

# Surveillance for Outbreaks of Enteric Disease Associated with Animal Contact: Summary for 2017



**Centers for Disease  
Control and Prevention**  
National Center for Emerging and  
Zoonotic Infectious Diseases

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## Highlights

- In 2017, 59 outbreaks of enteric disease associated with animal contact were reported, resulting in 1,518 illnesses, 312 hospitalizations, and 3 deaths.
- *Cryptosporidium* was the most common cause of confirmed, single-etiology outbreaks, accounting for 21 outbreaks (41%), 158 illnesses, and 6 hospitalizations.
- *Salmonella* was the second leading cause of confirmed, single-etiology outbreaks with 18 (35%); these outbreaks resulted in the most outbreak-associated-illnesses (1,237 illnesses, 84%), hospitalizations (286, 92%), and deaths (2, 67%).
- Livestock (25 outbreaks) and poultry (15) were the most common types of animals implicated. The most outbreak-associated illnesses were from contact with poultry (1,149 illnesses), livestock (132), and reptiles (89).
- Farms or dairies (11 outbreaks, 30%) were the most commonly reported setting among outbreaks with a single location of exposure, followed by private homes (10 outbreaks, 27%).

## Background

Each year, enteric diseases linked to animals or their environments are estimated to cause 450,000 illnesses, 5,000 hospitalizations, and 76 deaths in the United States.<sup>1</sup> These illnesses are attributed to contact with an animal's feces or bodily fluids, which can be present on the animal, in its environment, or in its food or water. Outbreak data can provide insight into human illnesses caused by pathogens transmitted through animal contact and can inform efforts to prevent disease. The findings in this report exemplify the One Health concept by highlighting how the health of people is interconnected with animals and the environment.

## Methods

An animal contact outbreak is defined as the occurrence of two or more cases of a similar illness resulting from contact with an animal; its feces, bodily fluids (excluding raw milk or other fluids consumed as food), fur, hair, feathers, scales, or skin; its food; or through contact with the animal's environment. CDC conducts surveillance for enteric disease outbreaks associated with animal contact in the United States through the Animal Contact Outbreak Surveillance System (ACOSS). Public health agencies in all 50 states, Washington, D.C., and U.S. territories submit outbreak reports to CDC using a web-based platform, the National Outbreak Reporting System (NORS) (<https://www.cdc.gov/nors/>).

Agencies use a standard form (<https://www.cdc.gov/nors/downloads/form-52-13.pdf>) to report these outbreaks. Data requested for each outbreak include, but are not limited to, the dates of first and last illness onset; number of illnesses, hospitalizations, and deaths; etiology; implicated animal type(s); and setting(s) of exposure. Patients who were hospitalized or died as a result of becoming ill during an outbreak were attributed to that outbreak. This summary includes single state and multistate animal contact outbreaks reported through NORS by January 4, 2019, in which the first illness began in 2017.

Etiologic agents were grouped by pathogen type. Reporting agencies classified the outbreak etiology as confirmed or suspected based on laboratory data. Animals were implicated as confirmed or suspected sources based on the following types of evidence: epidemiologic, laboratory, or traceback/environmental. Multiple animals could be implicated as sources of an outbreak if at least one type of evidence was identified for each implicated animal. The [NORS Guidance document](#) and [Appendix B](#) provide additional details about categorizing animal sources as confirmed or suspected.

Outbreaks were assigned to one of four animal categories determined by the type of animal implicated as the confirmed or suspected source:

livestock, companion, poultry, or reptiles. If a single animal type (e.g., cattle) was implicated, the outbreak was assigned to one of the four categories (e.g., cattle fall under the livestock category). If multiple animal types were implicated, the outbreak was assigned to the category “Multiple Animal Types Implicated.” If animal contact was identified as the mode of transmission but no animals were implicated, the outbreak was assigned to the category “No Animal Implicated.”

Multistate outbreaks were defined as outbreaks in which exposure to the implicated animal(s) occurred in more than one state or territory. An implicated animal was considered the confirmed source for a multistate outbreak if at least two types of evidence were identified. Multistate outbreaks reported in this summary include outbreaks with cases during 2017 and an investigation that concluded in 2017.

## Findings

During 2017, 59 animal contact outbreaks were reported, resulting in 1,518 illnesses, 312 hospitalizations, and 3 deaths. Forty-six were single-state outbreaks; these were reported from 18 states. Thirteen were multistate outbreaks; exposures occurred in 49 states and Washington, D.C. The median reporting rate among states was 1.1 outbreak per million population; rates ranged from 0.2 in Florida to 6.3 in Nebraska (Figure).

