



Salmonella

Six Multistate Outbreaks of Human *Salmonella* Infections Linked to Small Turtles

Posted August 8, 2012 2:00 PM ET

At a Glance:

- **Case Count: 168**
- **States: 30**
- **Deaths: 0**
- **Hospitalizations: 34**

Highlights

- **Read the Advice to Consumers »**
- A total of 168 persons infected with outbreak strains of *Salmonella* Sandiego, *Salmonella* Pomona, and *Salmonella* Poona have been reported from 30 states.
 - The number of ill persons identified in each state is as follows: Alabama (2), Alaska (2), Arizona (5), California (28), Colorado (5), Delaware (3), Georgia (3), Illinois (3), Indiana (1), Kentucky (1), Louisiana (1), Maryland (6), Massachusetts (5), Michigan (2), Minnesota (1), Mississippi (1), New Jersey (7), North Carolina (1), New Mexico (6), Nevada (8), New York (25), Ohio (2), Oregon (1), Pennsylvania (16), South Carolina (4), Tennessee (4), Texas (19), Vermont (1), Virginia (4), and West Virginia (1).
 - 34 ill persons have been hospitalized, and no deaths have been reported.
 - 64% of ill persons are children 10 years of age or younger, and 27% of ill persons are children 1 year of age or younger.
 - 56% of ill persons are of Hispanic ethnicity. Information about the association between reptiles and *Salmonella* is now available in Spanish.
- Results of the epidemiologic and environmental investigations indicate exposure to turtles or their environments (e.g., water from a turtle habitat) is the cause of these outbreaks.
- 72% of ill persons reported exposure to turtles prior to their illness.
- 94% of ill persons with turtle exposure specifically reported exposure to small turtles (shell length less than 4 inches). Thirty-nine percent of ill persons with small turtles reported purchasing the turtles from street vendors, and 15% reported purchasing small turtles from pet stores.
- Small turtles are a well-known source of human *Salmonella* infections, especially among young children. Because of this risk, the Food and Drug Administration has banned the sale and distribution of these turtles as pets since 1975. Turtles

with a shell length of less than 4 inches in size should not be purchased as pets or given as gifts.

August 8, 2012

Outbreak 1: *Salmonella* Sandiego, Strain A and *Salmonella* Newport, Strain A

Case Count Update

A total of 70 individuals infected with *Salmonella* Sandiego, strain A, and *Salmonella* Newport, strain A, have been reported from 15 states. The 8 new cases are from California (2), Illinois (1), Massachusetts (2), Nevada (1), Pennsylvania (1), and Texas (1).

Illness onset dates range from August 3, 2011 to July 9, 2012. Ill persons range in age from less than 1 year to 86 years, with a median age of 8 years. Fifty-seven percent of patients are female. Ethnicity was reported for 26 ill persons, and of these, 19 (73%) were Hispanic. Among 50 persons with available information, 12 (24%) reported being hospitalized. No deaths have been reported.

Illnesses that occurred after June 9, 2012 might not be reported yet due to the time it takes between when a person becomes ill and when the illness is reported.

Investigation Update

Among the 51 ill persons for whom information is available, 40 (78%) reported contact with turtles before becoming ill. Thirty persons who reported contact with turtles also reported the size of the turtle; of these, 29 (97%) reported a turtle with a shell length of less than 4 inches. Among those reporting exposure to small turtles, 12 (46%) of the 26 with information available were exposed to turtles purchased from a street vendor. Of the 14 ill persons who reported the type of turtle they had contact with, 13 (93%) reported contact with red-eared slider turtles.

Outbreak 2: *Salmonella* Pomona, Strain A

Case Count Update

A total of 15 individuals infected with *Salmonella* Pomona, strain A, have been reported from 10 states. The 4 new cases are from California (1), Nevada (1), Pennsylvania (1), and Virginia (1).

Illness onset dates range from December 9, 2011 to July 16, 2012. Ill persons range in age from less than 1 year to 90 years, with a median age of 16 years. Sixty-seven percent of patients are female. Ethnicity information is currently available for 4 cases; of these, 3 (75%) are Hispanic. Among 12 persons with available information, 4 (33%) reported being hospitalized. No deaths have been reported.

Illnesses that occurred after June 28, 2012 might not be reported yet due to the time it takes between when a person becomes ill and when the illness is reported.

Investigation Update

Among the 12 ill persons for whom information is available, 7 (58%) reported contact with turtles before becoming ill. Among the 4 ill persons who described the size of the turtle they had contact with, all 4 (100%) identified turtles with shell length of less than 4 inches.

Outbreak 3: *Salmonella* Poona, Strain A

Case Count Update

A total of 21 individuals infected with the outbreak strain of *Salmonella* Poona have been reported from 11 states. The 4 new cases are from Louisiana (1), Mississippi (1), and Tennessee (2).

Illness onset dates range from October 20, 2011 to July 2, 2012. Ill persons range in age from less than 1 year to 70 years, with a median age of 3 years. Seventy percent of patients are female. None of the 5 patients for whom ethnicity information is available are Hispanic. Among 17 persons with available information, 5 (29%) reported being hospitalized. No deaths have been reported.

Illnesses that occurred after June 8, 2012 might not be reported yet due to the time it takes between when a person becomes ill and when the illness is reported.

Investigation Update

Among the 20 ill persons with available information, 16 (80%) reported contact with turtles in the week before becoming ill. Eleven persons who reported contact with turtles also reported the size of the turtle; of these, 9 (82%) reported a turtle with a shell length of less than 4 inches. Among the 9 ill persons who had contact with small turtles, 4 (44%) were exposed to turtles from beach gift and souvenir shops and 3 (33%) reported buying turtles from a street vendor.

Environmental Sampling Update

In July 2012, two samples of turtle tank water from the home of an ill person in Mississippi yielded the outbreak strain, *Salmonella* Poona, strain A.

Outbreak 4: *Salmonella* Sandiego, Strain B

Case Count Update

No new cases have been reported since the May 10, 2012 update. Among the 5 cases for whom ethnicity information is available, 3 (60%) are Hispanic.

Outbreak 5: *Salmonella* Pomona, Strain B

Case Count Update

A total of 50 individuals infected with *Salmonella* Pomona, Strain B, have been reported from 20 states. The 3 new cases are from Illinois (1), New Mexico (1), and Texas (1).

Illness onset dates range from June 21, 2011 to July 11, 2012. Ill persons range in age from less than 1 year to 86 years, with a median age of 2 years. Fifty percent of patients are female. Ethnicity information was reported for 18 patients; of these, 8 (44%) are Hispanic. Among 31 persons with available information, 9 (29%) reported being hospitalized. No deaths have been reported.

Illnesses that occurred after July 3, 2012 might not be reported yet due to the time it takes between when a person becomes ill and when the illness is reported.

Investigation Update

Among the 33 ill persons with available information, 21 (64%) reported contact with turtles in the week before becoming ill. Nine ill persons who reported contact with turtles also reported the size of the turtle; 8 (89%) reported a turtle with a shell length of less than 4 inches.

Outbreak 6: *Salmonella* Poona, Strain B

Case Count Update

No new cases have been reported since the June 26, 2012 update. Ethnicity information is extremely limited for cases in this outbreak; the single case for whom ethnicity was reported is not Hispanic.

June 28, 2012

Investigation Overview

Contact with reptiles (such as turtles, snakes, and lizards) and amphibians (such as frogs and toads) can be a source of human *Salmonella* infections. Small turtles, with a shell length of less than 4 inches, are a well-known source of human *Salmonella* infections, especially among young children. Because of this risk, the Food and Drug Administration (FDA) has banned the sale and distribution of these turtles since 1975. Amphibians and reptiles can carry *Salmonella* germs and still appear healthy and clean. *Salmonella* germs are shed in their droppings and can easily contaminate their bodies and anything in areas where these animals live. Reptiles and amphibians that live in tanks or aquariums can contaminate the water with germs, which can spread to people.

CDC continues to collaborate with public health officials in multiple states and the FDA to investigate 6 overlapping, multistate outbreaks of human *Salmonella* infections linked to exposure to turtles or their environments (e.g., water from a turtle habitat). Because the majority of ill persons who reported contact with small turtles purchased

the turtles from a street vendor, it is difficult to determine the original source of the turtles.

The 6 multistate outbreaks of human *Salmonella* infections linked to small turtles are numbered in the order in which they were identified. The details of each investigation are described below.

Outbreak 1: *Salmonella* Sandiego, Strain A and *Salmonella* Newport, Strain A

Case Count Update

A total of 62 individuals infected with *Salmonella* Sandiego, strain A, and *Salmonella* Newport, strain A, have been reported from 15 states. One ill person infected with *Salmonella* Newport was included in the case count based on epidemiologic and laboratory evidence linking them with this outbreak. The 7 new cases are from California (3), New Mexico (1), Nevada (1), and Texas (2).

Illness onset dates range from August 3, 2011 to May 24, 2012. Ill persons range in age from less than 1 year to 86 years, with a median age of 8 years. Sixty-one percent of patients are female. Among 44 persons with available information, 10 (23%) reported being hospitalized. No deaths have been reported.

