

Outbreak of *Salmonella* Montevideo Infections Associated with a Graduation Party – Lincoln County, May 2012



Background

On May 29, 2012 at 11:30 a.m. the Lincoln County Health Department (LCHD) notified the Bureau of Epidemiology and Public Health Informatics at the Kansas Department of Health and Environment (BEPHI-KDHE) of two individuals diagnosed with salmonellosis that had both attended a graduation party held at a private home on May 13, 2012. Upon further investigation by the LCHD, additional ill individuals that had attended the graduation party were identified. LCHD along with BEPHI-KDHE immediately initiated an outbreak investigation in order to determine the cause of illness and to recommend prevention and control measures.

Methods

Epidemiologic Investigation

A retrospective cohort study was conducted among all graduation party attendees to determine if illness was associated with any specific food item served at the party. A questionnaire was developed and interviews were conducted by LCHD staff.

A case was defined as an individual who attended the graduation party on May 13, 2012 and subsequently became ill with diarrhea (more than three loose stools in a 24-hour period) within 72 hours.

Descriptive analysis was conducted using SAS 9.2® to assess exposures that could be significantly associated with illness.

Environmental Assessment

A chicken coop was present on the property of the house where the party was hosted. On June 26, 2012 KDHE staff collected cloacal swabs from eight chickens, as well as two specimens from each of the following: chicken litter, fresh chicken feces, and soil from the coop.

One of the guests prepared pulled pork for the party; a sample of pulled pork that was not brought to the party was obtained for testing.

Laboratory Analysis

Two stool specimens were collected by physicians and sent for testing at private laboratories. The *Salmonella* isolates that were cultured were sent to the Kansas Health and Environmental Laboratories (KHEL) or the Missouri State Public Health Laboratory (MSPHL) for serotyping and pulse field gel electrophoresis (PFGE).

The environmental samples were tested at KHEL, and the pulled pork sample was tested at the Kansas Department of Agriculture Laboratory.

Results

Epidemiologic Investigation

LCHD staff interviewed 23 (96%) of the 24 graduation party attendees. Of those, 13 (57%) reported illness and met the case definition. The ages of cases ranged from 12 to 50 years (median age, 17 years). Four (31%) of the ill individuals were female and nine (69%) were male.

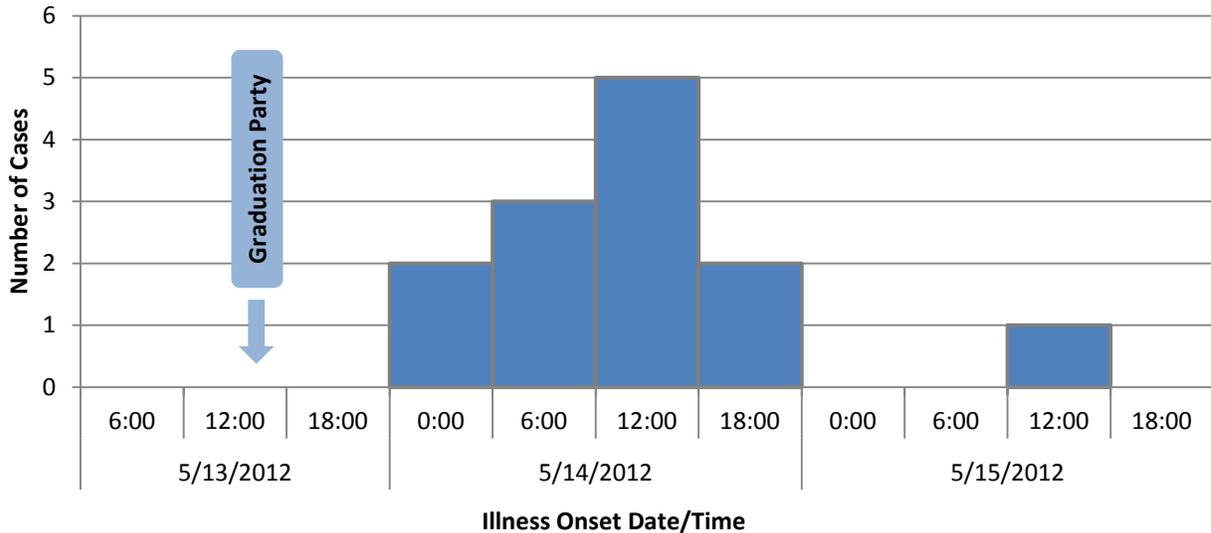
The most commonly reported symptoms included diarrhea and fever (Table 1). Additional symptoms reported were nausea, abdominal cramps, and vomiting. Five individuals reported seeing a physician for their illness. No individuals reported illness prior to the graduation party.

