

## Investigation of a Gastroenteritis Outbreak — Johnson County, May 2014



### **Background**

On May 19, 2014, at 12:18 p.m., the Kansas Department of Agriculture (KDA) notified the Kansas Department of Health and Environment's Bureau of Epidemiology and Public Health Informatics (KDHE) of a foodborne illness complaint. The complainant stated that he and two others became ill with gastrointestinal symptoms after eating at a Johnson County restaurant. The three individuals were part of a party of fifteen who had eaten at the restaurant the evening of May 12, 2014. KDHE notified the Johnson County Health Department (JCHD) at 1:00 p.m. and began the outbreak investigation within one hour by interviewing the out-of-state complainant, who provided contact information for one additional affected individual. In response to this report, an outbreak investigation was also initiated by staff from KDA.

### **Methods**

Suspect cases were interviewed by telephone. A case was defined as vomiting in an individual within 8 hours of eating food purchased at the restaurant the evening of May 12, 2014.

The inspection of the restaurant was conducted on May 21, 2014, at 9:50 a.m. by KDA. A food sample was collected and tested at a private laboratory.

### **Results**

Two suspect cases were identified and interviewed; a third individual was not able to be interviewed. The two individuals were from New Jersey and Minnesota, and both met the case definition. Both cases were male.

Both individuals reported vomiting with nausea, and one also reported experiencing diarrhea with abdominal cramps. The median incubation period was 4 hours from the time of meal (range, 3 to 5 hours). The duration of illness ranged from 8 to 32 hours.

Neither individual sought care from a healthcare provider. No stool specimens were collected.

At the restaurant, both individuals consumed fried chicken with gravy. No other common foods were consumed.

Additional commonalities other than the restaurant were reported by the two individuals. Prior to the evening meal, both had spent the afternoon in meetings with others that were in the dinner party. Prior to the meeting, both individuals ate salad lunches and cookies. An interview with a chief executive officer of the company hosting the meeting did not reveal information on additional illnesses or the source of the salads and cookies.

The restaurant inspection by KDA revealed four priority violations: improper cooling of large batches of gravy and hot sauce after preparation; improper cold holding of cooked turkey on the salad make table; failure to wash hands after handling dirty utensils prior to touching clean utensils; and use of cutting boards with pits and chips on the food contact surfaces. All violations were corrected during the inspection. The gravy and hot sauce that had been prepared the previous day and stored in the walk-in cooler were nearly 10 degrees above the required proper 41°F temperature and were discarded after samples were collected for testing. A follow-up inspection occurred on June 2, 2014 and revealed that the restaurant had successfully implemented the use of cooling logs and had been using them properly.

A sample of gravy collected on May 20<sup>th</sup> was shipped to a private laboratory. The sample was negative for staphylococcal enterotoxin via visual assay on May 27<sup>th</sup>.

## **Conclusions**

Two individuals with gastroenteritis were associated with consuming food purchased at a Johnson County restaurant on May 12, 2014. Although no clinical specimens were collected, the clinical data reported among cases was consistent with staphylococcal food intoxication, but no definitive diagnosis was obtained for the two persons.

Intoxication by *Staphylococcus aureus* is characterized by an abrupt onset of vomiting or diarrhea, with symptoms occurring within one to eight hours after ingestion of the toxin contaminated food. The incubation period and severity of symptoms depends on the amount of toxin consumed as well as an individual's susceptibility to the toxin<sup>1</sup>. Staphylococcal food intoxication is the most common type of food intoxication. *S. aureus* contamination can occur when someone handles food with bare hands, especially after touching the face or mouth, or has an exposed sore on the hands or arms. Staphylococci may be present in the nasal passages, colonized with *S. aureus* at any given time<sup>2</sup>.

In order for staphylococcal food poisoning to occur, the following criteria must be present: (1) a food must be contaminated with enterotoxin-producing *S. aureus*; (2) the food must have the necessary requirements for bacterial growth; (3) adequate time and temperature must be

present for the bacteria to multiply and produce enterotoxin; and (4) a sufficient amount of enterotoxin must be consumed<sup>3</sup>. Staphylococci thrive in protein-rich foods with high-salt content and grow in the temperature range of 45°F and 118°F. Heat-resistant enterotoxins are produced between the temperature range of 68°F and 99°F<sup>4</sup>.

The inspection of the restaurant did identify temperature abuse of a suspected food item that would have allowed adequate time and temperature for bacteria to multiply and produce enterotoxin, but no enterotoxin was detected in the food samples collected. Neither the etiology of the outbreak nor the vehicle of transmission could be conclusively determined.

The strength of this investigation was the identification and elimination of a harmful practice that may cause foodborne illness. The follow-up inspection was appropriately scheduled to ensure that the priority violations had been corrected including the establishment of proper cooling procedures.

The investigation could have been improved by identification of other ill individuals and the reporting of the incident in a timelier manner to allow the potential collection of stool specimens and food items served the night of May 12<sup>th</sup>. Interviewed individuals were provided with information on contacting KDHE to share with any other ill individuals but no additional calls were received.

*Report by: M. Ella Vajnar (Kansas Department of Health and Environment)  
On: June 5, 2014*

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<sup>1</sup> Tranter, H.S. Foodborne Staphylococcal Illness. Lancet 1990; 336: 1044-1046.

<sup>2</sup> Jones, T.F., Kellum, M.E., Porter, S.S., Bell, M., and Schaffner, W. An Outbreak of Community-Acquired Foodborne Illness Caused by Methicillin-Resistant Staphylococcus aureus. Emerging Infectious Diseases. 2002;8:82-84.

<sup>3</sup> Armstrong GL, Hollingsworth J, Morris, Jr. JG. Bacterial foodborne disease. In: Evans AS, Brachman PS, eds. Bacterial Infections in Humans: Epidemiology and Control. 3<sup>rd</sup> ed. New York: Kluwer Academic/Plenum Publishers, 1998:109-138.

<sup>4</sup> CDC. Outbreak of staphylococcal food poisoning associated with precooked ham – Florida, 1997. MMWR 1997;46:1189-1191.