

## MEMORANDUM

**From:** Gary Jay Kushner  
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**Date:** May 1, 2019

**Re:** **CDC Publishes Updated Report on Preliminary Foodborne Illness Trends**

Last week, the Centers for Disease Control and Prevention (CDC) released a report entitled, “Preliminary Incidence and Trends of Infections with Pathogens Transmitted Commonly Through Food – Foodborne Diseases Active Surveillance Network, 10 U.S. Sites, 2015-2018” (the Report).<sup>1</sup> The Report summarizes data collected by the Foodborne Diseases Active Surveillance Network (FoodNet)<sup>2</sup>, which tracks infections caused by eight pathogens<sup>3</sup> in ten sites covering approximately 15% of the U.S. population<sup>4</sup>. The Report summarizes preliminary 2018 data and changes since 2015. The Report reflects an overall upward trend in foodborne illness incidence rates, although CDC notes that trend may at least partly reflect increased testing. The Report is part of an ongoing effort by CDC to review and update its foodborne illness findings periodically.

The Report is focused on illness trends by pathogen rather than product commodity. However, CDC identifies produce, raw chicken, raw meat, and eggs, as potentially significant drivers of foodborne illness, and the Report calls for greater control measures for these products.

In total, FoodNet identified 25,606 infections, 5,893 hospitalizations, and 120 deaths in 2018. The attached Table 1 and Figure 1 reflect key data from the Report.

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<sup>1</sup> Preliminary Incidence and Trends of Infections with Pathogens Transmitted Commonly Through Food – Foodborne Diseases Active Surveillance Network, 10 U.S. Sites, 2015-2018 (Apr. 25, 2019), available at <https://www.cdc.gov/mmwr/volumes/68/wr/pdfs/mm6816a2-H.pdf>

<sup>2</sup> FoodNet is a collaboration among CDC, 10 state health departments, the U.S. Department of Agriculture’s Food Safety and Inspection Service (USDA-FSIS), and the Food and Drug Administration (FDA).

<sup>3</sup> *Campylobacter*, *Cyclospora*, *Listeria monocytogenes*, *Salmonella*, Shiga toxin-producing *Escherichia coli* (STEC), *Shingella*, *Vibrio*, and *Yersinia*.

<sup>4</sup> Connecticut, Georgia, Maryland, Minnesota, New Mexico, Oregon, Tennessee, and selected counties in California, Colorado, and New York.

## Summary of Key Data

### Campylobacter

*Campylobacter* remains the most commonly reported infection since 2013. In 2018, the pathogen had an incidence rate of 19.5 (meaning 19.5 cases per 100,000 individuals), 9,723 reported cases, an 18% hospitalization rate, and a 0.3% fatality rate. CDC identifies poultry as a major source of *Campylobacter*.

### Salmonella

The *Salmonella* incidence rate is the second highest among pathogens, at 18.3 per 100,000 individuals. Overall, 9,084 cases were recorded, with a 27% hospitalization rate, and a 0.4% fatality rate. The three most common serotypes were Enteritidis, Newport, and Typhimurium. CDC reports *Salmonella* Enteritidis as the most common *Salmonella* serotype reported during this period, noting that rates have not declined in over 10 years. CDC identifies eggs and chicken meat as sources of this serotype. CDC notes that December 2018 FSIS data show that 22% of chicken parts producing establishments failed to meet *Salmonella* performance standards, though the incidence rate did not differ much from prior years. *Salmonella* Typhimurium incident rates declined in 2018, which CDC believes may coincide with poultry industry efforts to increase vaccinations.

### Shiga toxin-producing Escherichia coli (STEC)

STEC isolates were predominantly O157 (28%), followed by O103, O26, and O111. 2018 marked the first year that STEC O103 was the most common non-O157 STEC isolate.

### Listeria monocytogenes

The incidence rate for *Listeria monocytogenes* cases remained relatively low (0.3 per 100,000 individuals) and relatively flat compared to earlier years. However, *Listeria monocytogenes* remains an especially deadly pathogen, with a 21% fatality rate reflected in the FoodNet data.

