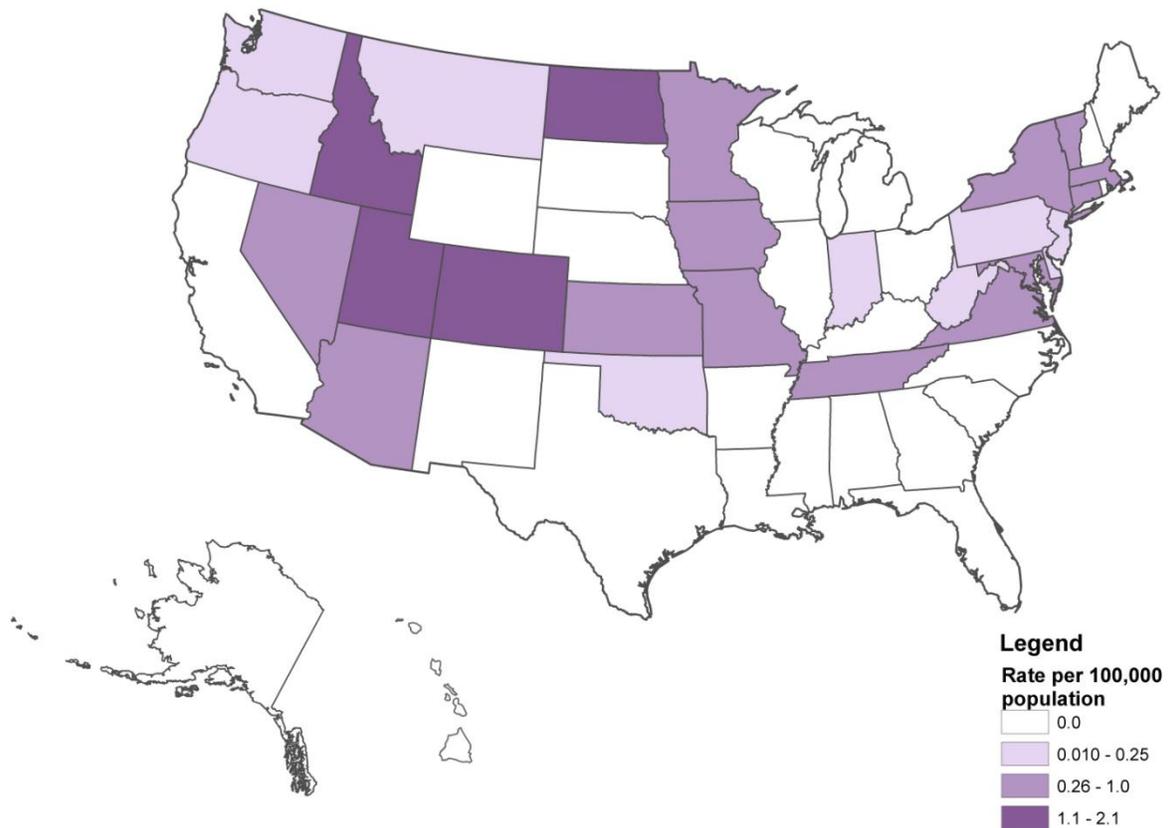


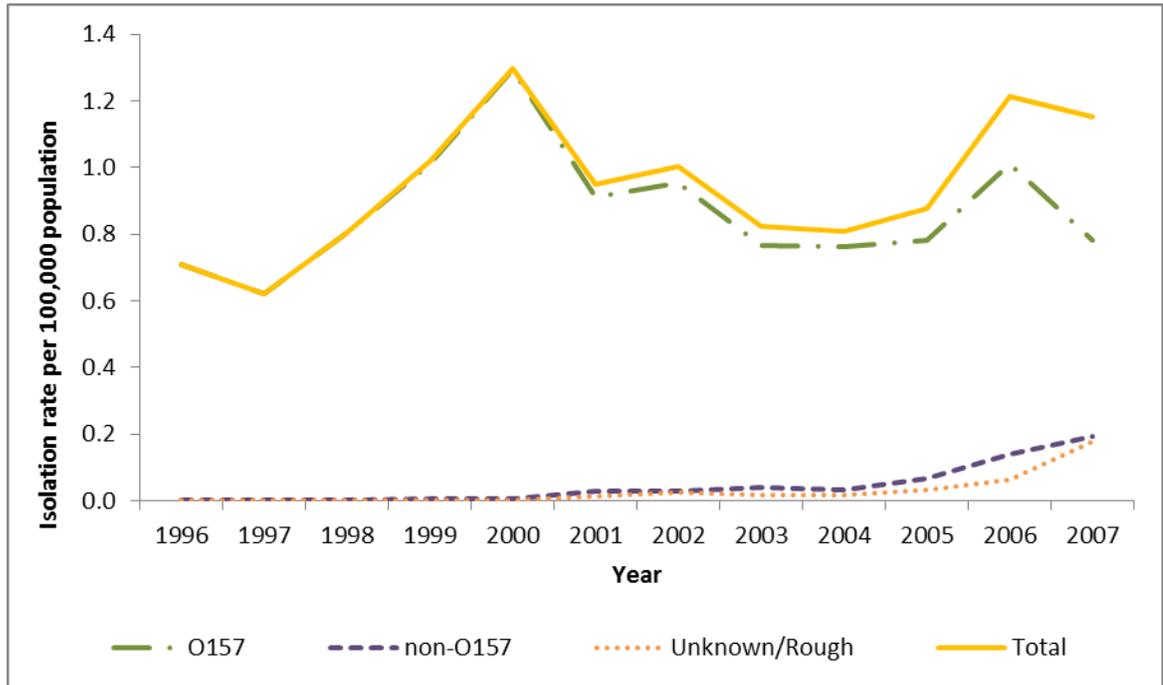
- During 2007, 45 states reported a total of 2,360 STEC O157 isolates, corresponding to an overall isolation rate of 0.78 per 100,000 population.
- States in the upper Midwest generally had the highest STEC O157 isolation rates, whereas states in the south generally had the lowest isolation rates.

Figure 2. Isolation rate of non-O157 STEC, by state, United States, LEDS, 2007 (n=584).



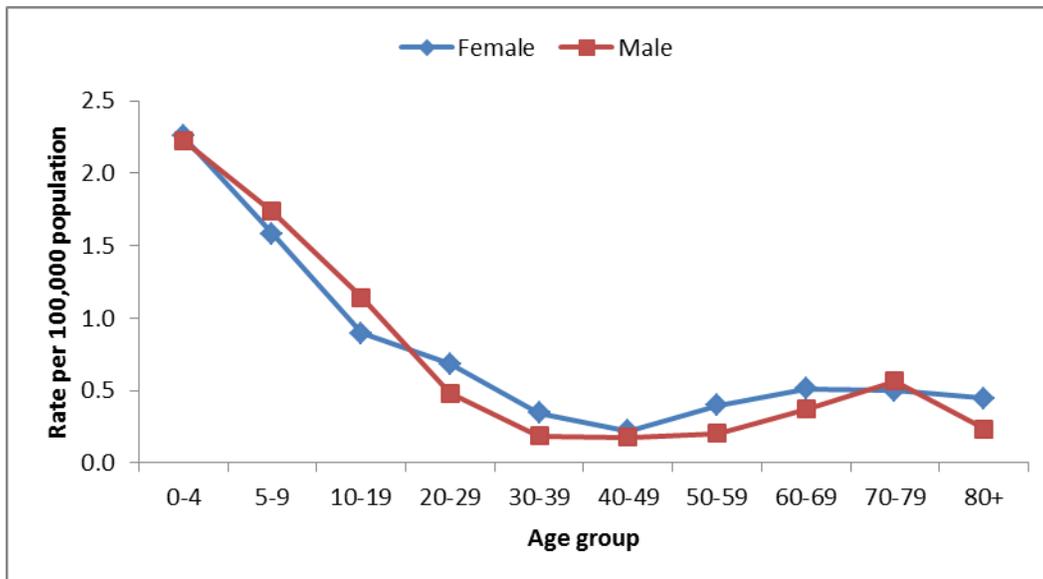
- During 2007, 26 states reported a total of 584 non-O157 STEC isolates, corresponding to an overall isolation rate of 0.19 per 100,000 population.
- Fewer states reported non-O157 STEC isolates to LEDS than reported STEC O157 isolates. This finding reflects, at least in part, substantial state-to-state variation in clinical testing practices and public health reporting practices, as well as possible true variation in infection rates. See Surveillance Overview ([link](#)) for further information.