## Etiologic Agents

Bacteria and parasites were the only types of etiologies reported. A single etiologic agent was confirmed in 51 outbreaks (86%) (Table 1). *Cryptosporidium* was the most common cause of confirmed, single-etiology outbreaks, accounting for 21 outbreaks (41%), followed by *Salmonella* with 18 (35%). *Salmonella*, however, caused 84% of illnesses (1,237 illnesses) among confirmed, single-etiology outbreaks, whereas *Cryptosporidium* caused 11% (158). Overall, bacteria caused the most outbreaks (30; 59%), illnesses (1,320; 89%), hospitalizations (304; 98%), and all 3 deaths.

Among the 1,478 illnesses in confirmed, single-etiology outbreaks, 310 resulted in hospitalization and 3 in death. Two hundred eighty-six (92%)

hospitalizations were among persons with *Salmonella* infection; Shiga toxin-producing *E. coli* (STEC) (18, 6%) and *Cryptosporidium* (6, 2%) accounted for the remainder. Outbreaks caused by STEC resulted in the highest proportion of ill persons hospitalized (26%). Two of the 3 deaths were associated with *Salmonella* infection and 1 was associated with STEC infection.

## Animal Sources

An animal source was implicated in 50 (85%) of 59 outbreaks (Table 2a). Livestock was the most commonly implicated category, with 25 outbreaks (57%); among these, 19 (76%) outbreak investigations implicated cattle as the confirmed or suspected source. Outbreaks with poultry as the source accounted for the highest number of illnesses (1,149 illnesses, 84%); outbreaks due to baby chicks or ducklings accounted for the most illnesses among poultry outbreaks (99%) and single animal type outbreaks (83%). A single animal type was identified in 44 (88%) outbreaks. Multiple animal types were implicated as confirmed or suspected sources in 6 outbreaks, resulting in 104 illnesses. Each of these outbreaks involved animals in the livestock category: goats and calves; a bull and horse; goats, sheep, and alpacas; goats, sheep, and cattle; pig, goats, and sheep; cattle and goats.

## Etiologic Agents and Animal Categories for Outbreaks with Date of First Illness in 2017

The confirmed pathogen-animal category pairs responsible for the most outbreaks with a single confirmed etiology were *Cryptosporidium* from livestock (18 outbreaks), *Salmonella* from poultry (12), and STEC from livestock (6) (Table 2b). *Salmonella* from poultry resulted in the most outbreak-associated illnesses (1,138), hospitalizations (250), and deaths (2) among outbreaks with a single confirmed etiology. *Cryptosporidium* from livestock accounted for the second highest number of illnesses (146) among outbreaks with a single confirmed etiology, followed by *Salmonella* from reptiles (89). STEC from livestock was associated with 1 of the 3 deaths.

## Location of Exposure for Outbreaks with Date of First Illness in 2017

Among all outbreaks, private homes (25 outbreaks, 42%), farms and dairies (17, 29%), and agricultural feed stores (10, 17%) were the most frequently reported exposure locations. A single location of exposure was reported in 37 outbreaks (63%); 20 (54%) were linked to a public venue, such as a farm/dairy or a petting zoo (Table 3). Farms and dairies were the most commonly reported public venue among single-location outbreaks (11 outbreaks, 55%), followed by festivals and fairs (6 outbreaks, 30%). Private homes were associated with the highest number of illnesses (124 illnesses, 37%).

Multiple locations of exposure were reported in 22 outbreaks (37%), accounting for 78% (1,182) of all outbreak-associated illnesses. Among these, private homes were the most commonly reported setting (15 outbreaks, 68%), followed by agricultural feed stores (10, 45%). Private homes and agricultural feed stores were both reported as venues in 10 outbreaks. Other locations reported in outbreaks with multiple settings of exposure were public venues (farm or dairy, festival or fair, petting zoo, live animal market, zoo or animal exhibit), animal care settings (animal shelter, veterinary clinic), and institutional settings (school, day care).

