

National Enteric Disease Surveillance: *Salmonella* Annual Report, 2015

The Laboratory-based Enteric Disease Surveillance (LEDS) system contributes to the understanding of human salmonellosis in the United States by collecting reports of infections from state and regional public health laboratories. Reporting to LEDS is voluntary; the number of laboratories submitting reports varies somewhat from year to year, although almost all laboratories report every year. Occasionally, more than one isolate is reported from a single episode of infection in a person; this report includes only one isolate of a given *Salmonella* serotype per person within a 30-day period.

An overview of surveillance methods and systems for *Salmonella* infections is available at http://www.cdc.gov/nationalsurveillance/PDFs/NationalSalmSurveillOverview_508.pdf (1).

Data in this report are current as of February 10, 2017.

Summary

- In 2015, 52 state and regional public health laboratories reported 47,749 cases of culture-confirmed *Salmonella* infections to LEDS, 7% more than in 2014.
- The incidence of culture-confirmed salmonellosis in 2015 rose to 14.9 cases per 100,000 population from 13.9 in 2014.
- Whereas infections caused by serotypes Enteritidis, I 4,[5],12:i:-, Muenchen, and Newport increased in 2015 compared with 2014, infections caused by serotypes Heidelberg, Infantis, Javiana, and Typhimurium decreased (Figure 1).
- As seen in previous years, infants (<1 year old) had the highest incidence of infection (109.1 cases per 100,000 population for boys and 103.2 for girls; Table 1b).
- More than half of states in the South and Midwest regions had incidence above the national average (including AL, AR, DE, GA, LA, MD, MS, NC, OK, and SC in the South and IA, ID, MN, MO, ND, NE, OH, and SD in the Midwest)
- As in previous years, the largest percentage of cases were reported during the summer months.

¹ For reporting year 2015, the LEDS *Salmonella* Annual Report only includes *Salmonella* infections confirmed by culture.

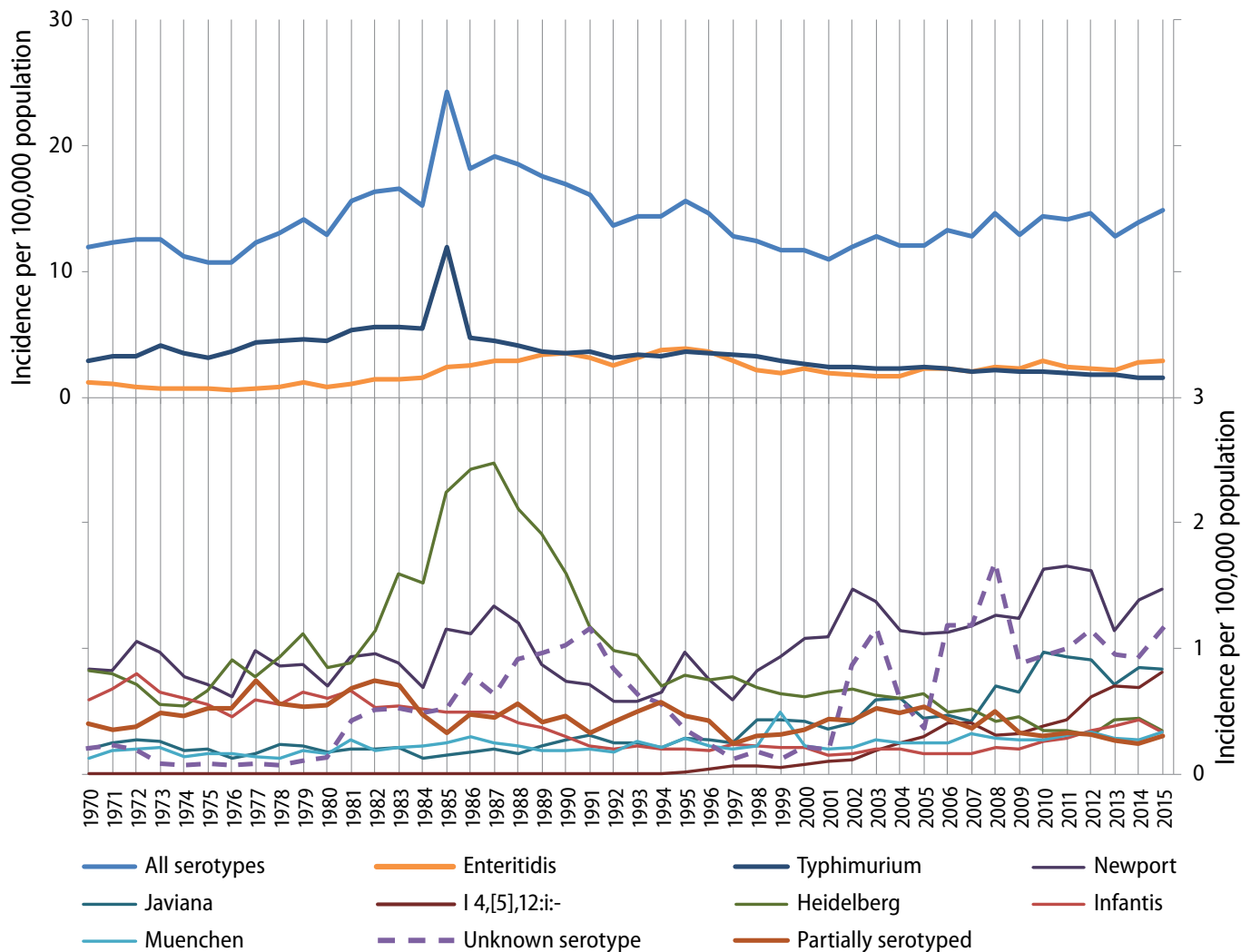
² Geographic regions in this report are consistent with those defined by the United States Census Bureau (https://www2.census.gov/geo/pdfs/maps-data/maps/reference/us_regdiv.pdf).

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Figure 1. Incidence rate of culture-confirmed human *Salmonella* infection reported to LEADS (all serotypes and individual serotypes with ≥ 1000 infections reported in 2015), by year, United States, 1970–2015



- Whereas the incidence rate of infection with all *Salmonella* has increased by 35% since 2001, incidence rates for infection with serotypes I 4,[5],12:i:- ($\uparrow 710\%$), Infantis ($\uparrow 120\%$), Javiana ($\uparrow 133\%$), and Muenchen ($\uparrow 70\%$) have increased the most over the same period.
- “Unknown serotype” indicates cases that were reported with no associated serotype information. The number of cases reported in this way has been increasing since 2000 and is likely due to serotyping not being performed on these isolates.
- The peak in incidence of serotype Typhimurium infections in 1985 was due to an outbreak associated with pasteurized milk (2).

Note: Full data table for graph at <https://www.cdc.gov/nationalsurveillance/data/salm2015/Fig1.xlsx>

Table 1a. Culture-confirmed human *Salmonella* infections reported to LEDS, with the 20 most frequently reported serotypes listed individually, United States, 2015

Rank	Serotype	Number reported	Percent	Incidence
1	Enteritidis	9,150	19.2	2.85
2	Typhimurium	4,943	10.4	1.54
3	Newport	4,731	9.9	1.47
4	Javiana	2,696	5.6	0.84
5	I 4,[5],12:i:-	2,606	5.5	0.81
6	Heidelberg	1,130	2.4	0.35
7	Muenchen	1,106	2.3	0.34
8	Infantis	1,057	2.2	0.33
9	Poona	990	2.1	0.31
10	Saintpaul	947	2.0	0.29
11	Montevideo	931	2.0	0.29
12	Oranienburg	853	1.8	0.27
13	Braenderup	825	1.7	0.26
14	Thompson	723	1.5	0.22
15	Mississippi	571	1.2	0.18
16	Typhi	493	1.0	0.15
17	Bareilly	418	0.9	0.13
18	Berta	406	0.9	0.13
19	Norwich	394	0.8	0.12
20	Paratyphi B var. L(+) tartrate+	394	0.8	0.12
	Subtotal	35,364	74.1	
	Other serotyped*	7,405	17.3	2.30
	Unknown serotype	3,743	7.8	1.16
	Partially serotyped	993	2.1	0.31
	Rough, mucoid, and/or nonmotile	230	0.5	0.07
	Subtotal	12,371	25.9	
	Total	47,735	100	14.85

* Listed individually in Appendix 3

Table 1b. Incidence rate of culture-confirmed human *Salmonella* infections reported to LEDS, by age group and sex, United States, 2015 (n = 40,566 with age and sex information reported)

Age group, years	Incidence	
	Female	Male
<1	103.20	109.08
1–4	35.80	35.75
5–9	14.96	15.72
10–19	9.18	10.15
20–29	12.53	9.62
30–39	10.55	8.98
40–49	11.23	8.95
50–59	13.02	10.54
60–69	13.86	11.95
70–79	17.16	14.65
≥80	16.31	14.15
Overall	14.73	13.33

Table 2. Percentage change among the 20 *Salmonella* serotypes most frequently reported to LEDS, comparing 2005, 2010, and 2015

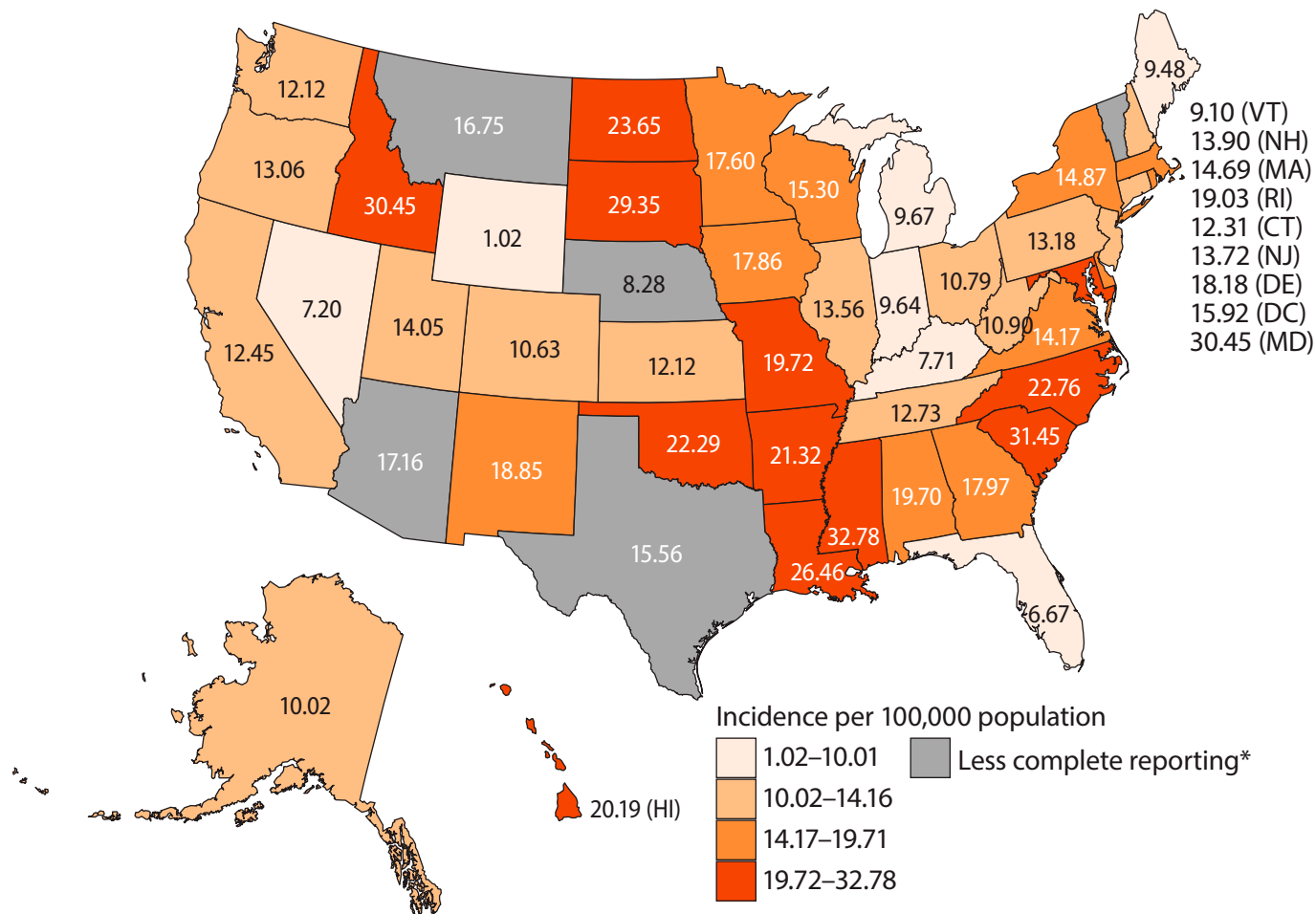
Serotype	Rank			Number Reported			Percentage Change		
	2005	2010	2015	2005	2010	2015	2005 vs 2010	2010 vs 2015	2005 vs 2015
Enteritidis	2	1	1	4993	7122	8895	+ 42.6	+ 24.9	+ 78.1
Typhimurium	1	2	2	6810	6087	5041	- 10.6	- 17.2	- 26.0
Newport	3	3	3	3345	3815	4437	+ 14.1	+ 16.3	+ 32.6
Javiana	4	4	4	1766	1992	2704	+ 12.8	+ 35.7	+ 53.1
I 4,[5],12:i:-	8	7	5	744	991	2189	+ 33.2	+ 120.9	+ 194.2
Heidelberg	5	5	6	1748	1409	1430	- 19.4	+ 1.5	- 18.2
Muenchen	11	12	7	582	626	1357	+ 7.6	+ 116.8	+ 133.2
Infantis	9	9	8	688	850	980	+ 23.5	+ 15.3	+ 42.4
Poona	7	10	9	747	818	873	+ 9.5	+ 6.7	+ 16.9
Saintpaul	6	6	10	870	1259	841	+ 44.7	- 33.2	- 3.3
Montevideo	14	8	11	490	893	728	+ 82.2	- 18.5	+ 48.6
Oranienburg	13	13	12	493	473	626	- 4.1	+ 32.3	+ 27.0
Braenderup	10	11	13	678	715	610	+ 5.5	- 14.7	- 10.0
Thompson	12	14	14	557	443	532	- 20.5	+ 20.1	- 4.5
Mississippi	20	16	15	305	427	527	+ 40.0	+ 23.4	+ 72.8
Typhi	25	20	16	231	282	381	+ 22.1	+ 35.1	+ 64.9
Bareilly	18	15	17	348	431	335	+ 23.9	- 22.3	- 3.7
Berta	24	24	18	232	235	322	+ 1.3	+ 37.0	+ 38.8
Norwich	15	29	19	408	182	318	- 55.4	+ 74.7	- 22.1
Paratyphi B var. L(+) tartrate+	16	17	20	403	380	307	- 5.7	- 19.2	- 23.8

- In 2015, serotype Poona had the largest increase (↑ 439%) since 2005; this increase is attributed to a large multistate outbreak in 2015 linked to imported cucumbers that sickened 907 people in 40 states.¹
- Multiple clusters of illness due to serotype Norwich were identified in 2015.

¹ <https://www.cdc.gov/salmonella/poona-09-15/index.html>



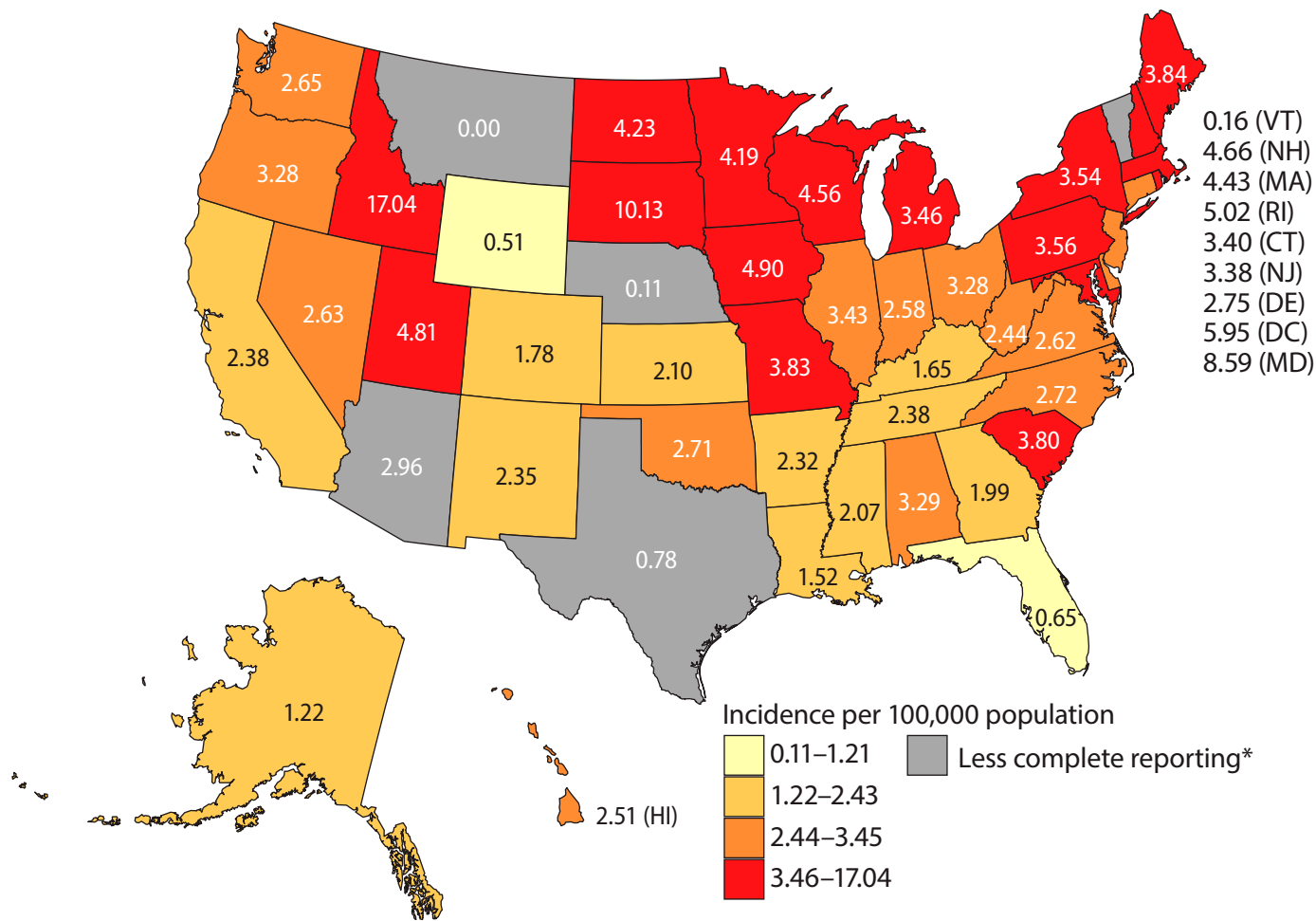
Figure 2a. Incidence rate of culture-confirmed human *Salmonella* infection reported to LEDS (all serotypes), by reporting jurisdiction, United States, 2015 (n = 47,749)



*States are shaded gray if a) the number of culture-confirmed human *Salmonella* isolates reported to LEDS was less than 80% of salmonellosis cases reported to the [National Notifiable Diseases Surveillance System \(NNDSS\)](https://www.cdc.gov/nndss/) or b) the number of fully serotyped culture-confirmed human *Salmonella* isolates reported to LEDS was less than 80% of all *Salmonella* isolates reported to LEDS.

Note: Full data table for all states at https://www.cdc.gov/nationalsurveillance/data/salm2015/fig2a_all_irdf.csv

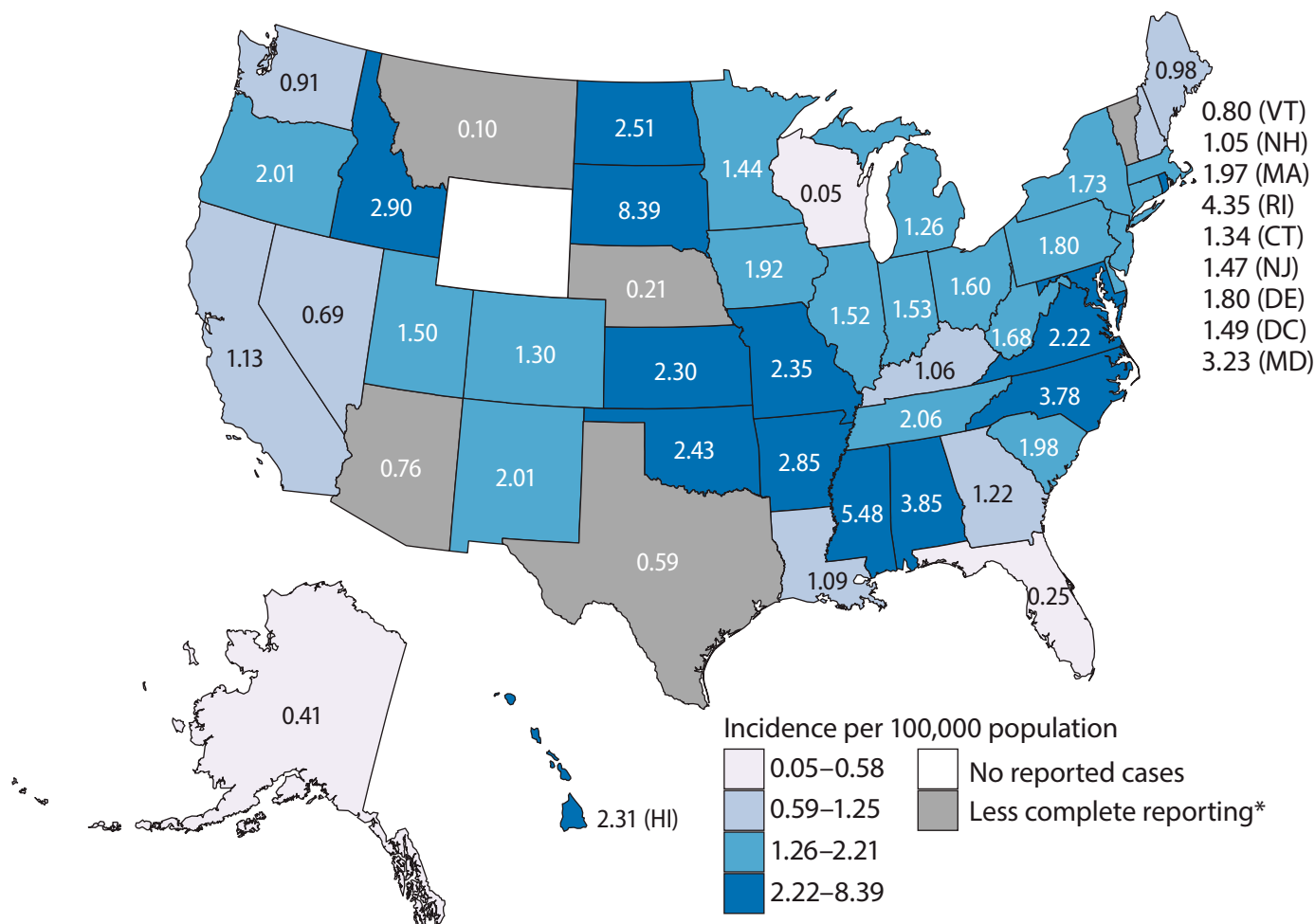
Figure 2b. Incidence rate of culture-confirmed human *Salmonella* serotype Enteritidis infection reported to LEDS, by reporting jurisdiction, United States, 2015 (n = 9,150)



*States are shaded gray if a) the number of culture-confirmed human *Salmonella* isolates reported to LEDS was less than 80% of salmonellosis cases reported to the [National Notifiable Diseases Surveillance System \(NNDSS\)](https://www.cdc.gov/nndss/) or b) the number of fully serotyped culture-confirmed human *Salmonella* isolates reported to LEDS was less than 80% of all *Salmonella* isolates reported to LEDS.

Note: Full data table for all states at https://www.cdc.gov/nationalsurveillance/data/salm2015/fig2b_enteritidis_irdf.csv

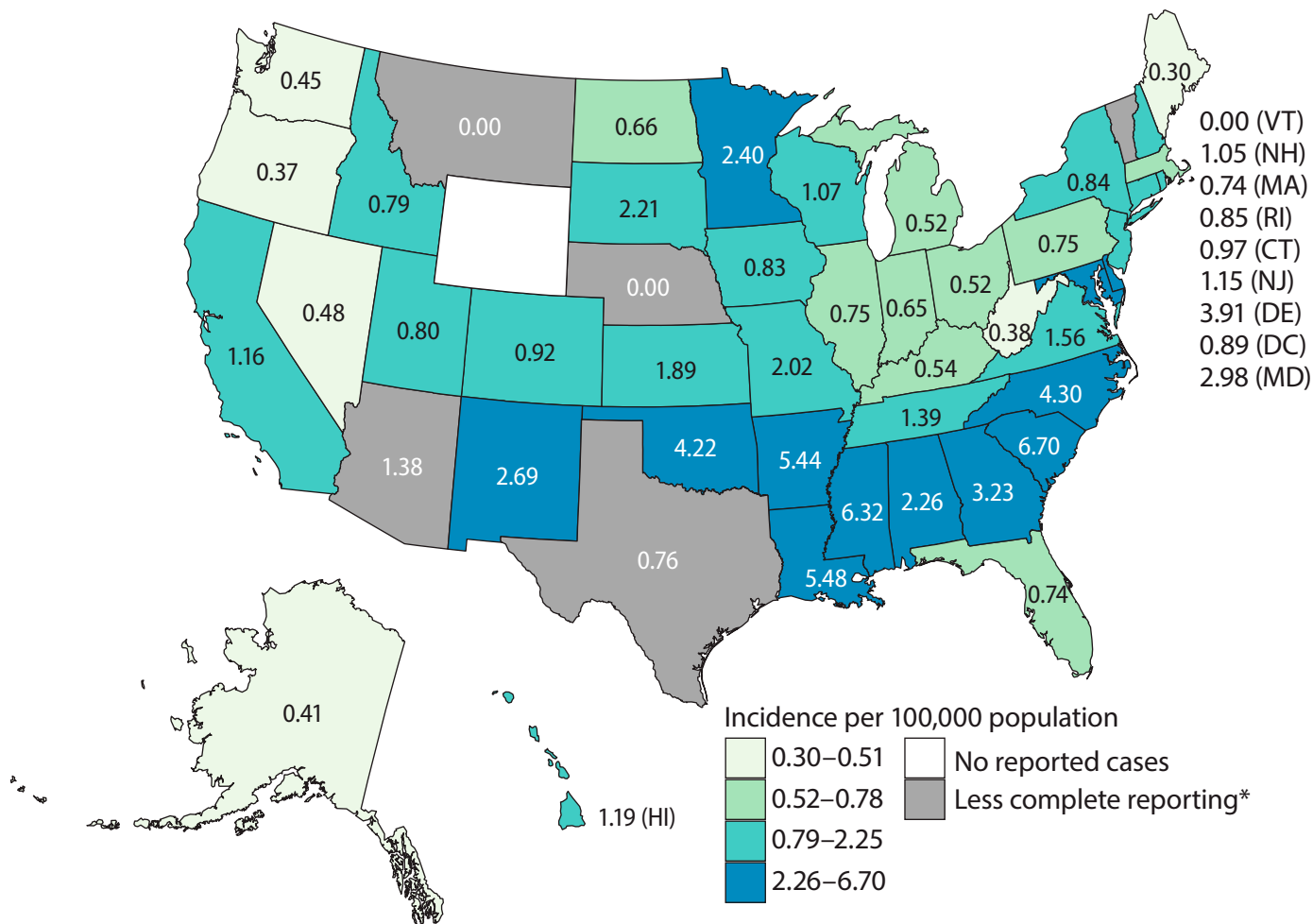
Figure 2c. Incidence rate of culture-confirmed human *Salmonella* serotype Typhimurium infection reported to LEDS, by reporting jurisdiction, United States, 2015 (n = 4,943)



*States are shaded gray if a) the number of culture-confirmed human *Salmonella* isolates reported to LEDS was less than 80% of salmonellosis cases reported to the National Notifiable Diseases Surveillance System (NNDSS) or b) the number of fully serotyped culture-confirmed human *Salmonella* isolates reported to LEDS was less than 80% of all *Salmonella* isolates reported to LEDS.

