

***E. coli* O157:H7 Infections Associated with Pre-Packaged Romaine Lettuce**

October-November

Multiple counties/Multiple states

During November 7-21, four *E. coli* O157:H7 cases having isolates with pulsed-field gel electrophoresis (PFGE) pattern WA1ECB281 (Centers for Disease Control and Prevention [CDC] *Xba*I designation EXHX01.0074 and *Bln* designation EXHA26.0621) were interviewed by Minnesota Department of Health (MDH) staff as part of routine surveillance. A 60-day review of the PulseNet database showed seven additional states with nine matching isolates. A multi-state investigation was initiated.

All *E. coli* O157:H7 cases in Minnesota are routinely interviewed about potential exposures, including foods consumed at home and at restaurants, as part of routine surveillance. Interviews of *E. coli* O157:H7 cases with isolates that are indistinguishable by PFGE are compared to identify potential common exposures. Information gathered during routine interviews is reviewed by an MDH epidemiologist.

A confirmed case was defined as an individual from whom *E. coli* O157:H7 WA1ECB281 was isolated since November 1, 2011. Shopper card information was collected from cases when available to assist the epidemiologic investigation. The Minnesota Department of Agriculture (MDA) conducted traceback investigations of food products of interest.

Minnesota cases

Four confirmed cases in Minnesota were identified through routine surveillance. Case illness onsets ranged from October 30 to November 11. Among the four cases, all four reported diarrhea, cramping, and bloody stools, two (50%) reported fever, and two reported (50%) vomiting. The median duration of illness for the three cases who had recovered by the time of interview was 10 days (range, 7 to 12 days). One case was hospitalized for 3 days.

All four Minnesota cases reported consuming Brand A pre-packaged salad during the week prior to their illness onset. The cases reported different varieties of Brand A pre-packaged salad including Leafy Green Romaine (n=2), Caesar Lite Kit (n=1), and 5-Lettuce Mix (n=1). Romaine lettuce was the only common ingredient in the three reported varieties. No other specific food item was reported by more than 50% of the cases.

Multi-state investigation

From November 1 through December 1, 26 isolates with PFGE pattern EXHX01.0074 were observed in 14 states: Alabama (1), California (1), Florida (2), Iowa (1), Illinois (3), Massachusetts (1), Michigan (1), Minnesota (4), Missouri (2), Ohio (1), Texas (2), Utah (1), Washington (1), and Wisconsin (5).

At the time the multi-state investigation was initiated, there were 10 isolates in 6 states primarily in the upper Midwest: Iowa (n=1), Illinois (n=1), Massachusetts (n=1), Michigan (n=1), Minnesota (n=3), and Wisconsin (n=3). Routine surveillance interviews with these initial cases in Illinois, Michigan, Minnesota, and Wisconsin revealed that all eight cases reported consuming Brand A pre-packaged salad; multiple varieties were reported. Romaine lettuce was the only ingredient common to the Brand A pre-packaged lettuce varieties reported by the cases. A high proportion of the initial cases (70%) also reported consuming ground beef. However, further follow-up with cases and traceback activities in Wisconsin determined that the ground beef reported by the cases was from different sources.

Overall, 23 of 26 cases were interviewed nationally. Fifteen (65%) cases reported consuming pre-packaged lettuce prior to illness onset, and 11 (48%) reported consuming Brand A pre-packaged lettuce. Several cases occurred in states that would likely fall outside of Brand A's expected product distribution area. However, the investigation revealed that Brand A Franklin Park, Illinois facility also sold bulk lettuce to institutional facilities and to several restaurant chains, including Burger King, McDonald's, and Subway.

Traceback investigation

A traceback investigation was conducted by MDA in conjunction with the Illinois Department of Agriculture, Wisconsin Department of Agriculture, and United States Food and Drug Administration (FDA). Shopper card information was available for four Wisconsin cases and one Illinois case, but not for the four Minnesota cases. The traceback indicated that the Brand A pre-packaged salad varieties reported by the Minnesota cases who reported Caesar Lite Kit and Leafy Green Romaine, and the four Wisconsin cases and one Illinois case with shopper card information, was produced at the Brand A Franklin Park, Illinois facility. Romaine lettuce from nine lots and five growers were found to be in common across the four traceback legs. Additional information collected by FDA from the Brand A Franklin Park, Illinois facility indicated that two lots of romaine lettuce from two growers in the Salinas Valley, California could have provided the implicated romaine lettuce.

FDA conducted environmental assessments at both farms and presented the results of these assessments on a March 13, 2012 conference call with the states and CDC. At Farm A, the field where the romaine lettuce was grown was irrigated by water that was pumped into open reservoirs approximately 20 feet from a cattle ranch. Well water, water from the reservoir, and soil were tested by FDA and were negative for *E. coli* O157:H7. Cattle at the neighboring ranch were not tested. At Farm B, coyote tracks and manure were found on the field, and there was a cattle ranch at the northwest corner of Farm B. However, the ranch and the field were separated by a large distance. During the conference call, the states requested and FDA agreed to provide a written summary of the assessment findings. However, this had not been provided at the time this report was written.

This was a multi-state outbreak of *E. coli* O157:H7 infections associated with romaine lettuce. Although multiple varieties of Brand A pre-packaged lettuce were consumed by cases, all the varieties contained romaine lettuce. A traceback investigation indicated that either of two possible lots of romaine lettuce from two growers in the Salinas Valley could have been responsible for the outbreak. An environmental assessment at Farm A indicated that romaine lettuce was irrigated with water from an open reservoir next to a cattle ranch, suggesting a possible source of the contamination. However, this was not confirmed.