## Multistate Outbreaks with Date of First Illness in 2017

Thirteen multistate outbreaks (22% of all outbreaks) had a date of first illness in 2017 (Table 4). These accounted for 80% of all outbreak-associated illnesses (1,214), 92% of hospitalizations (287), all 3 deaths, and involved a median of 15 states (range: 2 to 37). Twelve outbreaks were caused by *Salmonella*; one was caused by STEC. Ten of the *Salmonella* outbreaks were associated with poultry, resulting in 1,120 illnesses, 249 hospitalizations, and 2 deaths; ill persons were exposed in a median of 21 states (range 7 to 37). Household pets were implicated in the other 2 *Salmonella* outbreaks. One was associated with turtles, resulting in 76 illnesses and 30 hospitalizations; the other was associated with snakes, resulting in 11 illnesses and 2 hospitalizations. A bull and horses were the suspected sources of the STEC outbreak, which resulted in 7 illnesses, 6 hospitalizations, and 1 death.

## Multistate Outbreaks Spanning Multiple Years

Three multistate outbreaks investigated in 2017 were not included in any 2017 totals because the first outbreak-associated illness occurred before 2017. Two were caused by *Salmonella* (first illness in 2015); the implicated animal types were household pets—turtles and guinea pigs. The turtle-associated outbreak resulted in 79 illnesses and 25 hospitalizations, and the guinea pig-associated outbreak resulted in 10 illnesses and 1 hospitalization. The third outbreak was caused by *Campylobacter* (first illness in 2016) transmitted through contact with pet store puppies, resulting in 120 illnesses and 24 hospitalizations.

## Limitations

The findings in this summary are subject to at least three limitations. First, ACOSS is a dynamic surveillance system, so public health agencies can add, modify, or remove their outbreak reports as additional information becomes available. Thus, data reported in future analyses may differ from data reported here. Second, reporting enteric disease outbreaks associated with animal contact to CDC is voluntary, and agencies may be limited in their ability to investigate and report these outbreaks. Third, because there is no guide for confirming the etiology of animal contact outbreaks as there is for foodborne outbreaks, there may be variation across reporting agencies in the criteria used to confirm the etiology for animal contact outbreaks.<sup>2</sup> Finally, the degree to which outbreak data reported to CDC reflect the true burden of enteric diseases associated with animal contact is not known.