Illnesses that occurred after April 24, 2012 might not be reported yet due to the time it takes between when a person becomes ill and when the illness is reported.

Investigation Update

Among the 47 ill persons for whom information is available, 36 (77%) reported contact with turtles before becoming ill. Twenty-six persons who reported contact with turtles also reported the size of the turtle; of these, 25 (96%) reported a turtle with a shell length of less than 4 inches. Among those reporting small turtles, 10 (45%) of the 22 with information available were exposed to turtles purchased from a street vendor. Of the 11 ill persons who reported the type of turtle they had contact with, 10 (91%) reported contact with red-eared slider turtles.

Environmental Sampling Update

Salmonella Newport, strain A, was isolated from turtle tank water from the household of an ill person infected with *Salmonella* Sandiego, strain A.

Outbreak 2: *Salmonella* Pomona, Strain A

Case Count Update

A total of 11 individuals infected with *Salmonella* Pomona, strain A, have been reported from 8 states. The 2 new cases are from New York (1) and Pennsylvania (1).

Illness onset dates range from December 9, 2011 to May 29, 2012. Ill persons range in age from less than 1 year to 90 years, with a median age of 16 years. Seventy-three percent of patients are female. Among 10 persons with available information, 3 (30%) reported being hospitalized. No deaths have been reported.

Illnesses that occurred after May 22, 2012, might not be reported yet due to the time it takes between when a person becomes ill and when the illness is reported.

Outbreak 3: *Salmonella* Poona, Strain A

Case Count Update

A total of 17 individuals infected with the outbreak strain of *Salmonella* Poona have been reported from 9 states. The 2 new cases are from Tennessee (1) and Texas (1).

Illness onset dates range from October 20, 2011 to April 6, 2012. Ill persons range in age from less than 1 year to 70 years, with a median age of 3 years. Sixty-nine percent of patients are female. Among 12 persons with available information, 4 (33%) reported being hospitalized. No deaths have been reported.

Illnesses that occurred after May 2, 2012, might not be reported yet due to the time it takes between when a person becomes ill and when the illness is reported.

Environmental Sampling Update

In May 2012, two samples of turtle tank water from the home of an ill person in New York yielded the outbreak strain *Salmonella* Poona, strain A.

Outbreak 4: *Salmonella* Sandiego, Strain B

Case Count Update

No new cases have been reported since the prior update on May 10, 2012. Illnesses that occurred after June 9, 2012, might not be reported yet due to the time it takes between when a person becomes ill and when the illness is reported.

Environmental Sampling Update

In May 2012, turtle tank water obtained in the home of two ill persons from the same Nevada household yielded the outbreak strain, *Salmonella* Sandiego, strain B.

Outbreak 5: *Salmonella* Pomona, Strain B

Case Count Update

A total of 47 individuals infected with *Salmonella* Pomona, strain B, have been reported from 18 states. The 8 new cases are from Alabama (1), Arizona (1), California (2), Nevada (1), South Carolina (1), Tennessee (1), and Texas (1).

Illness onset dates range from June 21, 2011 to June 16, 2012. Ill persons range in age from less than 1 year to 86 years, with a median age of 2 years. Forty-nine percent of

patients are female. Among 30 persons with available information, 9 (30%) reported being hospitalized. No deaths have been reported.

Illnesses that occurred after May 26, 2012, might not be reported yet due to the time it takes between when a person becomes ill and when the illness is reported.

Investigation Update

Among the 30 ill persons with available information, 19 (63%) reported contact with turtles in the week before becoming ill. Seven ill persons who reported contact with turtles also reported the size of the turtle; all 7 of these persons (100%) reported a turtle with a shell length of less than 4 inches. Four (57%) of the 7 ill persons who had contact with small turtles reported buying their turtles from a street vendor.

Outbreak 6: *Salmonella* Poona, Strain B Initial Investigation Announcement

As of June 25, 2012, a total of 6 individuals infected with *Salmonella* Poona have been reported from 3 states. The number of ill persons identified in each state is as follows: Arizona (1), Pennsylvania (4), and Texas (1).

Illness onset dates range from April 1, 2012 to May 26, 2012. Infected individuals range in age from less than 1 year to 74 years, with a median age of 8 years. Fifty percent of patients are female. The 1 patient with available information has been hospitalized. No deaths have been reported.

Among the 4 ill persons with information available, 3 (75%) reported exposure to turtles before they became ill. Three ill persons reported the size of the turtle they had contact with, and 3 (100%) described turtles with a shell length of less than 4 inches. Three ill persons who had contact with small turtles reported where they purchased the turtles, and 3 (100%) purchased the turtles from a street vendor.

In May 2012, samples of turtle tank water from a pet store where two ill persons from the same Pennsylvania household purchased small turtles yielded the outbreak strain, *Salmonella* Poona, strain B. Also in May 2012, *Salmonella* Poona, strain B (the Outbreak 6 strain) was identified in turtle tank water from a pet store where a Delaware person infected with *Salmonella* Pomona, strain B (the Outbreak 5 strain) had purchased small turtles.

Illnesses that occurred after June 1, 2012, might not be reported yet due to the time it takes between when a person becomes ill and when the illness is reported.

May 10, 2012

Investigation Overview

Contact with reptiles (such as turtles, snakes, and lizards) and amphibians (such as frogs and toads) can be a source of human *Salmonella* infections. Small turtles, with a shell length of less than 4 inches, are a well-known source of human *Salmonella* infections, especially among young children. Because of this risk, the Food and Drug Administration (FDA) has banned the sale and distribution of these turtles since 1975. Amphibians and reptiles can carry *Salmonella* germs and still appear healthy and clean. *Salmonella* germs are shed in their droppings and can easily contaminate their bodies and anything in areas where these animals live. Reptiles and amphibians that live in tanks or aquariums can contaminate the water with germs, which can spread to people.

CDC continues to collaborate with public health officials in multiple states and the FDA to investigate 5 overlapping, multistate outbreaks of human *Salmonella* infections linked to exposure to turtles or their environments (e.g., water from a turtle habitat). Because the majority of ill persons who reported contact with small turtles purchased the turtles from a street vendor, it is difficult to determine the original source of the turtles.

The 5 multistate outbreaks of human *Salmonella* infections linked to small turtles are numbered in the order in which they were identified. The details of each investigation are described below.

Outbreak 1: *Salmonella* San Diego, Strain A

Case Count Update

A total of 55 individuals infected with *Salmonella* San Diego, strain A have been reported from 13 states. The 5 new cases are from Illinois (1), New Jersey (1), New York (1), Pennsylvania (1), and South Carolina (1).

Illnesses began between August 3, 2011 and April 16, 2012. Ill persons range in age from less than 1 to 86 years, with a median age of 7 years. Sixty-two percent of patients are female. Among 39 persons with available information, 10 (25%) reported being hospitalized. No deaths have been reported.

Illnesses that occurred after March 19, 2012, might not be reported yet due to the time it takes between when a person becomes ill and when the illness is reported.

Investigation Update

Among the 41 ill persons for whom information is available, 32 (78%) reported contact with turtles before becoming ill. Twenty-two persons who reported contact with turtles also reported the size of the turtle; of these, 21 (95%) reported a turtle with a shell length of less than 4 inches. Among those reporting small turtles, 8 (42%) of the 19 with information available were exposed to turtles purchased from a street vendor. Of the 9 ill persons who reported the type of turtle they had contact with, 8 (89%) reported red-eared slider turtles.

Environmental Sampling Update

In March 2012, samples of turtle tank water and turtles from the homes of 2 ill persons in New York yielded the outbreak strain, *Salmonella* Sandiego, strain A.

Outbreak 2: *Salmonella* Pomona, Strain A

Case Count Update

No new cases have been reported since the March 30, 2012 investigation announcement. Among the 9 cases, 3 (33%) have been hospitalized. Illnesses that occurred after March 28, 2012 might not be reported yet due to the time it takes between when a person becomes ill and when the illness is reported.

Investigation Update

Among the 5 ill persons who reported contact with turtles before becoming ill, 3 (63%) described the size of the turtle they had contact with. All 3 (100%) identified turtles with shell length of less than 4 inches.

Environmental Sampling Update

In March 2012, one sample of turtle tank water from the home of a person in New York who was infected with *Salmonella* Sandiego, strain A yielded 2 outbreak strains. These strains were *Salmonella* Pomona, strain A and *Salmonella* Sandiego, strain A. This suggests that the turtles causing Outbreak 1 and Outbreak 2 may originate from a common source.

Outbreak 3: *Salmonella* Poona, Strain A

Case Count Update

A total of 15 individuals infected with the outbreak strain of *Salmonella* Poona have been reported from 8 states. The 3 new cases are from Alabama (1), New York (1), and Texas (1).

Among persons for whom information is available, illness onset dates range from October 20, 2011 to April 6, 2012. Ill persons range in age from less than 1 year to 70 years, with a median age of 3 years. Sixty-seven percent of patients are female. Among 11 persons with available information, 3 (27%) reported being hospitalized. No deaths have been reported.

