Listeriosis outbreak associated with packaged leafy greens

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A cluster of genetically similar *Listeria monocytogenes* clinical isolates was identified in September 2015 by PulseNet using whole-genome multilocus sequence typing. PulseNet (www.cdc.gov/pulsenet/index.html) is a national laboratory network that compares DNA fingerprints from bacteria collected from patient samples to detect clusters of disease that may represent foodborne illness outbreaks.

In this outbreak, a standardized *Listeria* questionnaire was administered to seven cases identified by Nov. 30, 2015, but a common source of infection was not identified. However, this questionnaire did not ask about leafy green vegetables.

Open-ended interviews with eight patients or patient surrogates from December 2015 to January 2016 revealed common consumption of leafy green vegetables - 88% consumed romaine lettuce and 75% spinach - in the month prior to illness. Six out of eight interviewees consumed packaged salad, and three reported consuming salad brands processed by a common company. A package of salad processed by this company was tested and found to have *Listeria* related to the clinical isolate. This led to an inspection of the company’s facility in Ohio, revealing two samples of *Listeria* highly related to the clinical isolate.

A recall of all packaged salad products produced at the facility, including 22 varieties of salads under multiple brand names, was instituted in January 2016, and production at the facility was halted.

Nineteen people in nine states were affected, all of whom required hospitalization with one death. One preterm birth occurred in an ill pregnant patient, and one child developed *Listeria* meningitis. An investigation by the Public Health Agency of Canada yielded three cases of listeriosis related to consumption of packaged foods from the same Ohio facility.

Older adults, pregnant women and people with immunocompromising conditions are at higher risk of invasive *Listeria monocytogenes* infection (listeriosis). Listeriosis may present as febrile gastroenteritis, sepsis or meningitis. Additional descriptions of clinical syndromes associated with foodborne diseases can be found in Appendix VII of the *Red Book*. 
Infection during pregnancy has been associated with fetal loss, preterm labor and neonatal *Listeria* infections. Hospitalization is more common with *Listeria* infections than with other foodborne pathogens. *Listeria* is the third leading cause of death among the major foodborne pathogens.

Previous U.S. outbreaks of listeriosis have been associated with contaminated cheeses and other dairy products, cantaloupes, sprouts, and pre-packaged caramel apples. Two additional multistate outbreaks of *Listeria* have been reported in 2016 linked to raw milk and frozen vegetables.

Additional information on foodborne outbreaks can be found at https://www.cdc.gov/foodsafety/outbreaks.