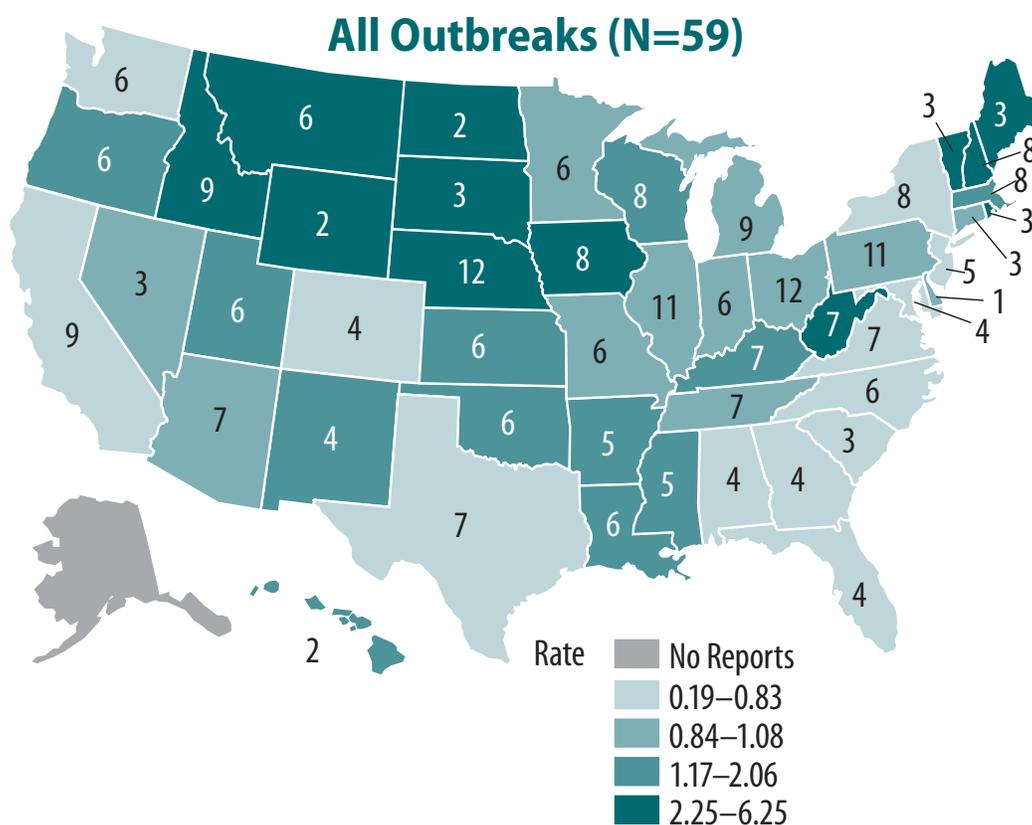
## Conclusions

The findings in this report can be considered in conjunction with other public health data to detect emerging trends and inform interventions to prevent further animal contact outbreaks. The 59 enteric disease outbreaks that were linked to animals or their living environments in 2017 indicate the need to better understand enteric diseases using a One Health approach. Successful public health interventions rely on integrating human, animal and environmental health efforts to achieve optimal health outcomes. Outbreaks can be prevented by using data-driven interventions, such as proper handwashing after contact with animals or their environments, regardless of the setting or the type of animal.<sup>3</sup>

## References

1. Hale C, Scallan E, Cronquist A, Dunn J, Smith K, Robinson T, et al. Estimates of enteric illness attributable to contact with animals and their environments in the United States. *Clinical Infectious Diseases* 2012; 54 Suppl 5:472–79.
2. CDC. Guide to confirming a diagnosis in foodborne disease. Available at: [https://www.cdc.gov/foodsafety/outbreaks/investigating-outbreaks/confirming\\_diagnosis.html](https://www.cdc.gov/foodsafety/outbreaks/investigating-outbreaks/confirming_diagnosis.html). Accessed April 12, 2019.
3. CDC. Healthy Pets, Healthy People. Available at: <https://www.cdc.gov/healthypets/index.html>. Accessed January 29, 2019

**Figure:** Rate of reported enteric disease outbreaks associated with animal contact per one million population\* and number of outbreaks, by state†—Animal Contact Outbreak Surveillance System, United States, 2017.



\* Cut points for outbreak rate categories determined using quartiles.

† Includes 13 multistate outbreaks with date of first illness onset in 2017. Multistate outbreaks were assigned as an outbreak to each state involved. Multistate outbreaks involved a median of 15 states (range: 2–37).

**Table 1:** Enteric disease outbreaks associated with animal contact, outbreak-associated illnesses, and hospitalizations, by etiology (confirmed or suspected) — Animal Contact Outbreak Surveillance System, United States, 2017.

Etiology	No. Outbreaks			No. Illnesses			No. Hospitalizations			No. Deaths		
	CE	SE	Total	CE	SE	Total	CE	SE	Total	CE	SE	Total
<b>Bacterial</b>												
<i>Salmonella</i> <sup>†</sup>	18	2	20	1237	6	1243	286	0	286	2	0	2
<i>Escherichia coli</i> , Shiga toxin-producing (STEC) <sup>‡</sup>	10	0	10	70	0	70	18	0	18	1	0	1
<i>Campylobacter</i> <sup>§</sup>	2	3	5	13	11	24	0	0	0	0	0	0
<b>Subtotal</b>	30	5	35	1320	17	1337	304	0	304	3	0	3
<b>Parasitic</b>												
<i>Cryptosporidium</i> <sup>¶</sup>	21	3	24	158	23	181	6	2	8	0	0	0
<b>Subtotal</b>	21	3	24	158	23	181	6	2	8	0	0	0
<b>Total</b>	<b>51</b>	<b>8</b>	<b>59</b>	<b>1478</b>	<b>40</b>	<b>1518</b>	<b>310</b>	<b>2</b>	<b>312</b>	<b>3</b>	<b>0</b>	<b>3</b>

**Abbreviations:** CE = confirmed etiology, SE = suspected etiology.

\* The etiology percentages are for confirmed etiologies. Because of rounding, numbers might not add up to 100%.

<sup>†</sup> *Salmonella* serotypes 14,15,12:i:- (4 outbreaks), Typhimurium (3), Enteritidis (2), Agbeni (1), Braenderup (1), Hadar (1), Indiana (1), Infantis (1), Litchfield (1), Mbandaka (1), Muenchen (1), Saintpaul (1), Typhi (1), and multiple serotypes (1).

<sup>‡</sup> STEC serogroups O157 (4 outbreaks), O26 (2), O45 (1), multiple serogroups (2), and unknown serogroup (1).

<sup>§</sup> *Campylobacter* unknown species (4 outbreaks) and *Campylobacter jejuni* (1).

<sup>¶</sup> *Cryptosporidium parvum* (6 outbreaks) and *Cryptosporidium* unknown species (18).