Illnesses that occurred after March 18, 2012, might not be reported yet due to the time it takes between when a person becomes ill and when the illness is reported.

Investigation Update

Among the 14 ill persons with available information, 12 (86%) reported contact with turtles in the week before becoming ill. Eight persons who reported contact with turtles also reported the size of the turtle; of these, 6 (75%) reported a turtle with a shell length of less than 4 inches. Three (50%) of the 6 ill persons who had contact with small turtles

reported buying their turtles from a street vendor. Of the 8 ill persons who could recall the type of turtle with which they had contact, 7 (88%) reported red-eared slider turtles.

Outbreak 4: *Salmonella* Sandiego, Strain B

Initial Investigation Announcement

As of May 8, 2012, a total of 6 individuals infected with *Salmonella* Sandiego, strain B have been reported from 3 states. The number of ill persons identified in each state is as follows: Colorado (3), Nevada (2), and Texas (1).

Among the persons who reported the date they became ill, illnesses began between February 25 and April 27, 2012. Infected individuals range in age from less than 1 year old to 65 years old, and the median age is 17 years. Fifty percent of patients are female. Among the 6 ill persons, 1 (17%) has been hospitalized. No deaths have been reported.

In interviews, ill persons answered questions about contact with turtles and foods consumed during the week before becoming ill. Four (67%) of 6 ill persons interviewed reported contact with turtles before becoming ill. Four persons who reported contact with turtles also reported the size of the turtle, 4 (100%) reported a turtle with a shell length of less than 4 inches and 4 (100%) identified red-eared slider turtles. Four ill persons who reported contact with small turtles also reported where the turtle was purchased. Two purchased turtles from pet stores, one purchased a turtle from a street vendor, and 1 purchased a turtle from a flea market.

In April 2012, one sample of water from a turtle habitat associated with an ill person in Colorado who was infected with *Salmonella* Sandiego, strain B was tested. This sample yielded the outbreak strain, *Salmonella* Sandiego, strain B.

Illnesses that occurred after April 20, 2012, might not be reported yet due to the time it takes between when a person becomes ill and when the illness is reported.

Outbreak 5: *Salmonella* Pomona, Strain B

Initial Investigation Announcement

As of May 8, 2012, a total of 39 individuals infected with *Salmonella* Pomona, strain B have been reported from 16 states. The number of ill persons identified in each state is as follows: Alaska (2), Arizona (1), California (9), Colorado (2), Delaware (3), Georgia (2), Michigan (1), Nevada (2), New York (1), Ohio (2), Oregon (1), Pennsylvania (1), South Carolina (2), Texas (7), Virginia (2), and West Virginia (1).

Illness onset dates range from June 21, 2011 to March 30, 2012. Infected individuals range in age from less than 1 year to 83 years, with a median age of 1 year. Fifty-four percent of patients are male. Among the 20 patients with available information, 2 (10%) have been hospitalized. No deaths have been reported.

Among the 19 ill persons with information available, 13 (68%) reported exposure to turtles before they became ill. Five ill persons reported the size of the turtle they had

contact with, and all 5 (100%) described turtles with a shell length of less than 4 inches. Three ill persons who had contact with small turtles reported where they purchased the turtles, and 3 (100%) purchased the turtles from a street vendor.

In March 2012, samples from a turtle tank were collected from the home of an ill person in New Mexico infected with *Salmonella* Sandiego, strain A (the Outbreak 1 strain). Samples yielded *Salmonella* Pomona, strain B (the Outbreak 5 strain). This suggests that the turtles causing Outbreak 1 and Outbreak 5 may originate from a common source.

Illnesses that occurred after April 3, 2012, might not be reported yet due to the time it takes between when a person becomes ill and when the illness is reported.

April 5, 2012

Outbreak 1: *Salmonella* Sandiego, Strain A

Case Count Update

A total of 50 individuals infected with the outbreak strain of *Salmonella* Sandiego have been reported from 10 states. The 5 new ill persons have been reported from California (4) and Minnesota (1) and have onset dates in August 2011. The *Salmonella* Sandiego outbreak definition was expanded to include cases whose illness began in August 2011, because new epidemiologic evidence suggested that the outbreak began earlier than what was previously reported. Twenty-eight (82%) of 34 ill persons interviewed reported contact with turtles before becoming ill. Of the 19 ill persons who could recall the size of the turtles with which they had contact, 18 (95%) identified turtles less than four inches in size. Of the 6 ill persons who could recall the type of turtle with which they had contact, 5 (83%) identified red-eared slider turtles.

Among the persons who reported the date they became ill, illnesses began between August 3, 2011 and March 11, 2012. Infected individuals range in age from less than one year old to 86 years old, and 50% of ill persons are 8 years of age or younger. Fifty-eight percent of patients are female. Among the 32 patients with available information, 8 (25%) have been hospitalized. No deaths have been reported.

***Salmonella* Sandiego Environmental Sampling Update**

In March 2012, swabs taken from the turtle tank of a Virginia case yielded the outbreak strain.

Outbreak 3: *Salmonella* Poona, Strain A

Case Count Update

A total of 13 individuals infected with the outbreak strain of *Salmonella* Poona have been reported from 7 states. The 1 new ill person has been reported from Texas. At this time, interview information is not available for this person.

Initial Announcement

March 30, 2012

CDC is collaborating with public health officials in multiple states to investigate three overlapping, multistate outbreaks of human *Salmonella* infections linked to exposure to turtles or their environments (e.g., water from a turtle habitat). The first is an outbreak of human *Salmonella* Sandiego infections, the second is an outbreak of human *Salmonella* Pomona infections, and the third is an outbreak of human *Salmonella* Poona infections. These are rare types of *Salmonella*. The *Salmonella* Sandiego and *Salmonella* Pomona outbreaks have similar geographic distributions, with cases occurring in the Northeast and Southwest. The *Salmonella* Poona outbreak has a slightly different geographic distribution, with cases occurring in the Midwest and Southwest. Public health investigators are using the PulseNet system to identify cases of illness that may be part of these outbreaks. In PulseNet, the national subtyping network of public health and food regulatory agency laboratories coordinated by CDC, DNA "fingerprints" of *Salmonella* bacteria are obtained through diagnostic testing with pulsed-field gel electrophoresis, or PFGE, to identify cases of illness that may be part of this outbreak.

These outbreaks can be visually described with a chart showing the number of persons who became ill each day. This chart is called an epidemic curve or epi curve. Illnesses that occurred after January 26, 2012 might not yet be reported due to the time it takes between when a person becomes ill and when the illness is reported. This takes an average of 2 to 3 weeks. Please see the *Salmonella* Outbreak Investigations: Timeline for Reporting Cases for more details.

Contact with reptiles (such as turtles, snakes, and lizards) and amphibians (such as frogs and toads) can be a source of human *Salmonella* infections. Small turtles, with a shell length of less than 4 inches, are a well-known source of human *Salmonella* infections, especially among young children. Because of this risk, the Food and Drug Administration (FDA) has banned the sale and distribution of these turtles since 1975. Amphibians and reptiles can carry *Salmonella* germs and still appear healthy and clean. *Salmonella* germs are shed in their droppings and can easily contaminate their bodies and anything in areas where these animals live. Reptiles and amphibians that live in tanks or aquariums can contaminate the water with germs, which can spread to people.

Outbreak 1: *Salmonella* Sandiego, Strain A Outbreak Investigation

As of March 26, 2012, a total of 45 individuals infected with the outbreak strain of *Salmonella* Sandiego have been reported from 10 states. The number of ill persons identified in each state is as follows: California (3), Georgia (1), Massachusetts (2), Maryland (5), New Jersey (5), New Mexico (3), New York (18), North Carolina (1), Pennsylvania (6), and Virginia (1).

Among the persons who reported the date they became ill, illnesses began between September 1, 2011 and March 16, 2012. Infected individuals range in age from less than

one year old to 86 years old, and 50% of ill persons are 9 years of age or younger. Fifty-eight percent of patients are female. Among the 25 patients with available information, 7 (28%) have been hospitalized. No deaths have been reported.

In interviews, ill persons answered questions about contact with turtles and foods consumed during the week before becoming ill. Nineteen (76%) of 25 ill persons interviewed reported contact with turtles before becoming ill. Of the 13 ill persons who could recall the size of the turtles with which they had contact, 12 (92%) identified turtles less than four inches in size. Of the 6 ill persons who could recall the type of turtle with which they had contact, 5 (83%) identified red-eared slider turtles.

In February 2012, one sample of turtle tank water from an ill person's home in Pennsylvania yielded the outbreak strain.

Outbreak 2: *Salmonella* Pomona, Strain A Outbreak Investigation

As of March 26, 2012, a total of 9 individuals infected with the outbreak strain of *Salmonella* Pomona have been reported from 8 states. The number of ill persons identified in each state is as follows: California (2), Massachusetts (1), Maryland (1), New Jersey (1), New York (1), Pennsylvania (1), Texas (1), and Vermont (1).