Note: Full data table for all states at https://www.cdc.gov/nationalsurveillance/data/salm2015/fig2c_typhimurium_irdf.csv

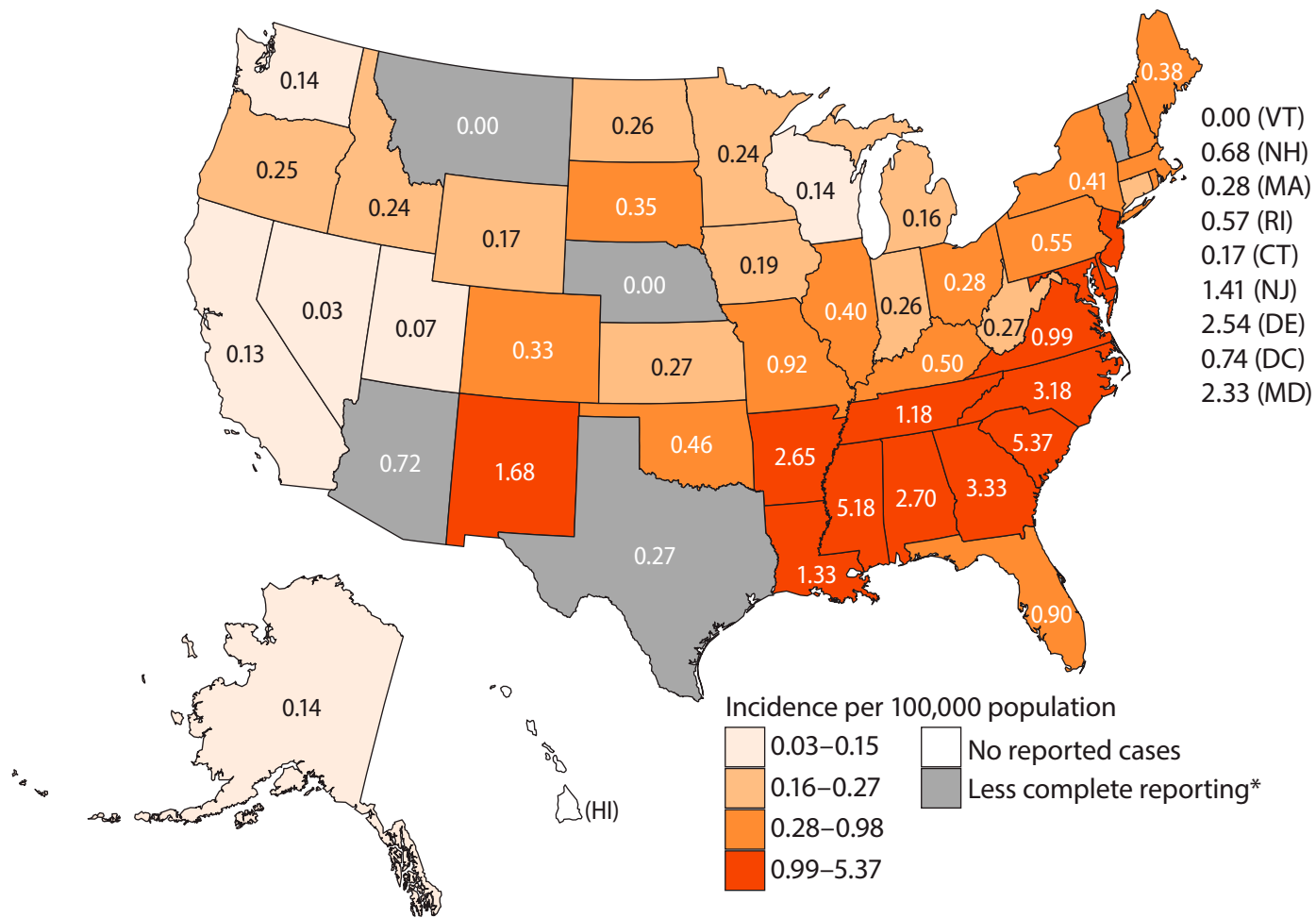
Figure 2d. Incidence rate of culture-confirmed human *Salmonella* serotype Newport infection reported to LEDS, by reporting jurisdiction, United States, 2015 (n = 4,731)



*States are shaded gray if a) the number of culture-confirmed human *Salmonella* isolates reported to LEDS was less than 80% of salmonellosis cases reported to the [National Notifiable Diseases Surveillance System \(NNDSS\)](https://www.cdc.gov/nndss/) or b) the number of fully serotyped culture-confirmed human *Salmonella* isolates reported to LEDS was less than 80% of all *Salmonella* isolates reported to LEDS.

Note: Full data table for all states at https://www.cdc.gov/nationalsurveillance/data/salm2015/fig2d_newport_irdf.csv

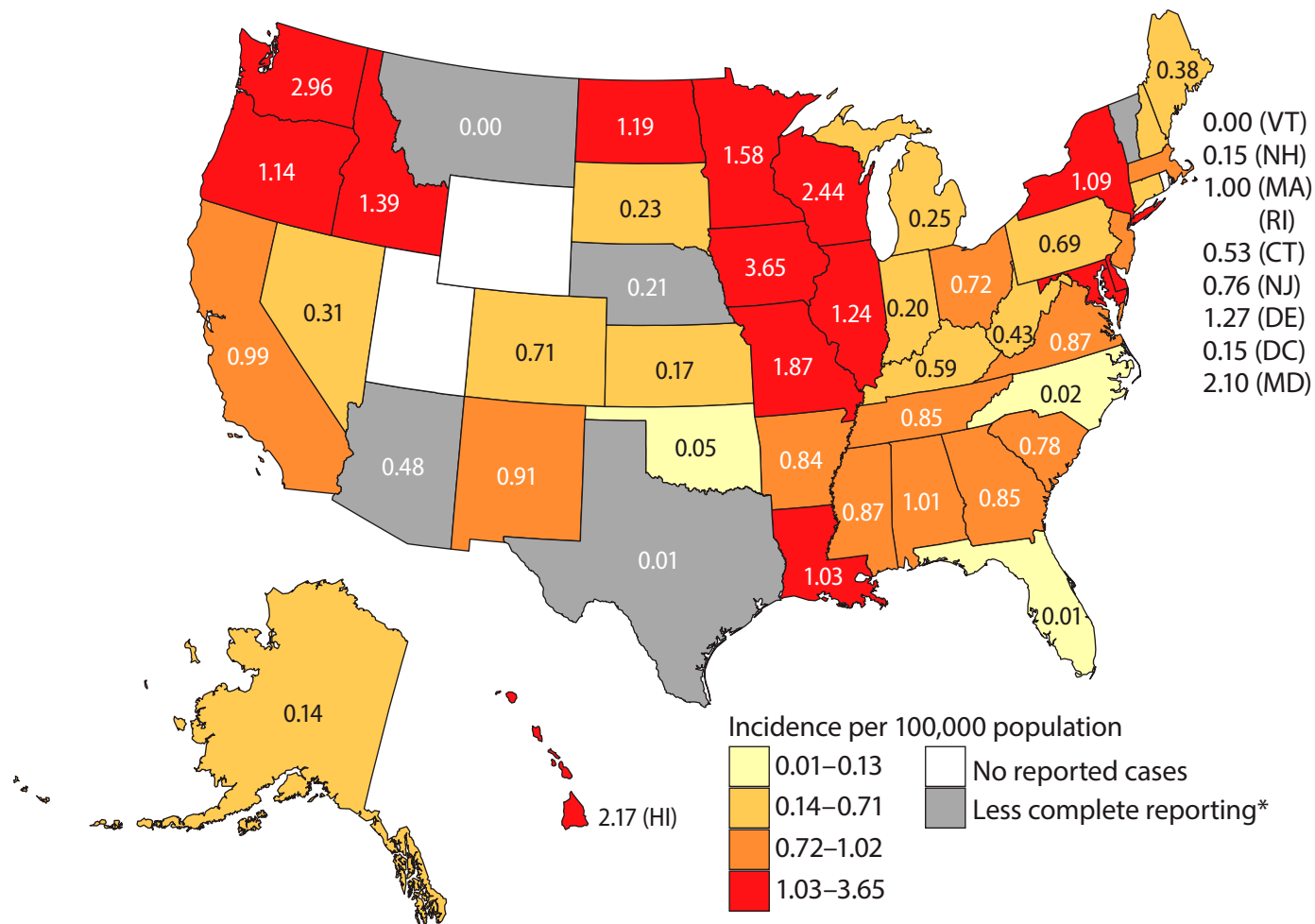
Figure 2e. Incidence rate of culture-confirmed human *Salmonella* serotype Javiana infection reported to LEDS, by reporting jurisdiction, United States, 2015 (n = 2,696)



*States are shaded gray if a) the number of culture-confirmed human *Salmonella* isolates reported to LEDS was less than 80% of salmonellosis cases reported to the [National Notifiable Diseases Surveillance System \(NNDSS\)](https://www.cdc.gov/nndss/) or b) the number of fully serotyped culture-confirmed human *Salmonella* isolates reported to LEDS was less than 80% of all *Salmonella* isolates reported to LEDS.

Note: Full data table for all states at https://www.cdc.gov/nationalsurveillance/data/salm2015/fig2e_javiana_irdf.csv

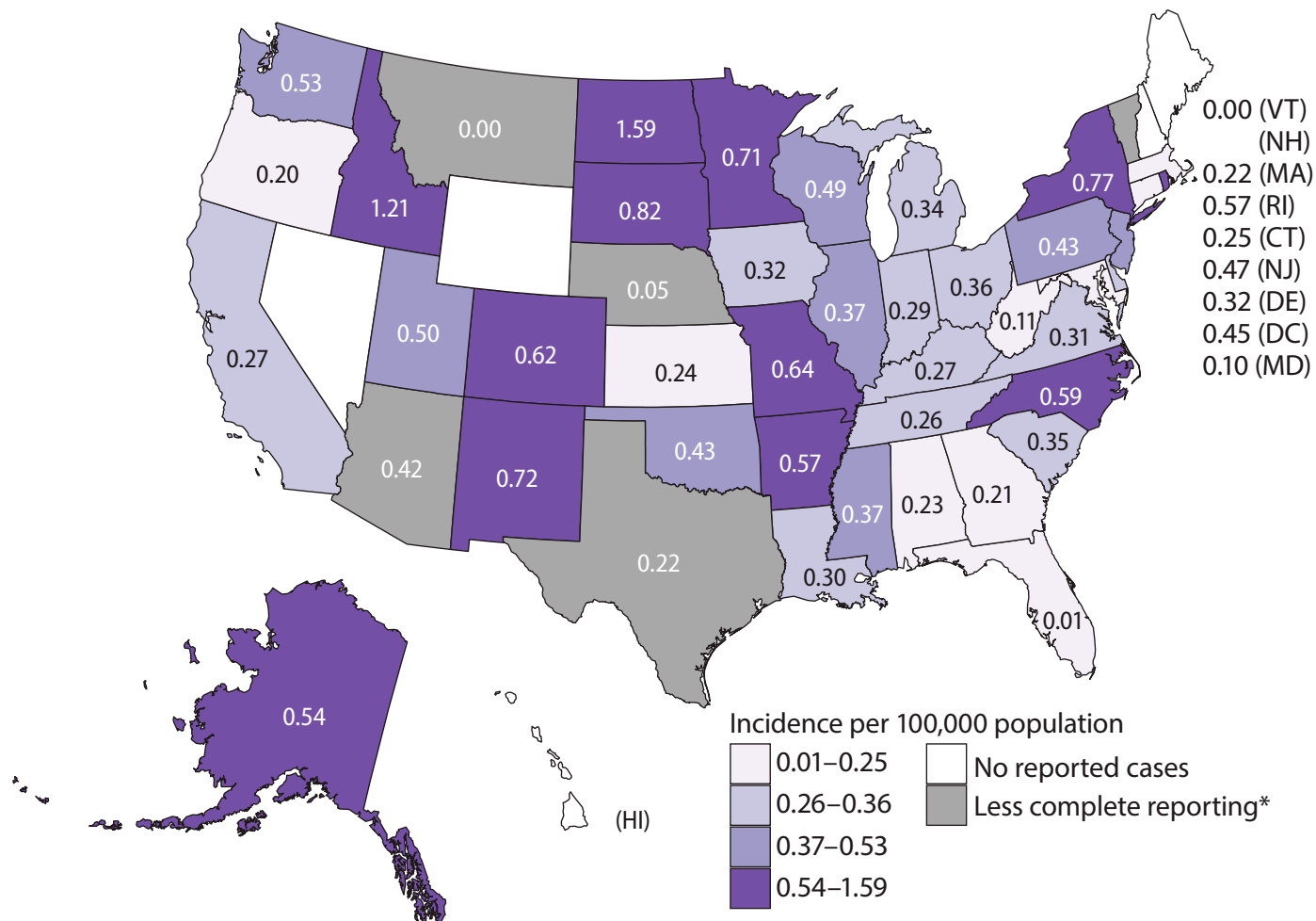
Figure 2f. Incidence rate of culture-confirmed human *Salmonella* serotype I 4,[5],12:i:- infection reported to LEDS, by reporting jurisdiction, United States, 2015 (n = 2,606)



*States are shaded gray if a) the number of culture-confirmed human *Salmonella* isolates reported to LEDS was less than 80% of salmonellosis cases reported to the National Notifiable Diseases Surveillance System (NNDSS) or b) the number of fully serotyped culture-confirmed human *Salmonella* isolates reported to LEDS was less than 80% of all *Salmonella* isolates reported to LEDS.

Note: Full data table for all states at https://www.cdc.gov/nationalsurveillance/data/salm2015/fig2f_i4512i_irdf.csv

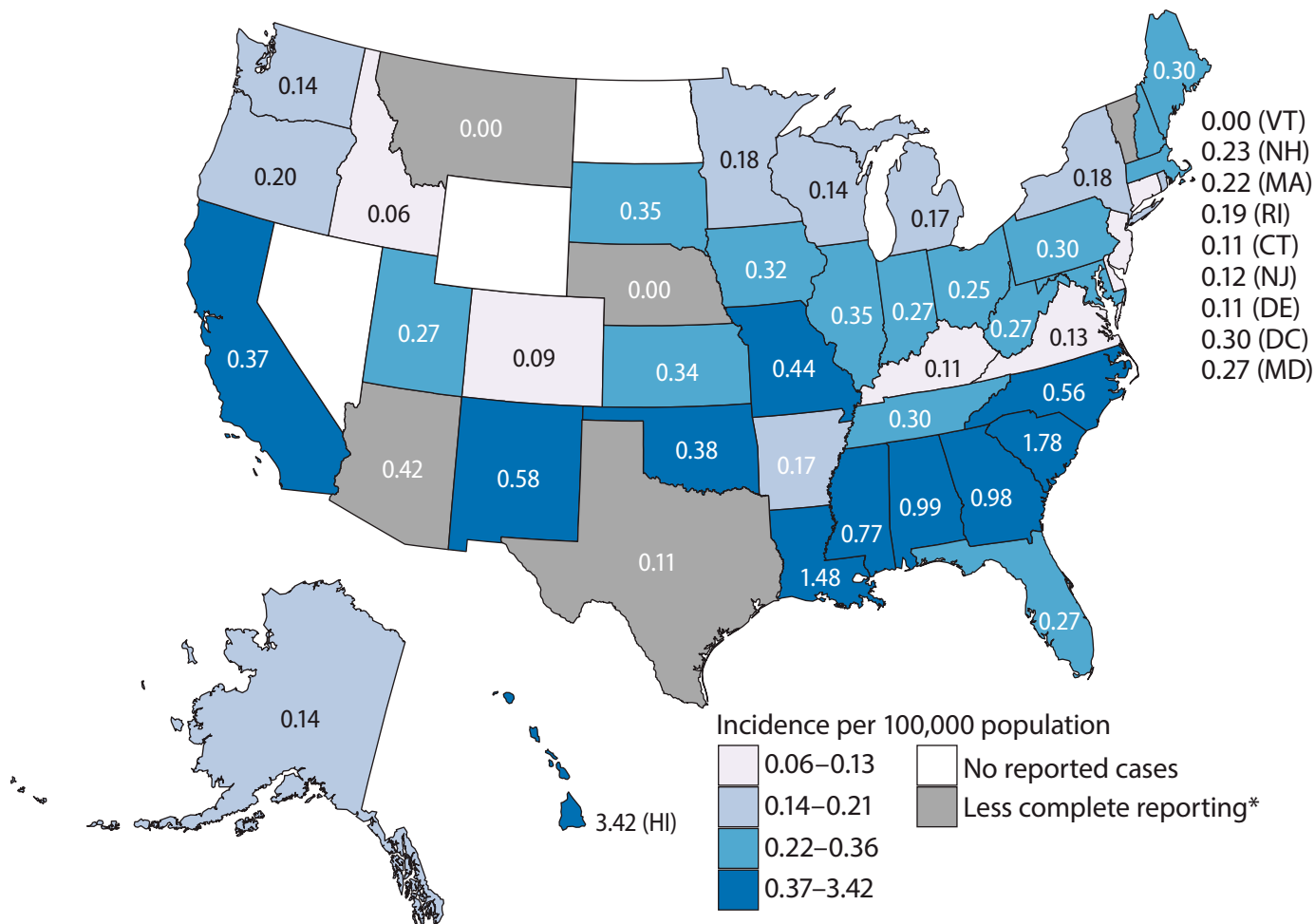
Figure 2g. Incidence rate of culture-confirmed human *Salmonella* serotype Heidelberg infection reported to LEDS, by reporting jurisdiction, United States, 2015 (n = 1,130)



*States are shaded gray if a) the number of culture-confirmed human *Salmonella* isolates reported to LEDS was less than 80% of salmonellosis cases reported to the [National Notifiable Diseases Surveillance System \(NNDSS\)](https://www.cdc.gov/nndss/) or b) the number of fully serotyped culture-confirmed human *Salmonella* isolates reported to LEDS was less than 80% of all *Salmonella* isolates reported to LEDS.

Note: Full data table for all states at https://www.cdc.gov/nationalsurveillance/data/salm2015/fig2g_heidelberg_irdf.csv

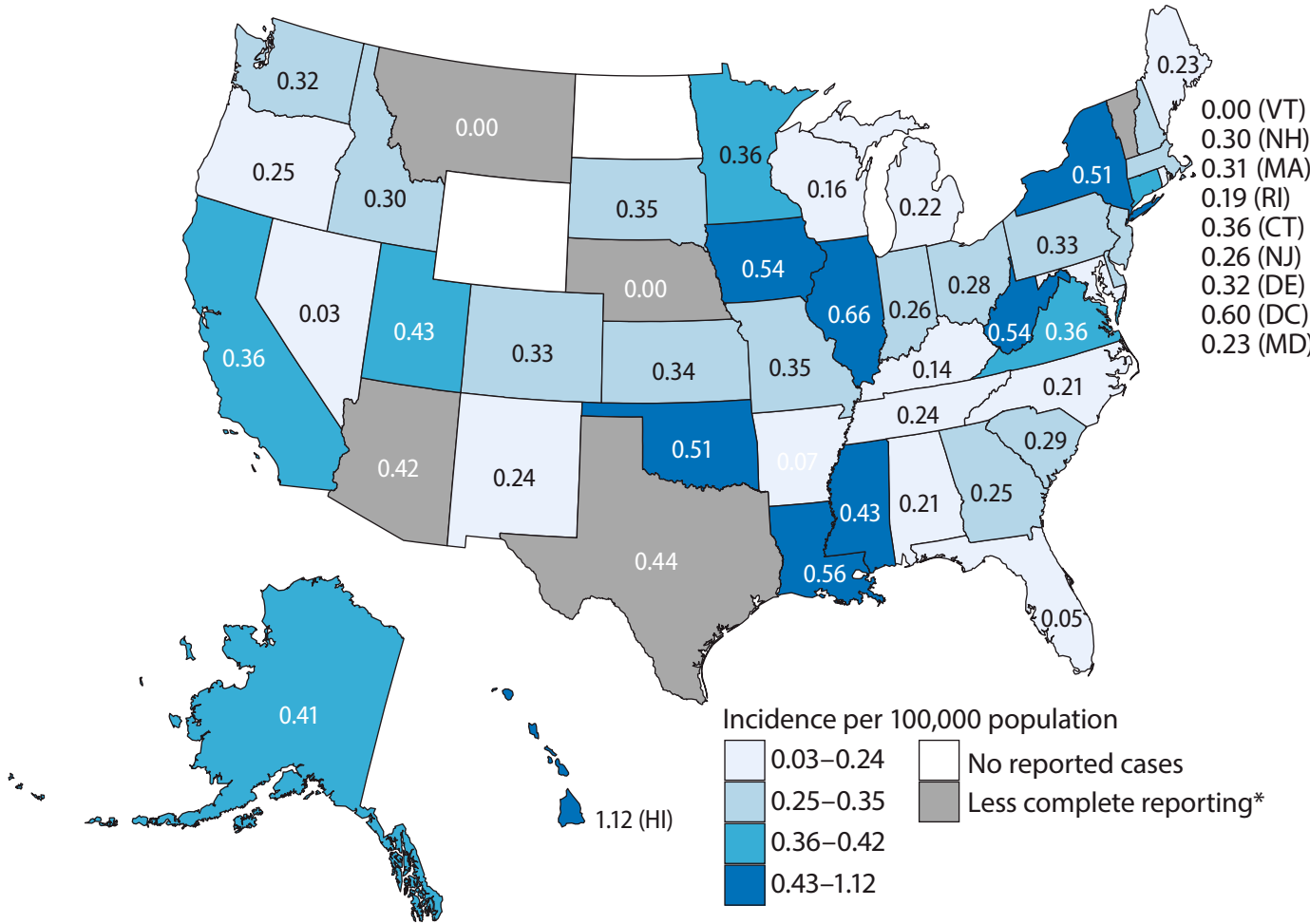
Figure 2h. Incidence rate of culture-confirmed human *Salmonella* serotype Muenchen infection reported to LEDS, by reporting jurisdiction, United States, 2015 (n = 1,120)



*States are shaded gray if a) the number of culture-confirmed human *Salmonella* isolates reported to LEDS was less than 80% of salmonellosis cases reported to the National Notifiable Diseases Surveillance System (NNDSS) or b) the number of fully serotyped culture-confirmed human *Salmonella* isolates reported to LEDS was less than 80% of all *Salmonella* isolates reported to LEDS.

Note: Full data tables for all states at https://www.cdc.gov/nationalsurveillance/data/salm2015/fig2h_muenchen_irdf.csv

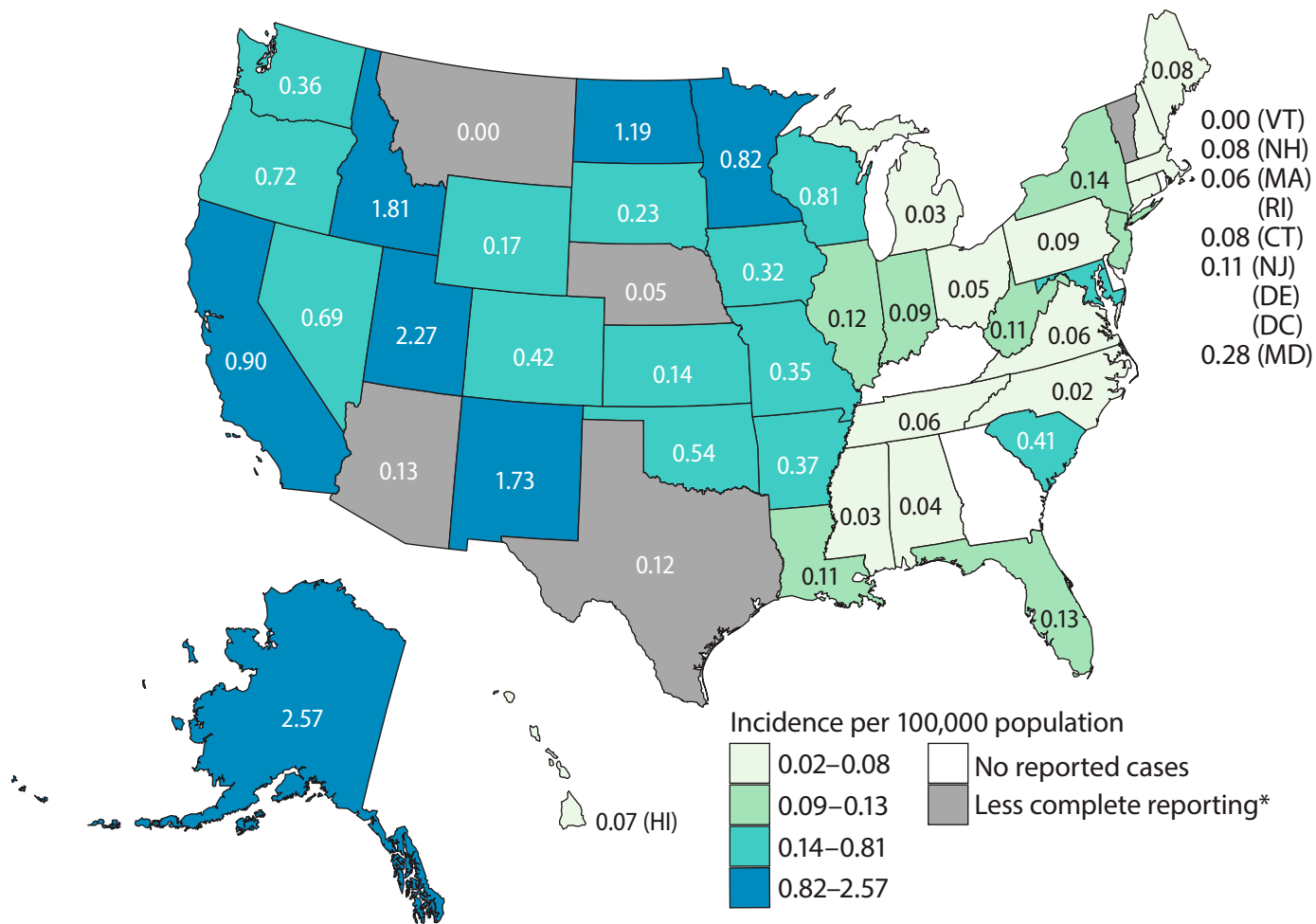
Figure 2i. Incidence rate of culture-confirmed human *Salmonella* serotype Infantis infection reported to LEDS, by reporting jurisdiction, United States, 2015 (n = 1,106)



*States are shaded gray if a) the number of culture-confirmed human *Salmonella* isolates reported to LEDS was less than 80% of salmonellosis cases reported to the [National Notifiable Diseases Surveillance System \(NNDSS\)](https://www.cdc.gov/nndss/) or b) the number of fully serotyped culture-confirmed human *Salmonella* isolates reported to LEDS was less than 80% of all *Salmonella* isolates reported to LEDS.