Figure 3. Isolation rates of STEC by serogroup and year, United States, LEDS, 1996-2007



- While the overall STEC isolation rate (including both O157 and non-O157) was lower in 2007 than in 2006, it was higher than in 2001 through 2005. Increased testing for and reporting of non-O157 STEC in recent years may have contributed to this overall upward pattern.
- The STEC O157 isolation rate was lower in 2007 than 2006 but was similar to 2003–2005.
- Isolation rates of non-O157 STEC and STEC reported as “unknown serogroup” or “rough” have steadily increased since 2000, likely due to increased testing for non-O157 STEC in clinical laboratories.

Figure 4. Isolation rate of STEC O157 by age group and sex, United States, LEDS, 2007 (n=2,028).



- The isolation rate of STEC O157 was slightly higher in males aged 5 to 19 years than females in the same age group. However, isolation rates of STEC O157 were higher in females aged 20 to 69 years than in males of the same age group.
- The highest isolation rates for both O157 and non-O157 STEC were in children aged <4 years.

Figure 5. Isolation rates of non-O157 STEC by age group and sex, United States, LEDS, 2007 (n=565).

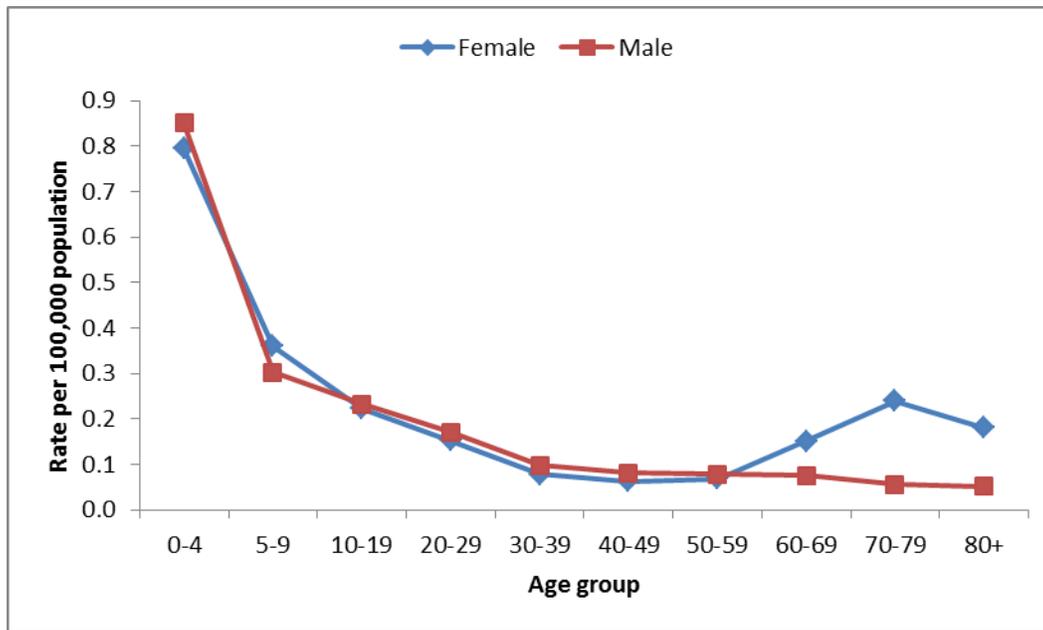
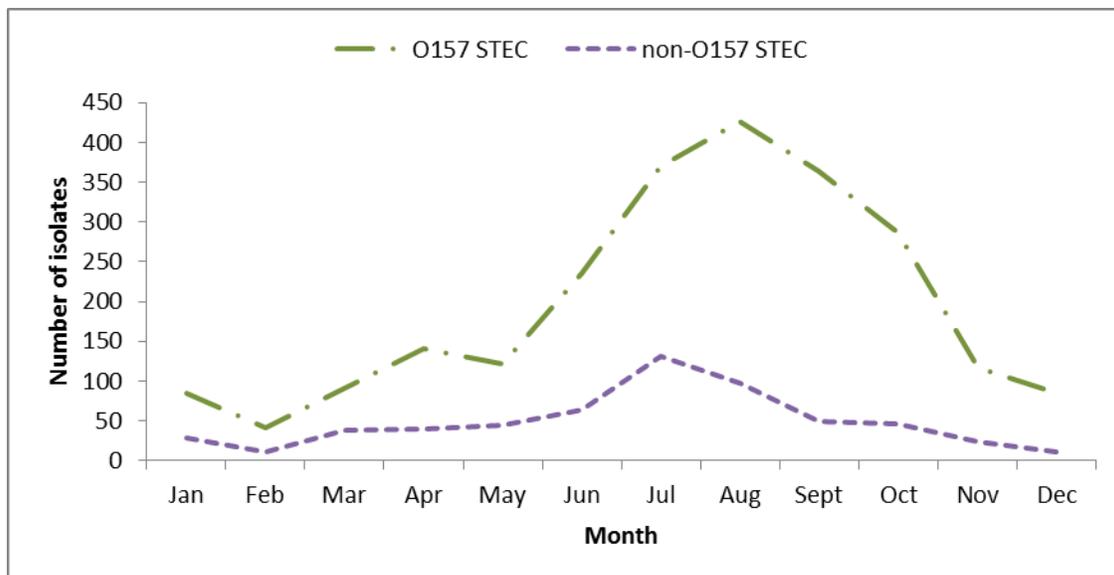