Among the persons who reported the date they became ill, illnesses began between December 9, 2011 and February 6, 2012. Infected individuals range in age from less than one year old to 90 years old, and 50% of ill persons are 4 years of age or younger. Seventy-five percent of patients are female. Among the 8 patients with available information, 2 (25%) have been hospitalized. No deaths have been reported.

In interviews, ill persons answered questions about contact with turtles and foods consumed during the week before becoming ill. Five (63%) of eight ill persons interviewed reported contact with turtles before becoming ill. Of the 2 ill persons who could recall the size of the turtles with which they had contact, 2 (100%) identified turtles less than four inches in size.

In January 2012, one sample of turtle tank water from the home of 2 ill persons in the same California household yielded the outbreak strain.

Outbreak 3: *Salmonella* Poona, Strain A Outbreak Investigation

As of March 26, 2012, a total of 12 individuals infected with the outbreak strain of *Salmonella* Poona have been reported from 7 states. The number of ill persons identified in each state is as follows: Arizona (2), California (3), Indiana (1), Kentucky (1), Michigan (1), New York (2), and Texas (2).

Among the persons who reported the date they became ill, illnesses began between October 20, 2011 and February 18, 2012. Infected individuals range in age from less

than one year old to 70 years old, and 50% of ill persons are 4 years of age or younger. Sixty-seven percent of patients are female. Among the 7 patients with available information, 2 (29%) have been hospitalized. No deaths have been reported.

In interviews, ill persons answered questions about contact with turtles and foods consumed during the week before becoming ill. Nine (90%) of 10 ill persons interviewed reported contact with turtles before becoming ill. Of the five ill persons who could recall the size of the turtles with which they had contact, four (80%) described turtles less than four inches in size. Of the 7 ill persons who could recall the type of turtle with which they had contact, 7 (100%) identified red-eared slider turtles. ([« show less](#))



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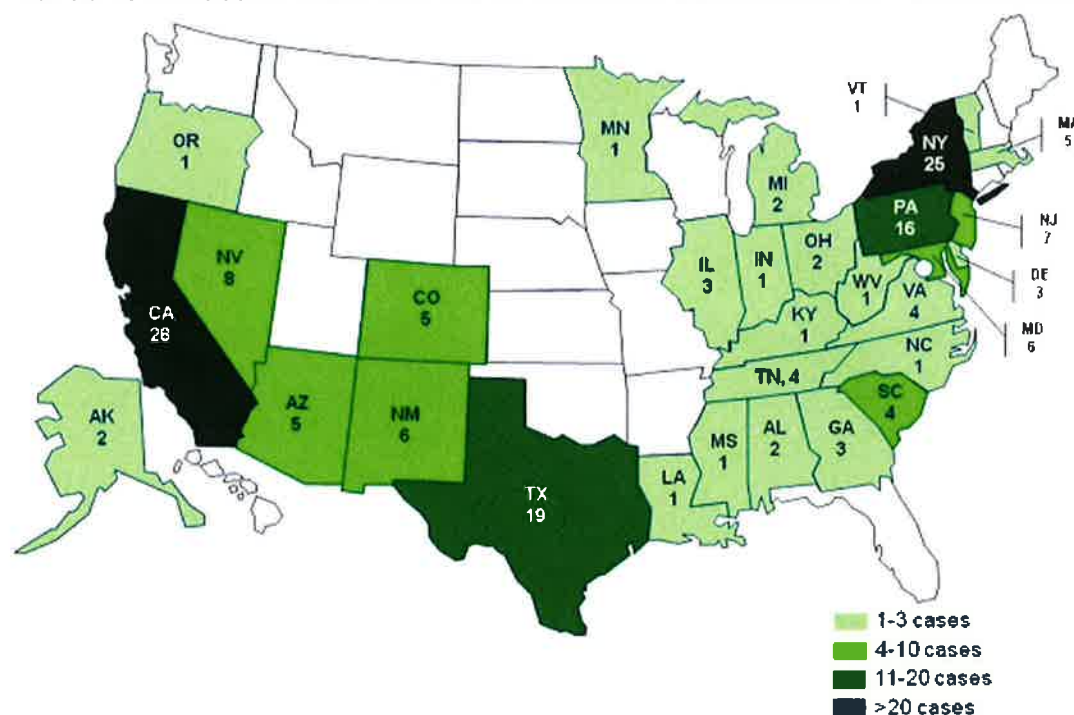
Salmonella

Human *Salmonella* Infections Linked to Small Turtles

Posted August 8, 2012 2:00 PM ET

Current Case Count Map

Persons Infected with Turtle-associated Outbreaks of *Salmonella**, by State**



Number of cases in each outbreak, by state

	Outbreak 1	Outbreak 2	Outbreak 3	Outbreak 4	Outbreak 5	Outbreak 6	Combined Case Count	Number of Outbreaks, Each State
AK	0	0	0	0	2	0	2	1
AL	0	0	1	0	1	0	2	2
AZ	0	0	2	0	2	1	5	3
CA	11	3	3	0	11	0	28	4
CO	0	0	0	3	2	0	5	2
DE	0	0	0	0	3	0	3	1
Total Number of Cases	70	15	21	6	50	6	168	
Total Number of States	15	10	11	3	20	3	30	

	Outbreak 1	Outbreak 2	Outbreak 3	Outbreak 4	Outbreak 5	Outbreak 6	Combined Case Count	Number of Outbreaks, Each State
GA	1	0	0	0	2	0	3	2
IL	2	0	0	0	1	0	3	2
IN	0	0	1	0	0	0	1	1
KY	0	0	1	0	0	0	1	1
LA	0	0	1	0	0	0	1	1
MA	4	1	0	0	0	0	5	2
MD	5	1	0	0	0	0	6	2
MI	0	0	1	0	1	0	2	2
MN	1	0	0	0	0	0	1	1
MS	0	0	1	0	0	0	1	1
NC	1	0	0	0	0	0	1	1
NJ	6	1	0	0	0	0	7	2
NM	5	0	0	0	1	0	6	2
NV	2	1	0	2	3	0	8	4
NY	19	2	3	0	1	0	25	4
OH	0	0	0	0	2	0	2	1
OR	0	0	0	0	1	0	1	1
PA	8	3	0	0	1	4	16	4
SC	1	0	0	0	3	0	4	2
TN	0	0	3	0	1	0	4	2
TX	3	1	4	1	9	1	19	6
VA	1	1	0	0	2	0	4	3
VT	0	1	0	0	0	0	1	1
WV	0	0	0	0	1	0	1	1
Total Number of Cases	70	15	21	6	50	6	168	
Total Number of States	15	10	11	3	20	3	30	

*OB #1 Sandiego 1201PAJLX-1, n=70,

OB #2 Pomona 1202MLPOM-1, n=15,

OB #3 Poona 1203MLJL6-1, n=21,

OB #4 Sandiego 1204COJL6-1, n=6,

OB #5 Pomona 1205MLPOM-1, n=50,

OB #6 Poona 1206PAJL6-1, n=6

**n=168 for whom information was reported as of August 2, 2012

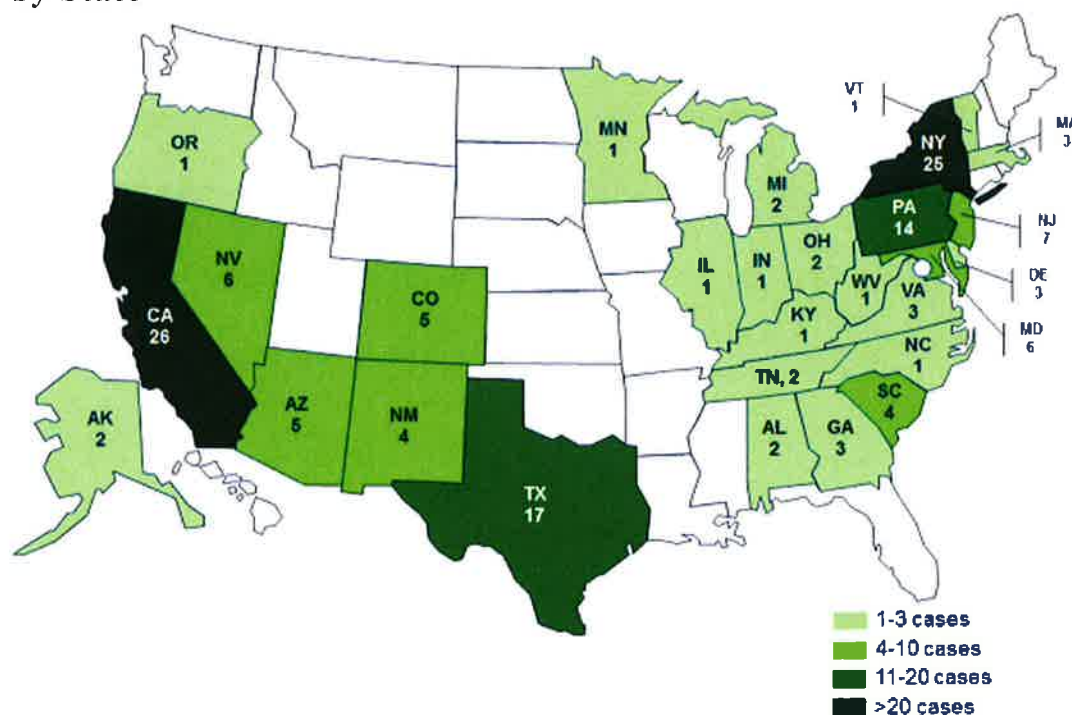
The number of ill persons identified in each state is as follows: Alabama (2), Alaska (2), Arizona (5), California (28), Colorado (5), Delaware (3), Georgia (3), Illinois (3), Indiana (1), Kentucky (1), Louisiana (1), Maryland (6), Massachusetts (5), Michigan (2), Minnesota (1), Mississippi (1), New Jersey (7), North Carolina (1), New Mexico (6), Nevada (8), New York (25), Ohio (2), Oregon (1), Pennsylvania (16), South Carolina (4), Tennessee (4), Texas (19), Vermont (1), Virginia (4), and West Virginia (1).

