

# The recent *E. coli* outbreak

The CDC (Centers for Disease Control and Prevention) is in the process of identifying the source of an outbreak of Shiga toxin-producing *Escherichia coli* O157:H7 that was first announced on April 10, 2018. The initial announcement indicated that the outbreak began as early as March 22 and involved 17 people from 7 states and 65 percent were women. At that time, the mode of infection had not been identified.

In general, various strains of *E. coli* are present in the human gut and are harmless, But, O157:H7 is the most common of the strains of *E. coli* that produces Shiga toxin in humans, though other strains have been identified as causing smaller outbreaks over the last decade. The Shiga toxin produces symptoms in humans that vary from a short bout of mild intestinal discomfort to hospitalization, to a type of kidney failure called hemolytic uremic syndrome (HUS), and in a few cases death.

The CDC has issued 9 updates with the latest coming on June 1, 2018. At that time, there were 197 positively identified cases from 35 states. Nearly one-third of the cases came from California (45) and Pennsylvania (24). Of 187 people with information available, 89 (48%) have been hospitalized, including 26 people who developed HUS. Five deaths have been reported from Arkansas (1), California (1), Minnesota (2), and New York (1). Additional cases may be reported in the coming weeks.

In addition to the US cases, the Public Health Agency of Canada has identified 6 cases with the same DNA fingerprint.

Based on the DNA fingerprint, the current outbreak is not related to a Romaine lettuce outbreak reported in late 2017 and early 2018 with 25 people affected and 1 death.

The CDC has traced the cause of the recent outbreak to Romaine lettuce grown in the Yuma growing region (western Arizona and adjacent areas in eastern California). Except for an outbreak in an Alaskan prison where the product was whole head lettuce, the source of the illness was chopped lettuce. All Romaine lettuce from that area is no longer in the supply chain. The harvest was nearly over before the first cases were reported and, as a perishable product, a bag of Romaine lettuce is unusable after 21 days.

The Food and Drug Administration has initiated traceback procedures to determine how the lettuce became contaminated in the first place. The goal is to find a common point of convergence in the supply chain that is common to major clusters of the illness. As of May 30, 2018, the FDA has identified multiple distribution centers, processors, grower/harvesters and fields where the lettuce was grown with no point of convergence. That suggests that the outbreak may have been caused by an environmental contaminant source like air, dust, irrigation water, or wild animals. The FDA is continuing to identify the source of contamination so that procedures can be identified to prevent future outbreaks.

So, from a policy perspective the task in looking at this information becomes identifying the lessons that can be gleaned from this outbreak.

To start with, consumers must utilize safe food handling and preparation practices. That includes handwashing after using the bathroom or touching anything that might contaminate the hands. Meats and produce should be handled separately from raw fruits and vegetables with proper hand and utensil washing when switching from one to the other. Meats should be cooked in a manner that kills any potential biological contaminant. Uncooked meat should be refrigerated at a temperature of 40 degrees or lower and should not be stored next to or above stored fruits and vegetables (<https://tinyurl.com/y7hnfbn3>).

Recently we saw a bumper sticker that said, “Government is not the solution to our problem Government is the problem.” Without going into a much longer discussion, in this case we want to strenuously argue that is not true. Without the regulations we have in place, we would be seeing more major outbreaks of foodborne illnesses. We understand that sometimes complying with all the regulations contained in the Food Safety Modernization Act’s Produce Safety Rule can be a pain in the neck for producers, but they are necessary to protect public health.

It has been 12 years since the last major outbreak of foodborne illness—the 2006 spinach case when 199 illnesses were reported, resulting in 102 hospitalizations with 31 developing HUS. Three deaths were confirmed in relation to the outbreak. *E. coli* O157 was isolated from 13 packages of spinach supplied by patients living in 10 states. Eleven of the packages had lot codes consistent with a single manufacturing facility on a particular day. Two packages did not have lot codes available but had the same brand name as the other packages. The “DNA fingerprints” of all 13 of these *E. coli* samples matched that of the outbreak strain.

These events also illustrate the importance of the CDC and the FDA in identifying the existence of individual illness outbreaks and identifying the source of contamination. Without these agencies, doctors in California might not know about similar cases in Pennsylvania, let alone smaller case numbers in the other states. As we think about government regulations, we need to remember that most were written in response to public pressure to solve a pre-existing problem that was not created by the government.

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