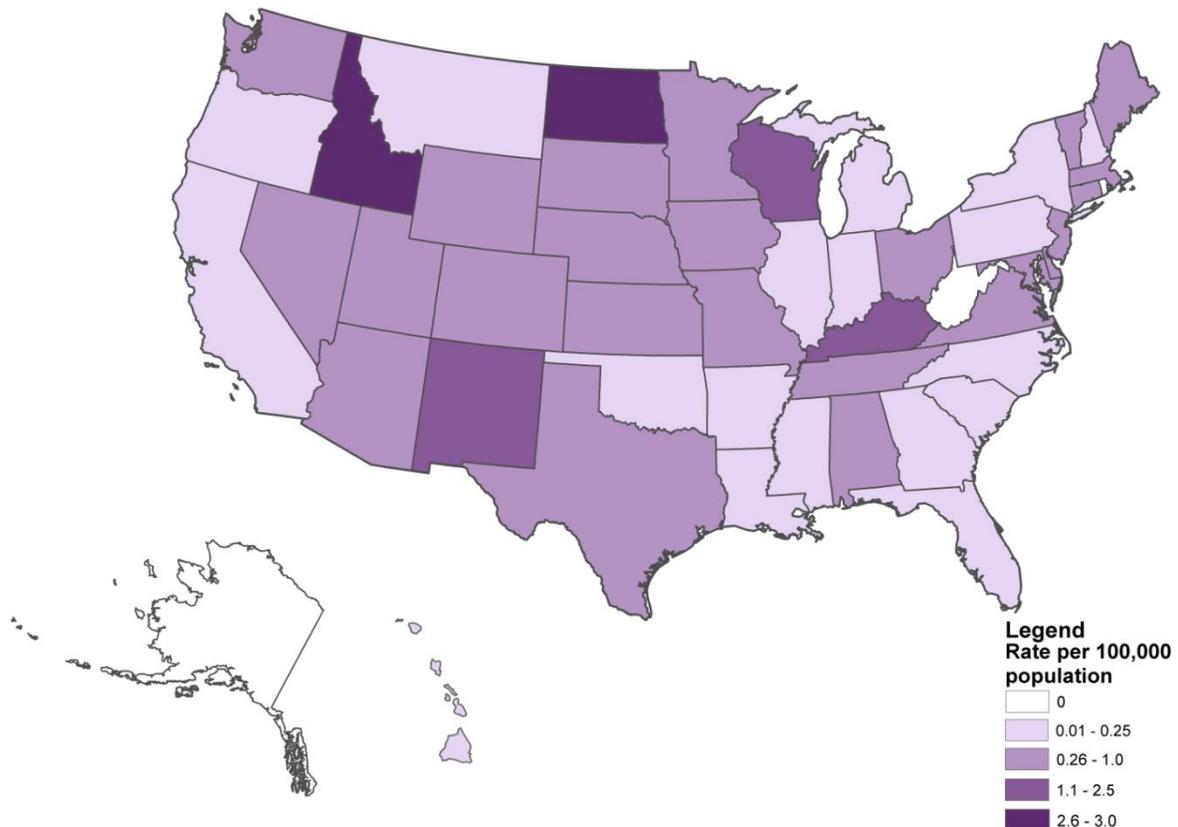
Figure 6. Number of STEC isolates by month of specimen collection, United States, LEDS, 2007 (n=2,944).



