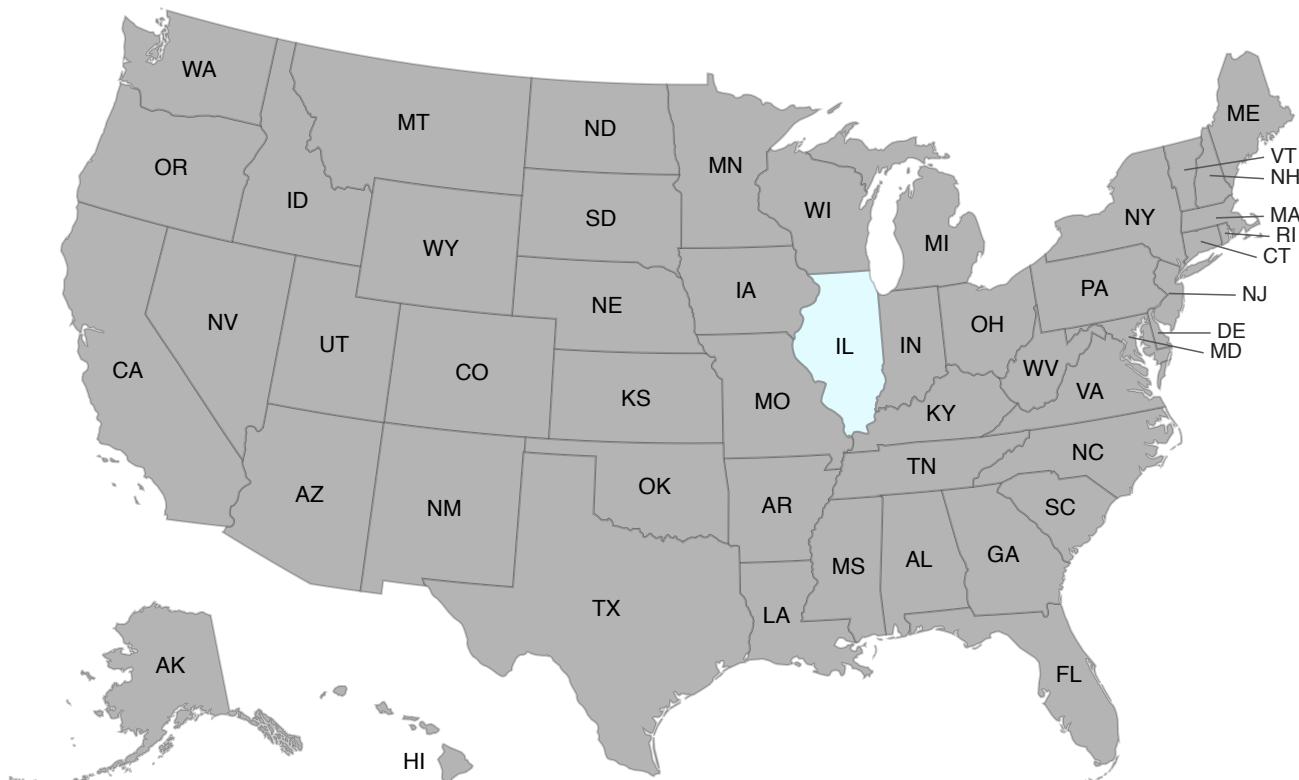
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State	Number of Cases
Alabama	1

Alaska	0
Arizona	2
Arkansas	1
California	18
Colorado	0
Connecticut	1
Delaware	2
Florida	0
Georgia	0
Hawaii	1
Idaho	0
Illinois	2
Indiana	0
Iowa	2
Kansas	0
Kentucky	6
Louisiana	0
Maine	0
Maryland	2
Massachusetts	0
Michigan	0
Minnesota	0
Mississippi	1
Missouri	3
Montana	0
Nebraska	0
Nevada	0
New Hampshire	0
New Jersey	9
New Mexico	0
New York	1
North Carolina	0
North Dakota	0
Ohio	9
Oklahoma	0
Oregon	0
Pennsylvania	17
Rhode Island	0
South Carolina	0
South Dakota	0
Tennessee	2
Texas	10