Note: Full data table for all states at https://www.cdc.gov/nationalsurveillance/data/salm2015/fig2i_infantis_irdf.csv

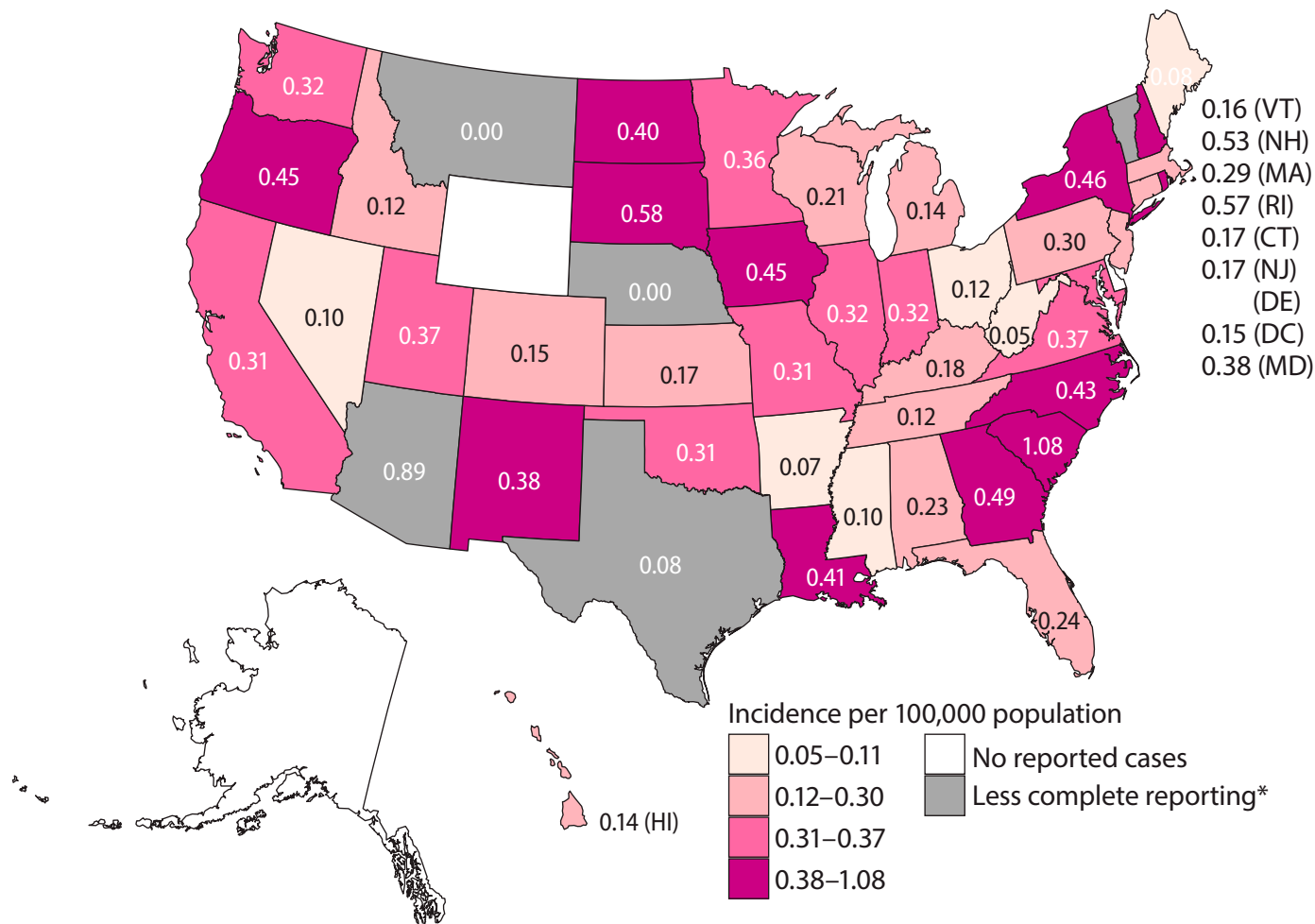
Figure 2j. Incidence rate of culture-confirmed human *Salmonella* serotype Poona infection reported to LEDS, by reporting jurisdiction, United States, 2015 (n = 990)



*States are shaded gray if a) the number of culture-confirmed human *Salmonella* isolates reported to LEDS was less than 80% of salmonellosis cases reported to the [National Notifiable Diseases Surveillance System \(NNDSS\)](https://www.cdc.gov/nndss/) or b) the number of fully serotyped culture-confirmed human *Salmonella* isolates reported to LEDS was less than 80% of all *Salmonella* isolates reported to LEDS.

Note: Full data table for all states at https://www.cdc.gov/nationalsurveillance/data/salm2015/fig2j_poona_irdf.csv

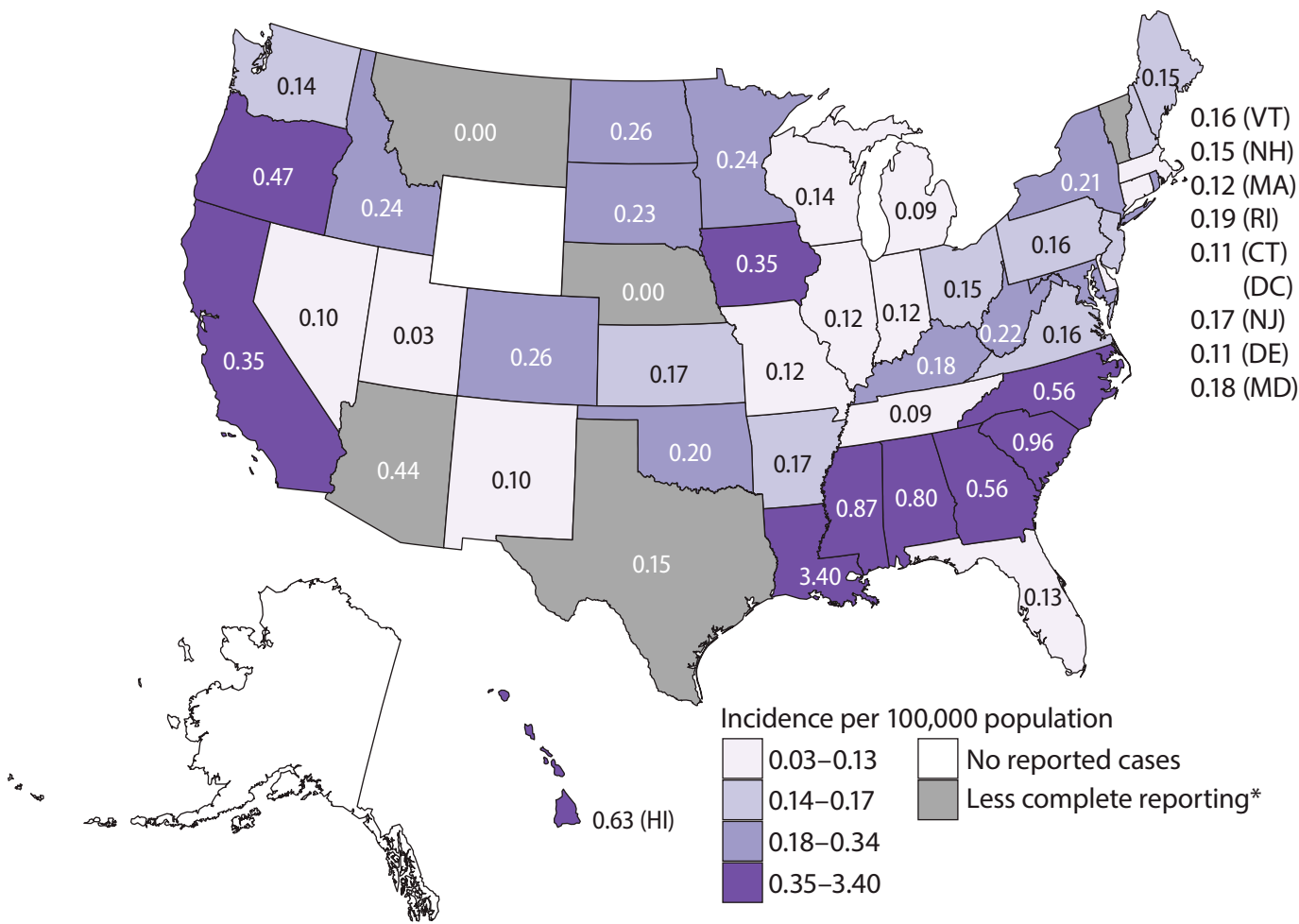
Figure 2k. Incidence rate of culture-confirmed human *Salmonella* serotype Saintpaul infection reported to LEDS, by reporting jurisdiction, United States, 2015 (n = 947)



*States are shaded gray if a) the number of culture-confirmed human *Salmonella* isolates reported to LEDS was less than 80% of salmonellosis cases reported to the National Notifiable Diseases Surveillance System (NNDSS) or b) the number of fully serotyped culture-confirmed human *Salmonella* isolates reported to LEDS was less than 80% of all *Salmonella* isolates reported to LEDS.

Note: Full data table for all states at https://www.cdc.gov/nationalsurveillance/data/salm2015/fig2k_saintpaul_irdf.csv

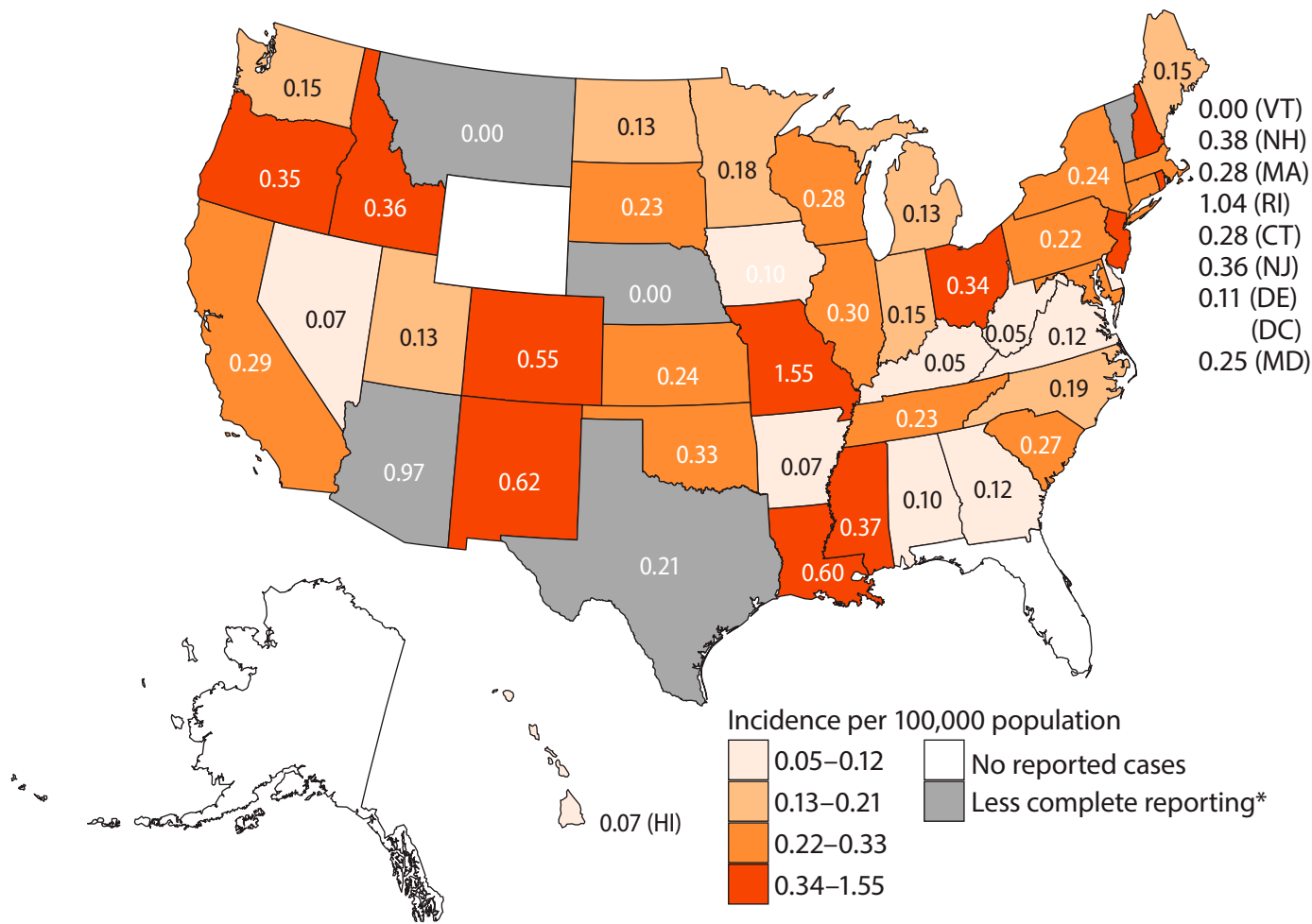
Figure 2I. Incidence rate of culture-confirmed human *Salmonella* serotype Montevideo infection reported to LEDS, by reporting jurisdiction, United States, 2015 (n = 931)



*States are shaded gray if a) the number of culture-confirmed human *Salmonella* isolates reported to LEDS was less than 80% of salmonellosis cases reported to the [National Notifiable Diseases Surveillance System \(NNDSS\)](https://www.cdc.gov/nndss/) or b) the number of fully serotyped culture-confirmed human *Salmonella* isolates reported to LEDS was less than 80% of all *Salmonella* isolates reported to LEDS.

Note: Full data table for all states at https://www.cdc.gov/nationalsurveillance/data/salm2015/fig2I_montevideo_irdf.csv

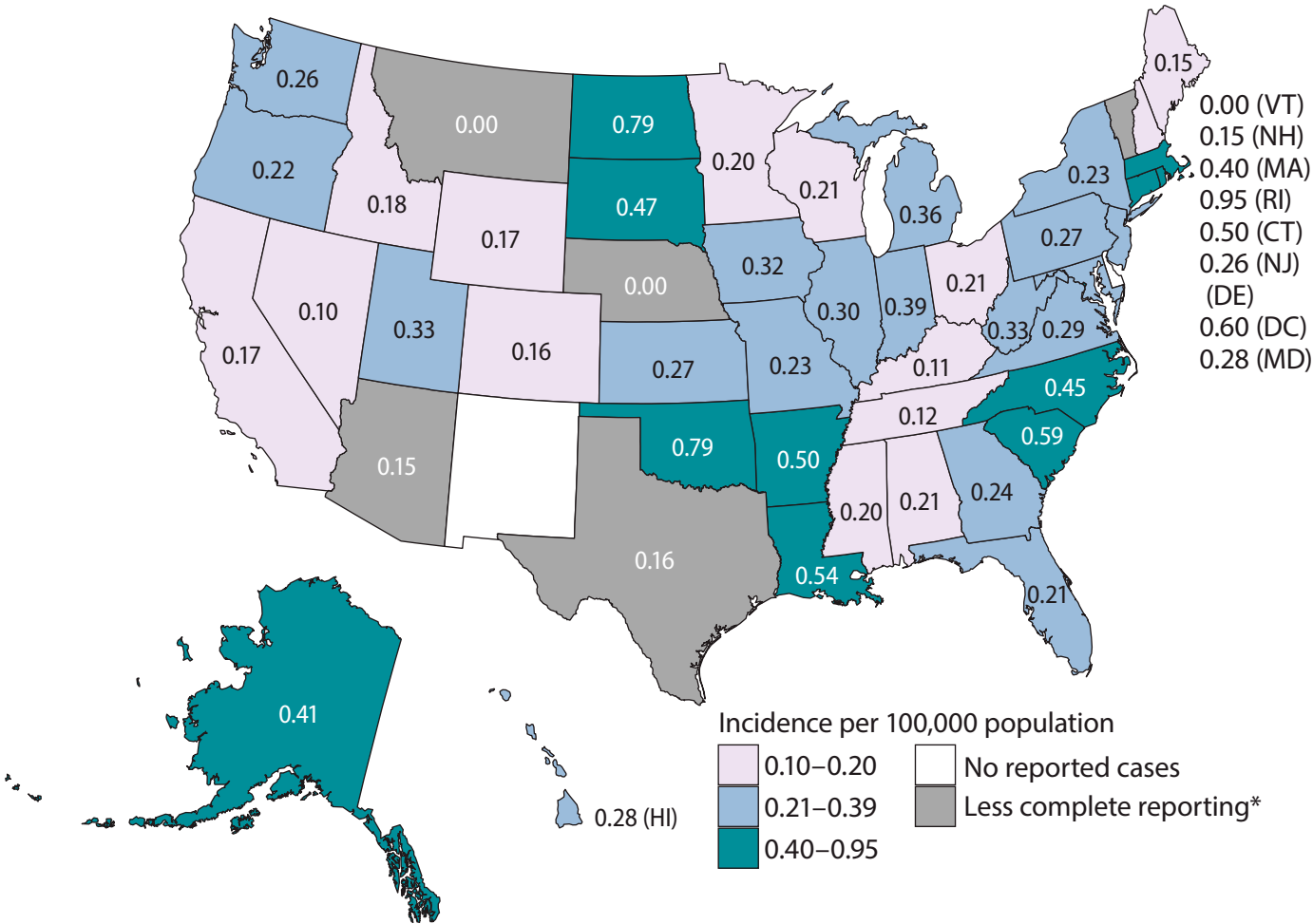
Figure 2m. Incidence rate of culture-confirmed human *Salmonella* serotype Oranienburg infection reported to LEDS, by reporting jurisdiction, United States, 2015 (n = 853)



*States are shaded gray if a) the number of culture-confirmed human *Salmonella* isolates reported to LEDS was less than 80% of salmonellosis cases reported to the National Notifiable Diseases Surveillance System (NNDSS) or b) the number of fully serotyped culture-confirmed human *Salmonella* isolates reported to LEDS was less than 80% of all *Salmonella* isolates reported to LEDS.

Note: Full data table for all states at https://www.cdc.gov/nationalsurveillance/data/salm2015/fig2m_oranienburg_irdf.csv

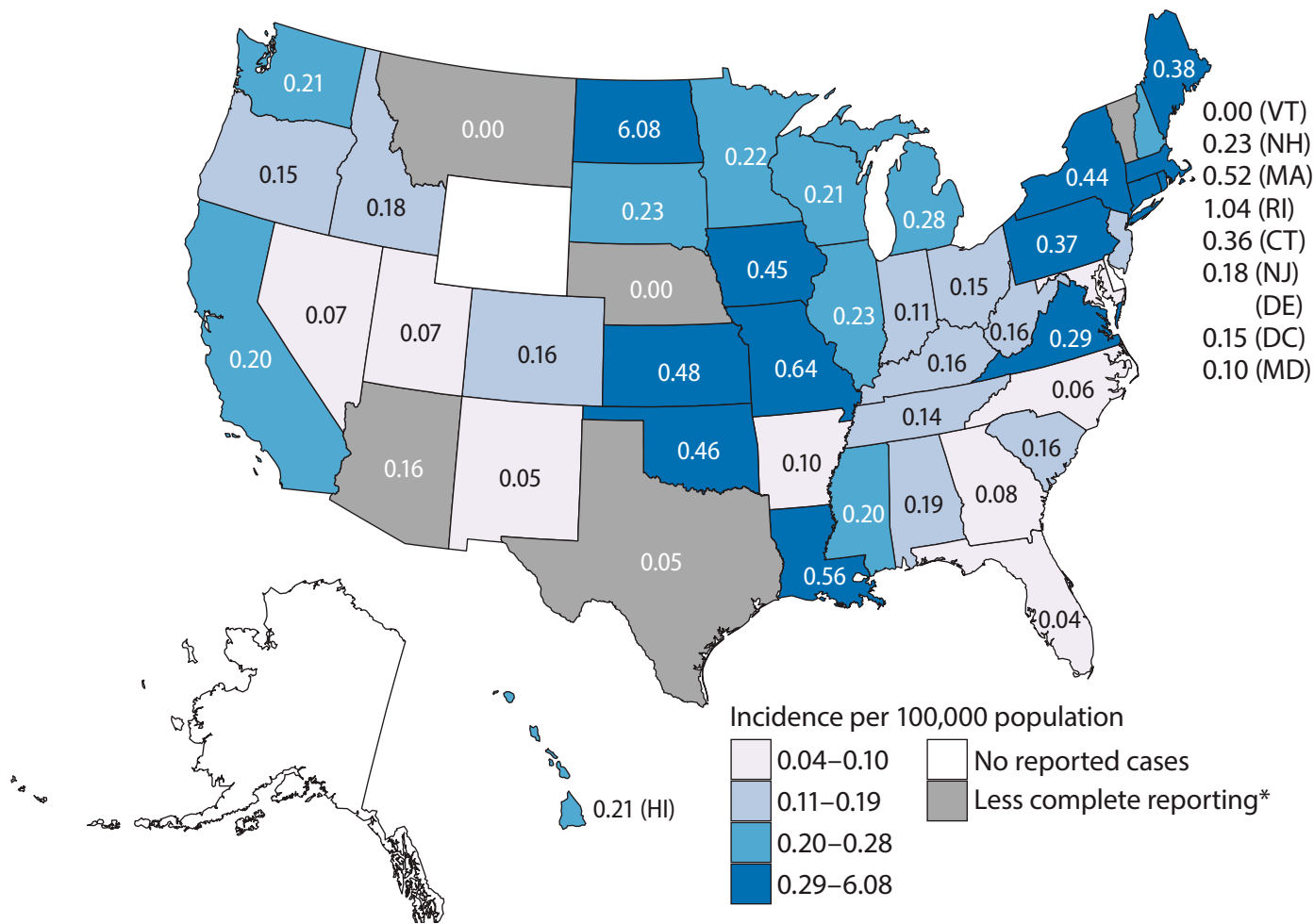
Figure 2n. Incidence rate of culture-confirmed human *Salmonella* serotype Braenderup infection reported to LEDS, by reporting jurisdiction, United States, 2015 (n = 825)



*States are shaded gray if a) the number of culture-confirmed human *Salmonella* isolates reported to LEDS was less than 80% of salmonellosis cases reported to the [National Notifiable Diseases Surveillance System \(NNDSS\)](https://www.cdc.gov/nndss/) or b) the number of fully serotyped culture-confirmed human *Salmonella* isolates reported to LEDS was less than 80% of all *Salmonella* isolates reported to LEDS.

Note: Full data table for all states at https://www.cdc.gov/nationalsurveillance/data/salm2015/fig2n_braenderup_irdf.csv

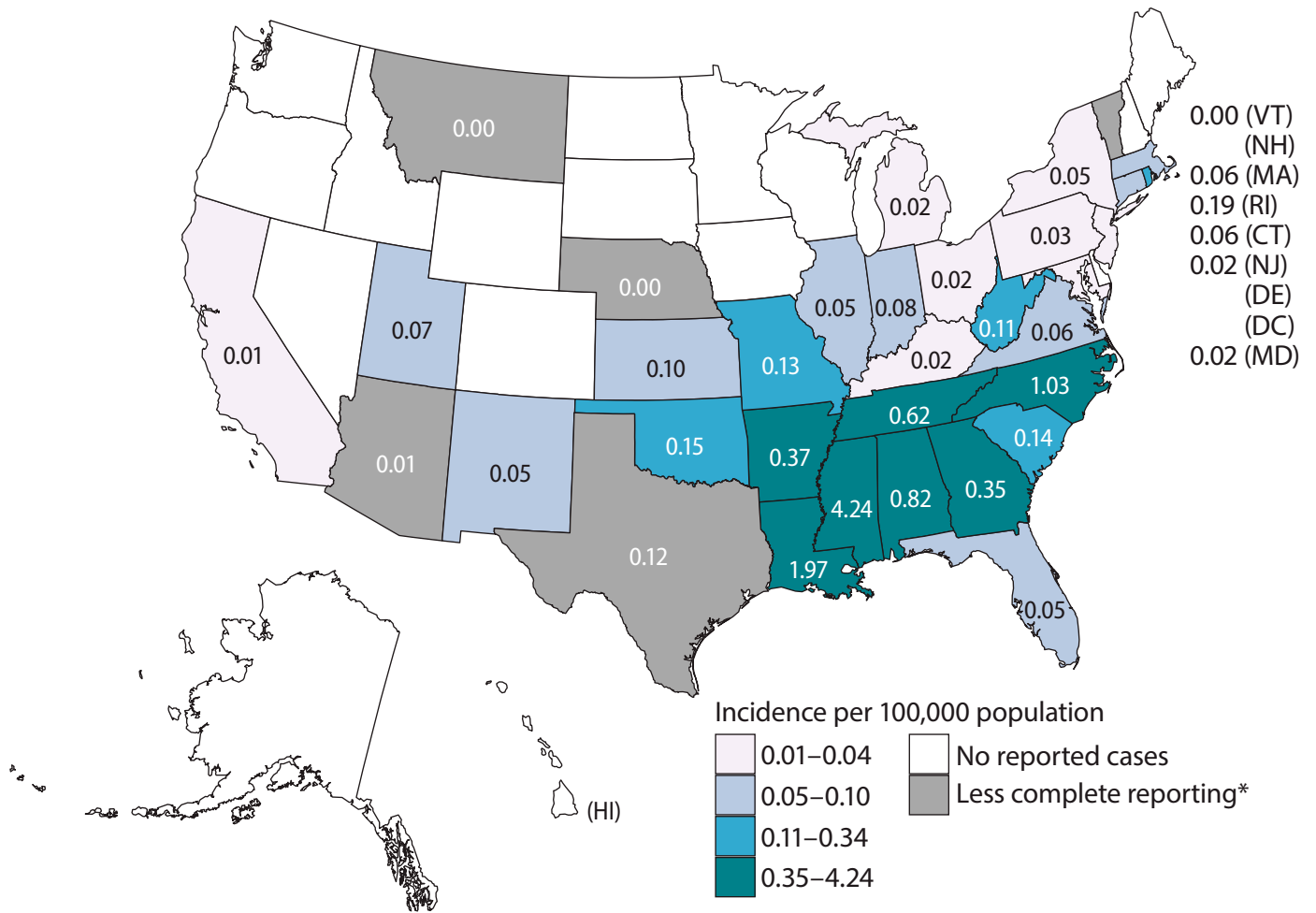
Figure 2o. Incidence rate of culture-confirmed human *Salmonella* serotype Thompson infection reported to LEDS, by reporting jurisdiction, United States, 2015 (n = 723)



*States are shaded gray if a) the number of culture-confirmed human *Salmonella* isolates reported to LEDS was less than 80% of salmonellosis cases reported to the [National Notifiable Diseases Surveillance System \(NNDSS\)](https://www.cdc.gov/nndss/) or b) the number of fully serotyped culture-confirmed human *Salmonella* isolates reported to LEDS was less than 80% of all *Salmonella* isolates reported to LEDS.

