

## Multiple *Salmonella* Serotypes Associated with Live Poultry Contact

April-August

Multiple counties/Multiple states

On May 5, 2017, the Minnesota Department of Health (MDH) was notified by the Centers for Disease Control and Prevention (CDC) of a *Salmonella* Typhimurium case isolate with pulsed-field gel electrophoresis (PFGE) pattern JPXX01.0033 (Minnesota subtype designation TM1218) that was part of a multi-state cluster associated with live poultry contact. This case was interviewed and reported contact with live chicks and ducks. On May 16, CDC sent out a notification of an ongoing investigation into several clusters of *Salmonella* infections potentially linked to live poultry exposure, with illness onset dates beginning in January 2017. Serotype and associated PFGE patterns included *S.* Typhimurium (JPXX01.0033), *S.* I 4,[5],12:i:- (JPXX01.1071), *S.* Braenderup (JBPX01.0039), *S.* Enteritidis (JEGX01.0021 or JEGX01.0005), *S.* Hadar (TDKX01.0049 or TDKX01.0049), *S.* Indiana (JFPX01.0049), *S.* Infantis (JFXX01.0048), *S.* Litchfield (JGXX01.0009), *S.* Mbandaka (TDRX01.0011 or TDRX01.0067), and *S.* Muenchen (JJ6X01.4512).

Cases were defined as Minnesota residents who had a culture-confirmed infection with any of the identified *Salmonella* serotypes and who reported live poultry contact. All *Salmonella* cases reported to MDH are interviewed about food consumption, animal contact, and other potential exposures as part of enteric disease surveillance in Minnesota. Cases were also asked questions regarding the source of their live poultry, types of birds owned, any illness or deaths among the birds, type of contact, and knowledge of live poultry-associated salmonellosis. The Minnesota Board of Animal Health contacted the feed stores where cases reported purchasing the chicks to identify source hatcheries.

Twenty-two cases (14 *S.* Enteritidis, 4 *S.* Typhimurium, 3 *S.* Braenderup, and 1 *S.* Indiana) with illness onsets from April 6 through August 3, 2017 were identified. Thirteen (59%) cases were male, and the median age was 32.5 years (range, 0 to 77 years). All 22 cases reported diarrhea, 16 (73%) cramps, 13 (59%) fever, 5 (23%) vomiting, and 5 (23%) bloody stools. For those recovered at the time of interview, the median illness duration was 8 days (range, 5 days to 21 days). Three cases had ongoing illness at the time of interview. Two cases were hospitalized, one for 2 days and one for 3 days. No cases died.

All cases reported contact with poultry as per the case definition, and 16 (73%) cases purchased poultry in the spring or early summer of 2017. Thirteen (59%) cases purchased chicks at a feed store (one feed store was located in Wisconsin) and four (18%) cases ordered chicks direct from the hatchery and had them shipped through the mail. Ten (45%) cases purchased birds for both eggs and meat, four (18%) cases purchased birds only for eggs, and two (9%) cases purchased birds only for meat. Five (23%) cases raised chickens for 1 year or less, eight (36%) cases reported receiving *Salmonella* information at purchase and 17 (77%) cases reported knowing that *Salmonella* was associated with live poultry contact.

The Minnesota Board of Animal Health followed up with 9 of the 12 Minnesota feed stores where purchase information was available. No one hatchery could be implicated for all of the cases. However, Hatchery A was either the only supplier or one of two suppliers for 9 of the 14 *S.* Enteritidis cases, the 1

*S. Indiana* case and 1 of 4 *S. Typhimurium* cases. Additionally, two fecal samples were collected and tested from poultry owned by one of the *S. Typhimurium* cases. Both samples tested positive for *S. Typhimurium* PFGE pattern JPXX01.0033.

The multi-state outbreak identified 1,120 people infected with the outbreak strains of *Salmonella* reported from 48 states, with illness onsets ranging from January 4, 2017 to September 22, 2017. Ill people ranged in age from less than 1 year to 101 years, with a median age of 28 years. Fifty-three percent of cases were female. Among 868 ill people with available information, 249 (29%) reported being hospitalized, and 1 death was reported. Contact with live poultry (chicks, chickens, ducks, ducklings) in the week before becoming ill was reported by 542 of 774 (70%) ill people interviewed. Ill people reported purchasing live baby poultry from several suppliers, including feed supply stores, Internet sites, hatcheries, and friends in multiple states. Ill people reported purchasing live poultry to produce eggs, learn about agriculture, have as a hobby, enjoy for fun, keep as pets, or to give as Easter gifts. Some of the places ill people reported contact with live poultry included their home, someone else's home, work, or school settings.

This was an outbreak of *Salmonella* infections associated with live chickens. While a common hatchery was not identified for all serotypes, Hatchery A supplied the majority of birds for which traceback information was available. Contact with poultry, particularly with young poultry, is a well-known risk factor for *Salmonella* infections in humans.