- Utah
- Vermont
- Virginia
- Washington
- West Virginia
- Wisconsin
- Wyoming

0
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3
1
0



Cases Reported

- 0
- 1 to 3

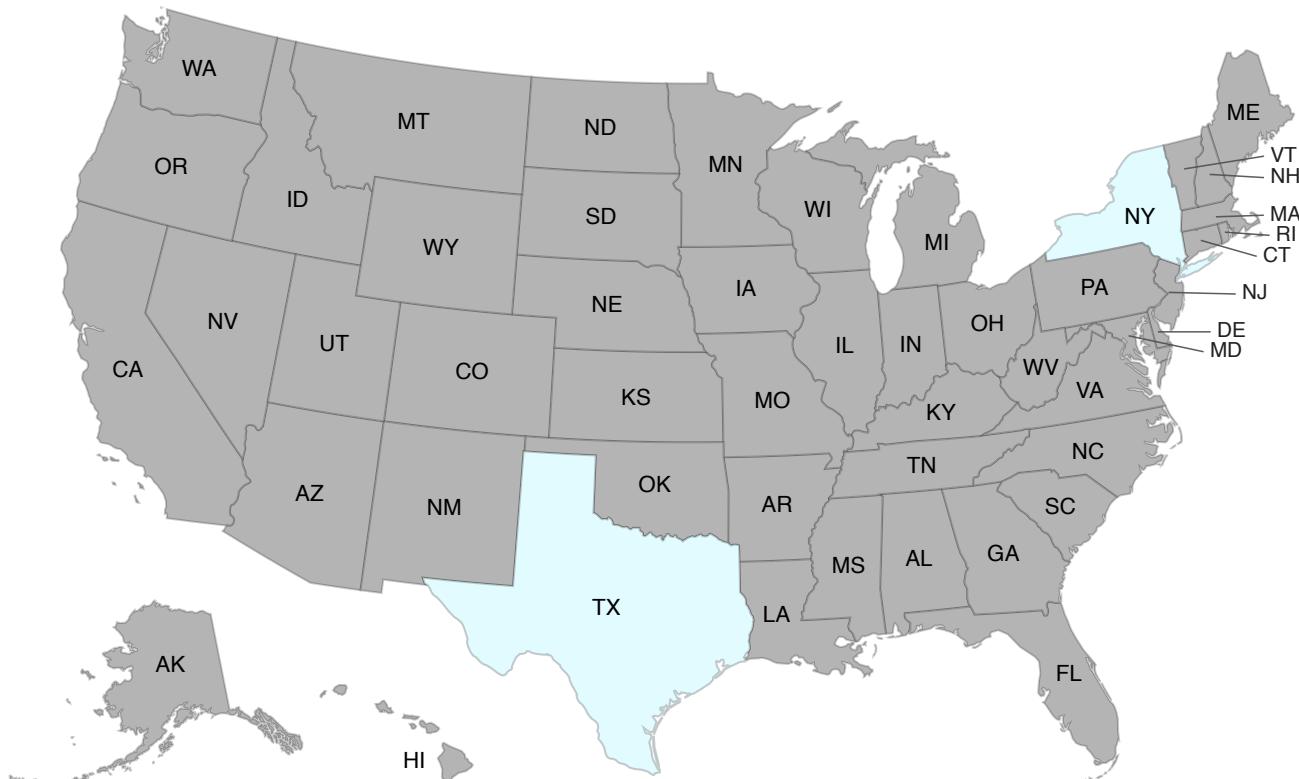
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Data Table

State	Number of Cases	+
Alabama	0	
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Arizona	0
Arkansas	0
California	0
Colorado	0
Connecticut	0
Delaware	0
Florida	0
Georgia	0
Hawaii	0
Idaho	0
Illinois	1
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
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North Dakota	0
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Pennsylvania	0
Rhode Island	0
South Carolina	0
South Dakota	0
Tennessee	0
Texas	0
Utah	0

● Vermont	0
● Virginia	0
● Washington	0
● West Virginia	0
● Wisconsin	0
● Wyoming	0