Note: Full data table for all states at https://www.cdc.gov/nationalsurveillance/data/salm2015/fig2o_thompson_irdf.csv

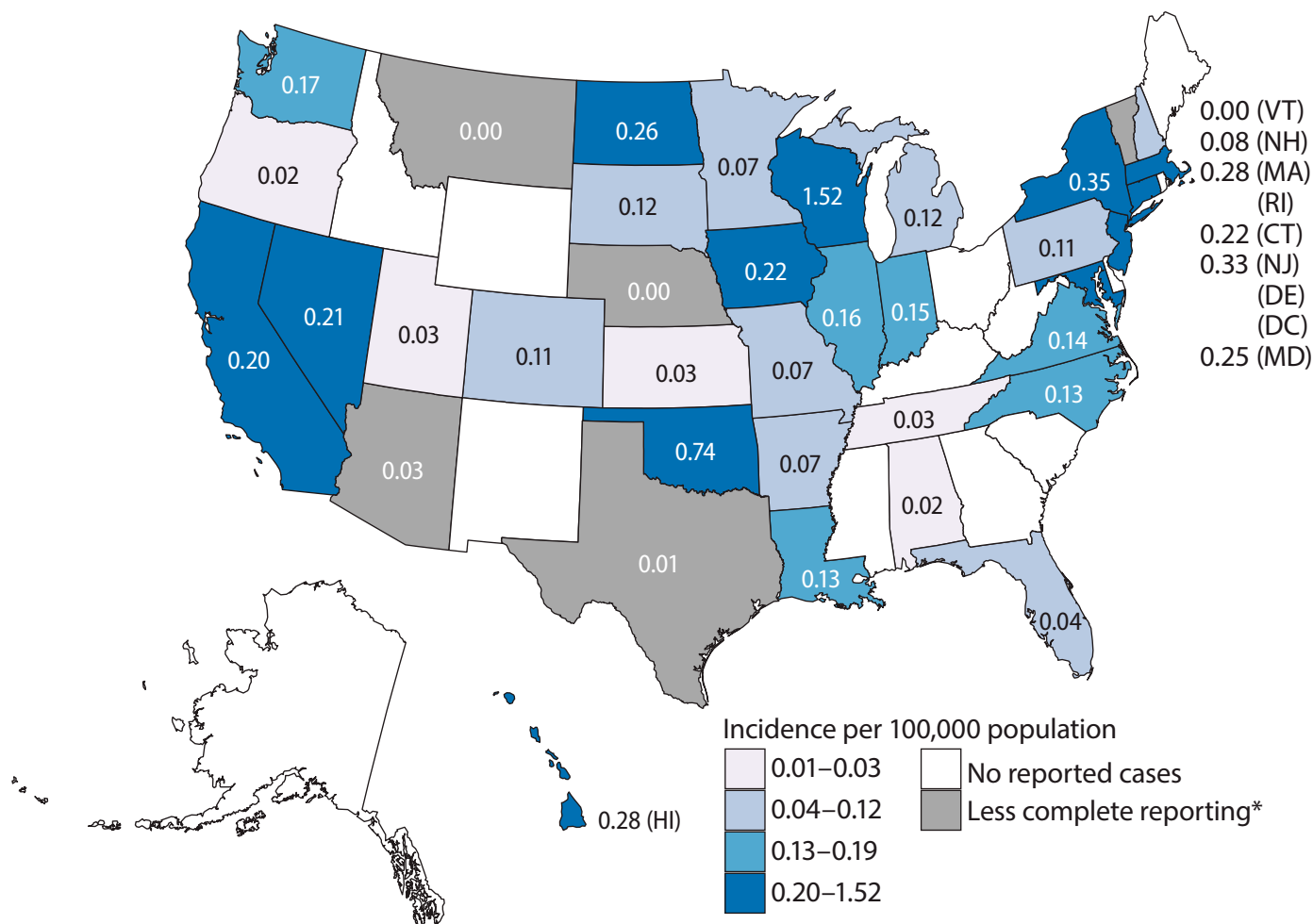
Figure 2p. Incidence rate of culture-confirmed human *Salmonella* serotype Mississippi infection reported to LEDS, by reporting jurisdiction, United States, 2015 (n = 571)



*States are shaded gray if a) the number of culture-confirmed human *Salmonella* isolates reported to LEDS was less than 80% of salmonellosis cases reported to the [National Notifiable Diseases Surveillance System \(NNDSS\)](https://www.cdc.gov/nndss/) or b) the number of fully serotyped culture-confirmed human *Salmonella* isolates reported to LEDS was less than 80% of all *Salmonella* isolates reported to LEDS.

Note: Full data table for all states at https://www.cdc.gov/nationalsurveillance/data/salm2015/fig2p_mississippi_irdf.csv

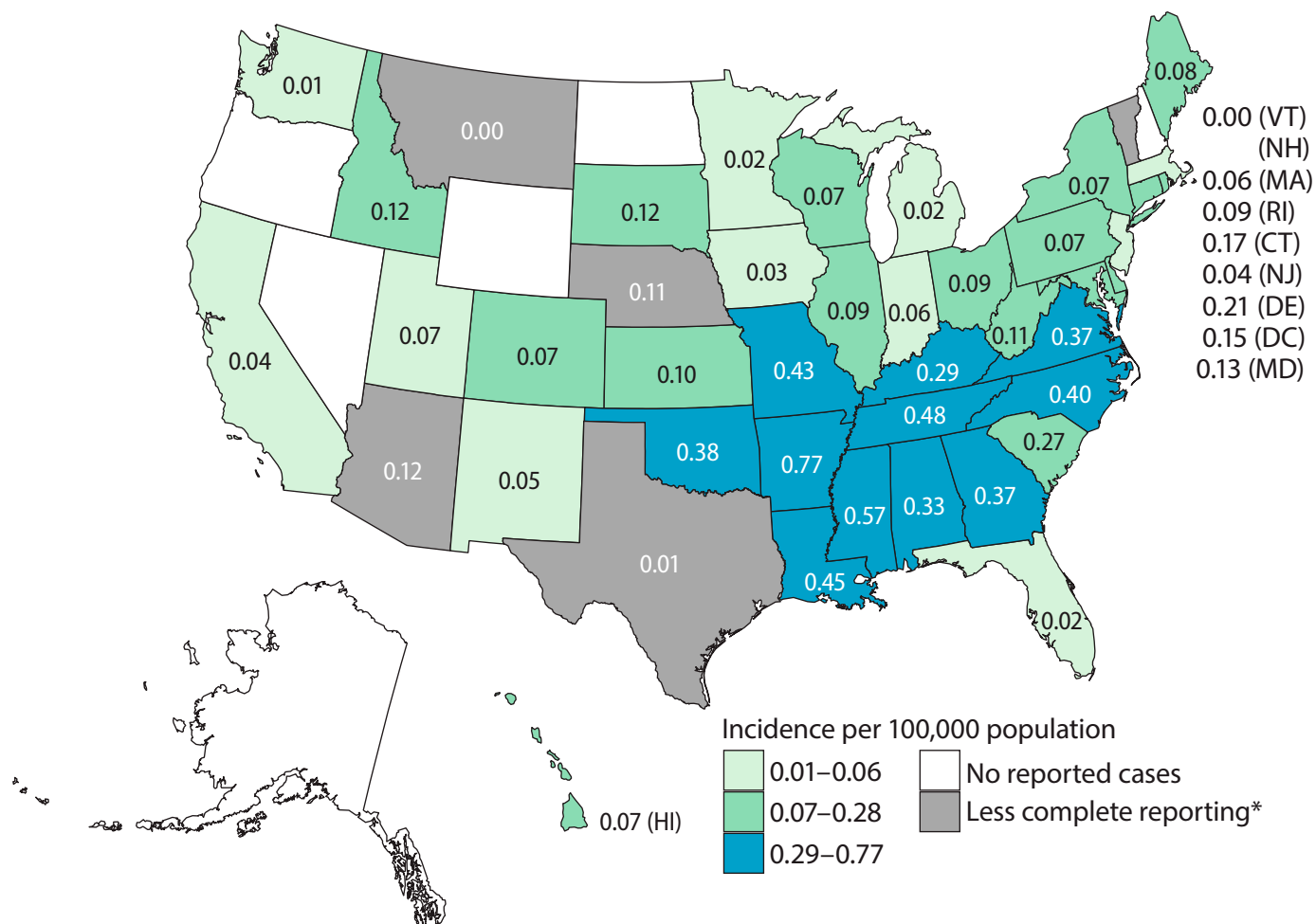
Figure 2q. Incidence rate of culture-confirmed human *Salmonella* serotype Typhi infection reported to LEDS, by reporting jurisdiction, United States, 2015 (n = 493)



*States are shaded gray if a) the number of culture-confirmed human *Salmonella* isolates reported to LEDS was less than 80% of salmonellosis cases reported to the [National Notifiable Diseases Surveillance System \(NNDSS\)](https://www.cdc.gov/nndss/) or b) the number of fully serotyped culture-confirmed human *Salmonella* isolates reported to LEDS was less than 80% of all *Salmonella* isolates reported to LEDS.

Note: Full data table for all states at https://www.cdc.gov/nationalsurveillance/data/salm2015/fig2q_typhi_irdf.csv

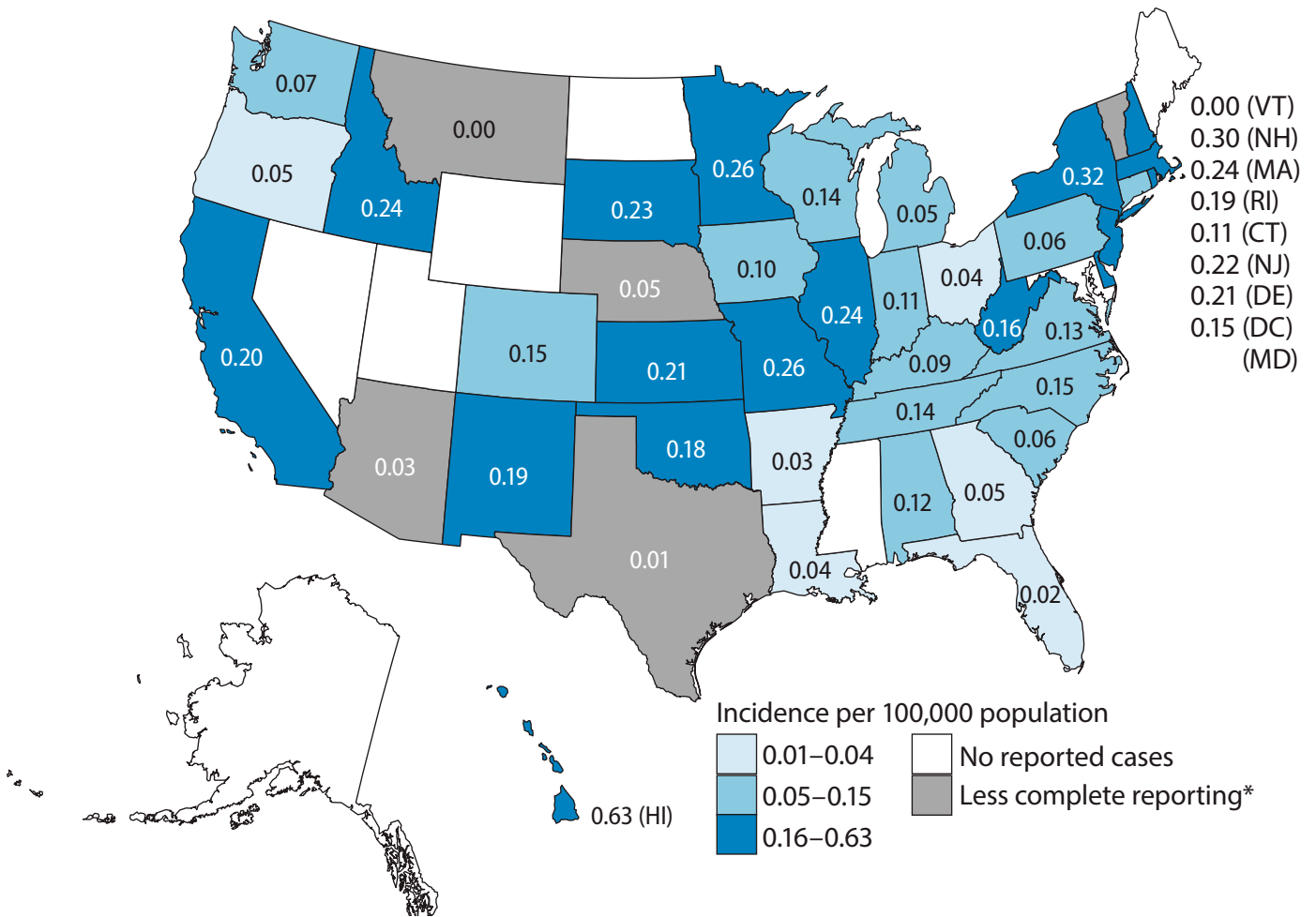
Figure 2r. Incidence rate of culture-confirmed human *Salmonella* serotype Bareilly infection reported to LEDS, by reporting jurisdiction, United States, 2015 (n = 418)



*States are shaded gray if a) the number of culture-confirmed human *Salmonella* isolates reported to LEDS was less than 80% of salmonellosis cases reported to the [National Notifiable Diseases Surveillance System \(NNDSS\)](https://www.cdc.gov/nndss/) or b) the number of fully serotyped culture-confirmed human *Salmonella* isolates reported to LEDS was less than 80% of all *Salmonella* isolates reported to LEDS.

Note: Full data table for all states at https://www.cdc.gov/nationalsurveillance/data/salm2015/fig2r_bareilly_irdf.csv

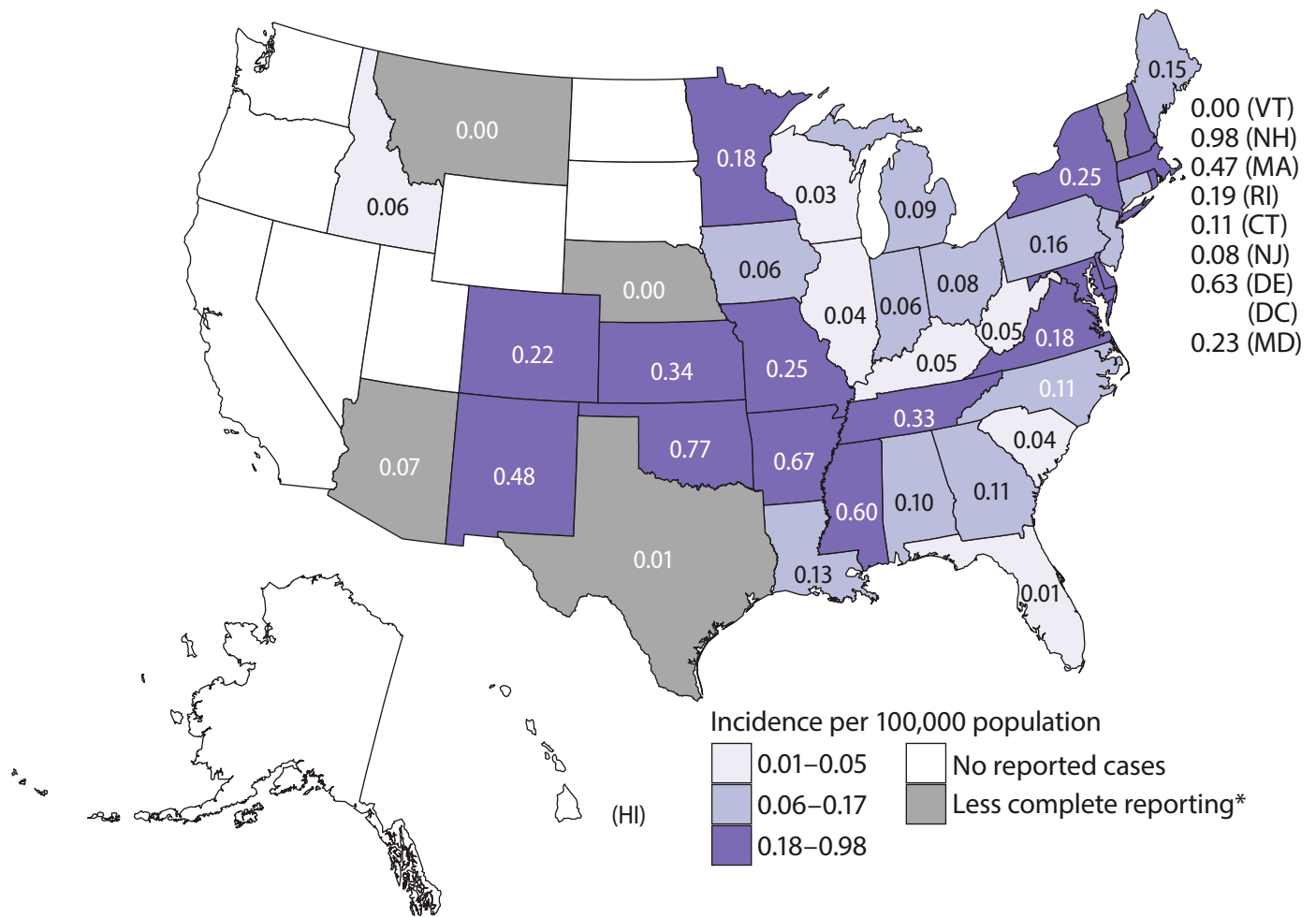
Figure 2s. Incidence rate of culture-confirmed human *Salmonella* serotype Berta infection reported to LEDS, by reporting jurisdiction, United States, 2015 (n = 406)



*States are shaded gray if a) the number of culture-confirmed human *Salmonella* isolates reported to LEDS was less than 80% of salmonellosis cases reported to the [National Notifiable Diseases Surveillance System \(NNDSS\)](https://www.cdc.gov/nndss/) or b) the number of fully serotyped culture-confirmed human *Salmonella* isolates reported to LEDS was less than 80% of all *Salmonella* isolates reported to LEDS.

Note: Full data table for all states at https://www.cdc.gov/nationalsurveillance/data/salm2015/fig2s_berta_irdf.csv

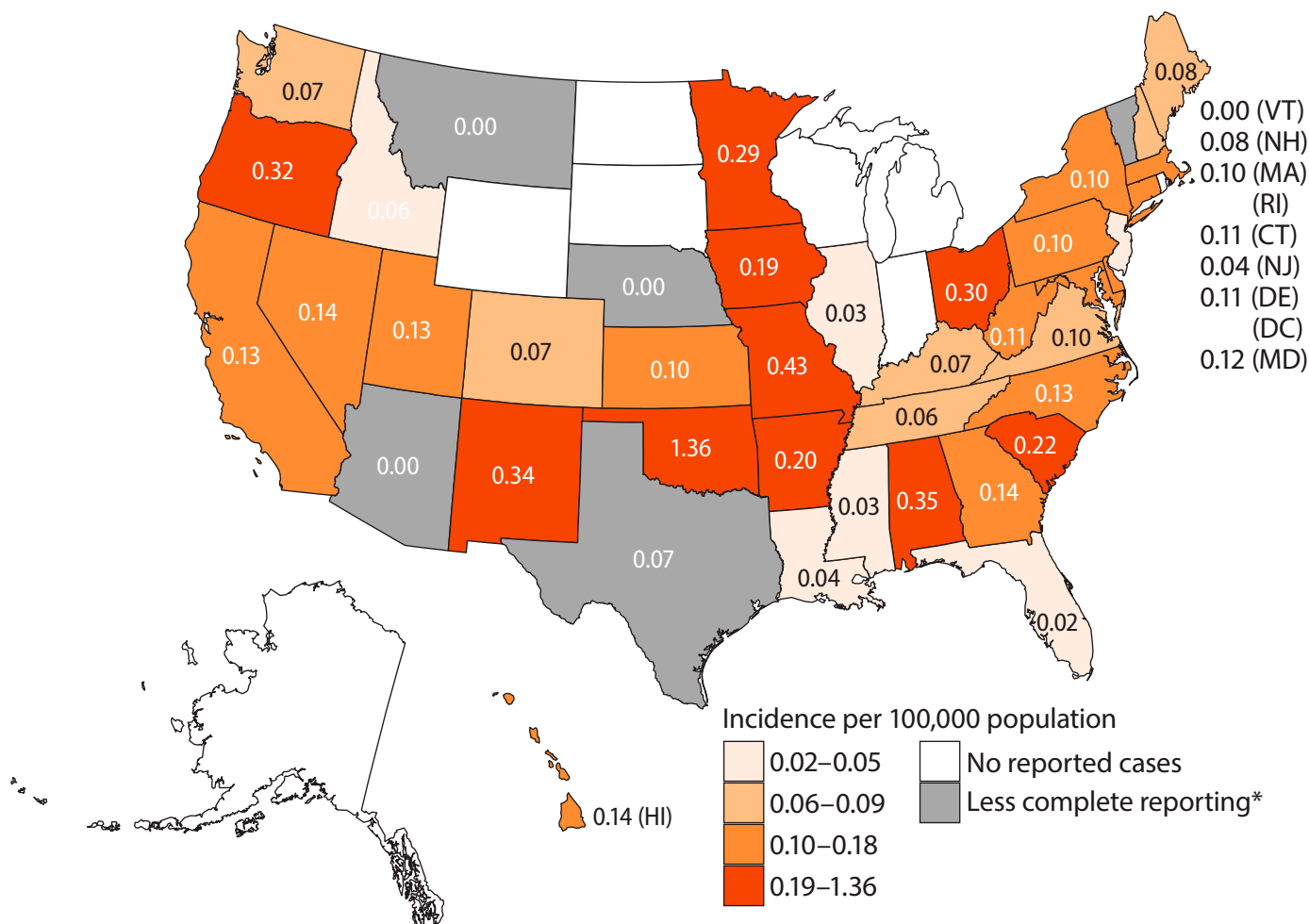
Figure 2t. Incidence rate of culture-confirmed human *Salmonella* serotype Norwich infection reported to LEDS, by reporting jurisdiction, United States, 2015 (n = 394)



*States are shaded gray if a) the number of culture-confirmed human *Salmonella* isolates reported to LEDS was less than 80% of salmonellosis cases reported to the National Notifiable Diseases Surveillance System (NNDSS) or b) the number of fully serotyped culture-confirmed human *Salmonella* isolates reported to LEDS was less than 80% of all *Salmonella* isolates reported to LEDS.

Note: Full data tables for all states at https://www.cdc.gov/nationalsurveillance/data/salm2015/fig2t_norwich_irdf.csv

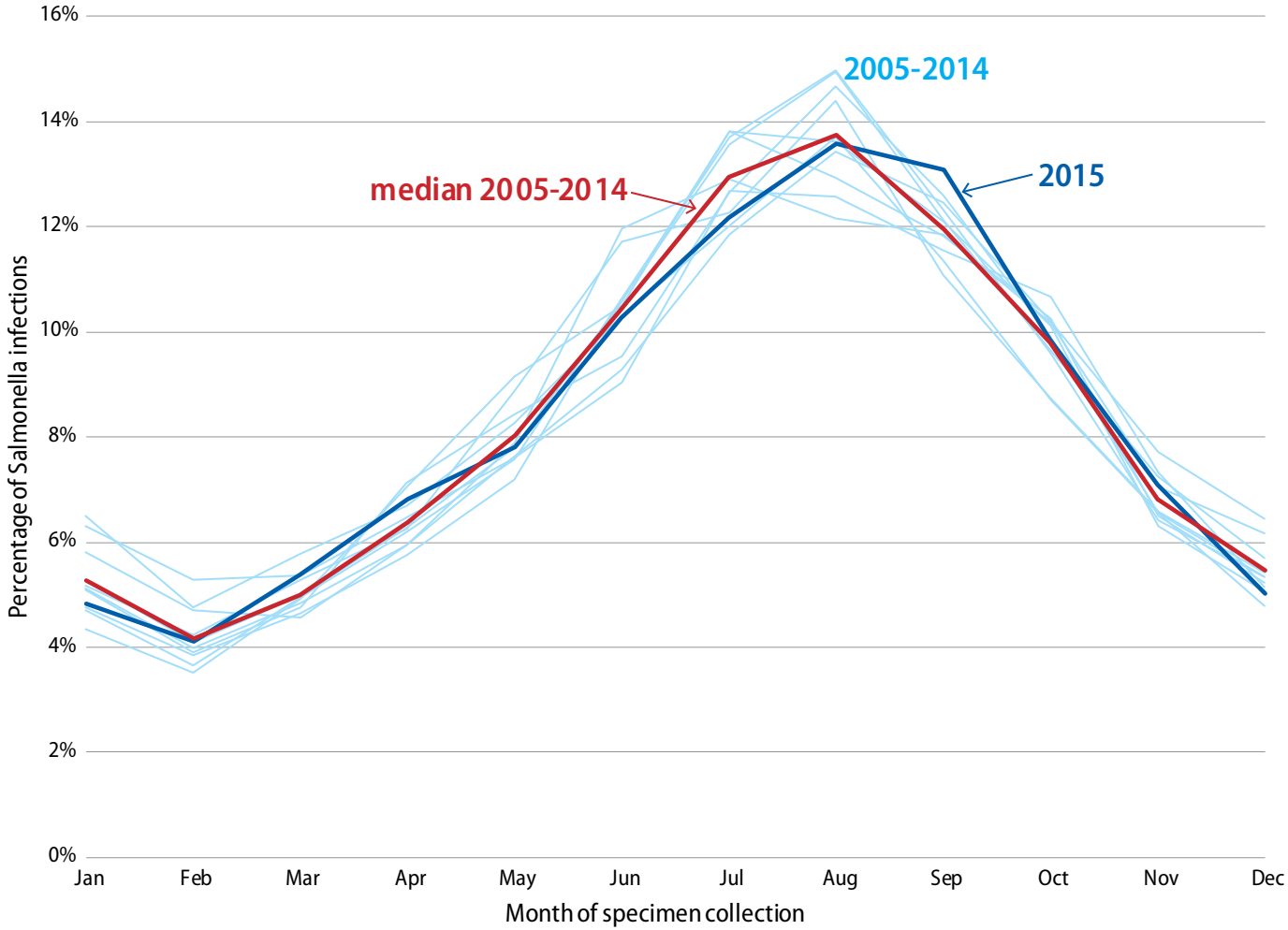
Figure 2u. Incidence rate of culture-confirmed human *Salmonella* serotype Paratyphi B var. L(+) tartrate+ infection reported to LEDS, by reporting jurisdiction, United States, 2015 (n = 394)



*States are shaded gray if a) the number of culture-confirmed human *Salmonella* isolates reported to LEDS was less than 80% of salmonellosis cases reported to the [National Notifiable Diseases Surveillance System \(NNDSS\)](https://www.cdc.gov/nndss/) or b) the number of fully serotyped culture-confirmed human *Salmonella* isolates reported to LEDS was less than 80% of all *Salmonella* isolates reported to LEDS.

Note: Full data table for all states at https://www.cdc.gov/nationalsurveillance/data/salm2015/fig2u_paratyphibvarltartrate_irdf.csv

Figure 3. Percentage of culture-confirmed *Salmonella* infections reported to LEDS, by month of specimen collection, United States, 2015 and mean percentage during 2005 to 2014



Note: Full data table for graph at <https://www.cdc.gov/nationalsurveillance/data/salm2015/Figure3.xlsx>

References

1. Centers for Disease Control and Prevention (CDC). National Salmonella Surveillance Overview. Atlanta, Georgia:
2. US Department of Health and Human Services, CDC, 2012.
3. Ryan CA, Nickels MK, Hargrett-Bean NT, et al. Massive outbreak of antimicrobial-resistant salmonellosis traced to pasteurized milk. JAMA. 1987 Dec 11;258(22):3269-74.

