

## **Salmonellosis**

Agent: *Salmonella* (bacteria)

Mode of Transmission: Ingestion of food or water contaminated with animal or human feces. Infected persons can spread the bacteria to other persons by not washing their hands properly after going to the bathroom and then handling food that others will eat. Infection can also occur after eating, smoking, or touching one's mouth if hands are contaminated with the bacteria and not washed well. People can also be infected with *Salmonella* by the feces of some pets, including reptiles and young birds, if hands are not washed well after contact with sick or seemingly healthy infected animals.

Signs/Symptoms: Sudden onset of headache, fever, abdominal pain, diarrhea and sometimes vomiting. Dehydration, especially in older adults and young children, can be a severe complication.

Prevention: Preventive measures should include following proper sanitation methods for food preparation and water supplies, including preventing cross-contamination of food preparation surfaces; maintaining sanitary sewage disposal; excluding infected people from handling food or providing healthcare; and prohibiting the sale of small turtles and restricting the sale of other reptiles for pets. Proper hand hygiene should be practiced, including washing hands after toileting or diapering, before and after handling food, and after handling animals or their feces. Eggs and other animal food products should be cooked thoroughly.

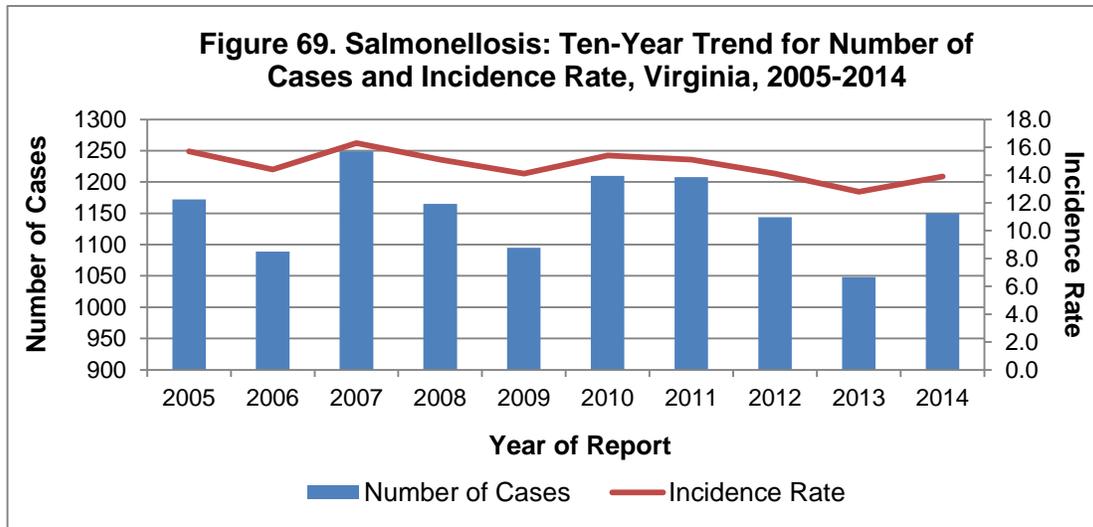
Other Important Information: With approximately 42,000 salmonellosis cases reported each year in the United States, *Salmonella* is one of the leading pathogens that cause foodborne illnesses, many of which result in hospital admissions. Incidence rates are highest among infants and young children. Mortality rates are higher in infants, older adults and people with impaired immune systems.

Special Note about Salmonellosis: While more than 2,500 serotypes of *Salmonella* can cause human illness, two specific *Salmonella* serotypes (*S. Typhi* and *S. Paratyphi*\*) can lead to typhoidal illness (i.e., typhoid fever and paratyphoid fever, respectively). Typhoidal illness is found only in humans and often results in more serious infections than those seen in other *Salmonella* serotypes; up to 10% of people who are untreated for typhoidal illness may die. Cases of typhoid fever and paratyphoid fever are usually associated with foreign travel and are alike in regard to clinical features and measures necessary to control the spread of infection. However, despite their similarities, paratyphoid fever tends to be milder than typhoid fever, with a lower fatality rate. Due to its severity, typhoid fever is reported as a separate condition in Virginia (see the Typhoid Fever section of this report for more information), while cases of paratyphoid fever are included in the general salmonellosis report.

\* Paratyphoid fever can be caused by any of three separate strains of *S. Paratyphi*: *S. Paratyphi* A, *S. schottmuelleri* (also called *S. Paratyphi* B), or *S. hirschfeldii* (also called *S. Paratyphi* C). A separate strain of *S. Paratyphi* B (i.e., *S. Paratyphi* B var. L[+] tartrate [+]) causes illness that resembles non-typhoidal salmonellosis; these cases are treated as general salmonellosis and are not considered to be paratyphoid fever.