[« Read the full Outbreak Investigation \(/salmonella/small-turtles-03-12/index.html\)](/salmonella/small-turtles-03-12/index.html)

Previous Case Count Maps

Case Count Map: June 25, 2012

Persons infected with Turtle-associated Outbreaks of *Salmonella**, United States, by State**



Number of cases in each outbreak, by state

	Outbreak 1	Outbreak 2	Outbreak 3	Outbreak 4	Outbreak 5	Outbreak 6	Combined Case Count	Number of Outbreaks, Each State
AK	0	0	0	0	2	0	2	1
AL	0	0	1	0	1	0	2	2
AZ	0	0	2	0	2	1	5	3
CA	10	2	3	0	11	0	26	4
CO	0	0	0	3	2	0	5	2
DE	0	0	0	0	3	0	3	1
GA	1	0	0	0	2	0	3	2
IL	1	0	0	0	0	0	1	1
IN	0	0	1	0	0	0	1	1
KY	0	0	1	0	0	0	1	1
MA	2	1	0	0	0	0	3	2
MD	5	1	0	0	0	0	6	2
Total Number of Cases	62	11	17	6	47	6	149	
Total Number of States	15	8	9	3	18	3	28	

	Outbreak 1	Outbreak 2	Outbreak 3	Outbreak 4	Outbreak 5	Outbreak 6	Combined Case Count	Number of Outbreaks, Each State
MI	0	0	1	0	1	0	2	2
MN	1	0	0	0	0	0	1	1
NC	1	0	0	0	0	0	1	1
NJ	6	1	0	0	0	0	7	2
NM	4	0	0	0	0	0	4	1
NV	1	0	0	2	3	0	6	3
NY	19	2	3	0	1	0	25	4
OH	0	0	0	0	2	0	2	1
OR	0	0	0	0	1	0	1	1
PA	7	2	0	0	1	4	14	4
SC	1	0	0	0	3	0	4	2
TN	0	0	1	0	1	0	2	2
TX	2	1	4	1	8	1	17	6
VA	1	0	0	0	2	0	3	2
VT	0	1	0	0	0	0	1	1
WV	0	0	0	0	1	0	1	1
Total Number of Cases	62	11	17	6	47	6	149	
Total Number of States	15	8	9	3	18	3	28	

*Outbreak 1: *Salmonella* Sandiego, Strain A and *Salmonella* Newport, n=62,

Outbreak 2: *Salmonella* Pomona, Strain A n=11,

Outbreak 3: *Salmonella* Poona, Strain A n=17,

Outbreak 4: *Salmonella* Sandiego, Strain B n=6,

Outbreak 5: *Salmonella* Pomona, Strain B n=47

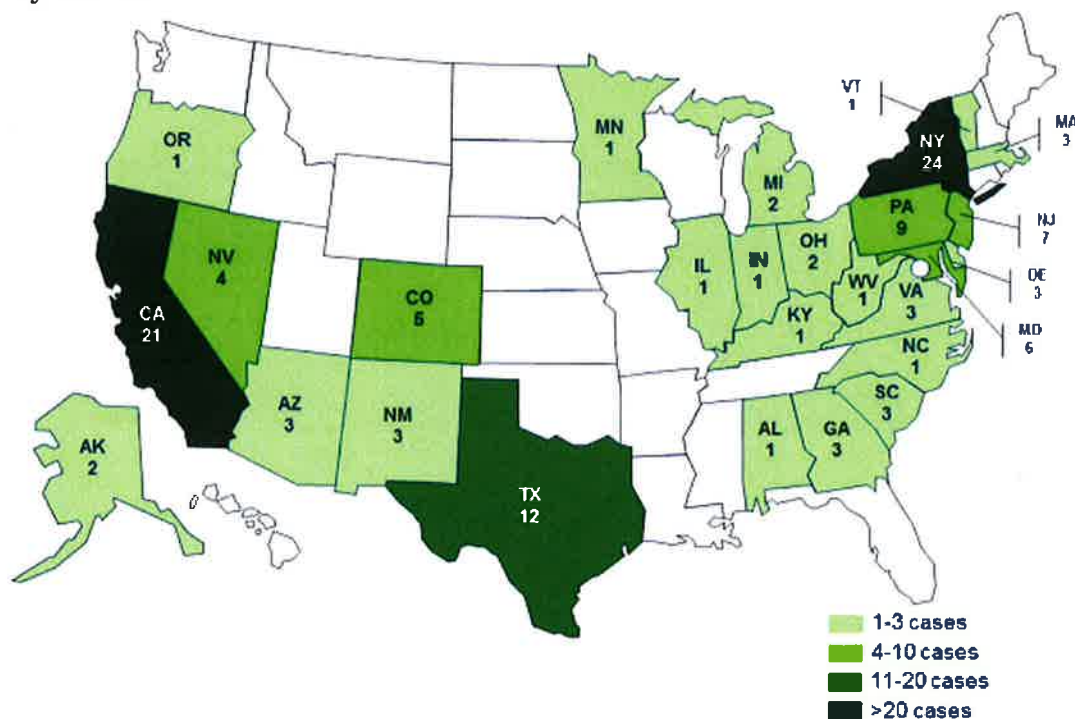
Outbreak 6: *Salmonella* Poona, Strain B n=6

**for whom information was reported as of June 25, 2012

The number of ill persons identified in each state is as follows: Alabama (2), Alaska (2), Arizona (5), California (26), Colorado (5), Delaware (3), Georgia (3), Illinois (1), Indiana (1), Kentucky (1), Massachusetts (3), Maryland (6), Michigan (2), Minnesota (1), New Jersey (7), New Mexico (4), New York (25), Nevada (6), North Carolina (1), Ohio (2), Oregon (1), Pennsylvania (14), South Carolina (4), Tennessee (2), Texas (17), Vermont (1), Virginia (3), and West Virginia (1).

Case Count Map: May 8, 2012

Persons infected with Turtle-associated Outbreaks of *Salmonella**, United States, by State**



Number of cases in each outbreak, by state

	Outbreak 1	Outbreak 2	Outbreak 3	Outbreak 4	Outbreak 5	Combined Case Count	Number of Outbreaks, Each State
AK	0	0	0	0	2	2	1
AL	0	0	1	0	0	1	1
AZ	0	0	2	0	1	3	2
CA	7	2	3	0	9	21	4
CO	0	0	0	3	2	5	2
DE	0	0	0	0	3	3	1
GA	1	0	0	0	2	3	2
IL	1	0	0	0	0	1	1
IN	0	0	1	0	0	1	1
KY	0	0	1	0	0	1	1
MA	2	1	0	0	0	3	2
MD	5	1	0	0	0	6	2
MI	0	0	1	0	1	2	2
MN	1	0	0	0	0	1	1
Total Number of Cases	55	9	15	6	39	124	
Total Number of States	13	8	8	3	16	27	

	Outbreak 1	Outbreak 2	Outbreak 3	Outbreak 4	Outbreak 5	Combined Case Count	Number of Outbreaks, Each State
NC	1	0	0	0	0	1	1
NJ	6	1	0	0	0	7	2
NM	3	0	0	0	0	3	1
NV	0	0	0	2	2	4	2
NY	19	1	3	0	1	24	4
OH	0	0	0	0	2	2	1
OR	0	0	0	0	1	1	1
PA	7	1	0	0	1	9	3
SC	1	0	0	0	2	3	2
TX	0	1	3	1	7	12	4
VA	1	0	0	0	2	3	2
VT	0	1	0	0	0	1	1
WV	0	0	0	0	1	1	1
Total Number of Cases	55	9	15	6	39	124	
Total Number of States	13	8	8	3	16	27	