Recommended Citation:

Centers for Disease Control and Prevention (CDC). National *Salmonella* Surveillance Annual Report, 2015. Atlanta, Georgia: US Department of Health and Human Services, CDC, 2017.

Other Sources of National *Shigella* Surveillance Data

National Notifiable Diseases Surveillance System (NNDSS)

The National Notifiable Disease Surveillance System (NNDSS) collects and compiles case counts of nationally notifiable infectious diseases, including shigellosis. Shigellosis cases are not currently reported by species to NNDSS.

Annual reports: http://www.cdc.gov/mmwr/mmwr_nd/index.html

Data: <https://data.cdc.gov/browse?category=NNDSS>

National Antimicrobial Resistance Monitoring System (NARMS)

The National Antimicrobial Resistance Monitoring System (NARMS) Annual Human Isolates Report includes antimicrobial resistance data on enteric bacteria (including *Shigella*) isolated from humans.

Annual reports: <https://www.cdc.gov/narms/reports/index.html>

Data: <https://wwwn.cdc.gov/narmsnow/>

National Outbreak Reporting System (NORS)

The National Outbreak Reporting System (NORS) is a web-based platform used by local, state, and territorial health departments in the United States to report waterborne and foodborne disease outbreaks and enteric disease outbreaks transmitted by contact with environmental sources, infected persons or animals, or unknown modes of transmission to CDC.

Annual reports—

Foodborne: <https://www.cdc.gov/foodsafety/fdoss/data/annual-summaries/index.html>

Drinking water-associated outbreaks: <https://www.cdc.gov/healthywater/surveillance/drinking-surveillance-reports.html>

Recreational water-associated outbreaks: <https://www.cdc.gov/healthywater/surveillance/rec-water-surveillance-reports.html>

Outbreaks associated with environmental and undetermined water exposures: <https://www.cdc.gov/healthywater/surveillance/environmental/environ-water-surveillance-reports.html>

Data—Foodborne: <https://wwwn.cdc.gov/foodborneoutbreaks//>

NCEZID Atlanta:

For more information please contact Centers for Disease Control and Prevention

1600 Clifton Road NE, Atlanta, GA 30329-4027 MS C-09

Telephone: 1-404-639-2206

Email: cdcinfo@cdc.gov

National Enteric Disease Surveillance: *Salmonella* Annual Report Appendices, 2014¹

Recommended Citation

Centers for Disease Control and Prevention (CDC). National *Salmonella* Surveillance Annual Report, 2015. Atlanta, Georgia: US Department of Health and Human Services, CDC, 2017.

Appendices

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¹ In mid-2012, the USDA Food Safety and Inspection Service (USDA-FSIS) began molecular serotyping, which resulted in few *Salmonella* isolates being sent to the National Veterinary Services Laboratories (NVSL) of USDA's Animal and Plant Health Inspection Service (APHIS) for traditional serotyping; those results are therefore no longer included as Appendices to this report. USDA-FSIS publishes serotypes of *Salmonella* isolated from carcasses and meat and poultry products on its website (<http://www.fsis.usda.gov/wps/portal/food/foodsafety/inspection/service/topics/data-collection-and-reports/microbiology/annual-serotyping-reports>).

Appendix 1. Culture-confirmed *Salmonella* infections reported to LEDS by age group and sex, 2014

Age Group (years)	Sex			Total
	Female	Male	Unknown	
<1	2005	2220	281	4506
1–4	2788	2911	324	6023
5–9	1500	1644	144	3288
10–19	1874	2164	208	4246
20–29	2773	2221	243	5237
30–39	2215	1891	216	4322
40–49	2326	1823	190	4339
50–59	2940	2272	261	5473
60–69	2554	1997	216	4767
70–79	1836	1305	145	3286
≥80	1223	649	77	1949
Unknown	121	124	68	313
All age groups	24155	21221	2373	47749

Appendix 2a. Culture-confirmed *Salmonella* infections reported to LEDS by serotype and reporting jurisdiction, 2015 (Alaska to Kansas¹)

Subspecies	Serotype	AK	AL	AR	AZ	CA	CO	CT	DC	DE	FL	GA	HI	IA	ID	IL	IN	KS
I	13,22:-:1,6																	
I	13,23:-:1,5											1						
I	13,23:b:-		2			1						110						
I	13,23:z:-																	
I	16:a:-																	
I	16:d:-			1														
I	16:l,v:-					1												
I	28:i:-							1										
I	3,10:-:1,5																	
I	3,10:-:1,7																	
I	3,10:-:l,w					1												
I	3,10:e,h:-					1												
I	3,10:l,v:-							1										
I	3,10:l,z13:-																	
I	38:k:-											1						
I	4,[5],12:-:1,2					3	1											
I	4,[5],12:-:1,5																	
I	4,[5],12:-:1,7																	
I	4,[5],12:b:-		1	1	2	16	2	2				2	2	3	2	15		
I	4,[5],12:d:-					4		1										
I	4,[5],12:e,h:-					1	1	2				2						
I	4,[5],12:i:-		49	24	35	383	39	18		12		87	32	118	24	154	12	
I	4,[5],12:l,v:-					1												
I	4,[5],12:r:-							2										
I	40:-:e,n,x							1										
I	47:b:-																	
I	6,7:-:1,2																	
I	6,7:-:1,5					1		2								6		
I	6,7:-:1,6																	
I	6,7:-:1,7																	
I	6,7:-:e,n,z15							1										
I	6,7:b:-																	
I	6,7:c:-					1												
I	6,7:e,h:-							2										
I	6,7:k:-					6		2				1				4		
I	6,7:r:-					1										2		
I	6,7:y:-							2										
I	6,7:z4,z23:-																	
I	6,8:-:1,2							1				1						
I	6,8:-:1,5																	
I	6,8:b:-																	

¹ The key to state name abbreviations can be found at http://www.census.gov/geo/reference/ansi_statetables.html.

Subspecies	Serotype	AK	AL	AR	AZ	CA	CO	CT	DC	DE	FL	GA	HI	IA	ID	IL	IN	KS
I	6,8:d:-			1		5		3				1						
I	6,8:e,h:-					1		4								1		
I	6,8:i:-																	
I	6,8:r:-					1												
I	6,8:z10:-							1										
I	8,20:i:-																	
I	9,12:-:1,5					4						1						
I	9,12:-:e,n,x																	
I	9,12:e,h:-																	
I	9,12:l,v:-					2		2										
I	9,12:l,z28:-		1		2	1						4				2		
I	Abaetetuba																	
I	Aberdeen						1						2					
I	Abony					1						1				1		
I	Abortusequi											1						
I	Adelaide		1		2	56	2	4			8	1	4			5	1	
I	Agbeni		1		1	5		1			4	1		4		16	2	
I	Ago					1												
I	Agona		3	1	11	48	3	6			1	1	3	10	1	19	5	2
I	Agoueve																	
I	Alabama											1						
I	Alachua					2	2	1			4		1			2		
I	Albany				3	4	1	3				1				1	2	
I	Albert																	
I	Allandale										1							
I	Altona				2	2												
I	Amager													1				
I	Amoutive											1						
I	Amsterdam																	
I	Anatum		3	6	12	37	6			1	19	7	2	4		16	4	4
I	Anecho																	
I	Apapa																3	
I	Apeyeme																	
I	Aqua					1												
I	Arechavaleta			1			1				1							
I	Baildon							1			25	2				2	2	
I	Bareilly		17	24	8	16	4	6	1		4	38	1	2	2	10	4	2
I	Barranquilla											1					1	
I	Beaudesert																	
I	Benin																	
I	Berta		6		2	79	7	4	1	2	4	5	9	4	4	30	7	5
I	Bietri																	
I	Birkenhead												1					

Subspecies	Serotype	AK	AL	AR	AZ	CA	CO	CT	DC	DE	FL	GA	HI	IA	ID	IL	IN	KS
I	Bispebjerg																	
I	Blegdam					4												
I	Blockley					9		1	1		1		1	1		2		
I	Blukwa						1											
I	Bonariensis				1		1					1						
I	Bournemouth																	
I	Bovismorbificans					9						2				3	4	
I	Brackenridge																	
I	Braenderup	2	11	16	10	67	9	18	1		42	24	5	11	3	40	22	6
I	Brancaster												1					
I	Brandenburg		1		1	32	2				1	1	1		2	23	2	
I	Brazil										1	1						
I	Brazos						2											
I	Bredeney		1		3	3	1		1		1		1			1		
I	Brive																	
I	Brunei					2												
I	Bullbay																	
I	Canada			1		1												1
I	Cannstatt																	
I	Carmel																	
I	Carrau					2					2	2		1		1		1
I	Cerro					8			1								2	3
I	Chailey					5		2				1	4	1	1	7		
I	Charity																	
I	Chester				1	5					4		1					1
I	Chicago																	
I	Choleraesuis																	
I	Choleraesuis var. Kunzendorf						1										1	
I	Clackamas																	
I	Cleveland																	
I	Coeln				1	1												
I	Colindale													1				
I	Concord					1										1		
I	Connecticut																1	
I	Corvallis					6	1	6					2			1		
I	Cotham	1				12	5				5	2		2		4	3	
I	Cubana					1	1									1		
I	Dahra															1		
I	Daytona											1						
I	Denver				1												1	
I	Derby	1	1		1	18	2					3	5	1	1	8		1
I	Dessau											1						

Subspecies	Serotype	AK	AL	AR	AZ	CA	CO	CT	DC	DE	FL	GA	HI	IA	ID	IL	IN	KS
I	Diguel																	
I	Dublin		1		2	35	5				9	1	2	2		4	1	1
I	Duisburg					4		1										
I	Durban					4	2						2			3	2	
I	Durham																	
I	Ealing					3			1									
I	Eastbourne					1						1				4		
I	Eberswalde																	
I	Eko																	
I	Elisabethville																	
I	Emek					1										1		
I	Enteritidis	9	157	71	207	928	96	119	39	23	129	204	37	156	281	428	173	46
I	Essen																	
I	Farmsen						1											
I	Florida										1							
I	Fluntern		1			1										1		
I	Fomeco																	
I	Freetown					1												
I	Fresno																	
I	Friedenau				1													
I	Gaminara				10	6		1			15	5				2		
I	Gatuni					1												
I	Georgia					1												
I	Give		4		9	10						6	1	1		4		
I	Glostrup					1					1							
I	Goldcoast																2	
I	Grumpensis																	
I	Guinea					1												
I	Hadar	2		2	5	21	3	2		2	1	3		4	1	5	3	2
I	Haelsingborg																	
I	Haifa					1												
I	Hannover																	
I	Hartford		11	1	1	2	2	1			11	16		4		18	7	6
I	Hato								1									
I	Havana			1		6	1				1	1						
I	Heidelberg	4	11	17	33	104	34	9	3	3	3	21		10	20	45	19	5
I	Herston															1		
I	Hindmarsh					1									1			
I	Holcomb							1										
I	Homosassa											1						
I	Horsham																	
I	Hull																	
I	Hvittingfoss				2	2	1	1			6					2		1

Subspecies	Serotype	AK	AL	AR	AZ	CA	CO	CT	DC	DE	FL	GA	HI	IA	ID	IL	IN	KS
I	Ibadan							1										
I	Idikan					2								1	1	1	1	
I	Indiana		16	1		10	1					2			1			
I	Infantis	3	10	2	29	139	18	11	3	3	11	25	18	17	6	86	19	9
I	Inverness		1								9	5						
I	Irumu			1		7												
I	Isangi					1			1		1	1		1		1	2	
I	Jangwani					2												
I	Javiana	1	135	76	53	49	18	6	4	21	179	335		7	4	48	16	4
I	Jodhpur							1										
I	Johannesburg	1		1		5							1			2	2	1
I	Kalamu													1				
I	Kalumburu																	
I	Kedougou															1		
I	Kentucky		1		2	14	1									3	1	
I	Kiambu		2	3		2	1				3	1		1		2		2
I	Kingabwa											1					2	
I	Kingston																	
I	Kintambo					1	1											
I	Kisangani																	
I	Kisarawe																	
I	Kokomlele										1							
I	Kottbus					2												
I	Kouka					2												
I	Krefeld																	
I	Kuntair													1				
I	Lagos																	
I	Landau															1		
I	Lattenkamp						1											
I	Lille					1												
I	Limete					2												
I	Lindern					1												
I	Litchfield		4	5	3	19		3			10	3		4	1	8	6	2
I	Liverpool					1									2	1		
I	Livingstone							1										
I	Lockleaze																	
I	Lomalinda					27										1		
I	Lome																	
I	London		1			4							1	1		3	1	
I	Luciana											1						
I	Madelia																1	
I	Manhattan		1		3	71	2					3		1		3		1
I	Maritzburg					1												

Subspecies	Serotype	AK	AL	AR	AZ	CA	CO	CT	DC	DE	FL	GA	HI	IA	ID	IL	IN	KS
I	Matadi					1												
I	Matopeni																	
I	Mbandaka			2	13	20	3		1	1		7	3			6	8	4
I	Meleagridis					3										1		
I	Mendoza																	
I	Mgulani																	
I	Miami		2		1	1	2	3			44	14				2	1	
I	Michigan					3												
I	Mikawasima																	
I	Minnesota		1			1	3				10	1			1		2	
I	Mississippi		39	11	1	3		2			13	33				6	5	3
I	Mocamedes																	
I	Molade																	
I	Monschau							1			3	2		1	2	2	1	3
I	Montevideo		41	5	30	137	14	4		1	24	55	9	11	4	16	8	4
I	Muenchen	1	49	5	29	142	5	4	2	1	54	99	49	10	1	46	19	10
I	Muenster		3		2	21	1					2	1			4	5	
I	Napoli					2		1										
I	Natal														1			
I	Newmexico						1					1						
I	Newport	3	111	158	95	448	49	34	4	35	147	324	17	29	13	102	45	49
I	Nima					1					5							
I	Norwich		5	19	5		11	4		5	1	11		1	1	5	4	10
I	Nottingham				1							1						
I	Nyanza																	
I	Offa					2												
I	Ohio					12		1				2	2		1		2	
I	Okatie					1											1	
I	Onderstepoort																	
I	Oranienburg		5		67	113	30	10		1		12	1	3	6	36	10	7
I	Orientalis	1					1											
I	Orion					2		1										
I	Oslo					4	3					2	3	1	2	3	3	
I	Othmarschen	3					1											
I	Ouakam																	
I	Panama					31	6	1	4	1	4	4	1	1	1	8	4	1
I	Paratyphi A				1	21	1	1	2	1	2	4	2		1	6		
I	Paratyphi B				16			2			2				1	10	1	
I	Paratyphi B var. L(+) tartrate+		17	6		50	4	3		1	5	14	2	6	1	3		1
I	Paratyphi C					1												
I	Parkroyal																	
I	Pensacola			1		2						3						

Subspecies	Serotype	AK	AL	AR	AZ	CA	CO	CT	DC	DE	FL	GA	HI	IA	ID	IL	IN	KS
I	Plymouth											1		1				
I	Pomona					19	1				1					2	1	1
I	Poona	18	2	10	9	347	23	3			27		2	10	26	16	6	4
I	Potsdam					2									1	1		
I	Putten	1				5		1								1	1	
I	Quiniela																	
I	Reading	1	1	1	1	12	1	2	2		1	1		11		6	2	1
I	Richmond																	
I	Rissen				1	6						1		1	1	1	1	
I	Riverside					1	1											
I	Roodepoort																	
I	Rubislaw		5	18	7	2		1			77	18				5		1
I	Ruiru					4												
I	Saarbruecken																	
I	Saintpaul		11	2	60	121	7	6	1		46	49	2	14	2	44	21	4
I	Sandiego				19	19	2	1	2		57	10			5	11	5	1
I	Sanjuan																	
I	Saphra					1												
I	Schwarzengrund	1	5	7	3	7	2	3		1		7		4	6	8	1	
I	Senftenberg		2			58	1	2	1		1		1	1	1	7	4	
I	Shiple																	
I	Shubra																	
I	Singapore					2										1		
I	Soerenga				2		1					1				3		
I	Somone																	
I	Splott																	
I	Stanley		1	1	2	30	1	2				4	3	1	3	8	1	
I	Stanleyville															1		
I	Strathcona						1											
I	Suelldorf				1													
I	Sundsvall					6												
I	Takoradi																	
I	Tallahassee										8							
I	Tamberma					1												
I	Teddington																	
I	Teko																	
I	Telekebir			1		1	2									2		
I	Telhashomer																	
I	Teltow					1												1
I	Tennessee					2	2					1			1		1	
I	Thompson		9	3	11	77	9	13	1		9	8	3	14	3	31	7	9
I	Toucra					1										1		
I	Trachau																	

Subspecies	Serotype	AK	AL	AR	AZ	CA	CO	CT	DC	DE	FL	GA	HI	IA	ID	IL	IN	KS
I	Tucson						1											
I	Tudu																	
I	Typhi		1	2	2	78	6	8			9		4	7		18	10	
I	Typhimurium	3	191	84	55	439	69	46	9	16	43	120	33	64	50	196	100	60
I	Uganda					13	1	2					1	1	2	10	3	2
I	Umbilo																	
I	Urbana	1				1	2				8	1					2	
I	Uzaramo																1	
I	Vejele																	
I	Virchow		1	1		25	1					2		1		3	2	1
I	Wagenia																	
I	Wandsworth																	
I	Wangata																	
I	Waycross																	1
I	Weltevreden				1	12	1				6		16	1	1	3	1	
I	Wernigerode														1			
I	Westhampton					2												
I	Widemarsh					1												
I	Wien																	
I	Worthington		1	1		14	1		1				1			1		
I	Yaba								1									
II	16:m,t:-																	
II	18:z4,z23:-														1			
II	21:g,[m],[s],t:-																	
II	21:z10:[z6]					1												
II	4,12,[27]:b:[e,n,x]				1													
II	47:a:1,5															1		
II	47:b:e,n,x,z15																	
II	48:d:z6																	
II	58:c:z6																	
II	58:l,z13,z28:z6																	
II	6,7:-:1,6																	
II	9,12:a:1,5																	
II	9,12:z39:1,7																	
IIIa	13,22:z4,z23:-					2												
IIIa	13,23:g,z51:-																	
IIIa	18:g,z51:-				1													
IIIa	18:z4,z23:-					4									1			
IIIa	21:g,z51:-				3	2	1											
IIIa	21:z4,z23:-					1												
IIIa	35:z29:-				1													
IIIa	40:g,z51:-					4												
IIIa	41:g,z51:-														2			

Subspecies	Serotype	AK	AL	AR	AZ	CA	CO	CT	DC	DE	FL	GA	HI	IA	ID	IL	IN	KS
IIIa	41:z4,z23:-		1			5	1	2										
IIIa	44:z4,z23:-					1												
IIIa	44:z4,z24:-					1												
IIIa	48:g,z51:-					1						3						
IIIa	48:z29:-					1												
IIIa	48:z4,z23:-																	
IIIa	48:z4,z24:-					7						1						
IIIa	48:z4,z32:-																	
IIIa	50:g,z51:-																	
IIIa	50:z36:-																	
IIIa	50:z4,z23:-															1		
IIIa	53:z4,z23,z32:-															1		
IIIa	53:z4,z23:-																	
IIIa	53:z4,z24:-																	
IIIa	56:z4,z23:-					6										3		
IIIb	11:l,v:z53																	
IIIb	16:z10:e,n,x,z15															1		
IIIb	21:k:z																	
IIIb	35:k:e,n,x,z15															1		
IIIb	47:k:z35																	
IIIb	47:r:z													1				
IIIb	47:r:z53					1												
IIIb	48:i:z					2	2							1				
IIIb	48:i:z35					1												
IIIb	48:z4,z24:-		1															
IIIb	48:z52:z															1	1	
IIIb	50:k:z					4	1											
IIIb	50:l,v:z35																	
IIIb	50:r:z				1	1	2											
IIIb	50:z:z52											1						
IIIb	50:z52:z35																	
IIIb	53:z10:z																	
IIIb	53:z10:z35					1												
IIIb	59:l,v:z53															1		
IIIb	60:r:e,n,x,z15					2												
IIIb	60:z52:z																	
IIIb	60:z52:z53					1												
IIIb	61:-:1,5,[7]																	
IIIb	61:i:z															1		
IIIb	61:k:1,5,[7]																	
IIIb	61:l,v:-																	
IIIb	61:l,v:1,5,7					8												
IIIb	61:l,v:z35					1												

Subspecies	Serotype	AK	AL	AR	AZ	CA	CO	CT	DC	DE	FL	GA	HI	IA	ID	IL	IN	KS
IIIb	65:(k):z					1												
IV	16:z4,z32:-					2												
IV	40:z4,z24:-																	
IV	40:z4,z32:-																	
IV	43:z4,z23:-											1						
IV	44:z36,[z38]:-					1												
IV	44:z4,z23:-					6						1						
IV	44:z4,z24:-																	
IV	44:z4,z32:-																	
IV	45:g,z51:-			2		1						1						
IV	48:g,z51:-					1												
IV	48:z4,z32:-																	
IV	50:g,z51:-			2	1	4						2				2		
IV	50:z4,z23:-		1			3												
	Partially serotyped	14	1		257	2	6					7	3	1	2	8	4	
	Rough, mucoid, and/or nonmotile isolates				4	41	3	3				11				6		
	Unknown		1	28	32	25	1	1	8	26	196	19		4		4	9	1
	Total	71	962	627	1195	4848	572	427	96	158	1322	1809	299	577	503	1725	640	285

Appendix 2b. Culture-confirmed *Salmonella* infections reported to LEDS by serotype and reporting jurisdiction, 2015 (Kentucky to Nevada¹)

Subspecies	Serotype	KY	LA	MA	MD	ME	MI	MN	MO	MS	MT	NC	ND	NE	NH	NJ	NM	NV
I	13,22:-:1,6																	
I	13,23:-:1,5																	
I	13,23:b:-				3			2								1		
I	13,23:z:-				4													
I	16:a:-					1												
I	16:d:-																	
I	16:l,v:-																	
I	28:i:-																	
I	3,10:-:1,5				2													
I	3,10:-:1,7				5													
I	3,10:-:l,w																	
I	3,10:e,h:-				3													
I	3,10:l,v:-																	
I	3,10:l,z13:-																	
I	38:k:-																	
I	4,[5],12:-:1,2				19													
I	4,[5],12:-:1,5				8			1										
I	4,[5],12:-:1,7				2													
I	4,[5],12:b:-	6	6	4	11	1	7	13		11						11		
I	4,[5],12:d:-				14													
I	4,[5],12:e,h:-				15													
I	4,[5],12:i:-	26	48	70	128	5	23	87	122	26		1	9	1	2	63	19	9
I	4,[5],12:l,v:-				2													
I	4,[5],12:r:-				6			1								1		
I	40:-:e,n,x																	
I	47:b:-																	
I	6,7:-:1,2				3													
I	6,7:-:1,5				38											9		
I	6,7:-:1,6				1													
I	6,7:-:1,7				2													
I	6,7:-:e,n,z15																	
I	6,7:b:-																	
I	6,7:c:-																	
I	6,7:e,h:-				10													
I	6,7:k:-				6				5	1						6		
I	6,7:r:-				11													
I	6,7:y:-				4													
I	6,7:z4,z23:-															1		
I	6,8:-:1,2				4													
I	6,8:-:1,5				2											1		
I	6,8:b:-				2													

¹ The key to state name abbreviations can be found at http://www.census.gov/geo/reference/ansi_statetables.html.