Cases Reported

- 0
- 1 to 3

[Download Data \(CSV\)](#)

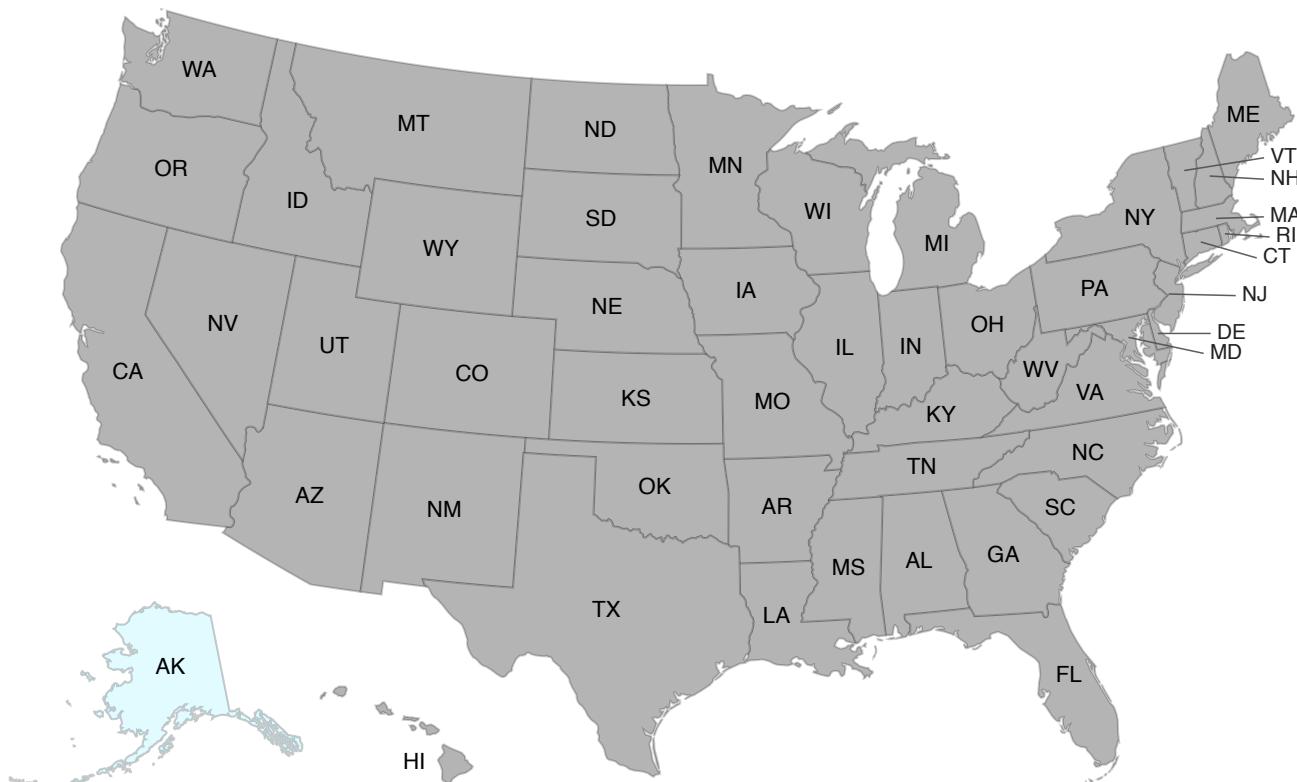
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● Arizona	0

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Massachusetts	0
Michigan	0
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Mississippi	0
Missouri	0
Montana	0
Nebraska	0
Nevada	0
New Hampshire	0
New Jersey	0
New Mexico	0
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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
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Utah	0
Vermont	0

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- Washington
- West Virginia
- Wisconsin
- Wyoming