- As in previous years, both O157 and non-O157 STEC isolations showed a summer and fall peak, with the largest number of isolations in July and August

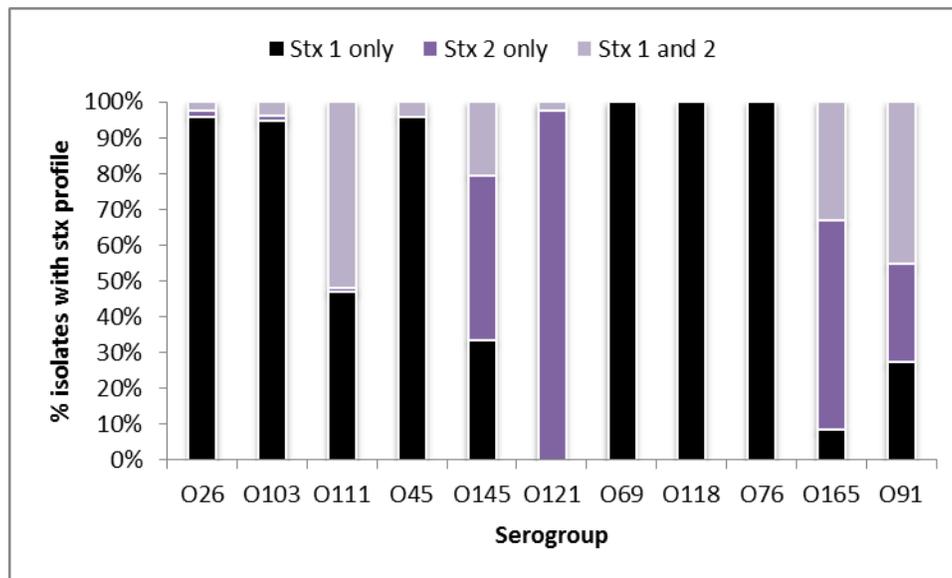
National *Escherichia coli* Reference Laboratory data

Figure 7. Rate of submission of specimens for further characterization by state, United States, National *Escherichia coli* Reference Laboratory, 2007 (n=1,044).



- 48 states submitted a total of 1,044 specimens for further characterization, which includes serogrouping and identification of genes encoding Shiga toxin types.
- The submission rate reflects the frequency of specimen submission. It is important to note that the National *Escherichia coli* Reference Laboratory is not intended to function as a nationwide surveillance system; many states have the capacity to determine the serogroups of STEC isolates in their state public health laboratories and so do not use the National *Escherichia coli* Reference Laboratory for serogrouping.
- Because many states can identify the most common STEC serogroups, the distribution of serogroups among STEC isolates that are sent to the National *Escherichia coli* Reference Laboratory for characterization is likely not representative of all STEC isolated from ill persons

Figure 8. Percentage of non-O157 STEC isolates by serogroup and Shiga toxin (stx) profile, National *Escherichia coli* Reference Laboratory, 2007.