Subspecies	Serotype	KY	LA	MA	MD	ME	MI	MN	MO	MS	MT	NC	ND	NE	NH	NJ	NM	NV
I	6,8:d:-															1		
I	6,8:e,h:-				15													
I	6,8:i:-				5													
I	6,8:r:-																	
I	6,8:z10:-				7													
I	8,20:i:-							1										
I	9,12:-:1,5				32					1								
I	9,12:-:e,n,x							1										
I	9,12:e,h:-																	
I	9,12:l,v:-																	
I	9,12:l,z28:-		4		4				1	8		1						
I	Abaetetuba																	
I	Aberdeen															1		
I	Abony					1									1			
I	Abortusequi																	
I	Adelaide		2					7	2			1	1			1		1
I	Agbeni		1	3	2		1	2	1							7		
I	Ago																	
I	Agona	2	4	5	6	1	13	12	9			8			2	6	1	
I	Agoueve						1		1									
I	Alabama																	
I	Alachua						1	1	1			1	1			1		
I	Albany						1	1	1									
I	Albert																	
I	Allandale																	
I	Altona							1	1									
I	Amager							1										
I	Amoutive																	
I	Amsterdam																	
I	Anatum		20	1	3		3	11	4	2		5			1	4		
I	Anecho						1											
I	Apapa																	
I	Apeyeme																	
I	Aqua																	
I	Arechavaleta			1		1	1		1			1			1			
I	Baildon	1	1	4			4			1		5				3		
I	Bareilly	11	21	4	9	1	2	1	27	17		42		1		5	1	
I	Barranquilla								1							1		
I	Beaudesert																	
I	Benin																	1
I	Berta	4	2	16			5	14	20			17			4	18	4	
I	Bietri											1						
I	Birkenhead																	

Subspecies	Serotype	KY	LA	MA	MD	ME	MI	MN	MO	MS	MT	NC	ND	NE	NH	NJ	NM	NV
I	Bispebjerg																	
I	Blegdam																	
I	Blockley			9	6			3				1				11		
I	Blukwa																	
I	Bonariensis						1		1			1						
I	Bournemouth				2													
I	Bovismorbificans	2	1	1			5	2	4			3						1
I	Brackenridge																	
I	Braenderup	6	25	27	17	2	35	11	16	6		47	6		1	21		2
I	Brancaster																	
I	Brandenburg		1	1			1		2	1		3				2		
I	Brazil																	
I	Brazos																	
I	Bredeney								1			1				3	3	
I	Brive																	
I	Brunei																	
I	Bullbay											1						
I	Canada																	
I	Cannstatt									1								
I	Carmel							2										
I	Carrau											3						
I	Cerro							1	1			2					1	
I	Chailey				1			3				1						1
I	Charity															1		
I	Chester	1		1			3		2			1						2
I	Chicago																1	
I	Choleraesuis																	
I	Choleraesuis var. Kunzendorf																	
I	Clackamas																	
I	Cleveland															1		
I	Coeln				1													
I	Colindale																	
I	Concord											1						
I	Connecticut																	
I	Corvallis			1				2								3		
I	Cotham	2	1	3			3		1			4			1	1		
I	Cubana						1		1									1
I	Dahra																	
I	Daytona									2								
I	Denver																1	
I	Derby		1	3	2		2	1	1	2		5					1	1
I	Dessau																	

Subspecies	Serotype	KY	LA	MA	MD	ME	MI	MN	MO	MS	MT	NC	ND	NE	NH	NJ	NM	NV
I	Diguel											1						
I	Dublin	1		8	6	4	5	6	2	1		4	2		2	1	3	1
I	Duisburg																	
I	Durban							1	3			1					1	
I	Durham			2														
I	Ealing											1						
I	Eastbourne		1					1	1			4				2		
I	Eberswalde																	
I	Eko																	
I	Elisabethville							1										
I	Emek							1										
I	Enteritidis	75	68	307	511	50	335	227	262	65		272	32	1	60	286	49	79
I	Essen																	
I	Farmsen																	
I	Florida			1								1						
I	Fluntern																	1
I	Fomeco						1											
I	Freetown																	
I	Fresno																	
I	Friedenau																	
I	Gaminara		43	1			1			5		6				1	1	
I	Gatuni																	
I	Georgia																	
I	Give	1	29	1	2		1		3	9		10				1	2	
I	Glostrup			1														
I	Goldcoast																	
I	Grumpensis																	1
I	Guinea																	
I	Hadar	2	6	6	2	1	3	12	5	3		3	1		2	9	1	1
I	Haelsingborg																	
I	Haifa															1		
I	Hannover							2										
I	Hartford	2	3	2	2	1	7	1	17	1		11	1			4		1
I	Hato											1						
I	Havana				2		3	1	2			3						1
I	Heidelberg	12	14	15	5		34	39	43	11		59	12	1		42	12	
I	Herston																	
I	Hindmarsh																	
I	Holcomb															1		
I	Homosassa																	
I	Horsham												2					
I	Hull																	
I	Hvittingfoss		22				3	3		4					1		1	

Subspecies	Serotype	KY	LA	MA	MD	ME	MI	MN	MO	MS	MT	NC	ND	NE	NH	NJ	NM	NV
I	Ibadan																	
I	Idikan						1					1						
I	Indiana				3		1			13		1				3	1	3
I	Infantis	6	26	21	14	3	22	20	22	13		20			4	23	5	1
I	Inverness		2						1			10						
I	Irumu			3					1							1		
I	Isangi						27	2				1						
I	Jangwani																	
I	Javiana	21	62	19	143	5	16	13	67	157		313	2		10	123	35	1
I	Jodhpur																	
I	Johannesburg						1	2								1		
I	Kalamu																	
I	Kalumburu																	
I	Kedougou																	
I	Kentucky			5	1			2	3			5				4		
I	Kiambu		3				1	2	3	1						3		
I	Kingabwa											1						
I	Kingston															1		
I	Kintambo	1					1											
I	Kisangani																	
I	Kisarawe						1					1			1			
I	Kokomlemlle																	
I	Kottbus			1				1					1			1		
I	Kouka																	
I	Krefeld																	
I	Kuntair																	
I	Lagos												1					
I	Landau																	
I	Lattenkamp																	
I	Lille																	
I	Limete																	
I	Lindern																	
I	Litchfield		7	1	1	3	3	8	10	6		8	1		1	15	4	
I	Liverpool			2			1	2				1						
I	Livingstone						2									1		
I	Lockleaze									1								
I	Lomalinda							1	1								2	
I	Lome																	
I	London			1	2					3		3				1		
I	Luciana		2									1						
I	Madelia																	
I	Manhattan		4	3			1	1	1			7				2		1
I	Maritzburg																	

Subspecies	Serotype	KY	LA	MA	MD	ME	MI	MN	MO	MS	MT	NC	ND	NE	NH	NJ	NM	NV
I	Matadi																	
I	Matopeni																	
I	Mbandaka	4	1	4	2	2	6	8	1	4		3	1			3	1	3
I	Meleagridis		1															
I	Mendoza				1													
I	Mgulani																	
I	Miami				4		2		1			13			2	2		
I	Michigan						1	1		1			1			1		
I	Mikawasima																	
I	Minnesota			1	1		1	1										
I	Mississippi	2	90	4			1		8	132		103				2	1	
I	Mocamedes											1						
I	Molade																1	
I	Monschau					1	1	1				1					3	
I	Montevideo	9	158	8	11	2	9	13	9	26		55	2		2	14	2	3
I	Muenchen	6	69	15	16	4	16	10	28	23		56			3	10	12	
I	Muenster	3		5	6		3	1	1			2			1	3		2
I	Napoli								3			1						
I	Natal																	
I	Newmexico	1							1									
I	Newport	24	253	52	183	4	51	131	136	194		427	5		13	101	56	12
I	Nima															1		
I	Norwich	2	6	32	15	2	7	10	18	19		11			12	6	10	
I	Nottingham																	
I	Nyanza																	
I	Offa																	
I	Ohio		1					2				3				1		
I	Okatie																	
I	Onderstepoort							1										
I	Oranienburg	2	27	19	14	2	13	10	98	12		19	1		5	32	12	2
I	Orientalis																	
I	Orion																	
I	Oslo		1	1			1	1	2			2						1
I	Othmarschen																	
I	Ouakam			1														
I	Panama	1	4	12	11		3	6	4			3	1		5	11	4	1
I	Paratyphi A			7	10		6	1	3			3		1		4	1	
I	Paratyphi B		3	2			15					7						1
I	Paratyphi B var. L(+) tartrate+	2	2	8	7	1		16	28			14			1	4	7	4
I	Paratyphi C																	
I	Parkroyal																	
I	Pensacola																	

Subspecies	Serotype	KY	LA	MA	MD	ME	MI	MN	MO	MS	MT	NC	ND	NE	NH	NJ	NM	NV
I	Plymouth																	
I	Pomona		1	2			1		2			2					1	
I	Poona		5	4	17	1	3	46	22	1		2	9	1	1	10	36	20
I	Potsdam			1									1			2		
I	Putten	2			2											1		
I	Quiniela		1															
I	Reading	1	3	5	12	1	4	7	10	2		3	2			5		
I	Richmond							1								2		
I	Rissen		1		1	1	1									1		
I	Riverside																	
I	Roodepoort																1	
I	Rubislaw	1	32						2	20		16						
I	Ruiru																	
I	Saarbruecken					1										1		
I	Saintpaul	7	19	21	23	1	14	20	22	3		44	3		6	13	8	3
I	Sandiego	2		2	6	2	3			1		8				10	6	2
I	Sanjuan																	
I	Saphra		1				1											
I	Schwarzengrund	1	1	11	5		2	1	4	6		10	1		1	11		
I	Senftenberg			4	4		2	5	2			2				5		2
I	Shiple															1		
I	Shubra																	
I	Singapore											1						
I	Soerenga																1	
I	Somone											1						
I	Splott							2										
I	Stanley	1	2	13			7	6	6	1		12	1		3	3	1	
I	Stanleyville						1		1									
I	Strathcona																	
I	Suelldorf																	
I	Sundsvall															1		
I	Takoradi											1						
I	Tallahassee		2							1								
I	Tamberma																	
I	Teddington																	
I	Teko							1										
I	Telekebir															1		
I	Telhashomer																	
I	Teltow																	
I	Tennessee	1		1				2	1				1			1		
I	Thompson	7	26	36	6	5	27	12	43	6		5	46		3	13		2
I	Toucra															1		
I	Trachau						1											

Subspecies	Serotype	KY	LA	MA	MD	ME	MI	MN	MO	MS	MT	NC	ND	NE	NH	NJ	NM	NV
I	Tucson																	
I	Tudu																	
I	Typhi		6	19	15		10	3	5			13	2		1	29		6
I	Typhimurium	47	50	141	198	13	125	78	156	165		385	18	2	13	124	42	19
I	Uganda	2		2			5	1	3	2		1				4		1
I	Umbilo											1						
I	Urbana		9									1	1					
I	Uzaramo																	
I	Vejele																	
I	Virchow	1		5	1			8								6	2	2
I	Wagenia								1									
I	Wandsworth							1										
I	Wangata											1						
I	Waycross																	
I	Weltevreden	1		2			3	2	1			1						
I	Wernigerode																	
I	Westhampton																	
I	Widemarsh																	
I	Wien																	
I	Worthington		1	2				1	2							1		
I	Yaba																	
II	16:m,t:-																	
II	18:z4,z23:-																	
II	21:g,[m],[s],t:-																	1
II	21:z10:[z6]																	
II	4,12,[27]:b:[e,n,x]																	
II	47:a:1,5																	
II	47:b:e,n,x,z15																	
II	48:d:z6								2									
II	58:c:z6								1									
II	58:l,z13,z28:z6						1	1										
II	6,7:-:1,6				1													
II	9,12:a:1,5																	
II	9,12:z39:1,7																	
IIIa	13,22:z4,z23:-																	
IIIa	13,23:g,z51:-																	
IIIa	18:g,z51:-																	
IIIa	18:z4,z23:-																	1
IIIa	21:g,z51:-																	
IIIa	21:z4,z23:-																	
IIIa	35:z29:-																	
IIIa	40:g,z51:-																	
IIIa	41:g,z51:-																	

Subspecies	Serotype	KY	LA	MA	MD	ME	MI	MN	MO	MS	MT	NC	ND	NE	NH	NJ	NM	NV
IIIa	41:z4,z23:-			1		1										1		
IIIa	44:z4,z23:-																	
IIIa	44:z4,z24:-																	
IIIa	48:g,z51:-						1					3						
IIIa	48:z29:-																	
IIIa	48:z4,z23:-																1	
IIIa	48:z4,z24:-																	
IIIa	48:z4,z32:-																	
IIIa	50:g,z51:-																	
IIIa	50:z36:-																	1
IIIa	50:z4,z23:-																	
IIIa	53:z4,z23,z32:-																	
IIIa	53:z4,z23:-	1																
IIIa	53:z4,z24:-																1	
IIIa	56:z4,z23:-																	
IIIb	11:l,v:z53																	
IIIb	16:z10:e,n,x,z15								2									
IIIb	21:k:z																1	
IIIb	35:k:e,n,x,z15																	
IIIb	47:k:z35	1																
IIIb	47:r:z																	
IIIb	47:r:z53																	
IIIb	48:i:z															2		
IIIb	48:i:z35																	
IIIb	48:z4,z24:-																	
IIIb	48:z52:z																	
IIIb	50:k:z						1											
IIIb	50:l,v:z35								1									
IIIb	50:r:z							1									2	
IIIb	50:z:z52																	
IIIb	50:z52:z35																	
IIIb	53:z10:z																	
IIIb	53:z10:z35																	
IIIb	59:l,v:z53																	
IIIb	60:r:e,n,x,z15	1							1									
IIIb	60:z52:z								1									
IIIb	60:z52:z53																	
IIIb	61:-:1,5,[7]																	
IIIb	61:i:z																	
IIIb	61:k:1,5,[7]											1						
IIIb	61:l,v:-								1									
IIIb	61:l,v:1,5,7					1												1
IIIb	61:l,v:z35	1																

Subspecies	Serotype	KY	LA	MA	MD	ME	MI	MN	MO	MS	MT	NC	ND	NE	NH	NJ	NM	NV
IIIb	65:(k):z																1	
IV	16:z4,z32:-																	
IV	40:z4,z24:-																	
IV	40:z4,z32:-											1						
IV	43:z4,z23:-									2								
IV	44:z36,[z38]:-																	
IV	44:z4,z23:-		1															
IV	44:z4,z24:-																	
IV	44:z4,z32:-									1								
IV	45:g,z51:-																	
IV	48:g,z51:-		1													1	1	1
IV	48:z4,z32:-																	
IV	50:g,z51:-						1		3			2				3		
IV	50:z4,z23:-		2	1					1									
	Partially serotyped	26	1		31		1	11		1	166	13	4	13	6		3	
	Rough, mucoid, and/or nonmotile isolates		6	5	75		1	3	12							13	1	5
	Unknown		6	18	47		1	2	1	9	6	123	6	127			22	
	Total	342	1223	1021	1836	125	938	959	1324	1004	172	2284	178	148	172	1176	386	206

Appendix 2c. Culture-confirmed *Salmonella* infections reported to LEDS by serotype and reporting jurisdiction, 2015 (New York to Wyoming¹)

Subspecies	Serotype	NY	OH	OK	OR	PA	RI	SC	SD	TN	TX	UT	VA	VT	WA	WI	WV	WY
I	13,22:-:1,6							1										
I	13,23:-:1,5																	
I	13,23:b:-							86		1								
I	13,23:z:-																	
I	16:a:-																	
I	16:d:-							1										
I	16:l,v:-																	
I	28:i:-																	
I	3,10:-:1,5																	
I	3,10:-:1,7																	
I	3,10:-:l,w																	
I	3,10:e,h:-																	
I	3,10:l,v:-																	
I	3,10:l,z13:-	1																
I	38:k:-																	
I	4,[5],12:-:1,2																	
I	4,[5],12:-:1,5																	
I	4,[5],12:-:1,7																	
I	4,[5],12:b:-	18			3	5				4	5		6		14			
I	4,[5],12:d:-																	
I	4,[5],12:e,h:-																	
I	4,[5],12:i:-	221	89	1	44	89		39		56	1		75		214	145	6	
I	4,[5],12:l,v:-																	
I	4,[5],12:r:-							1								1		
I	40:-:e,n,x																	
I	47:b:-												1					
I	6,7:-:1,2																	
I	6,7:-:1,5							1										
I	6,7:-:1,6																	
I	6,7:-:1,7																	
I	6,7:-:e,n,z15																	
I	6,7:b:-							1										
I	6,7:c:-																	
I	6,7:e,h:-							1								1		
I	6,7:k:-	2						2										
I	6,7:r:-																	
I	6,7:y:-															1		
I	6,7:z4,z23:-																	
I	6,8:-:1,2							2										
I	6,8:-:1,5	2																

¹ The key to state name abbreviations can be found at http://www.census.gov/geo/reference/ansi_statetables.html.

Subspecies	Serotype	NY	OH	OK	OR	PA	RI	SC	SD	TN	TX	UT	VA	VT	WA	WI	WV	WY
I	6,8:b:-																	
I	6,8:d:-							1										
I	6,8:e,h:-															1		
I	6,8:i:-															1		
I	6,8:r:-																	
I	6,8:z10:-																	
I	8,20:i:-																	
I	9,12:-:1,5	1																
I	9,12:-:e,n,x																	
I	9,12:e,h:-															2		
I	9,12:l,v:-																	
I	9,12:l,z28:-							8					2					
I	Abaetetuba											1						
I	Aberdeen				1				1									
I	Abony																	
I	Abortusequi																	
I	Adelaide	8		2	2	2		2		1	1		3		3	1		
I	Agbeni	5	8			9		3					1			3	1	
I	Ago																	
I	Agona	29	9	5	4	9	2	2	4	3	8	3	9		11	8		
I	Agoueve											1						
I	Alabama																	
I	Alachua	1				1			2						1			
I	Albany	5				3										1		
I	Albert		2	1														
I	Allandale																	
I	Altona		1							1								
I	Amager	1													2			
I	Amoutive																	
I	Amsterdam												1					
I	Anatum	22	5	4	1	6	3	8	1	2	16	8	2		2	4	2	
I	Anecho																	
I	Apapa		1												2		1	
I	Apeyeme											1						
I	Aqua																	
I	Arechavaleta	3										1						
I	Baildon	1	8			5		1		1			3		1	1		
I	Bareilly	14	12	15		9	1	11	1	32	1	2	31		1	4	3	
I	Barranquilla	2				1				1								
I	Beaudesert									1								2
I	Benin							2										
I	Berta	67	5	6	2	8	2	1	2	9	4		9		5	8	5	
I	Bietri																	
I	Birkenhead						1											

Subspecies	Serotype	NY	OH	OK	OR	PA	RI	SC	SD	TN	TX	UT	VA	VT	WA	WI	WV	WY
I	Bispebjerg		1															
I	Blegdam																	
I	Blockley	38			1	5		1					1		2	1		
I	Blukwa																	
I	Bonariensis												1			1		
I	Bournemouth																	
I	Bovismorbificans	2	8		2	2		11					3		1	1	3	
I	Brackenridge							1										
I	Braenderup	50	24	30	9	35	11	28	4	8	42	10	26		19	13	7	
I	Brancaster											1						
I	Brandenburg	5	1		2	4			1	3		1	3		6	3		
I	Brazil																	
I	Brazos																	
I	Bredeney	3		1							1							
I	Brive					3												
I	Brunei																	
I	Bullbay																	
I	Canada																	
I	Cannstatt									1		1						
I	Carmel																	
I	Carrau	1				1		7					1					
I	Cerro					1		1								1	1	
I	Chailey	1	4			2				1			1			2	1	
I	Charity																	
I	Chester	6	3	1	1	3						2	1		1	2	1	
I	Chicago																	
I	Choleraesuis										4					1		
I	Choleraesuis var. Kunzendorf																	
I	Clackamas				1										1			
I	Cleveland																	
I	Coeln																	
I	Colindale																	
I	Concord																	
I	Connecticut																	
I	Corvallis	11								1		1						
I	Cotham	1	3		2	3			1	2		2	2		2	2	2	
I	Cubana																	
I	Dahra																	
I	Daytona				1													
I	Denver																	
I	Derby	4		1	1	3		2	1	2	1	1	2					
I	Dessau																	

Subspecies	Serotype	NY	OH	OK	OR	PA	RI	SC	SD	TN	TX	UT	VA	VT	WA	WI	WV	WY
I	Diguel																	
I	Dublin	9	11		3	10	1	1	2	3		2	7		8	3	1	
I	Duisburg																	
I	Durban	7			1							2	2		1			
I	Durham											1						
I	Ealing	1	1	1	1					1			3		2			
I	Eastbourne	4			2	2							1					
I	Eberswalde							2										
I	Eko					1												
I	Elisabethville																	
I	Emek																	
I	Enteritidis	713	370	103	128	463	54	188	88	154	211	149	230	1	189	278	49	
I	Essen	2																
I	Farmsen																	
I	Florida																	
I	Fluntern	3																
I	Fomeco					1												
I	Freetown																	
I	Fresno					1												
I	Friedenau																	
I	Gaminara		2	1		2		14			7	1			2	2		
I	Gatuni																	
I	Georgia																	
I	Give		1			1		5		2	11				2	2		
I	Glostrup				1						1		1					
I	Goldcoast																	
I	Grumpensis																	
I	Guinea	5											1		2			
I	Hadar	19	6	4	14	15		6	3		3	2	17		10	8	1	
I	Haelsingborg														1			
I	Haifa	3																
I	Hannover																	
I	Hartford	14	13	1	1	9		9	1	8		1	4		1	10	2	
I	Hato	1																
I	Havana	2						1				1	1		8	1		
I	Heidelberg	152	41	17	8	55	6	17	7	16	59	15	26		38	29	4	
I	Herston																	
I	Hindmarsh					1												
I	Holcomb	6	1			1												
I	Homosassa																	
I	Horsham											1						
I	Hull												1					
I	Hvittingfoss	6	1	2	1						2	2	1					

Subspecies	Serotype	NY	OH	OK	OR	PA	RI	SC	SD	TN	TX	UT	VA	VT	WA	WI	WV	WY
I	Ibadan										2							
I	Idikan																	
I	Indiana	15	1		1	1		8		1					1			
I	Infantis	106	31	20	10	41	2	14	3	16	120	13	34		21	9	8	
I	Inverness							9					1					
I	Irumu	2	1															
I	Isangi		2									1						
I	Jangwani																	
I	Javiana	80	36	17	10	75	6	266	3	75	74	2	84		10	10	5	
I	Jodhpur																	
I	Johannesburg	4	2										2			1		
I	Kalamu																	
I	Kalumburu	1																
I	Kedougou	3																
I	Kentucky	16	6	1	1	7	2		1	2		2	2		2	2	1	
I	Kiambu	1	1	5		1				3	1	1	1			2		
I	Kingabwa															1		
I	Kingston										1							
I	Kintambo	1	1					1										
I	Kisangani												1					
I	Kisarawe	3																
I	Kokomlemlé					1							2					
I	Kottbus			1		1												
I	Kouka																	
I	Krefeld												1					
I	Kuntair																	
I	Lagos																	
I	Landau																	
I	Lattenkamp																	
I	Lille	2																
I	Limete																	
I	Lindern																	
I	Litchfield	17	7	36	3	14		4		6	2		5			2		
I	Liverpool					1						1						
I	Livingstone										1							
I	Lockleaze																	
I	Lomalinda			2	2							2						
I	Lome					1												
I	London	3				1				1			4		1	1		
I	Luciana							1										
I	Madelia		1															
I	Manhattan	1	1			1		3				1	4		2	1		
I	Maritzburg																	

Subspecies	Serotype	NY	OH	OK	OR	PA	RI	SC	SD	TN	TX	UT	VA	VT	WA	WI	WV	WY
I	Matadi																	
I	Matopeni														1			
I	Mbandaka	7	1	1	1	3	2	4	4	6		2	4		5	2	2	
I	Meleagridis																	
I	Mendoza																	
I	Mgulani	1																
I	Miami	9	2			2		6		1			5			1		
I	Michigan	1	1										1					
I	Mikawasima		1					1										
I	Minnesota		1			1					2					1		
I	Mississippi	9	4	6		4	2	5		41	32	2	5				2	
I	Mocamedes																	
I	Molade																	
I	Monschau	6	2	1		8						1	2					
I	Montevideo	41	18	8	19	21	2	48	2	6	42	1	14	1	10	8	4	
I	Muenchen	38	28	14	8	37	2	86	3	19	30	9	13		10	9	6	
I	Muenster	9	4	2	1	5		1		2		1	3		4		3	
I	Napoli		2			1												
I	Natal																	
I	Newmexico															1		
I	Newport	174	60	162	14	100	9	326	17	91	208	25	140		33	62	5	
I	Nima			1												1		
I	Norwich	51	11	30		21	2	2		22	4		17			2		
I	Nottingham		1										1		1			
I	Nyanza		1															
I	Offa																	
I	Ohio	5	2		1	2		2				1	1			2		
I	Okatie														1			
I	Onderstepoort		1			1												
I	Oranienburg	48	39	14	14	28	11	13	2	15	56	4	11		11	17	1	
I	Orientalis																	
I	Orion																	
I	Oslo		1		2	1				1			2			1	3	
I	Othmarschen															2		
I	Ouakam																	
I	Panama	24	5	1	2	9	2	1					7		5	3	8	
I	Paratyphi A	15	1		2	4					4		5		4			
I	Paratyphi B	3					2		2	2			1		1		2	
I	Paratyphi B var. L(+) tartrate+	19	39	53	13	15		11		3	17	4	8		5			
I	Paratyphi C										3							
I	Parkroyal							1										
I	Pensacola							3		1			4					

Subspecies	Serotype	NY	OH	OK	OR	PA	RI	SC	SD	TN	TX	UT	VA	VT	WA	WI	WV	WY
I	Plymouth																	
I	Pomona	4	3	2	1	3		2					2		5			
I	Poona	29	6	21	29	11		20	2	4	31	75	5		27	47	2	
I	Potsdam	1			1								1		1			
I	Putten	1				2				1								
I	Quiniela																	
I	Reading	6	3	2	2	14	1	1	1	1		3	3		2	2		
I	Richmond												1					
I	Rissen		1					1			1		1		1	2		
I	Riverside																	
I	Roodepoort			1														
I	Rubislaw	5	1	8	1	3		9		1	3		4					
I	Ruiru														1			
I	Saarbruecken		1															
I	Saintpaul	92	15	13	18	41	6	52	5	7	22	12	31	1	23	11	1	
I	Sandiego	13	5	3	6	11		3		2	4		5		4	5		
I	Sanjuan												1					
I	Saphra										1							
I	Schwarzengrund	18	8	1	1	6	2	15		2	2	3	5			3	2	
I	Senftenberg	8	3	3	4	6		1	4	2	2	2	3		1		1	
I	Shiple																	
I	Shubra		1															
I	Singapore					1		2				1						
I	Soerenga					1												
I	Somone																	
I	Splott																	
I	Stanley	40	12		5	10		2		2	7		4		4	4	1	
I	Stanleyville					1							1					
I	Strathcona																	
I	Suelldorf																	
I	Sundsvall			1		1									1			
I	Takoradi		1										1					
I	Tallahassee		1			1							2					
I	Tamberma																	
I	Teddington		1															
I	Teko																	
I	Telekebir		1	2		1							3			1		
I	Telhashomer	3																
I	Teltow																	
I	Tennessee	5	1	1	1	1				1		2			2	4		
I	Thompson	89	19	18	6	51	11	7	2	9	12	2	26		14	12	1	
I	Toucra																	
I	Trachau																	

Subspecies	Serotype	NY	OH	OK	OR	PA	RI	SC	SD	TN	TX	UT	VA	VT	WA	WI	WV	WY
I	Tucson																	
I	Tudu		1															
I	Typhi	69		29	1	14			1	2	3	1	12		12	95		
I	Typhimurium	343	190	95	80	239	45	93	71	134	162	46	194	3	65		29	
I	Uganda	5	2	9	1	5	1	1			1		3		1	2		
I	Umbilo																	
I	Urbana		2			4		2				1	1		1		1	
I	Uzaramo														1			
I	Vejele												1					
I	Virchow	12	3		4	2				1		4	2		1	4		
I	Wagenia																	
I	Wandsworth																1	
I	Wangata														1			
I	Waycross		1							1			1		1			
I	Weltevreden	5	4		3	3				1		2	4		2	4		
I	Wernigerode																	
I	Westhampton																	
I	Widemarsh	1																
I	Wien				1													
I	Worthington		1	4	1	2		2		1			1					
I	Yaba																	
II	16:m,t:-					1												
II	18:z4,z23:-																	
II	21:g,[m],[s],t:-																	
II	21:z10:[z6]																	
II	4,12,[27]:b:[e,n,x]																	
II	47:a:1,5																	
II	47:b:e,n,x,z15														1			
II	48:d:z6																	
II	58:c:z6																	
II	58:l,z13,z28:z6																	
II	6,7:-:1,6									1								
II	9,12:a:1,5									1								
II	9,12:z39:1,7									1								
IIIa	13,22:z4,z23:-																	
IIIa	13,23:g,z51:-							1										
IIIa	18:g,z51:-																	
IIIa	18:z4,z23:-																	
IIIa	21:g,z51:-																	
IIIa	21:z4,z23:-																	
IIIa	35:z29:-																	
IIIa	40:g,z51:-																	
IIIa	41:g,z51:-																	

Subspecies	Serotype	NY	OH	OK	OR	PA	RI	SC	SD	TN	TX	UT	VA	VT	WA	WI	WV	WY
IIIa	41:z4,z23:-				1	1									1			
IIIa	44:z4,z23:-																	
IIIa	44:z4,z24:-																	
IIIa	48:g,z51:-							3				1	4		1			
IIIa	48:z29:-																	
IIIa	48:z4,z23:-																	
IIIa	48:z4,z24:-				1			5										
IIIa	48:z4,z32:-									1								
IIIa	50:g,z51:-					2												
IIIa	50:z36:-																	
IIIa	50:z4,z23:-																	
IIIa	53:z4,z23,z32:-																	
IIIa	53:z4,z23:-																	
IIIa	53:z4,z24:-																	
IIIa	56:z4,z23:-												3					
IIIb	11:l,v:z53														1			
IIIb	16:z10:e,n,x,z15																	
IIIb	21:k:z																	
IIIb	35:k:e,n,x,z15																	
IIIb	47:k:z35																	
IIIb	47:r:z																	
IIIb	47:r:z53												1					
IIIb	48:i:z																	
IIIb	48:i:z35																	
IIIb	48:z4,z24:-														1			
IIIb	48:z52:z																	
IIIb	50:k:z									1								
IIIb	50:l,v:z35																	
IIIb	50:r:z																	
IIIb	50:z:z52																	
IIIb	50:z52:z35	2																
IIIb	53:z10:z												1					
IIIb	53:z10:z35																	
IIIb	59:l,v:z53																	
IIIb	60:r:e,n,x,z15																	
IIIb	60:z52:z				1													
IIIb	60:z52:z53																	
IIIb	61:-:1,5,[7]					2												
IIIb	61:i:z																	
IIIb	61:k:1,5,[7]																	
IIIb	61:l,v:-																	
IIIb	61:l,v:1,5,7																	
IIIb	61:l,v:z35																	

