

Multi-State Outbreaks of Salmonellosis Associated with Exposure to Small Turtles

August

Hennepin County/Multiple states

On October 25, 2011, the Minnesota Department of Health (MDH) Public Health Laboratory (PHL) identified a *Salmonella* Sandiego isolate with a pulsed-field gel electrophoresis (PFGE) pattern (Minnesota designation SDG26) indistinguishable from a cluster of three cases (Centers for Disease Control and Prevention [CDC] cluster ID 1110MDJLX-1, pattern designation JLXX01.0053) posted by Maryland, all of whom had reported exposure to live turtles. The Minnesota case had reported exposure to two mud turtles during her initial interview; communication was established with Maryland to share information about turtle purchase locations and feed.

On March 30, 2012, the CDC posted a web investigation announcement regarding three multi-state outbreaks of human *Salmonella* infections linked to small turtles. MDH contacted CDC to determine if the outbreak involved pattern JLXX01.0053 and provide information about the Minnesota case's turtle exposure. CDC expanded the case definition (from collection dates beginning September 1, 2011) to include the Minnesota case and several other cases. The cluster code had been changed to 1201PAJLX-1. Minnesota joined the national outbreak investigation.

In 1975, Title 21 of the Code of Federal Regulations banned the sale and distribution of turtles with a carapace less than 4 inches in the United States under the Public Health Service Act; the ban was intended to help prevent turtle-associated salmonellosis, especially among young children.

Nationally, a case was defined as a person from whom *Salmonella* with a serotype/PFGE combination associated with one of eight turtle-associated outbreaks was isolated from May 2011 to September 2013.

The Minnesota case was interviewed with a standard broad-based exposure questionnaire and additional detailed questions about reptile exposures. Information on turtle purchase location, feed, and other details were provided to CDC.

Serotypes among the eight national outbreaks included *S. Sandiego*, *S. Newport*, *S. Pomona*, and *S. Poona*; some outbreaks involved multiple serotypes and/or PFGE patterns.

A total of 473 cases were identified nationally from 41 states, the District of Columbia, and Puerto Rico. Estimated onset dates ranged from May 23, 2011 to September 9, 2013. Twenty-nine percent of cases were hospitalized and no deaths were reported. The median age of cases was 4 years (range, <1 to 94 years); 70% were 10 years or younger, and 31% were 1 year or younger. Fifty-five percent were female, and 85 (44%) reported Hispanic ethnicity.

Of 272 cases interviewed, 187 (69%) reported contact with turtles in the week prior to illness onset, and 124 of 141 (88%) reported a turtle with a carapace less than 4 inches. Red-eared slider turtles were reported by 55 of 70 (80%) cases; others had contact with yellow-bellied sliders and mud turtles.

Among 116 cases who reported the place where they obtained the turtle, 36 (31%) purchased them from street vendors, 21 (18%) from pet stores, 14 (12%) from flea markets, and 19 (16%) received them as gifts. Others obtained the turtles from discount stores, souvenir/gift shops, and online.

Public health and agriculture departments in other states and the United States Food and Drug Administration (FDA) traced back turtles implicated in the outbreaks to identify retail establishments, turtle brokers, and turtle farms that supplied the turtles. The ultimate source for many of the turtles was not found. However, traceback of turtles purchased from Florida souvenir shops identified two source turtle farms in Louisiana. Cease and desist orders were issued in March 2013 for both source farms. *Salmonella* matching an outbreak strain was recovered in multiple states from case and retail turtles and turtle habitats, and from a pond at one of the Louisiana farms. CDC-developed educational materials promoting safe handling of turtles were distributed and published online.

Minnesota had one case with an isolate serotype (Sandiego) and PFGE pattern (SDG26/ JLXX01.0053) included in the national turtle-associated outbreaks. The Minnesota case was an 8 year-old female from Minneapolis with illness onset on August 4, 2011. She was not hospitalized. The case handled her two green-colored mud turtles about twice a week prior to her illness onset. The turtles were purchased in June 2011 at a pet store (likely in Richfield, Minnesota). The case's guardian reported that the turtles were about 3 inches long at the time of purchase. The turtles were fed two commercial pet foods (brown-gray floating pellets and floating multi-colored flakes) purchased from a retail store. They did not have a receipt or know the exact date when turtles were purchased. The turtles had been given to a relative by the time of interview, and the case stopped returning phone calls from MDH, so environmental testing was not possible.

These were a collection of eight multi-state outbreaks of salmonellosis that occurred from May 2011 to September 2013 and were associated with exposure to small, live turtles. Most cases reported turtles with a carapace shorter than 4 inches, the sale and distribution of which are illegal in the United States. One Minnesota case of *S. Sandiego* infection from August 2011 was included in the outbreaks; the Minnesota case purchased her turtles at a pet store, but the ultimate source of the Minnesota case's turtles was not identified. The source of some national cases' turtles was two Louisiana turtle farms; distribution of turtles from these farms was stopped. The ultimate source for many of the turtles could not be identified due to challenges in traceback of illegal turtle sales by transient vendors.

Reference

1. <http://www.cdc.gov/salmonella/small-turtles-03-12/index.html>, Accessed [November 4, 2014]