**Table 2a:** Enteric disease outbreaks associated with animal contact and outbreak-associated illnesses and hospitalizations, by animal category and type—Animal Contact Outbreak Surveillance System, United States, 2017.

Animal Category and Type	Outbreaks		Illnesses		Hospitalizations	
	No.	%	No.	%	No.	%
<b>Livestock</b>						
Cattle	19	43	101	7	5	2
Goat or kid	4	9	25	2	3	1
Hog	1	2	4	0	0	0
Sheep or lamb	1	2	2	0	0	0
<b>Subtotal</b>	<b>25</b>	<b>56</b>	<b>132</b>	<b>9</b>	<b>8</b>	<b>3</b>
<b>Companion Animals</b>						
Dog or puppy	1	2	3	0	0	0
<b>Subtotal</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>Poultry</b>						
Baby chick or duckling	13	30	1139	83	250	86
Chicken	2	5	10	1	0	0
<b>Subtotal</b>	<b>15</b>	<b>35</b>	<b>1149</b>	<b>84</b>	<b>250</b>	<b>86</b>
<b>Reptiles</b>						
Turtle	2	5	78	6	32	11
Snake	1	2	11	1	2	1
<b>Subtotal</b>	<b>3</b>	<b>7</b>	<b>89</b>	<b>7</b>	<b>34</b>	<b>12</b>
<b>Single animal type implicated</b>	<b>44</b>	<b>75</b>	<b>1373</b>	<b>90</b>	<b>292</b>	<b>94</b>
<b>Multiple animal types implicated*</b>	<b>6</b>	<b>10</b>	<b>104</b>	<b>7</b>	<b>16</b>	<b>5</b>
<b>No animal implicated†</b>	<b>9</b>	<b>15</b>	<b>41</b>	<b>3</b>	<b>4</b>	<b>1</b>
<b>Total</b>	<b>59</b>	<b>100</b>	<b>1518</b>	<b>100</b>	<b>312</b>	<b>100</b>

\* Includes 6 outbreaks with 104 illnesses: goats (5 outbreaks), cattle (4), sheep (3), pig (1), alpaca (1), horse (1), bull (1).

† The animal source was undetermined, but epidemiologic, laboratory, traceback/environmental investigation, or other data strongly suggested animal contact as the mode of transmission.

**Table 2b:** Most common confirmed pathogen-animal category pairs resulting in outbreaks, outbreak-associated illnesses, hospitalizations, and deaths—Animal Contact Outbreak Surveillance System, United States, 2017.

Top 5 pathogen-animal category pairs resulting in outbreaks					
Etiology	Animal Category	No. Outbreaks	No. Illnesses	No. Hospitalizations	No. Deaths
<i>Cryptosporidium</i>	Livestock	18	146	6	0
<i>Salmonella</i>	Poultry	12	1138	250	2
<i>Escherichia coli</i> , Shiga toxin-producing	Livestock	6	58	14	1
<i>Salmonella</i>	Livestock	3	10	2	0
<i>Salmonella</i>	Reptiles	3	89	34	0

Top 5 pathogen-animal category pairs resulting in outbreak-associated illnesses					
Etiology	Animal Category	No. Outbreaks	No. Illnesses	No. Hospitalizations	No. Deaths
<i>Salmonella</i>	Poultry	12	1138	250	2
<i>Cryptosporidium</i>	Livestock	18	146	6	0
<i>Salmonella</i>	Reptiles	3	89	34	0
<i>Escherichia coli</i> , Shiga toxin-producing	Livestock	6	58	14	1
<i>Salmonella</i>	Livestock	3	10	2	0

Top 5 pathogen-animal category pairs resulting in outbreak-associated hospitalizations					
Etiology	Animal Category	No. Outbreaks	No. Illnesses	No. Hospitalizations	No. Deaths
<i>Salmonella</i>	Poultry	12	1138	250	2
<i>Salmonella</i>	Reptiles	3	89	34	0
<i>Escherichia coli</i> , Shiga toxin-producing	Livestock	6	58	14	1
<i>Cryptosporidium</i>	Livestock	18	146	6	0
<i>Salmonella</i>	Livestock	3	10	2	0

Pathogen-animal category pairs resulting in outbreak-associated deaths					
Etiology	Animal Category	No. Outbreaks	No. Illnesses	No. Hospitalizations	No. Deaths
<i>Salmonella</i>	Poultry	12	1138	250	2
<i>Escherichia coli</i> , Shiga toxin-producing	Livestock	6	58	14	1

**Table 3:** Enteric disease outbreaks associated with animal contact and outbreak-associated illnesses, by location of exposure—Animal Contact Outbreak Surveillance System, United States, 2017.