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Cases Reported

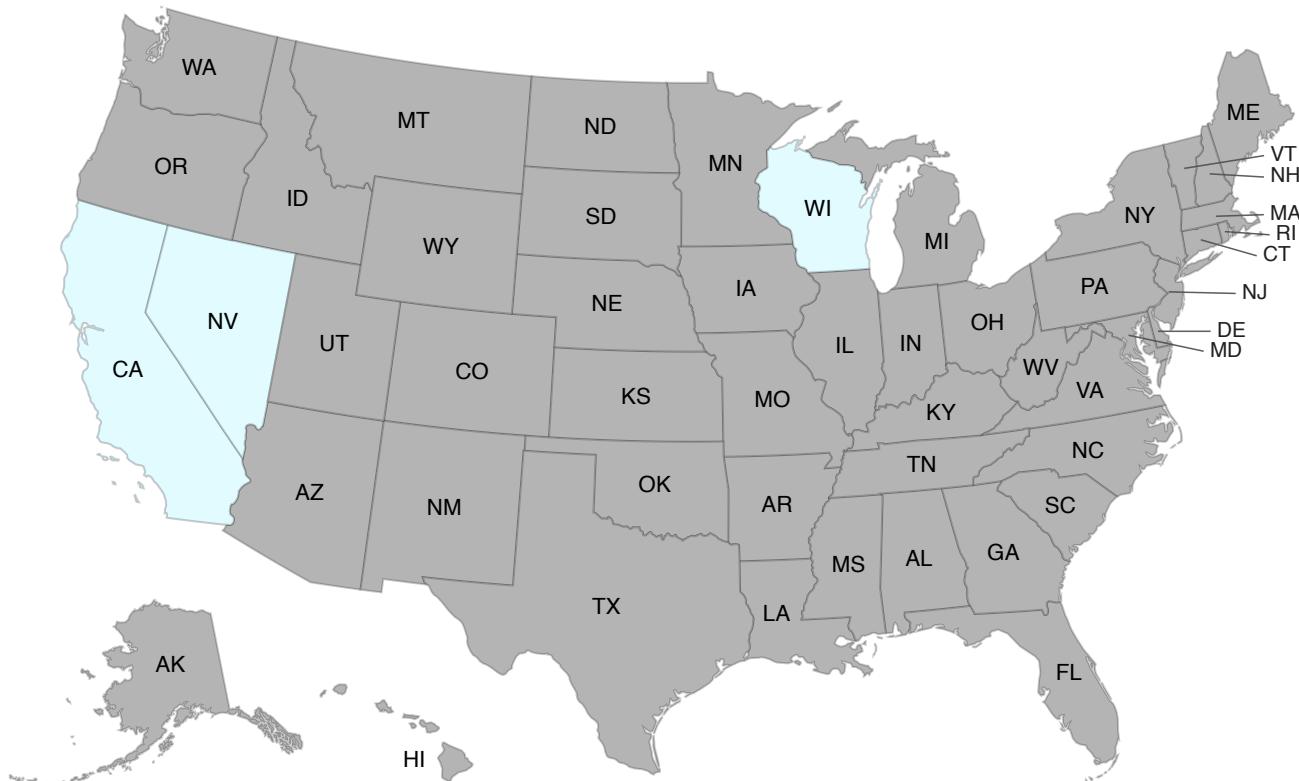
- 0
- 4 to 6

[Download Data \(CSV\)](#)

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Tennessee	0
Texas	0
Utah	0
Vermont	0
Virginia	0

- Washington
- West Virginia
- Wisconsin
- Wyoming



Cases Reported

- 0
- 1 to 3

Download Data (CSV)

Download Data (CSV) +

Data Table

State	Number of Cases
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South Dakota	0
Tennessee	0
Texas	0
Utah	0
Vermont	0
Virginia	0
Washington	0

West Virginia
Wisconsin
Wyoming

0
1
0

Reference

[1] Gayou N, Plumb ID, Edwards L, et al. Outbreak of foodborne botulism associated with a commercially produced multipack potato product, Colorado: September 2019. *Foodborne Pathog Dis*. 2022; 19(10): p. 713–715. DOI: <https://doi.org/10.1089/fpd.2022.0038> ↗

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Last Reviewed: July 11, 2023

Source: [Centers for Disease Control and Prevention](#) , National Center for Emerging and Zoonotic Infectious Diseases (NCEZID) , Division of Foodborne, Waterborne, and Environmental Diseases (DFWED)