### Cyclospora

The *Cyclospora* incidence rate increased nearly 400%, most likely due to produce outbreaks and new testing methods. The Report emphasizes the need for increased produce safety measures. The Report identifies a total of 332 cases, with a 5% hospitalization rate, and a 0.3% fatality rate.

## Practical Effects for the Food Industry

The Report identifies several measures that CDC believes may decrease foodborne illness, including:

- Targeting *Campylobacter* on raw chicken; vaccinating chickens against *Salmonella* Enteritidis;
- Strengthening *Salmonella* prevention efforts during egg production;
- Decreasing *Salmonella* contamination on poultry, meat, and produce; and
- Continued implementation of the FDA Food Safety Modernization Act, including the produce safety rule.

Food companies should anticipate potentially redoubled regulatory focus on these areas in light of the CDC Report. Indeed, CDC officials stressed that produce farms and meat and poultry establishments need targeted prevention measures to reduce and prevent illness, and FSIS officials emphasized that FSIS intends to update performance standards for *Campylobacter* in raw poultry and *Salmonella* in raw ground beef and trimmings.

Although the Report identifies increased foodborne illness, CDC suggests the increase may be attributable in part to increased testing and new testing methodologies. For example, figures provided in the Report show that increased use of culture-independent testing corresponds with an increase in the number of identified *Campylobacter* cases.<sup>5</sup> In 2015, 70% of *Campylobacter* cases were diagnosed by culture-only testing. Comparatively, in 2018 that number dropped to 39%, with reliance on culture-independent testing accounting for 61% of testing. However, culture-only testing remains the standard for *Listeria monocytogenes* diagnosis. It is possible that trends toward more rapid pathogen-specific detection technologies that do not rely on cultural isolation methods could lead to continued increased detection rates going forward.

In the Report, CDC notes the potential for culture-independent testing to complicate illness investigations due to the lack of a culture to sequence genetically. In particular CDC advises that “[a]s use of CIDTs increases, it is important to obtain and subtype isolates and interview ill persons to monitor prevention efforts and develop more targeted prevention and control measures to make food safer and decrease human illness.”

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We will continue to monitor CDC and FoodNet data and publications regarding foodborne pathogens. Please contact us if you have any questions on this or any other matter in the meantime.

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<sup>5</sup> Culture-independent diagnostic tests (CIDTs) are tests that can identify bacteria without having to grow a culture. They typically allow for more rapid identification of potential pathogens.

**Table 1.** Number of cases, hospitalizations, and deaths caused by bacterial and parasitic infections, incidence rate, and percentage change compared with 2015–2017 average annual incidence rate, by pathogen — CDC’s Foodborne Diseases Active Surveillance Network, 2018 Preliminary Data

Pathogen	2018				2018 compared with 2015-2017
	Cases	Hospitalizations (%)	Deaths (%)	Incidence Rate (per 100k)	% Change in Incidence Rate
<i>Campylobacter</i>	9,723	1,811 (18)	30 (0.3)	19.6	12% (4 to 20)
<i>Salmonella</i>	9,084	2,416 (27)	36 (0.4)	18.3	9% (3 to 16)
Shiga toxin–producing <i>Escherichia coli</i>	2,925	648 (22)	13 (0.4)	5.9	26% (7 to 48)
<i>Shigella</i>	2,414	632 (26)	1 (0.04)	4.9	–2% (–24 to 26)
<i>Vibrio</i>	537	151 (28)	9 (2)	1.1	109% (72 to 154)
<i>Yersinia</i>	465	95 (20)	4 (0.9)	0.9	58% (26 to 99)
<i>Listeria</i>	126	121 (96)	26 (21)	0.3	–4% (–23 to 21)
Cyclospora	332	19 (5)	1 (0.3)	0.7	399% (202 to 725)
<b>Total</b>	<b>25,606</b>	<b>5,893 (23)</b>	<b>120 (0.5)</b>	--	--

**Figure 1.** Number of cases diagnosed by culture or culture-independent diagnostic tests, by pathogen, year, and culture status – FoodNet, 2105-2018.