Subspecies	Serotype	NY	OH	OK	OR	PA	RI	SC	SD	TN	TX	UT	VA	VT	WA	WI	WV	WY
IIIb	65:(k):z																	
IV	16:z4,z32:-																	
IV	40:z4,z24:-																1	
IV	40:z4,z32:-																	
IV	43:z4,z23:-																	
IV	44:z36,[z38]:-									1			2					
IV	44:z4,z23:-	3	2					1					1		1			
IV	44:z4,z24:-					1		1		1					1	2		
IV	44:z4,z32:-																	
IV	45:g,z51:-					1												
IV	48:g,z51:-				2	2							2		1			
IV	48:z4,z32:-									1								
IV	50:g,z51:-		1										1		1	1		
IV	50:z4,z23:-	3											1					
	Partially serotyped		3	76		13	10	2	6	6	231			51	5	7	2	
	Rough, mucoid, and/or nonmotile isolates	5	5		4	7		14		2			2		1	8		
	Unknown	42	14	1	1		2	2		10	2794		115		2	18	19	
	Total	2991	1258	861	517	1643	203	1526	248	826	4253	441	1315	57	868	915	203	0

Appendix 3a. Culture-confirmed *Salmonella* infections reported to LEDS by serotype and year, 2005–2015

Subspecies	Serotype	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	Total
I	11:-:e,n,x							2			1		3
I	11:i:-										1		1
I	11:r:-					1	1	2	1	3	2		10
I	11:z10:-		1						1		1		3
I	13,22:-:1,6	1		1					2			1	5
I	13,22:b:-							2			1		3
I	13,22:z:-		1			2	2	4		1			10
I	13,23:-:1,5			2	1	2	5	8	3	3	2	1	27
I	13,23:b:-	8	4	51	131	113	234	218	252	216	248	206	1681
I	13,23:z:-							1	2			4	7
I	16:-:e,n,x						1						1
I	16:a:-						1					1	2
I	16:b:-						1	2	2		1		6
I	16:d:-				1	1	1		3			2	8
I	16:e,h:-					2			1				3
I	16:l,v:-	2		2				2	1			1	8
I	17:-:e,n,x							1					1
I	28:i:-		1				1		3		1	1	7
I	3,10:-:1,2								1				1
I	3,10:-:1,5							6	11	7	3	2	29
I	3,10:-:1,6			1	1				3				5
I	3,10:-:1,7											5	5
I	3,10:-:l,w							1		1	2	1	5
I	3,10:e,h:-		2				1		5	1	8	4	21
I	3,10:i:-						1						1
I	3,10:l,v:-		2	2		1	4	1	2	3	4	1	20
I	3,10:l,z13:-						1		1	1		1	4
I	3,10:r:-		3								2		5
I	3,26:l,z13:1,5									1			1
I	30:b:-								2	1			3
I	38:k:-				2	1	4	2	1	2	1	1	14
I	4,[5],12:-:1,2	1	15	2	10	9	12	12	44	15	28	23	171
I	4,[5],12:-:1,5						1	2			1	9	13
I	4,[5],12:-:1,7			1			1		1	1	1	2	7
I	4,[5],12:-:e,n,z15							1			3		4
I	4,[5],12:b:-	84	105	180	200	215	266	245	265	198	203	173	2134
I	4,[5],12:d:-		3	4	12	5	10	5	8	9	16	19	91
I	4,[5],12:e,h:-	2	4	5	4	2	1	11	18	10	19	21	97
I	4,[5],12:i:-	879	1222	1225	940	991	1181	1338	1954	2205	2189	2606	16730
I	4,[5],12:l,v:-	1								2	3	3	9
I	4,[5],12:r:-	2	1		18	17	21	8	7	10	10	12	106
I	4,12,27:d:-						1						1
I	4,12,27:l,v:-						1						1

Subspecies	Serotype	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	Total
l	40:-:e,n,x								1		2	1	4
l	40:l,z28:-									1			1
l	43:k:-		3										3
l	47:b:-					1						1	2
l	47:d:-							1	1				2
l	47:z4,z23:-		13	2	3	3	8	3	2				34
l	6,14:-:l,z13,z28		1										1
l	6,14:b:-		1	1	1								3
l	6,14:d:-						1						1
l	6,14:y:-							1					1
l	6,7,[14]:r:-									1			1
l	6,7:-:1,2					2				4	4	3	13
l	6,7:-:1,5	23	15	23	27	26	35	43	68	58	71	57	446
l	6,7:-:1,6					1	1	3	5			1	11
l	6,7:-:1,7						1		1			2	4
l	6,7:-:e,n,x					1	2	3	1		1		8
l	6,7:-:e,n,z15					2	2	3	2	3		1	13
l	6,7:a:-										2		2
l	6,7:b:-	1					2			1	4	1	9
l	6,7:c:-		1	2	1	1		1	4	6	2	1	19
l	6,7:d:-						3		2	2	3		10
l	6,7:e,h:-		1	1	2	4	13	11	30	16	6	14	98
l	6,7:i:-		1							1			2
l	6,7:k:-	3	17	6	7	18	19	25	20	19	34	35	203
l	6,7:l,w:-		1		3	1	2	5	1		4		17
l	6,7:r:-	1	2	1	7	2	9	13	27	9	23	14	108
l	6,7:y:-				3		4	2	11	3	11	7	41
l	6,7:z10:-							3	2	1	1		7
l	6,7:z4,z23:-											1	1
l	6,8:-:1,2	2	1	2	4	3	3	8	21	7	7	8	66
l	6,8:-:1,5	1		2			2		2	4	2	5	18
l	6,8:-:e,n,x							1		1	1		3
l	6,8:-:e,n,z15					1				1			2
l	6,8:b:-	1					1	1	1			2	6
l	6,8:d:-		1	8	5	8	9	8	14	16	7	12	88
l	6,8:e,h:-		1	3	6	7	9	15	13	14	41	22	131
l	6,8:i:-				1					2	3	6	12
l	6,8:l,v:-				1		1	1	1	2			6
l	6,8:r:-						1	1		1		1	4
l	6,8:y:-									1			1
l	6,8:z10:-				2			1	1	3	2	8	17
l	6,8:z4,z23:-									1			1
l	8,20:-:z6								1				1
l	8,20:i:-			1			1	1	1	2		1	7

Subspecies	Serotype	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	Total
I	9,12:-:1,2					1			1				2
I	9,12:-:1,5		3	4	6	9	12	13	20	19	44	39	169
I	9,12:-:1,6								1				1
I	9,12:-:e,n,x						1				1	1	3
I	9,12:a:-				3		1	3		6	6		19
I	9,12:e,h:-						1		5	3	3	2	14
I	9,12:g,z51:-		1				3		4	3	1		12
I	9,12:i:-										4		4
I	9,12:l,v:-		2	1	6		1	4	2	2	3	4	25
I	9,12:l,z28:-	6	9	13	17	33	29	21	57	40	47	38	310
I	Aarhus	4	6	6	5	4	2						27
I	Aba		1		1			1					3
I	Abaetetuba		3	3	1	5	3		3	2	1	1	22
I	Aberdeen	6	10	13	6	13	7	6	6	7	4	6	84
I	Abony	2	8	3	2	3	6	4	4	7	12	5	56
I	Abortusequi						1	2	1			1	5
I	Adelaide	70	66	58	63	43	79	95	64	132	176	124	970
I	Adeoyo										1		1
I	Adjame									1			1
I	Aequatoria	2											2
I	Agama	8	4	2		7	2	2	1	2	2		30
I	Agbeni	15	14	15	16	15	23	39	58	54	59	82	390
I	Ago		1	4	4	14	7	3	5	5	1	1	45
I	Agona	364	530	505	601	380	508	504	339	345	307	289	4672
I	Agoueve	3	3	2	1	3	4	7	4	3	3	3	36
I	Ahoutoue			1									1
I	Ahuza					1							1
I	Ajiobo		1				1						2
I	Alabama	3	5				2	4	3	9	3	1	30
I	Alachua	19	17	19	13	24	18	14	16	11	11	23	185
I	Alagbon	3			1								4
I	Albany	39	36	38	23	30	29	30	21	27	21	27	321
I	Albert	1				3	1	3	5	5	2	3	23
I	Albuquerque							1	1				2
I	Allandale					2			1			1	4
I	Altona	1	4	6	6	10	14	77	15	10	14	8	165
I	Amager	5	4	4	9	5	8	2	5	3	1	5	51
I	Amherstiana		1										1
I	Amounderness				1								1
I	Amoutive		1	2	2	2	1					1	9
I	Amsterdam	4	4	2	2	7	4	7	3	1	1	1	36
I	Amunigun								1				1
I	Anatum	201	247	204	219	227	227	293	402	238	282	261	2801
I	Anecho	2	3	9	9		2		4	4	5	1	39

Subspecies	Serotype	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	Total
I	Anfo	1	1	2	2	1	1	2	2	1	2		15
I	Apapa	7	6	13	8	5	5	3	4	5	7	7	70
I	Apeyeme	2				2	1			3	1	1	10
I	Aqua	2	3	1	1	4	3	7	7	9		1	38
I	Arapahoe								1		1		2
I	Arechavaleta	4	2	12	9	14	12	8	8	4	5	13	91
I	Assen	1			1			2	1				5
I	Assinie		4										4
I	Atento								1				1
I	Augustenborg	1			1	1		1	1				5
I	Avignon		1										1
I	Avonmouth							1					1
I	Ayinde						1						1
I	Azteca				1								1
I	Babelsberg							1					1
I	Bahrenfeld		1				1		2	1	1		6
I	Baildon	31	14	15	9	11	88	26	25	35	70	72	396
I	Ball			1			3	1					5
I	Banana	2	1					2	1				6
I	Bareilly	196	253	237	222	282	339	429	890	353	381	418	4000
I	Barranquilla	1	5	5	26	2	4	11	13	2	1	8	78
I	Bassadji								1		5		6
I	Beaudesert		3	2	3	3	5	1	1	1		3	22
I	Belem						1		3	2			6
I	Benin	1	5		1		1	4	3	1	1	3	20
I	Bere	2	7	6	11	3	2	1	1	1			34
I	Bergen		1					1					2
I	Berkeley								1				1
I	Berta	207	249	188	186	182	263	321	299	254	318	406	2873
I	Bietri				1							1	2
I	Bijlmer	2											2
I	Birkenhead	2		1	3	4	3		1	2	1	2	19
I	Bispebjerg										2	1	3
I	Blegdam	4			1	1	2	1				4	13
I	Blijdorp									1	1		2
I	Blockley	53	66	70	54	56	37	28	49	41	100	95	649
I	Blukwa											1	1
I	Bobo	1											1
I	Bochum										1		1
I	Bolombo							1					1
I	Bonariensis	1	2	4	5	2	1	6	12	5	5	8	51
I	Bonn		1			1					1		3
I	Bournemouth	1	1	2	1	1	1				1	2	10
I	Bouso	3	1				2				1		7

Subspecies	Serotype	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	Total
I	Bovismorbificans	72	68	47	73	61	67	110	96	48	70	70	782
I	Brackenridge											1	1
I	Bradford		1	1		1	1						4
I	Braenderup	601	550	551	655	715	728	733	829	653	610	825	7450
I	Brancaster								1			2	3
I	Brandenburg	128	92	70	78	87	63	67	74	83	72	106	920
I	Brazil	2	3	2	4	1	1	1		2	1	2	19
I	Brazos						1					2	3
I	Brazzaville	2	3	1	1	1		1					9
I	Bredeney	26	26	22	28	24	37	29	67	29	42	25	355
I	Breukelen			1									1
I	Brezany	1			1								2
I	Brijbhumi								1				1
I	Brive											3	3
I	Bron		1		1								2
I	Bronx			1					1				2
I	Bruck					1	1						2
I	Brunei	2			1		1	2	1		1	2	10
I	Bsilla	1			1								2
I	Budapest			1									1
I	Bukavu			1	1			1	3		2		8
I	Bullbay											1	1
I	Burgas			1									1
I	Burundi				1								1
I	Butantan	1				1							2
I	Buzu		2	2			1		5	2	2		14
I	California		2		1	1			1				5
I	Canada	1							1	2	2	3	9
I	Cannstatt		1		2	9	3	6	1	2	2	3	29
I	Caracas		1		1			2		3			7
I	Carmel	4	1	4	2	2	4	1	5	4	6	2	35
I	Carrau	9	10	1	7	64	31	20	33	16	17	22	230
I	Cerro	26	35	31	48	26	29	18	43	34	26	23	339
I	Chailey	2			2	3	11	7	9	30	17	39	120
I	Chandans	5	1		1	1	1	1		1			11
I	Charity					1	1		1			1	4
I	Chester	15	26	30	26	41	85	63	50	26	48	43	453
I	Chicago		1	2			1					1	5
I	Chichiri						4		4				8
I	Chile				1								1
I	Chincol	2	1				2	1	1				7
I	Chingola			1									1
I	Chiredzi										1		1
I	Chittagong	7											7

Subspecies	Serotype	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	Total
I	Choleraesuis	7	11	14	18	22	8	13	12	7	3	5	120
I	Choleraesuis var. Decatur					2				1			3
I	Choleraesuis var. Kunzendorf	6	10	10	4	9	4	3	5	5	2	2	60
I	Clackamas	1	1	2	5		5	6	2	1	7	2	32
I	Claibornei		1										1
I	Cleveland					1				1		1	3
I	Coeln	2	4	4	6		4	2	5	2	7	3	39
I	Colindale	4	12	5	6	7	4	5	5	3	1	1	53
I	Colorado										1		1
I	Concord	6	17	20	31	36	17	7	8	5	2	3	152
I	Connecticut											1	1
I	Corvallis	13	23	22	30	13	23	19	27	11	21	35	237
I	Cotham	9	12	14	21	20	23	25	45	62	65	72	368
I	Cremieu	1											1
I	Croft		1										1
I	Cubana	13	16	24	9	18	33	15	30	8	11	6	183
I	Cuckmere		1							1			2
I	Cullingworth	6			1						1		8
I	Curacao	1					1				2		4
I	Cyprus							1					1
I	Daarle	1			1								2
I	Dahlem		1										1
I	Dahra	2	2	1		1	1	1		2		1	11
I	Dakar			1									1
I	Daytona	5	5	1	3	2	7	10	7	7	6	4	57
I	Denver	5	1	2	6	3	3	5		3	3	3	34
I	Derby	121	139	143	140	131	132	113	110	80	104	79	1292
I	Dessau											1	1
I	Detmold									1			1
I	Diguel	1										1	2
I	Diourbel	1											1
I	Djakarta		1						1		1		3
I	Djugu	1	2	2	2				1				8
I	Doorn		1										1
I	Doulassame	1											1
I	Dublin	55	81	104	106	100	124	100	113	132	169	170	1254
I	Duisburg		1	2	5	3	3	4	1	7	2	5	33
I	Durban	6	11	12	7	17	6	5	9	12	13	32	130
I	Durham	8	4	1	3	4	4	3	5	1	2	3	38
I	Duval		1			1							2
I	Ealing	26	12	28	25	33	26	24	17	20	23	15	249
I	Eastbourne	29	16	16	27	15	13	19	25	15	12	24	211
I	Eberswalde											2	2

Subspecies	Serotype	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	Total
I	Eboko					1							1
I	Ebrie				1	1			2		1		5
I	Edinburg	20	17	6	7	10	3	1			1		65
I	Edmonton	1											1
I	Eko											1	1
I	Ekotedo								1				1
I	Ekpoui					1							1
I	Elisabethville			1				1			1	1	4
I	Elomrane			1									1
I	Emek	3	3	7		3					1	3	20
I	Emmastad					1							1
I	Entebbe		3	6									9
I	Enteritidis	6705	6701	6056	7197	7122	8896	7546	7095	6631	8895	9150	81994
I	Enugu				1	1							2
I	Eppendorf		2	1	5			1		1	2		12
I	Erfurt									1			1
I	Escanaba			1									1
I	Eschberg							1					1
I	Eschweiler	1											1
I	Essen	1	1	5	1		2		1		2	2	15
I	Falkensee	4		1		1	1						7
I	Fann	1								1			2
I	Farmsen	1								1	1	1	4
I	Farsta		1										1
I	Fayed	1	1										2
I	Fillmore				1								1
I	Fischerkietz		1										1
I	Fischerstrasse			3	1	3			1				8
I	Florida	6	3	6	1	7	5	3	3	3	7	3	47
I	Fluntern	3	3	5	6	7	8	8	4	8	11	7	70
I	Fomeco	1										2	3
I	Frankfurt					1		1					2
I	Freefalls					1							1
I	Freetown	11			1	2		1		1	1	1	18
I	Fresno			1	4	4		1	1	4	1	1	17
I	Friedenau		1						1			1	3
I	Friedrichsfelde		1	1	1		1		1				5
I	Frintrop		1					1					2
I	Fulica	1											1
I	Fyris	1	2										3
I	Galiema					1		1		2	1		5
I	Gambia	1							1				2
I	Gaminara	98	76	74	84	60	62	100	95	75	101	128	953
I	Garba							1	1				2

Subspecies	Serotype	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	Total
I	Garoli		1										1
I	Gatow	2		2		2	1						7
I	Gatuni	1	2	3	3	2	2	4		1	3	1	22
I	Georgia	1	6	5	2		1	1	1		2	1	20
I	Gera									2			2
I	Give	101	122	106	117	109	103	120	150	100	101	118	1247
I	Giza								1				1
I	Glasgow			2					1				3
I	Glidji									1			1
I	Glostrup	10	5	5	5	3	2	5	4		2	6	47
I	Gnesta			2	2								4
I	Godesberg									1			1
I	Goettingen			3	3	1	2	2	2	1	2		16
I	Goldcoast	2		1			4	1	1		2	2	13
I	Gombe				1								1
I	Good										1		1
I	Gouloumbo					1							1
I	Goverdhan			1					1				2
I	Grandhaven		1										1
I	Grumpensis	102	8	2	1	3	1	2			3	1	123
I	Guildford			1		2			1				4
I	Guinea	3	1	3	2	1		2	2	4	7	9	34
I	Gwale		1										1
I	Hadar	211	281	286	310	271	224	204	242	174	180	221	2604
I	Haduna						1		1				2
I	Haelsingborg										1	1	2
I	Haifa	5	5	5	5	6	4	7	6		3	5	51
I	Hannover								2			2	4
I	Harburg		1										1
I	Harcourt		1										1
I	Hartford	235	195	192	209	184	250	241	252	153	151	207	2269
I	Hatfield						1						1
I	Hato		4	2	4	1	1	1		1	2	3	19
I	Havana	26	36	33	54	58	41	29	28	26	45	36	412
I	Heidelberg	1887	1483	1576	1278	1409	1092	1102	976	1356	1430	1130	14719
I	Herston	2	2	1	2	3	3	2	4	4	2	1	26
I	Herzliya								1				1
I	Hidalgo					1	1						2
I	Hiduddify		1					1					2
I	Hillegersberg		1		1								2
I	Hillingdon	1					2				1		4
I	Hindmarsh	5	4		2	3					1	3	18
I	Hofit	1	2		1	1							5
I	Hoghton		1										1

Subspecies	Serotype	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	Total
I	Holcomb	2	2	4	5	3	3	3	3	8	19	10	62
I	Homosassa				1							1	2
I	Horsham		1						1	1	1	3	7
I	Huettwilten								1				1
I	Hull	3	3	5	8	1		1	2	1	2	1	27
I	Hvittingfoss	35	45	54	46	51	119	72	63	61	55	64	665
I	Ibadan	9	3	2	3		4		1			3	25
I	Idikan	1		2	3			3	2		5	8	24
I	Ikeja						1						1
I	Ilala				1	1							2
I	Indiana	17	27	10	15	3	6	8	3	5	23	84	201
I	Infantis	503	482	517	633	626	807	901	1106	1236	1357	1057	9225
I	Inganda		1	2		2	2			1			8
I	Inverness	43	48	56	47	55	50	63	88	54	41	38	583
I	IPensacola				1								1
I	Irumu	9	9	5	10	8	3	2	7	1	3	16	73
I	Isangi	4	1	4	5	1	1	1	3	5	9	41	75
I	Israel		1	4			1						6
I	Itami	10	1	1		1		1	1				15
I	Ituri	1	1	1	2	1	5			1	2		14
I	Jaffna			1									1
I	Jamaica								3				3
I	Jangwani	4		8	2	5		2		3	1	2	27
I	Javiana	1309	1414	1259	2131	1992	3007	2931	2855	2260	2704	2696	24558
I	Jedburgh	1											1
I	Jericho	1											1
I	Jerusalem		1										1
I	Joal			1									1
I	Jodhpur				1						1	1	3
I	Johannesburg	44	22	38	29	49	40	67	50	40	35	26	440
I	Jos	2											2
I	Jubilee		1										1
I	Jukestown		1						2	2			5
I	Kaapstad						1		1		2		4
I	Kaduna	1								3			4
I	Kalamu		1			2						1	4
I	Kalina	1											1
I	Kallo		1										1
I	Kalumburu											1	1
I	Kampala					1				1			2
I	Kanifing					1							1
I	Kapemba		1										1
I	Kedougou	4	4	1	2	2			2	9	1	4	29
I	Kentucky	81	122	95	93	73	94	101	113	87	93	87	1039

Subspecies	Serotype	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	Total
I	Kiambu	52	64	34	81	89	69	90	39	58	49	46	671
I	Kibi							2					2
I	Kimberley	1									1		2
I	Kimuenza			1									1
I	Kingabwa	11	4	7	6	6	4		6	5	1	5	55
I	Kingston	1		2	4	1	2	1		1	2	2	16
I	Kintambo	5	15	8	13	10	5	10	11	10	3	7	97
I	Kirkee		2										2
I	Kisangani	2	1		1	1	1	2	1		4	1	14
I	Kisarawe	1		3	1	2	2	3	2	1	3	6	24
I	Kisii			1							1		2
I	Kitenge										1		1
I	Kivu		1					2					3
I	Koketime				3					1	1		5
I	Kokomlele	1	2	3	2	2	4	6			3	4	27
I	Korlebu		1										1
I	Kortrijk		1										1
I	Kottbus	8	15	12	18	5	9	13	5	7	8	8	108
I	Kotu	4											4
I	Kouka											2	2
I	Krefeld				2	2			1		1	1	7
I	Kua			1	3	1	1	1	2	2	1		12
I	Kumasi				2		1						3
I	Kunduchi				1								1
I	Kuntair										1	1	2
I	Kuru						1						1
I	Labadi				1								1
I	Lagos		1	3	1	1	3	4	2		3	1	19
I	Landau											1	1
I	Landwasser				2						1		3
I	Lansing			1		3							4
I	Larochelle	2	2	3	4	2	2	1	2	5	3		26
I	Lattenkamp	1		1	3	3	1	3	1	2	1	1	17
I	Lawndale								1				1
I	Lawra						1			2			3
I	Leiden									1			1
I	Lerum								1				1
I	Lexington	1	2	4	1	2	6	3	1		1		21
I	Lille			1					3	2		3	9
I	Limete	1	1		3						2	2	9
I	Lindenburg	4	3	2	3	1	1	2	1				17
I	Lindern											1	1
I	Litchfield	140	205	237	341	263	199	230	212	204	175	232	2438
I	Liverpool	4	2	3	5	14	12	8	8	12	14	12	94

Subspecies	Serotype	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	Total
I	Livingstone	7	8	9	7	18	20	15	12	20	7	5	128
I	Loanda	2	2	3		1							8
I	Lockleaze	1	1	1			1					1	5
I	Lomalinda	18	20	11	15	17	31	21	30	39	40	38	280
I	Lome				1	1	1		3	3	2	1	12
I	Lomita			1	4	1	1	1			1		9
I	London	29	34	175	25	20	31	27	34	25	40	32	472
I	Loubomo							1					1
I	Louisiana									1			1
I	Luciana	4	3	8	5	5	3	4	7	4	2	5	50
I	Luke							1	1	1			3
I	Maastricht										2		2
I	Macallen			1									1
I	Macclesfield								1				1
I	Madelia	6	11	10	9	20				2	3	2	63
I	Madison				1								1
I	Madras	1								1			2
I	Magwa								1				1
I	Malika	1											1
I	Malstatt	2											2
I	Manchester				1								1
I	Mango								1				1
I	Manhattan	57	76	53	106	78	92	82	83	67	78	119	891
I	Mara	1											1
I	Maricopa				3		1				1		5
I	Maritzburg											1	1
I	Marshall										1		1
I	Matadi	2		2	2		2	1	1	1	2	1	14
I	Matopeni		3	1	1		1		3	1	3	1	14
I	Maumee			1		4					1		6
I	Mbandaka	187	238	228	225	214	249	187	176	214	202	155	2275
I	Meleagridis	12	20	27	9	16	13	16	20	13	10	5	161
I	Memphis		1						1	1			3
I	Menden		1				1						2
I	Mendoza	2										1	3
I	Menston		1	1	1			2	2		2		9
I	Mgulani		2	1		1		2	1			1	8
I	Miami	82	62	94	89	109	152	105	89	125	142	120	1169
I	Michigan	1	4	7	3	6	5	2	2	4	5	11	50
I	Mikawasima	1	6	2	1	1	1	1	4	1	1	2	21
I	Minnesota	55	57	31	21	26	18	22	25	18	28	28	329
I	Mississippi	563	604	449	432	443	471	546	648	509	532	571	5768
I	Mocamedes											1	1
I	Molade	2	3	2	2	2	2	1	1	1	1	1	18

Subspecies	Serotype	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	Total
I	Mons				1								1
I	Monschaui	14	10	11	13	21	23	15	15	44	31	42	239
I	Montaigu							1					1
I	Montevideo	805	1057	957	1087	1259	1062	1194	1200	853	841	931	11246
I	Montreal	1						1					2
I	Morehead				2								2
I	Mornington		1										1
I	Moscow		1										1
I	Mountpleasant	1		1	1					1	1		5
I	Mpouto					1							1
I	Muenchen	738	757	952	878	818	829	976	1036	911	873	1106	9874
I	Muenster	94	95	71	71	48	44	49	52	82	34	101	741
I	Mundonobo	1											1
I	Nagoya	2	2										4
I	Napoli	6	3	1	1	2	2	6	5	4	9	10	49
I	Narashino	1						1					2
I	Natal											1	1
I	Nchanga		1	1					23	1			26
I	Nessziona	1	3	1				1					6
I	Neudorf		1	1									2
I	Neukoelln								1		1		2
I	Newholland	2					1		1				4
I	Newmexico	3	2	1	8	5	4		3	3	4	5	38
I	Newport	3315	3374	3554	3828	3815	5046	5185	5077	3602	4437	4731	45964
I	Newrochelle								1				1
I	Newyork			1						2			3
I	Nigeria			1	1	3				1			6
I	Nima	8	15	8	10	5	4	7	9	12	5	9	92
I	Nitra			1		1		1					3
I	Norwich	91	117	113	135	119	154	195	183	130	158	394	1789
I	Nottingham	4	2	4	3	2	2	2	1	4	1	5	30
I	Nyanza			1		1	1				1	1	5
I	Oakland			1		1	2		1		2		7
I	Obogu						3	1					4
I	Offa	1	1	2	2	4	3			2		2	17
I	Ohio	88	68	49	38	56	61	64	45	59	57	43	628
I	Okatie		2						4	1	2	3	12
I	Oldenburg			1									1
I	Onderstepoort		1								1	3	5
I	Onireke					2	1	1					4
I	Ontario							1					1
I	Oranienburg	589	724	676	654	893	661	718	736	648	728	853	7880
I	Orientalis				3	1						2	6
I	Orion	2	5	7	3		2	4	7	2		3	35