Table 1: Symptoms Reported among Cases – Lincoln County *Salmonella* Montevideo Outbreak associated with a Graduation Party (n=13)

Symptom	# of Cases with Symptom /	
	Total Cases	% of Cases
Diarrhea	13/13	100
Fever	8/13	62
Nausea	7/13	54
Abdominal Cramps	6/13	46
Vomiting	3/13	23

Onset of illness ranged from May 14, 2012 at 1:00 am to May 15, 2012 at 12:00 pm (Figure 1). Incubation periods ranged from 10 hours to 44 hours (median, 21 hours). All individuals had recovered by the time they were interviewed. The duration of illness ranged from 1 to 11 days (median, 4 days).

Figure 1: Onset Date and Time of Illness by Number of Cases – Lincoln County *Salmonella* Montevideo Outbreak associated with a Graduation Party (n=13)



The retrospective cohort study revealed that no food items served at the party were statistically associated with illness.

Laboratory Analysis

Two stool specimens were confirmed as *Salmonella* Montevideo. The isolates were indistinguishable by PFGE. The PFGE results were sent to the Centers for Disease Control and Prevention and were identified as PFGE pattern J1XX01.0998.

One of the fresh chicken feces samples tested positive for *Salmonella* Braenderup, and all other chicken and environmental samples were negative for *Salmonella*.

The pulled pork sample was negative for *Salmonella*.

Conclusions

A cohort study was performed to identify the cause of *Salmonella* Montevideo infections among a group of individuals who attended a graduation party at a private home in Lincoln County. The epidemiologic analysis showed no statistically significant association between any food item served at the party and illness.

An investigation of a multistate outbreak of *Salmonella* Montevideo was in progress when this local outbreak was reported. Both outbreaks were indistinguishable by PFGE. The multistate outbreak had a total of 93 persons infected with the same strain of *Salmonella* Montevideo from 23 states and Puerto Rico. Onset dates ranged from February 28, 2012, until September

15, 2012. Kansas had 15 persons associated with this outbreak. This multistate outbreak was linked to chicks, ducklings, and other live poultry from Estes Hatchery in Springfield, Missouri through epidemiologic, laboratory, and traceback investigations¹.

Because of the association between live poultry and *Salmonella* Montevideo infections reported during the multistate outbreak investigation, KDHE staff collected environmental samples from a chicken coop on the property of the house where the party was hosted. One sample, from fresh chicken feces, tested positive for a different strain of *Salmonella* (*S. Braenderup*), and the remaining samples were negative. All of the chickens on the property had been owned for several years and none of the chickens were reported to have come from the Estes Hatchery.

Due to the results of the epidemiologic investigation as well as the environmental assessment, KDHE and LCHD were unable to identify the source of the infection. However, party attendees may have been infected with *Salmonella* Montevideo through environmental contamination caused by chickens on the property.

It is not uncommon for poultry to be a source of human *Salmonella* infections. Thorough handwashing with soap and water should occur after touching live poultry or anything in the area where they live and roam. Adults should supervise hand washing for young children.

References

1. Centers for Disease Control and Prevention. Multistate Outbreak of Human *Salmonella* Montevideo Infections Linked to Live Poultry in Backyard Flocks (Final Update). Accessed on February 11, 2013 at: <http://www.cdc.gov/salmonella/montevideo-06-12/index.html>.

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