*Outbreak 1: *Salmonella* Sandiego, Strain A n=55,

Outbreak 2: *Salmonella* Pomona, Strain A n=9,

Outbreak 3: *Salmonella* Poona n=15,

Outbreak 4: *Salmonella* Sandiego, Strain B n=6,

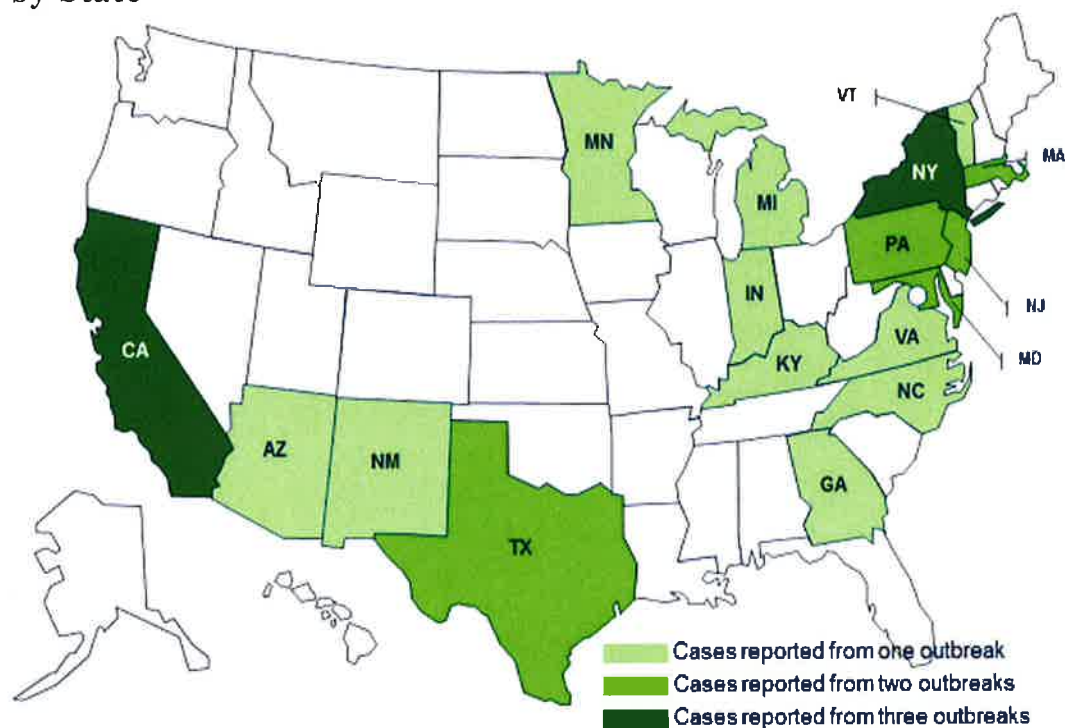
Outbreak 5: *Salmonella* Pomona, Strain B n=39

**for whom information was reported as of May 8, 2012

The number of ill persons identified in each state is as follows: Alaska (2), Alabama (1), Arizona (3), California (21), Colorado (5), Delaware (3), Georgia (3), Illinois (1), Indiana (1), Kentucky (1), Massachusetts (3), Maryland (6), Michigan (2), Minnesota (1), Nevada (4), New Jersey (7), New Mexico (3), New York (24), North Carolina (1), Ohio (2), Oregon (1), Pennsylvania (9), South Carolina (3), Texas (12), Virginia (3), Vermont (1), and West Virginia (1).

Case Count Map: April 4, 2012

Persons infected with Turtle-associated Outbreaks of *Salmonella**, United States, by State**



Number of cases in each outbreak, by state

Source state *Salmonella* **Sandiego** *Salmonella* **Pomona** *Salmonella* **Poona**

AZ	0	0	2
CA	7	2	3
GA	1	0	0
IN	0	0	1
KY	0	0	1
MA	2	1	0
MD	5	1	0
MI	0	0	1
MN	1	0	0
NC	1	0	0
NJ	5	1	0
NM	3	0	0
NY	18	1	2
PA	6	1	0
TX	0	1	3
VA	1	0	0
VT	0	1	0
Grand Total	50	9	13

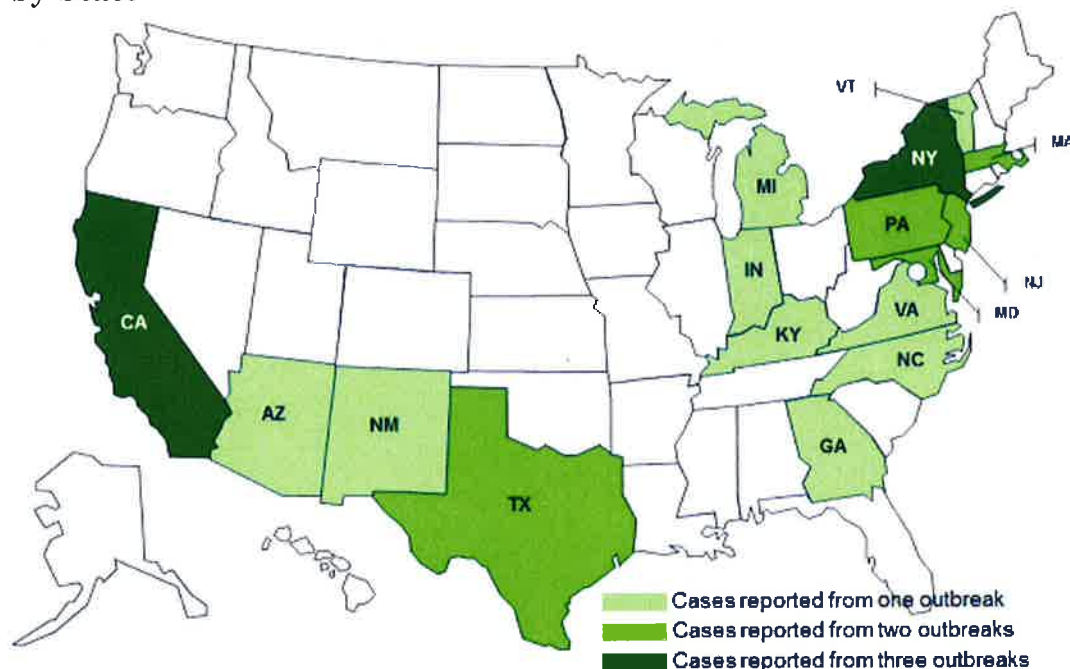
*n=72 for whom information was reported as of April 4, 2012

The number of ill persons identified in each state is as follows: Arizona (2), California (12), Georgia (1), Indiana (1), Kentucky (1), Massachusetts (3), Maryland (6), Michigan (1), Minnesota (1), North Carolina

(1), New Jersey (6), New Mexico (3), New York (21), Pennsylvania (7), Texas (4), Virginia (1), and Vermont (1).

Case Count Map: March 26, 2012

Persons infected with Turtle-associated Outbreaks of *Salmonella**, United States, by State**



Number of cases in each outbreak, by state

Source state *Salmonella* Sandiego *Salmonella* Pomona *Salmonella* Poona

AZ	0	0	2
CA	3	2	3
GA	1	0	0
IN	0	0	1
KY	0	0	1
MA	2	1	0
MD	5	1	0
MI	0	0	1
NC	1	0	0
NJ	5	1	0
NM	3	0	0
NY	18	1	2
PA	6	1	0
TX	0	1	2
VA	1	0	0
VT	0	1	0
Grand Total	45	9	12

*n=66 for whom information was reported as of March 26, 2012

The number of ill persons identified in each state is as follows: Arizona (2), California (8), Georgia (1), Indiana (1), Kentucky (1), Massachusetts (3), Maryland (6), Michigan (1), North Carolina (1), New Jersey (6), New Mexico (3), New York (21), Pennsylvania (7), Texas (3), Virginia (1), and Vermont (1).

Page last reviewed: March 30, 2012

Page last updated: August 8, 2012

Content source: Centers for Disease Control and Prevention

National Center for Emerging and Zoonotic Infectious Diseases (NCEZID)

Division of Foodborne, Waterborne, and Environmental Diseases (DFWED)

Centers for Disease Control and Prevention 1600 Clifton Rd. Atlanta, GA 30333, USA
800-CDC-INFO (800-232-4636) TTY: (888) 232-6348 - cdcinfo@cdc.gov