Note: STEC O111 and O111ac were combined.

- Shiga toxin profiles (presence of genes encoding Shiga toxin 1 (*stx1*), Shiga toxin 2 (*stx2*), or both) varied by serogroup.
- Non-O157 serogroups for which greater than 90% of isolates were *stx1*-positive were O26, O103, O45, O69, O118 and O76.
- The only non-O157 serogroup for which greater than 90% of isolates were *stx2*-positive was O121.

Table 1. Non-O157 STEC isolates characterized at the National *Escherichia coli* Reference Laboratory, by serogroup, 2007 (n=964).

Serogroup	Number of isolates	Percent of total
O26	189	20
O111*	157	16
O103	150	16
O45	47	4.9
O145	40	4.1
O121	39	4.0
O69	20	2.1
O118	18	1.9
O76	18	1.9
O165	12	1.2
O91	11	1.1
O123	7	0.7
O8	6	0.6
O9	6	0.6

O113	6	0.6
O119	6	0.6
O146	6	0.6
O174	6	0.6
O177	6	0.6
O28ac	5	0.5
O1	4	0.4
O2	4	0.4
O88	4	0.4
O128*	4	0.4
O153	4	0.4
O6	3	0.3
O55	3	0.3
O80	3	0.3
O130	3	0.3
O178	3	0.3
O84	2	0.2
O109	2	0.2
O117	2	0.2
O156	2	0.2
O175	2	0.2
O179	2	0.2
Rough†	36	3.7
Undetermined§	82	8.5
All other serogroups¶	40	4.1
Unknown	4	0.4
Total	964	100

* Note: STEC O111 and O111ac were combined; STEC O128 and O128ab were combined.

† Rough means that part of the O antigen was missing and therefore the isolate could not be assigned to a serogroup.

§ Undetermined means that the O antigen has not been assigned a number.

¶ Serogroups with only 1 reported isolate were: O105, O110, O112, O12, O126, O134, O135, O137, O143, O151, O152, O162, O163, O168, O175, O18, O181, O20, O21, O22, O28ab, O50, O61, O73, O77, O82, O86, O96, O98.

- During 2007, 964 (92%) of the 1,044 presumptive non-O157 STEC isolates received were determined to be non-O157 STEC.

NNDSS Data

The National Notifiable Disease Surveillance System (NNDSS) collects and compiles reports of nationally notifiable infectious diseases, including STEC infection. The 2007 NNDSS report is available at <http://www.cdc.gov/mmwr/PDF/wk/mm5653.pdf>.

- A total of 4,847 cases of STEC infection were reported to NNDSS during 2007, which includes laboratory-confirmed, probable, and suspect cases (2).

Outbreak Data

The Foodborne Disease Outbreak Surveillance System (FDOSS) collects reports of foodborne disease outbreaks from local, state, tribal, and territorial public health agencies. The 2007 annual summary of foodborne disease outbreaks is available at

<http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5931a1.htm> (3).

- In 2007, 497 foodborne outbreaks with an identified etiologic agent were reported; 40 were caused by STEC, with 593 illnesses
 - The most common serogroup causing confirmed, single-etiology STEC outbreaks, was O157 (39 outbreaks).
 - One outbreak was caused by STEC serogroup O111.

The Waterborne Disease and Outbreak Surveillance System (WBD OSS) collects reports of disease outbreaks associated with drinking water and recreational water from local, state, tribal, and territorial public health agencies. The 2007 annual summary is available at

<http://www.cdc.gov/mmwr/pdf/ss/ss6012.pdf> (4,5).

- In 2007, 36 waterborne disease outbreaks associated with drinking water were reported; 1 was caused by STEC O157, which was associated with ground water from an individual water system resulted in 6 cases (4)
- In 2007, 134 waterborne disease outbreaks associated with recreational water were reported; 3 were caused by STEC (5)
 - 2 outbreaks of STEC O157 infection associated with treated water resulted in 42 cases
 - 1 outbreaks of STEC O157 infection associated with untreated water resulted in 3 cases

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