Subspecies	Serotype	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	Total
I	Oritamerin	2	1					2					5
I	Os		1										1
I	Oskarshamn			1									1
I	Oslo	30	23	19	36	32	31	24	31	29	51	41	347
I	Othmarschen	20	9	16	15	12	3	8	3	4	8	6	104
I	Ouakam		4					3	2		1	1	11
I	Overschie	3	3	2	2	1		1		5	2		19
I	Oxford		1										1
I	Oyonnax	2											2
I	Panama	148	196	174	173	158	194	181	172	158	198	200	1952
I	Papuana				3			1	1				5
I	Paratyphi A	121	180	184	138	176	187	182	150	135	131	113	1697
I	Paratyphi B	104	135	146	83	46	91	82	54	36	61	73	911
I	Paratyphi B var. L(+) tartrate+	451	408	398	469	431	447	431	513	304	335	394	4581
I	Paratyphi C	1	1	1				2			1	4	10
I	Parkroyal											1	1
I	Penarth		1										1
I	Pensacola	14	12	11	12	9	15	25	23	12	23	14	170
I	Pharr					1			2				3
I	Ploufragan							1					1
I	Plymouth	4	2	1	1	1						2	11
I	Poano	6	5	2		3	4	6	1		1		28
I	Poitiers	1											1
I	Pomona	68	89	65	86	80	49	73	72	48	48	56	734
I	Poona	194	200	248	495	235	268	275	276	286	322	990	3789
I	Portland		2		1				1	2	2		8
I	Potengi				1								1
I	Potsdam	4	18	16	23	31	16	21	26	18	45	12	230
I	Praha	1	1	1	1	1	3		1	1	2		12
I	Pramiso									1			1
I	Preston				1		1						2
I	Putten	9	2	5	9	25	5	12	4	6	23	18	118
I	Quiniela						1				1	1	3
I	Reading	55	50	57	46	53	33	42	58	56	104	139	693
I	Redlands		1						1		1		3
I	Remo		2	1		1							4
I	Rhone			1									1
I	Richmond	8	9	11	2	8	14	5	11	9	6	4	87
I	Rideau									1			1
I	Ridge			1					2				3
I	Riggil									1			1
I	Rissen	6	17	11	29	127	16	24	30	33	39	24	356
I	Riverside	1			1					2	2	2	8

Subspecies	Serotype	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	Total
I	Romanby	3	1	1	1	2	1						9
I	Roodepoort	3	9	1		2	1	1	1	4	3	2	27
I	Rovaniemi		1										1
I	Rubislaw	100	94	119	120	88	144	179	140	183	225	240	1632
I	Ruiru	1										5	6
I	Saarbruecken		3		1		3		1		1	3	12
I	Saintemarie			1									1
I	Saintpaul	672	577	499	1814	850	881	703	764	977	980	947	9664
I	Salford		1		1								2
I	Sandiego	136	214	195	132	141	155	142	195	186	197	235	1928
I	Sangera					1		5					6
I	Sanjuan		1	1								1	3
I	Sanktgeorg		2										2
I	Sao									2			2
I	Sapele								1				1
I	Saphra	5	1	1	7	1	3	2	7	4		4	35
I	Saugus									3			3
I	Schwarzengrund	137	163	300	326	346	393	262	290	249	219	177	2862
I	Schwerin	1											1
I	Senegal							2		1			3
I	Senftenberg	111	112	167	202	152	127	132	144	212	162	145	1666
I	Seremban						1						1
I	Serrekunda									1			1
I	Shipley		1	1								1	3
I	Shubra	2	2	2	12	5	3		5	1	2	1	35
I	Simi		2	1									3
I	Singapore	5	7	8	13	9	7	9	10	6	11	8	93
I	Sinstorf		1		1			1		1			4
I	Skansen									1	1		2
I	Soahanina	1								1	1		3
I	Soerenga	1	3	7	5	5	4	4	5	3	9	9	55
I	Solt								1	1			2
I	Somone		1								1	1	3
I	Southbank				1								1
I	Splott	1					1					2	4
I	Stachus	1		1									2
I	Stanley	222	306	256	217	165	230	209	212	179	206	204	2406
I	Stanleyville	7	5	6	10	9	4	5	7	3	7	5	68
I	Stellingen								1				1
I	Sternschanze			1									1
I	Stockholm	1		1									2
I	Stoneferry					1							1
I	Stormont							1					1
I	Stourbridge	1											1

Subspecies	Serotype	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	Total
I	Strathcona										1	1	2
I	Stuttgart								1				1
I	Suberu		1										1
I	Suelldorf		1	2	1	3		1	2	5	3	1	19
I	Sundsvall	9	3	3	5	3	2	5	3	1	2	10	46
I	Szentes										1		1
I	Tabligbo	1		1									2
I	Takoradi		4	1	5	6	2	4	3	1	2	3	31
I	Taksony										4		4
I	Tallahassee	7	11	7	4	5	6	2	4	10	8	15	79
I	Tamberma		1					1			1	1	4
I	Tanzania		1										1
I	Tarshyne						1			2	1		4
I	Teddington							2				1	3
I	Tees						2						2
I	Teko									1		1	2
I	Teletkebir	45	52	68	28	26	28	16	23	22	19	15	342
I	Telhashomer											3	3
I	Teltow										1	2	3
I	Tennessee	131	310	602	124	63	32	29	30	34	19	32	1406
I	Tennyson							1					1
I	Texas	1					2	1					4
I	Thompson	425	442	406	411	473	480	534	818	620	626	723	5958
I	Tilene	1	1			1	1	1		3	1		9
I	Tokoin	1					2						3
I	Tornow						2				1		3
I	Toucra	2	1				1		1	1	1	3	10
I	Trachau											1	1
I	Travis					1					1		2
I	Treguier		1										1
I	Troy						1						1
I	Tschangu					1							1
I	Tsevie								3				3
I	Tshiongwe	4	3				2						9
I	Tucson	4		4	2	4	2	2	1	2		1	22
I	Tudu											1	1
I	Typhi	350	411	442	477	427	477	382	364	364	527	493	4714
I	Typhimurium	6950	6813	6152	6485	6087	6104	6120	5702	5563	5041	4943	65960
I	Tyresoe		1		1								2
I	Uccle					1		1	2				4
I	Uganda	47	59	73	67	51	73	84	102	149	147	87	939
I	Ughelli	1											1
I	Umbilo		1					1		3		1	6
I	Umhlatazana								1				1

Subspecies	Serotype	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	Total
I	Uppsala		1	4				4					9
I	Urbana	43	35	59	53	40	38	67	60	39	25	38	497
I	Utah				1		1		1				3
I	Uzaramo		2		4	3				1	2	2	14
I	Vancouver			2	1		1			1			5
I	Vanier								1				1
I	Vejle	1				1	1					1	4
I	Veneziana										1		1
I	Victoria				1		1		1				3
I	Vinohradý		1				1						2
I	Virchow	82	72	74	106	81	98	75	133	66	66	95	948
I	Vitkin			1						1			2
I	Vleuten				1								1
I	Vuadens				1								1
I	Wa			1									1
I	Wagenia					1				1	1	1	4
I	Wandsworth	3	7	68	6	4	6	5	3	6	5	2	115
I	Wangata	3		2	3			1		1	7	2	19
I	Waral						1						1
I	Warmesen			1									1
I	Waycross	5	2		3	6	1	3		4		5	29
I	Wedding							1					1
I	Welikade					1				2			3
I	Weltevreden	91	92	83	90	73	79	56	75	61	69	80	849
I	Wernigerode	1								1		1	3
I	Weslaco	2		1				3					6
I	Westeinde	1											1
I	Westhampton		3	7	1			1		4	9	2	27
I	Widemarsh		2	2	6	4	3	3	32	13	6	2	73
I	Wien		3	2		2		2		2	1	1	13
I	Wimborne								1				1
I	Windermere								1				1
I	Winston						2	1			1		4
I	Woodinville				1		1	1		1			4
I	Worthington	21	33	17	38	29	31	27	56	30	29	39	350
I	Wyldegreen								1		1		2
I	Yaba	1										1	2
I	Yoruba		1						3				4
I	Zaiman			1	1								2
I	Zanzibar	1			3								4
I	Zaria							1					1
I	Zega	2								1			3
I	Zwickau		1							2			3
II	1,9,12,46,27:l,z13,z28:z39								1				1

Subspecies	Serotype	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	Total
II	11:g,[m],s,t;z39	1											1
II	13,22:g,m,t:[1,5]								1				1
II	13,22:z:-									1			1
II	13,22:z29:1,5						1						1
II	13,23:a:z42								1				1
II	13,23:b:[1,5]:z42						15	21	14				50
II	13,23:d:e,n,x				1								1
II	13,23:g:t:e,n,x						1						1
II	13,23:z:1,5								1				1
II	16:g,[m],[s],t:[1,5]							1		1			2
II	16:m,t:-						2	2		1		1	6
II	16:z4,z23:-			1									1
II	17:b:-							1					1
II	17:g,t:[e,n,x,z15]				1					1			2
II	18:z4,z23:-											1	1
II	21:g,[m],[s],t:-			1	1			1			1	1	5
II	21:z10:[z6]		1	2	1	4	1		2	1	2	1	15
II	3,10:l,z28:1,5									1			1
II	30:b:z6						1						1
II	30:l,z28:z6	1	1		1	1			1	1	1		7
II	35:l,z28:-		1										1
II	4,[5],12:a:-							1					1
II	4,12,[27]:b:[e,n,x]											1	1
II	40:b:-									1			1
II	40:c:e,n,x,z15					1		1	1				3
II	40:z39:1,7		1										1
II	40:z4,z24:z39								1				1
II	41:z10:z6			1	1								2
II	42:b:e,n,x,z15	1											1
II	42:z:e,n,x,z15					1							1
II	43:z4,z23:-										1		1
II	44:z4,z23:-	1											1
II	47:a:1,5											1	1
II	47:b:-									1			1
II	47:b:1,5	8	2	4	4	1		1		3			23
II	47:b:e,n,x,z15		1	2		2	3	2	1	1		1	13
II	47:b:z6			1									1
II	47:d:1,5							1					1
II	48:a:z39					1		1	1				3
II	48:a:z6		1	1	1			1	2	1	1		8
II	48:d:z6	1	2			2	1	1	1		1	2	11
II	48:z10:-									1			1
II	48:z39:z81	1											1
II	50:b:z6	1	2	2	2	1	2	1		1	3		15

Subspecies	Serotype	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	Total
II	55:k:z39				1								1
II	58:c:z6		2	1					1	2	1	1	8
II	58:d:z6						1						1
II	58:l,z13,z28:1,5					1							1
II	58:l,z13,z28:z6	1	2	8	7	5	4		2	9	1	2	41
II	6,7:-:1,6							1			1	2	4
II	6,7:b:z42	1											1
II	6,7:z:1,5		1										1
II	6,7:z:e,n,x										1		1
II	60:g,m,t:z6				1			1					2
II	9,12:a:1,5								1			1	2
II	9,12:g,m,s,t:e,n,x	1							1				2
II	9,12:g,s,t:e,n,x	1						1					2
II	9,12:l,w:e,n,x						1	1	1	1			4
II	9,12:z29:1,5							1	2		1		4
II	9,12:z39:1,7			1					1		2	1	5
IIIa	13,22:z4,z23:-		1	1				1	2	1	2	2	10
IIIa	13,23:g,z51:-		1		1		2	2	3	1	3	1	14
IIIa	13,23:z4,z23,[z32]:-				2		1						3
IIIa	13,23:z4,z24:-				1	6	1						8
IIIa	17:z29:-				1		1						2
IIIa	17:z36:-										1		1
IIIa	18:g,z51:-							1				1	2
IIIa	18:z36:-		1										1
IIIa	18:z4,z23:-	13	19	7	29	33	39	35	27	4	4	6	216
IIIa	18:z4,z32:-		1		2								3
IIIa	21:g,z51:-	2	2		2		2	1	1	1	2	6	19
IIIa	21:z29:-				2				1				3
IIIa	21:z36:-		1										1
IIIa	21:z4,z23:-					1			1			1	3
IIIa	21:z4,z32:-						1						1
IIIa	35:g,z51:-	1								1			2
IIIa	35:z29:-				1				1	1	1	1	5
IIIa	35:z4,z23:-	1	1	1	2	1	1		2				9
IIIa	35:z4,z32:-			2									2
IIIa	40:g,z51:-				2	1	2	3		1		4	13
IIIa	40:z36:-				1	1		1	1	1			5
IIIa	40:z4,z23:-		2		1	2	2			2	2		11
IIIa	40:z4,z24:-		1			1	1						3
IIIa	41:g,z51:-											2	2
IIIa	41:z4,z23,z32:-				1	1	1	1					4
IIIa	41:z4,z23:-	5	11	13	17	9	13	19	14	9	17	15	142
IIIa	41:z4,z24:-					2	1						3
IIIa	41:z4,z32:-					2	1	1	1				5

Subspecies	Serotype	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	Total
IIIa	42:g,z51:-			1						1	1		3
IIIa	42:z4,z23:-		1	1			2			1			5
IIIa	42:z4,z24:-	1			1		1		2				5
IIIa	43:g,z51:-						1						1
IIIa	43:z29:-	1			1		2						4
IIIa	43:z4,z23:-					2		3	3				8
IIIa	43:z4,z24:-	1											1
IIIa	44:z4,z23,z32:-			1				1	1		1		4
IIIa	44:z4,z23:-				1			1			1	1	4
IIIa	44:z4,z24:-		2		2	1	1			1		1	8
IIIa	44:z4,z32:-				1	1	1	1					4
IIIa	45:z4,z23:-						1						1
IIIa	47:g,z51:-								2		1		3
IIIa	47:z4,z23:-		3		1		4	1	2				11
IIIa	48:g,z51:-	3	6	8	16	15	6	18	16	14	21	17	140
IIIa	48:z29:-		1	1								1	3
IIIa	48:z36:-		1			1		1					3
IIIa	48:z4,z23,z32:-					1							1
IIIa	48:z4,z23:-									1	1	1	3
IIIa	48:z4,z24:-	3	4	3	6	4	3	14	13	2	5	14	71
IIIa	48:z4,z32:-											1	1
IIIa	50:g,z51:-							2		1		2	5
IIIa	50:z29:-					1							1
IIIa	50:z36:-				1					1		1	3
IIIa	50:z4,z23,z32:-									1			1
IIIa	50:z4,z23:-			3	1	2		1	1	1	1	1	11
IIIa	50:z4,z32:-		1										1
IIIa	51:g,z51:-			1	1				1	2			5
IIIa	51:z4,z23:-		1		1	1		1	2	3	6		15
IIIa	51:z4,z24:-				1								1
IIIa	51:z4,z32:-									1			1
IIIa	53:g,z51:-	1											1
IIIa	53:z4,z23,z32:-					1	1	1				1	4
IIIa	53:z4,z23:-	3	5		4	3	1	4	9	4	1	1	35
IIIa	53:z4,z24:-	1							1	1		1	4
IIIa	56:z4,z23:-	3	1	5	3	2	2	5	3	4	4	12	44
IIIa	59:z4,z23:-										2		2
IIIa	63:z4,z23:-		2				1						3
IIIb	(6),14:l,v:z							1					1
IIIb	(6),14:z10:z					1							1
IIIb	11:k:z53	1											1
IIIb	11:l,v:z53		1									1	2
IIIb	13,23:z:1,5				2								2
IIIb	16:z10:e,n,x,z15			4	1	1		1	4	1	1	3	16

Subspecies	Serotype	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	Total
IIIb	17:i:z35								1				1
IIIb	17:z10:e,n,x,z15				1				1				2
IIIb	18:l,v:z					1							1
IIIb	21:k:z									1		1	2
IIIb	21:l,v:z								1				1
IIIb	35:i:e,n,x,z15							1					1
IIIb	35:i:z		1										1
IIIb	35:k:e,n,x,z15		1			2				1	1	1	6
IIIb	35:k:z53				1								1
IIIb	35:l,v:z35				1	4		3	1		2		11
IIIb	35:r:e,n,x,z15		1		1	1					1		4
IIIb	38:(k):-		1							1			2
IIIb	38:(k):1,5,7								2	2			4
IIIb	38:(k):z35		1	1	1		1		1	3			8
IIIb	38:i:z								1				1
IIIb	38:l,v:z53				2	1			1	2			6
IIIb	38:r:z	1											1
IIIb	42:(k):z35		1					2	1	1	3		8
IIIb	47:k:-					1	1		1		3		6
IIIb	47:k:z35		1	3	3		7	4	4	3	2	1	28
IIIb	47:k:z53				1		1				1		3
IIIb	47:r:z					1						1	2
IIIb	47:r:z53					1	1	1	3	1	1	2	10
IIIb	47:z10:z35			1			1						2
IIIb	48:-:z								1				1
IIIb	48:c:z				1				2		2		5
IIIb	48:i:z	4	9	7	5	3	1	7	7	8	8	7	66
IIIb	48:i:z35		1									1	2
IIIb	48:k:z53						1		1	1			3
IIIb	48:l,v:z							1					1
IIIb	48:r:e,n,x,z15			1									1
IIIb	48:r:z				1				2	3			6
IIIb	48:z4,z24:-								1		1	2	4
IIIb	48:z52:z	1		1	1				1			2	6
IIIb	50:k:-								1		2		3
IIIb	50:k:z		1	1	3	8	7	15	9	9	8	7	68
IIIb	50:k:z35					1				1			2
IIIb	50:k:z53		2	1			1	1	1				6
IIIb	50:l,v:z				1	1		1					3
IIIb	50:l,v:z35				1		1	2				1	5
IIIb	50:r:-							1	1				2
IIIb	50:r:1,5,(7)				2								2
IIIb	50:r:z	1	10	3	7	3	7	4	7	7	10	7	66
IIIb	50:r:z35			1									1

Subspecies	Serotype	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	Total
IIIb	50:z:z52					2		1	1	3		1	8
IIIb	50:z52:z35		1	1	1		5	1	2			2	13
IIIb	53:-:z53								1				1
IIIb	53:k:e,n,x,z15		1										1
IIIb	53:k:z								1				1
IIIb	53:z10:z			1	2							1	4
IIIb	53:z10:z35	1	1	1	2	4	2	3	1	1	5	1	22
IIIb	53:z52:z53			1	1			3					5
IIIb	58:l,v:z35									1			1
IIIb	59:l,v:z53											1	1
IIIb	60:i:e,n,x,z15										1		1
IIIb	60:k:z35										2		2
IIIb	60:r:-						1						1
IIIb	60:r:e,n,x,z15	1	4	2	3	10	5	5	1	4	3	4	42
IIIb	60:r:z				1		3	1	3		6		14
IIIb	60:z52:z					1						2	3
IIIb	60:z52:z35				1								1
IIIb	60:z52:z53		2	1		1	1	2	1	1		1	10
IIIb	61:-:1,5,[7]	2		6	1	3	21	11	1		1	2	48
IIIb	61:(k):z53						1						1
IIIb	61:c:1,5,[7]				1	1							2
IIIb	61:c:z35	2	1	2	2	4	2	7	2	5	5		32
IIIb	61:i:z			2	1	1			2		1	1	8
IIIb	61:i:z35				1								1
IIIb	61:i:z53		1			1	1		1	3			7
IIIb	61:k:1,5,[7]	2	2	1		1	13	7			1	1	28
IIIb	61:l,v:-										1	1	2
IIIb	61:l,v:1,5,7	1	11	13	8	23	16	17	17	17	14	10	147
IIIb	61:l,v:z	3											3
IIIb	61:l,v:z35					1	1	2	1	2	4	2	13
IIIb	61:r:z						1			3			4
IIIb	61:r:z53			1									1
IIIb	61:z52:z53	1	4	2	5		4	5	4		1		26
IIIb	65:(k):z				2	1	2		1	1	1	2	10
IIIb	65:(k):z35			1	1	1		1					4
IIIb	65:(k):z53			1		1	1	1	1				5
IIIb	65:c:z53									1			1
IIIb	65:l,v:z							1					1
IIIb	65:z10:e,n,x,z15		2		1				1		2		6
IV	11:g,z51:-				1			1					2
IV	11:z4,z23:-	1	3	1	1	1				4	1		12
IV	16:z4,z23:-	1											1
IV	16:z4,z24:-								1				1
IV	16:z4,z32:-	5	7	5	4	9	3	2		2	4	2	43

Subspecies	Serotype	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	Total
IV	17:z29:-										1		1
IV	18:z36,z38:-								1	1			2
IV	21:z4,z23:-	2							1				3
IV	21:z4,z32:-						1						1
IV	40:z4,z23:-				1					1	3		5
IV	40:z4,z24:-		1	2	1	1	2	2	1	3	2	1	16
IV	40:z4,z32:-	1	1	1		1				4	2	1	11
IV	41:z4,z23:-								1				1
IV	43:z4,z23:-	1	4	1	2	3	5	2	5	3	1	3	30
IV	43:z4,z32:-	1				1			1				3
IV	44:z36,[z38]:-			1	1	1	6	6		3	6	4	28
IV	44:z4,z23:-	15	10	8	11	7	13	10	4	12	18	16	124
IV	44:z4,z24:-	1				4	2	3	1	4	5	6	26
IV	44:z4,z32:-	5	7		4	5		4	4	5	3	1	38
IV	45:g,z51:-	8	7	13	10	10	2	1	5	6	2	5	69
IV	48:g,z51:-	5	11	30	11	20	16	11	14	10	13	12	153
IV	48:z4,z24:-			1									1
IV	48:z4,z32:-		3	12	2	1	2		2	3		1	26
IV	50:g,z51:-	7	16	8	9	11	13	12	14	29	32	24	175
IV	50:z4,z23:-	5	56	83	42	22	9	9	15	9	10	12	272
IV	50:z4,z24:-									2			2
IV	50:z4,z32:-		2	1		3							6
IV	51:z4,z23:-						1						1
IV	53:z4,z23:-							1					1
IV	6,7:z4,z23:-										1		1
IV	6,7:z4,z24:-		1			5	1	5		1	4		17
V	bongori ser. 48:a:-						1						1
V	bongori ser. 48:z35:-	2			3						1		6
V	bongori ser. 48:z81:-				3		1		1		2		7
	Partially serotyped	1591	1322	1130	1520	1021	942	1039	1006	849	771	993	12184
	Rough, mucoid, and/or nonmotile isolates	40	109	97	126	129	228	219	319	233	187	237	1924
	Unknown	1093	3543	3577	5136	2699	2910	3117	3600	2999	2954	3743	35371
	Total	35878	39643	38667	44408	39711	44570	44065	45783	40452	44444	47735	465356

Appendix 3b. Partially serotyped culture-confirmed *Salmonella* infections reported to LEDS by serogroup and year, 2004–2015¹

Subspecies	Serogroup	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	Total
I	Group O:1,3,19	7	7	2	2	1	2	1			1		23
I	Group O:11		1									4	5
I	Group O:13				1				1				2
I	Group O:2	2	5	7	4	7	9	2	2	1			39
I	Group O:3,10	33	14	14	16	10	7	18	4	5	14	9	144
I	Group O:30										1		1
I	Group O:38	1	1										2
I	Group O:4	446	498	350	525	356	237	290	223	253	317	249	3744
I	Group O:40		1								1		2
I	Group O:47		1										1
I	Group O:50									2			2
I	Group O:51		1										1
I	Group O:7	129	192	184	293	135	126	125	184	134	112	145	1759
I	Group O:8	184	95	81	110	73	93	106	117	53	52	42	1006
I	Group O:9	263	168	101	93	68	118	97	145	109	101	107	1370
I	Group O:9,46	4										1	5
I	Group O7								1				1
I	Unspecified	149	96	229	337	270	266	303	250	209	92	114	2315
II	Group O:48										1		1
II	Group O:50											1	1
II	Unspecified	8	2	18	18	12	9	18	12	5	4	2	108
III	Unspecified	71	50	53	46	34	41	35	26	27	21	20	424
IIIa	Group O:13		1										1
IIIa	Group O:40		1				1						2
IIIa	Group O:41					1					1		2
IIIa	Group O:48		1								1	2	4
IIIa	Group O:50						1				1		2
IIIa	Group O:51				2								2
IIIa	Group O:53								1				1
IIIa	Unspecified	26	20	8	15	15	8	10	13	14	11	9	149
IIIb	Group O:35	1	1	1				4		1	6	12	26
IIIb	Group O:38	4										1	5
IIIb	Group O:42	1											1
IIIb	Group O:47	3	16				1		1			5	26
IIIb	Group O:48								1				1
IIIb	Group O:50		1						1		2	1	5
IIIb	Group O:53				1						1		2
IIIb	Group O:60		1			1			1				3
IIIb	Group O:61		1	2	1		1		1			1	7
IIIb	Group O:65	1		1	1								3

¹ The Pasteur Institute publishes the official list of known *Salmonella* serotypes and their respective serogroups. The document can be found at <http://www.pasteur.fr/ip/portal/action/WebdriveActionEvent/oid/01S-000036-089>

Subspecies	Serogroup	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	Total
IIIb	Unspecified										1		1
IV	Group O:11											1	1
IV	Group O:40						1						1
IV	Group O:43		1									1	2
IV	Group O:50		2									1	3
IV	Unspecified	42	33	57	35	22	8	14	5	8	10	13	247
V	bongori (Formerly Subspecies V)									1		1	2
VI	Unspecified		2	4			1						7
Unspecified	Group O:7									2			2
Unspecified	Group O:11	33	18	3					1	3			58
Unspecified	Group O:13	22	19	10	12	10	6	8	11	12	12	232	354
Unspecified	Group O:16	7	9		1	1		2		1		3	24
Unspecified	Group O:17	1	3			2					2	4	12
Unspecified	Group O:18	2	1						2		1		6
Unspecified	Group O:21	5	2									1	8
Unspecified	Group O:28	8	2				1			3			14
Unspecified	Group O:30	5	2	1	1					1		1	11
Unspecified	Group O:38		4		1	1							6
Unspecified	Group O:39		2				1	3	2				8
Unspecified	Group O:40	4	4					1					9
Unspecified	Group O:42				1							1	2
Unspecified	Group O:43	1								2			3
Unspecified	Group O:44	1					1			1	1		4
Unspecified	Group O:45		1	1							1	2	5
Unspecified	Group O:47	1	2	1					1				5
Unspecified	Group O:48	18	2	1	2	1		1				1	26
Unspecified	Group O:50	106	38	1		1	1	1		1	2	4	155
Unspecified	Group O:51										1		1
Unspecified	Group O:58						1						1
Unspecified	Group O:6,14	2			1		1			1		2	7
Unspecified	Group O:65				1								1
	Total	1591	1322	1130	1520	1021	942	1039	1006	849	771	993	12184

NCEZID Atlanta:

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