Salmonella Newport Infections Associated with a Sandwich Restaurant Chain

June-July Multiple Counties/Multiple states

From July 10 to July 13, 2011, four *Salmonella* Newport isolates with indistinguishable pulsed-field gel electrophoresis (PFGE) patterns (JJPX1.0011) were identified through routine laboratory surveillance by the Minnesota Department of Health (MDH) Public Health Laboratory. On routine interview, all four cases reported eating at Sandwich Restaurant Chain A at seven different locations, during the week before illness onset. A review of the PulseNet national database revealed that cases with matching PFGE patterns had been identified since June 1 in Alabama, Connecticut, Delaware, Georgia, Illinois, Louisiana, Massachusetts, Maryland, Michigan, Mississippi, Missouri, Montana, North Carolina, North Dakota, New Hampshire, New Jersey, New York, Ohio, Pennsylvania, South Carolina, Vermont, Virginia, Wisconsin, and Wyoming. Because this PFGE pattern is common throughout the southeastern United States, MDH conducted an investigation focusing on states reporting cases outside the southeastern United States.

The first cases identified and interviewed (Minnesota-4, North Dakota-2), were enrolled in a case-control study using a matched design, with four neighborhood controls per case. The primary objective of the study was to assess association of illness with having eaten at Chain A in the week before illness onset. Cases were also asked about specific food items consumed from Chain A. The Minnesota Department of Agriculture coordinated a traceback of produce items received at Chain A restaurants where cases reported purchasing meals in Minnesota, North Dakota, Ohio, Michigan, Wyoming, Connecticut, and Maryland. Because epidemiologic links were not as clear in states outside of Minnesota and North Dakota despite indistinguishable PFGE patterns by two enzymes, multiple locus variable-number tandem repeat analysis (MLVA) was performed on all case isolates from these states in order to provide more refined laboratory discrimination.

The six cases initially identified in Minnesota and North Dakota reported illness onset dates from June 21 to July 4, 2011. Median age was 35 years (range, 17 to 57 years), and all were female. The median incubation period was 6 days (range, 2 to 8 days). Data was not available for two cases due to uncertain meal date. Illness duration was 7 days for the one case who had resolution of symptoms at the time of

interview. Diarrhea was reported by six cases (100%), fever by three (50%), and vomiting by two (33%). One case was hospitalized. All reported Chain A exposure, with meal dates from June 16 to June 30, 2011. Cases were significantly more likely to have eaten at Chain A than controls (6 of 6 cases vs. 4 of 19 controls; matched odds ratio, 8.6; 95% confidence interval, 1.5 to 49.6; p = 0.002). Specific items most frequently consumed at Chain A included cucumbers (6 of 6) lettuce (5 of 6), and tomatoes (4 of 6).

Traceback of produce items received at the restaurants from which these six cases purchased meals revealed that lettuce was provided by multiple west-coast suppliers and therefore was unlikely to be a common vehicle for *S.* Newport in this outbreak. Cucumbers or tomatoes could have come from a common source. However, a single definite source could not be distinguished from the available data. The four candidates included a tomato grower in Florida, a tomato grower in Mexico, or either of two cucumber growers in Georgia. Because produce from the same fields would have passed through distribution and been consumed by the time these sources were identified, further action at the farm or distributor level was not taken. Two additional cases with matching PFGE patterns were identified in Minnesota over the subsequent month, one of whom had eaten at Chain A during the exposure period with a similar onset date to the previously identified cases, and one with a later onset date and no identified Chain A exposure.

A smaller proportion of cases in other states reported Chain A exposures, and illness onset dates differed by up to several weeks from those reported in Minnesota and North Dakota. MLVA typing was performed on seven Minnesota cases, one North Dakota case, and some of the cases from Connecticut, Georgia, Louisiana, Michigan, North Carolina, Ohio, South Carolina, and Wyoming. Minnesota and North Dakota cases were indistinguishable by MLVA. Cases in states outside of Minnesota and North Dakota displayed less than 85% similarity with the outbreak strain by MLVA. Traceback of produce received at Chain A restaurants in other states yielded no common source of produce for all restaurants involved.

This was a foodborne outbreak of *Salmonella* Newport associated with Sandwich Restaurant Chain A restaurants in Minnesota and North Dakota. The likely vehicle was either cucumbers or tomatoes. While not yet validated for differentiation of *S.* Newport strains, MLVA results were consistent with results of epidemiologic and traceback investigations, indicating that the cases in Minnesota and North Dakota were likely to be related, but that cases in other states were not as likely to be part of this outbreak.