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Salmonella

Human *Salmonella* Infections Linked to Small Turtles

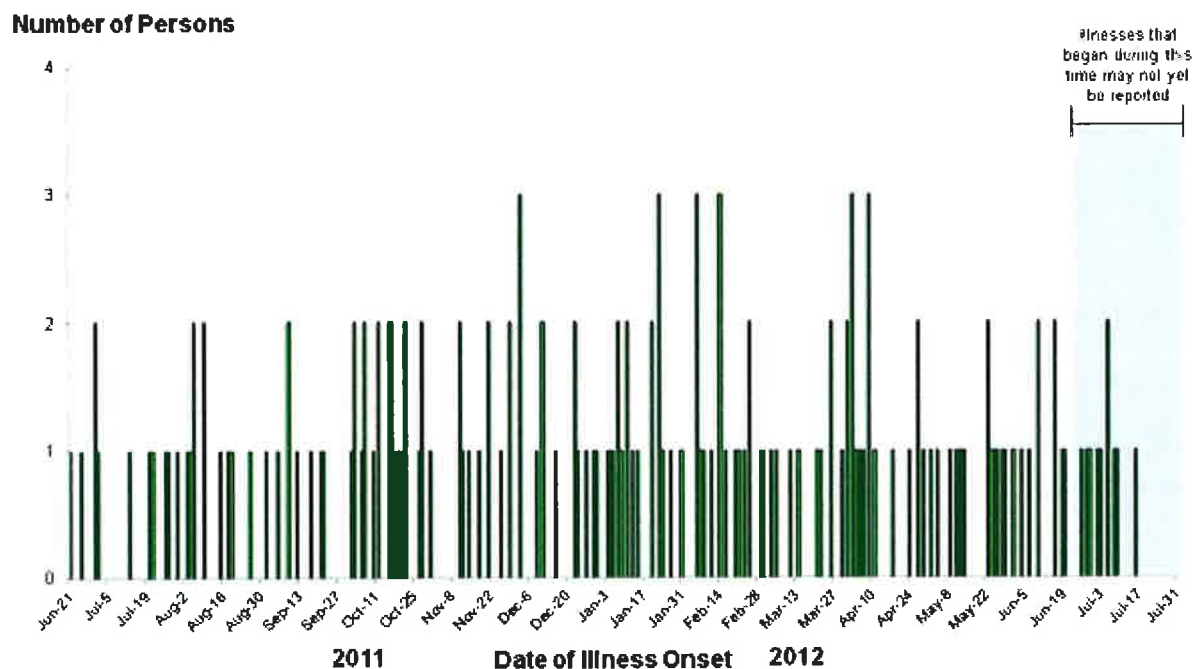
Posted August 8, 2012 2:00 PM ET

Epi Curve

This outbreak can be visually described with a chart showing the number of persons who became ill each day. This chart is called an epi curve. Please see the [Timeline for Reporting of Salmonella Cases \(/salmonella/outbreaks/reporting_timeline.html\)](/salmonella/outbreaks/reporting_timeline.html) for more details on the reporting process.

Current Epi Curve

Persons infected with the outbreak strains of *Salmonella*, by date of illness onset*



*n=168 for whom illness onset date was reported as of August 2, 2012. Some illness onset dates have been estimated from other reported information. Illnesses that occurred after June 25, 2012 may not yet be reported due to the time it takes between when a person becomes ill and when the illness is reported. This takes an average of 2 to 3 weeks.

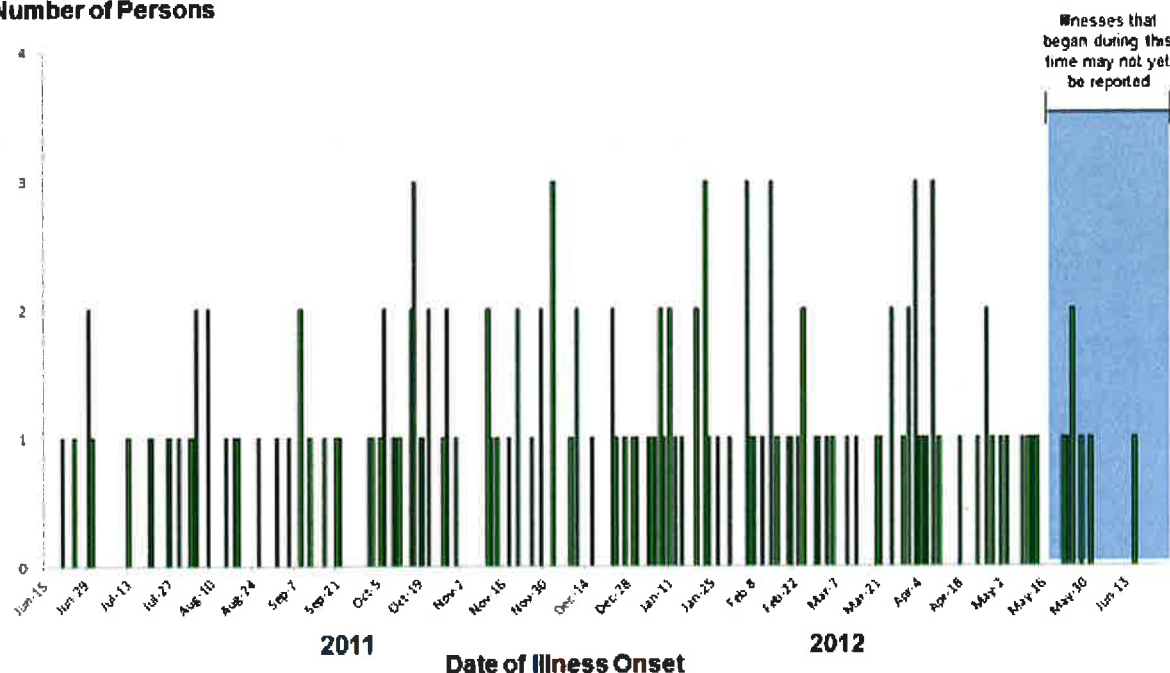
« [Read the full Outbreak Investigation \(/salmonella/small-turtles-03-12/index.html\)](/salmonella/small-turtles-03-12/index.html)

Previous Epi Curves

Epi Curve: June 25, 2012

Persons infected with the outbreak strains of *Salmonella*, by date of illness onset*

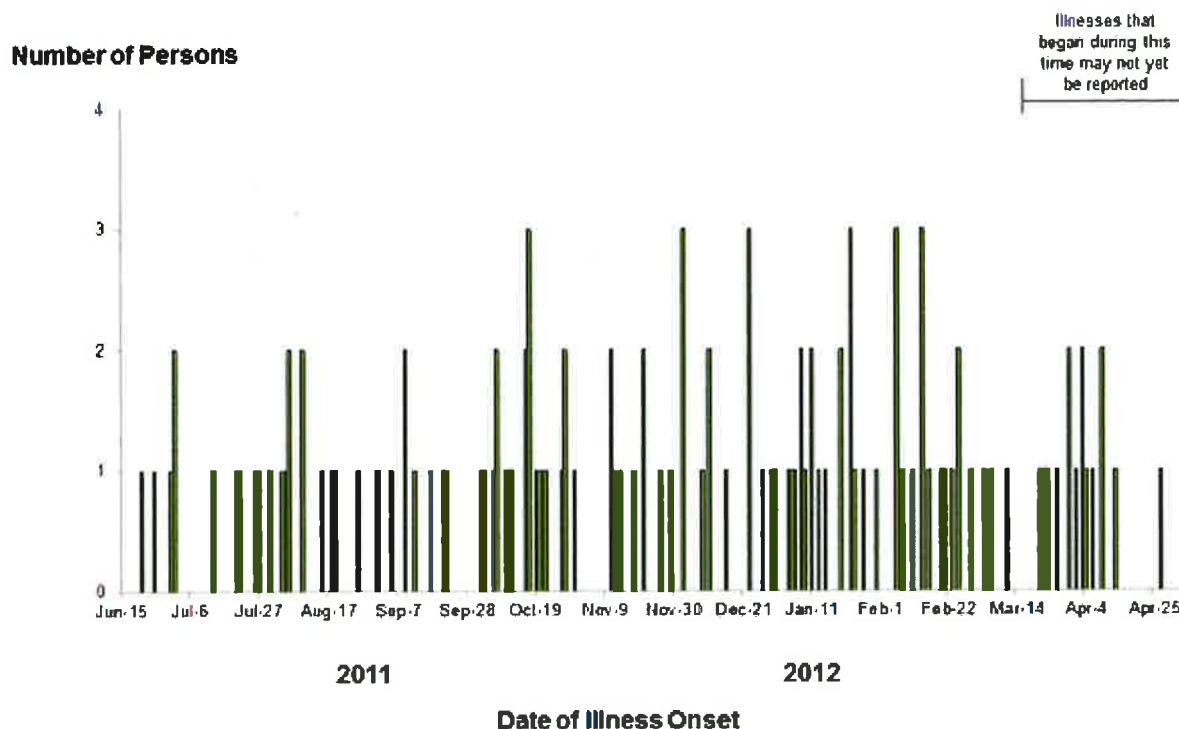
Number of Persons



*n=149 for whom illness onset date was reported as of June 25, 2012. Some illness onset dates have been estimated from other reported information. Illnesses that occurred after May 17, 2012 may not yet be reported due to the time it takes between when a person becomes ill and when the illness is reported. This takes an average of 2 to 3 weeks.

