

***Salmonella* Newport Infections Associated with Beef**

June-July

Multiple counties/Multiple states

On June 24, 2013, the Minnesota Department of Health (MDH) Public Health Laboratory (PHL) determined that a clinical *Salmonella* Newport isolate submitted through routine surveillance had an indistinguishable pulsed-field gel electrophoresis (PFGE) pattern (Centers for Disease Control and Prevention [CDC] *Xba*I designation JJPX01.3473; MDH designation NEW348) to seven Wisconsin clinical isolates. A multi-state investigation was initiated. From June 25 through July 29, 11 additional clinical isolates with indistinguishable PFGE patterns were received at the MDH PHL.

A case was defined as a person from whom *S. Newport* with the outbreak PFGE pattern (JJPX01.3473) was isolated, and who had illness onset after April 1, 2013. Minnesota cases were interviewed with a broad-based exposure questionnaire. Food samples were collected from one household where a case was exposed and tested by the Minnesota Department of Agriculture (MDA).

MDA inspectors visited the farm where beef was purchased, conducted an assessment, and collected information to traceback cattle that were purchased by the farm.

Human isolates from Wisconsin and Minnesota were resistant to ampicillin, amoxicillin/clavulanate, cefoxitin, ceftriaxone, cephalothin, chloramphenicol, streptomycin, sulfisoxazole and tetracycline and susceptible to ciprofloxacin, gentamicin, kanamycin, nalidixic acid, trimethoprim-sulfamethoxazole, and ertapenem.

Twelve cases were identified in Minnesota, with illness onsets ranging from June 3 to July 17. The median age of cases was 24 years (range, 1 to 77 years), and six (50%) cases were female. Eight (67%) cases were Hmong, three (25%) were white non-Hispanic, and one (8%) was Hispanic. Symptom and exposure information were not available for one case that was lost to follow-up. Eleven (100%) cases reported diarrhea, nine (82%) fever, nine (82%) cramps, seven (64%) vomiting, and five (45%) reported bloody stools. Two cases were hospitalized, for 2 and 4 days, respectively.

Upon initial interview, nine cases (six Hmong and all three non-Hmong cases) reported attending a gathering in the week prior to illness onset at which Hmong food was served. The gatherings occurred from June 1 to July 21. Eight cases reported consuming beef at the gatherings, six reported that other gathering attendees were ill, and four specifically reported consuming private kill beef that was purchased from a farm. Limited cooperation by cases in providing contact information for other ill gathering attendees and/or gathering hosts prevented further investigation of each gathering.

Two sibling cases attended a gathering at a private residence in St. Paul on July 3. Their parents reported that a cow was purchased from a farm, butchered by the host, served as beef larb (a raw beef dish), and that other attendees were ill. They were unable to identify where the cow was purchased and refused to provide contact information for the gathering host or other ill attendees. A laboratory-confirmed Wisconsin case also attended this gathering.

One case attended a family gathering in Brooklyn Center on July 21. They reported that a cow was purchased from a farm, butchered, and served as beef larb at the gathering and that other attendees were ill. The case reported consuming the beef but would not provide contact information for the gathering host, the individual who purchased the cow, or other ill attendees.

One case attended a graduation party at a neighbor's house on July 13. They reported consuming beef larb, stated that other attendees were ill, and provided contact information for the party host. When contacted, the host reported that a whole cow was purchased from a farm in Forest Lake, Minnesota on July 12. They reported that the farmer killed the cow and that the family then butchered the cow on the farm and transported it back to their home for further processing. They agreed to provide leftover diced beef, liver, and meat attached to bone for testing, but declined to provide contact information for additional ill attendees. MDA tested the leftover food items, and all three tested positive for *S. Newport* with the outbreak PFGE pattern.

On August 20, MDA visited the farm, where the cow was purchased. Currently, the farm had approximately 100 Jersey steers. The farmer reported purchasing steers each year in the late winter and early spring and then keeping them until fall when they are sold to a cattle finisher. The farmer did report selling cows to Hmong individuals and a hobby farm owned by a Hmong family. He also reported that all of his customers were Hmong. The farmer reported purchasing 12 Jersey steers from a "cattle jockey" based out of Wisconsin in mid-June. Six of the 12 steers died; although he did not report that they had diarrhea, he did say their eyes were "sunken." Around the July 4, an unspecified illness swept through the majority of the herd. Wisconsin Department of Agriculture contacted the cattle jockey. He purchased the steers from an auction barn in Stratford, Wisconsin on June 19; the 12 steers were from four Wisconsin farms. As a result of this investigation, the farmer agreed to stop selling cattle to private individuals.

Overall, 37 cases from 6 states were identified in this outbreak (Iowa 1, Georgia 2, Illinois 2, Minnesota 12, and Wisconsin 19). The majority of the Wisconsin cases were white non-Hispanic individuals who either lived or worked on a farm with cattle, although several cases of Hmong ethnicity were also identified.

This was a multi-state outbreak of *S. Newport* infections associated with private kill beef and contact with cattle. In Minnesota, cases were associated with consuming private kill beef, while in Wisconsin cases were primarily associated with direct contact with cattle. Twelve cases of *S. Newport* related to this outbreak were identified in Minnesota. Leftover beef and cattle liver tested positive for the outbreak strain of *S. Newport*. No direct connection was made between cattle from the implicated Minnesota farm and farms on which Wisconsin cases were exposed. However, Wisconsin farms were the source of some of the cattle on the implicated Minnesota farm; it is likely that this strain of *S. Newport* occurs widely in cattle herds in Wisconsin and elsewhere.