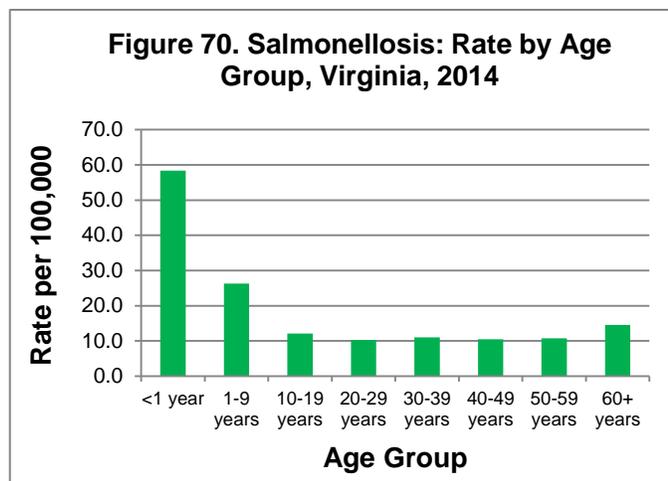
Salmonellosis: 2014 Data Summary	
Number of Cases:	1,150
5-Year Average Number of Cases:	1,141.0
% Change from 5-Year Average:	+1%
Incidence Rate per 100,000:	13.9

In 2014, 1,150 cases of salmonellosis were reported in Virginia which is higher than the 1,048 cases reported in 2013, but similar to the five-year average of 1,141 cases per year (Figure 69).

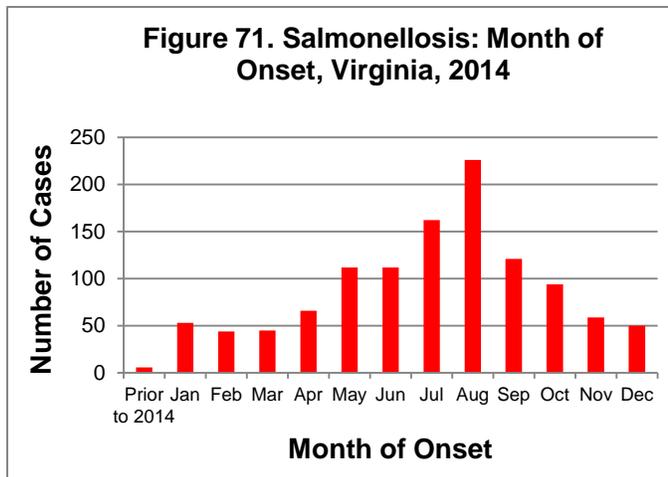


During 2014, the highest incidence rate was observed in infants less than 1 year of age (58.4 per 100,000), followed by the 1-9 year age group (26.3 per 100,000) (Figure 70). Rates in the other age groups ranged from 10.3 to 14.5 per 100,000. Race information was not reported for 42% of cases. For cases with a known race, incidence was higher in the white population (8.8 per 100,000) compared to the black and “other” race populations (6.7 and 4.8 per 100,000, respectively). Rates were higher among females than males (14.8 and 13.0 per 100,000, respectively).

As can be seen in the map below, cases of salmonellosis were reported from almost every locality in the state. Geographically, the northwest health planning region had the highest incidence rate (16.2 per 100,000) and the lowest rates were observed in the northern and southwest regions (12.4 and 12.5 per 100,000, respectively).



While *Salmonella* infections occurred throughout the year, the largest proportion of cases (44%) occurred in the third quarter, peaking in August (Figure 71). Among persons infected with *Salmonella* during 2014, one death in an adult female was reported.



Nine confirmed salmonellosis outbreaks occurred during 2014, six of which were multistate outbreaks. Five of the *Salmonella* outbreaks involving Virginia residents in 2014 were foodborne outbreaks. The number of Virginia

residents affected in each foodborne outbreak ranged from 1 to 37. Two outbreaks were related to animal contact; one was attributed to live poultry (e.g., chicks, ducklings, and partridges) and one was associated with frozen feeder rodents, with 25 and 5 Virginia residents affected, respectively. One salmonellosis outbreak was linked to exposure to clinical and teaching microbiology laboratories, with one Virginia case. One other salmonellosis outbreak occurred among six members of a family; the mode of transmission for this outbreak could not be identified. See the Outbreaks section of this report for more information.

Illnesses identified during salmonellosis outbreaks in 2014 were attributed to several *Salmonella* serotypes; during some outbreaks, more than one *Salmonella* serotype was detected. The serotypes involved in the outbreaks included Baildon, Enteritidis, Infantis, Newport, Thompson, and Typhimurium. For all salmonellosis infections in 2014, including sporadic cases among Virginia residents, the most commonly detected serotypes were *Salmonella* ser. Typhimurium and *Salmonella* ser. Enteritidis (Table 13).

Table 13. Top Ten *Salmonella* Serotypes Reported to the CDC PulseNet System by the Division of Consolidated Laboratory Services, Virginia, 2014

Rank	Serotype Causing Infection	Number	Rank	Serotype Causing Infection	Number
1	<i>S. ser</i> Typhimurium	214	6	<i>S. ser</i> Bareilly	37
2	<i>S. ser</i> Enteritidis	191	7	<i>S. ser</i> Saintpaul	36
3	<i>S. ser</i> Newport	153	8	<i>S. ser</i> Infantis	36
4	<i>S. ser</i> Javiana	87	9	<i>S. ser</i> Thompson	26
5	<i>S. ser</i> I 4,[5],12:i:-	48	10	<i>S. ser</i> Litchfield	23

In 2014, 3 cases of paratyphoid fever (one *S. Paratyphi* A and two *S. Paratyphi* B) were reported among Virginia residents. This is similar to the four cases identified in 2013. All three individuals reported a history of international travel in the weeks prior to illness onsets; two reported travel to South America and one reported travel to Asia.

# Salmonellosis Incidence Rate by Locality Virginia, 2014