Location	Outbreaks		Illnesses	
	No.	%*	No.	%*
<b>Public venue</b>				
Farm or dairy	11	30	52	15
Festival or fair	6	16	37	11
Petting zoo	2	5	25	7
Live animal market	1	3	4	1
Subtotal	20	54	118	34
<b>Animal care setting</b>				
Animal shelter	2	5	60	18
Subtotal	2	5	60	18
<b>Institutional setting</b>				
School	3	8	24	7
Camp	1	3	8	2
Subtotal	4	11	32	9
<b>Private home</b>	10	27	124	37
<b>Other setting</b>	1	3	2	1
<b>Single location</b>	37	63	336	22
<b>Multiple locations</b>	22	37	1182	78
<b>Total</b>	<b>59</b>	<b>100</b>	<b>1518</b>	<b>100</b>

\* The denominator for the location percentages is the single location total. The denominator for the single location and multiple locations is the total. Because of rounding, numbers might not add up to 100% number of outbreaks.

**Table 4:** Multistate enteric disease outbreaks associated with animal contact investigated during 2017\*—Animal Contact Outbreak Surveillance System, United States, 2017.

Month-year of first illness onset	Etiology	No. illnesses	No. hospitalizations	No. deaths	No. states involved	Animal Details		
						Implicated animal type(s)	Confirmed	Setting(s)
<b>Date of first illness onset before 2017</b>								
Mar-2015	<i>Salmonella</i> serotype Agbeni	79	25	0	21	Turtle	Yes	Private home/residence
Jul-2015	<i>Salmonella</i> serotype Enteritidis	10	1	0	9	Guinea pig	Yes	Pet store or other retail location; Private home/residence
Jun-2016	<i>Campylobacter jejuni</i>	120	24	0	18	Puppy	Yes	Pet store or other retail location
<b>Date of first illness onset in 2017</b>								
Jan-2017	<i>Salmonella</i> serotype Enteritidis	193	45	0	28	Baby chick or duckling	Yes	Agricultural feed store; Private home/residence
Jan-2017	<i>Salmonella</i> serotype Mbandaka	98	17	1	27	Baby chick or duckling	Yes	Agricultural feed store; Private home/residence
Feb-2017	<i>Salmonella</i> serotype Braenderup	234	38	1	37	Baby chick or duckling	Yes	Agricultural feed store; Private home/residence
Feb-2017	<i>Salmonella</i> serotype Hadar	210	64	0	31	Baby chick or duckling	Yes	Agricultural feed store; Private home/residence
Feb-2017	<i>Salmonella</i> serotype Muenchen	11	5	0	9	Baby chick or duckling	Yes	Agricultural feed store; Private home/residence
Feb-2017	<i>Salmonella</i> serotype I 4,[5],12:i:-	43	11	0	13	Baby chick or duckling	Yes	Agricultural feed store; Private home/residence
Mar-2017	<i>Salmonella</i> serotype Indiana	40	6	0	15	Baby chick or duckling	Yes	Agricultural feed store; Private home/residence
Mar-2017	<i>Salmonella</i> serotype Infantis	23	5	0	13	Baby chick or duckling	Yes	Agricultural feed store; Private home/residence
Mar-2017	<i>Salmonella</i> serotype Typhimurium	250	52	0	35	Baby chick or duckling	Yes	Agricultural feed store; Private home/residence
Mar-2017	<i>Salmonella</i> serotype Agbeni	76	30	0	19	Turtle	Yes	Private home/residence
Apr-2017	<i>Salmonella</i> serotype Litchfield	18	6	0	7	Baby chick or duckling	Yes	Agricultural feed store; Private home/residence
Jun-2017	Shiga toxin-producing <i>E. coli</i> O157	7	6	1	2	Bull; Horse	No	Private home/residence
Jun-2017	<i>Salmonella</i> serotype Paratyphi B var. L(+) tartrate (+); <i>Salmonella</i> serotype Mbandaka	11	2	0	7	Snake	Yes	Private home/residence

\* All multistate outbreak investigations that began or concluded in 2017, including those with a date first ill before 2017.

<sup>†</sup> Implicated animals in multistate outbreaks are further classified as confirmed or suspected based on epidemiologic, traceback, and laboratory evidence. An animal is considered the confirmed source if two types of evidence are obtained; an animal is considered the suspected source if only one type of evidence is available.



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