Epi Curve: May 8, 2012

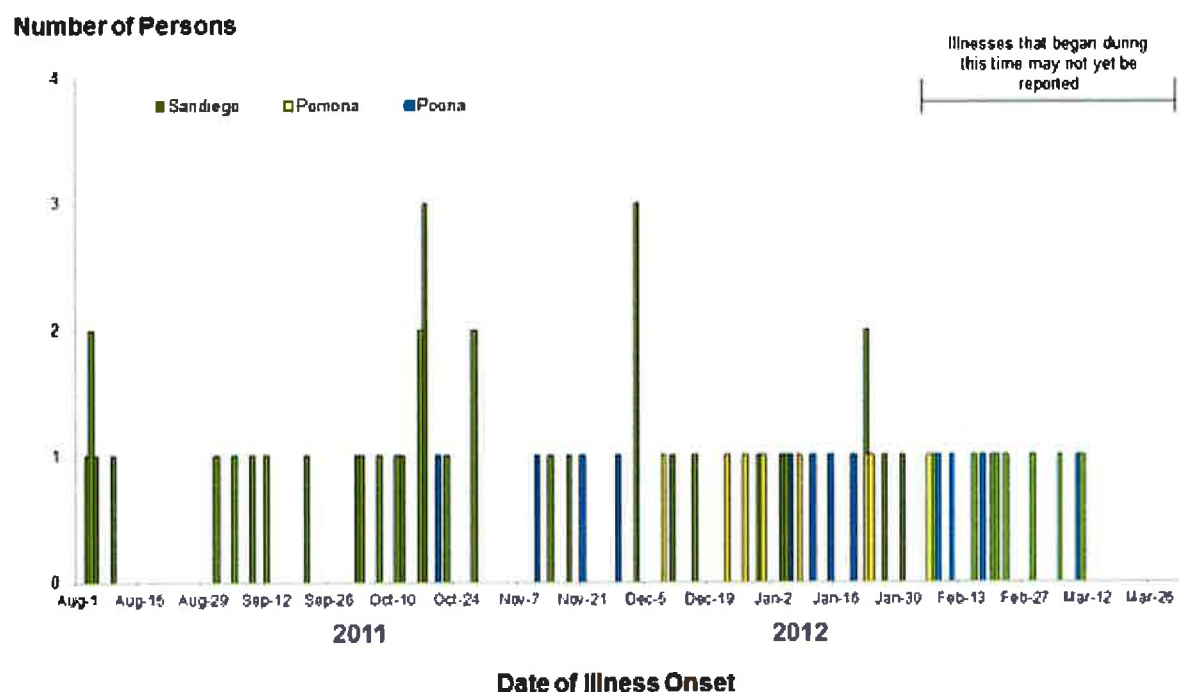
Persons infected with the outbreak strains of *Salmonella*, by date of illness onset*



*n=124 for whom information was reported as of May 8, 2012. Illnesses that occurred after March 18, 2012 might not yet be reported due to the time it takes between when a person becomes ill and when the illness is reported. This takes an average of 2 to 3 weeks.

Epi Curve: April 4, 2012

Persons infected with the outbreak strain of *Salmonella*, by date of illness onset*



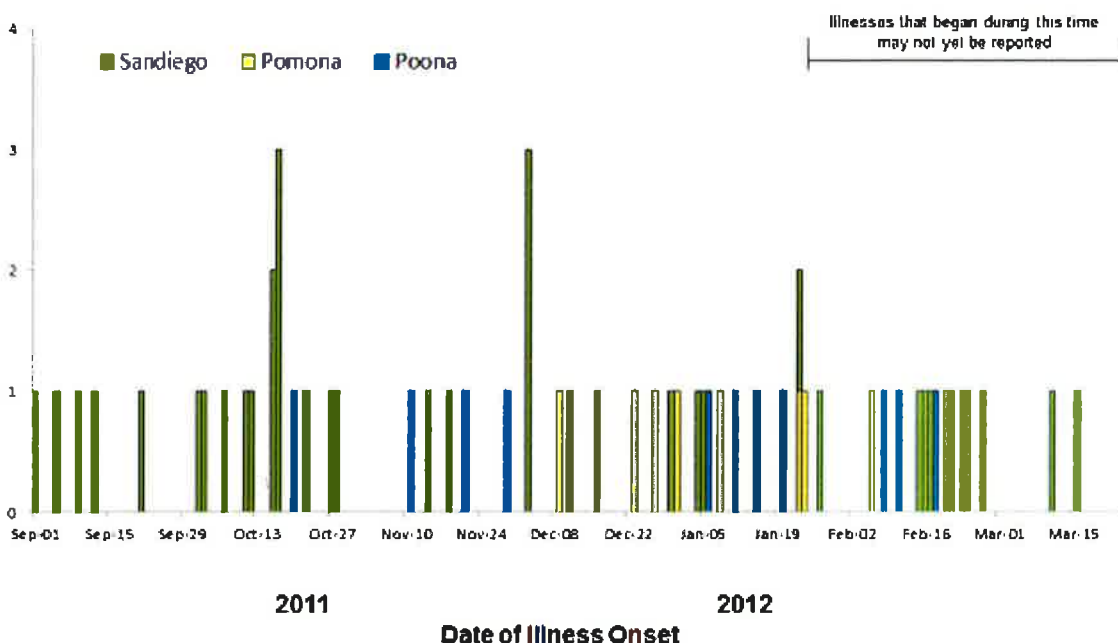
Onset data not currently available for all persons with reported illness.

*n=71 for whom information was reported as of April 4, 2012. Illnesses that occurred after February 9, 2012 might not yet be reported due to the time it takes between when a person becomes ill and when the illness is reported. This takes an average of 2 to 3 weeks.

Epi Curve: March 26, 2012

Persons infected with the outbreak strain of *Salmonella*, by date of illness onset*

Number of Persons



Onset data not currently available for all persons with reported illness.

*n=65 for whom information was reported as of March 26, 2012. Illnesses that occurred after January 26, 2012 might not yet be reported due to the time it takes between when a person becomes ill and when the illness is reported. This takes an average of 2 to 3 weeks.

Page last reviewed: March 30, 2012

Page last updated: August 8, 2012

Content source: Centers for Disease Control and Prevention

National Center for Emerging and Zoonotic Infectious Diseases (NCEZID)

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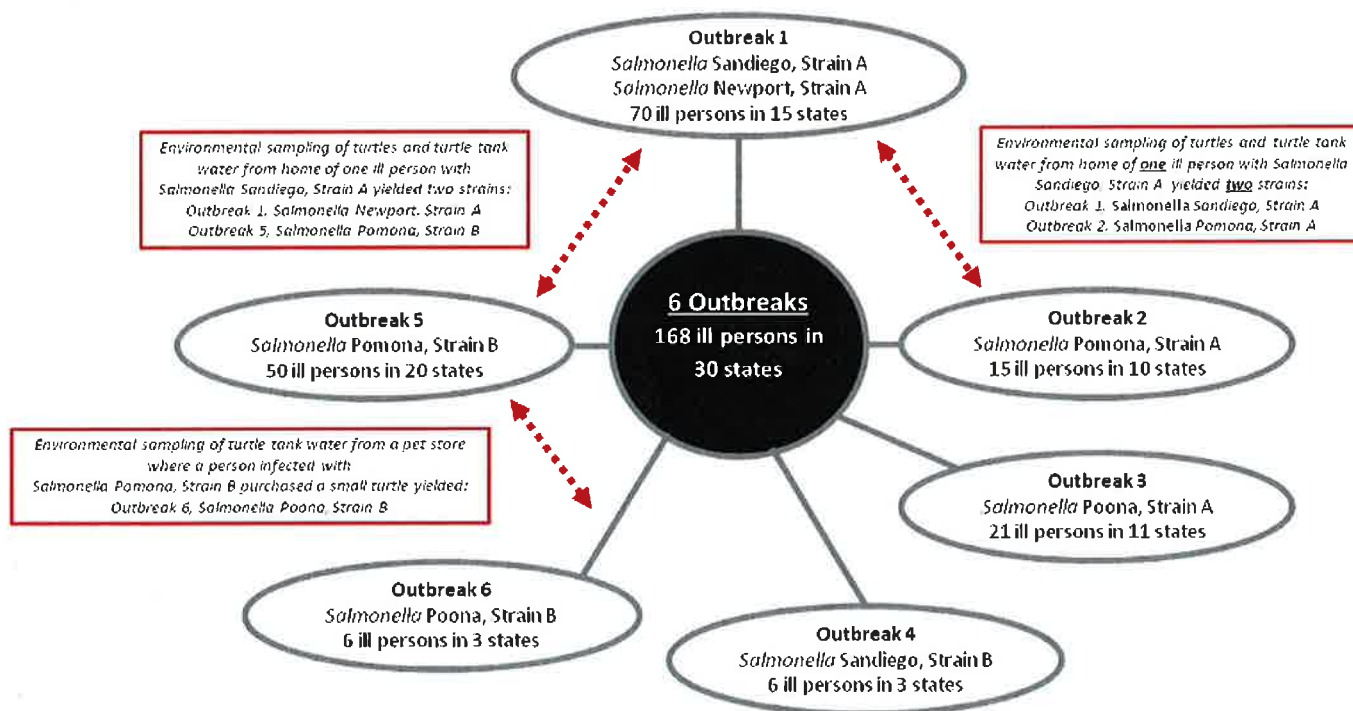
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Salmonella

Human *Salmonella* Infections Linked to Small Turtles Outbreaks Diagram

Posted August 8, 2012 2:00 PM ET

Six Multistate Outbreaks of Human *Salmonella* Infections Linked to Small Turtles Currently Under Investigation by CDC, as of August 2, 2012



« Read the full Outbreak Investigation

Page last reviewed: May 10, 2012

Page last updated: August 8, 2012

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