

Norovirus Outbreak Associated with a Fast Food Restaurant, Shawnee County, January 2014



Background

On January 3, 2014, at 10:15 a.m., the Kansas Department of Agriculture (KDA) notified the Kansas Department of Health and Environment (KDHE) of a foodborne illness complaint. The complainant stated that eight individuals from three separate households ate food from a fast food restaurant on January 1, 2014, and six subsequently became ill with vomiting and diarrhea. The Shawnee County Health Department (SCHD) was notified at approximately 10:30 a.m., and immediately began an outbreak investigation. An investigation was also initiated immediately by staff from the KDA.

Key Findings

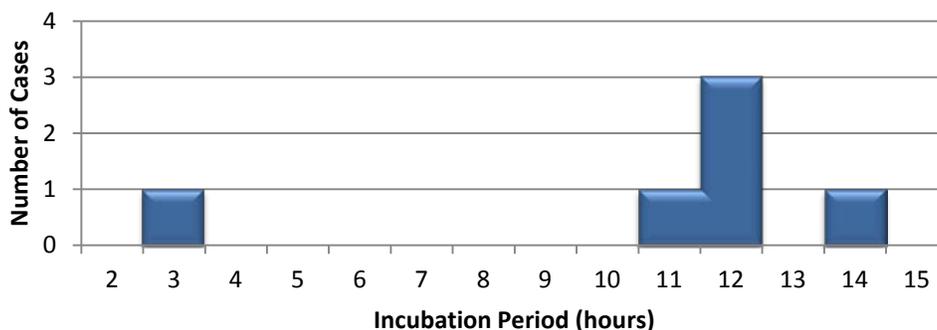
- The Kansas Foodborne Outbreak Questionnaire was used to interview all eight individuals.
- Six individuals reported being ill and met the case definition. A case was defined as an individual who consumed food purchased at the restaurant on January 1, 2014 and became ill with diarrhea (three or more loose stools in a 24-hour period) and vomiting within 48 hours of dining.
- All ill individuals reported diarrhea and vomiting with abdominal pain and nausea (Table 1). One patient reported visiting a health care provider and a second visited an emergency department. No one was hospitalized.

Table 1: Symptoms Reported among Cases (n=6)

Symptom	# of Cases with Symptom	% of Cases
Diarrhea	6	100
Vomiting	6	100
Abdominal Pain	6	100
Nausea	6	100
Muscle Aches	3	50
Fever	3	50

- The incubation period (Figure 1) was available for all six individuals and ranged from 3 to 14 hours (median incubation period, 12 hours).

Figure 1: Illness incubation time of cases associated with a fast food restaurant, Shawnee County, January 2014 (n=6)



- All individuals were interviewed on January 3, and none had fully recovered from their illness. The duration of illness was not determined.
- The ages of individuals ranged from 5 to 50 years (median age, 28 years). Three (50%) of the ill individuals were female.
- Food purchased at the restaurant had been taken to a private residence where it was consumed by the eight individuals, with bottled water or soda and ice provided at the private residence.
- The only common exposure for these individuals other than the restaurant's food was spending three or more hours at the private residence that same day.
- Two stool specimens were collected and both tested positive for norovirus, genotype II.
- An environmental assessment was performed by KDA, and no violations were found. The KDA inspector inquired about employee illness. No employees reported illness. One employee had recently missed work do to ill children but had not worked during the time of their illness and had not developed any symptoms of illness.

Discussion

This was an outbreak of norovirus possibly associated with a fast food restaurant in Shawnee County. Six individuals from three different households became ill after eating together on January 1, 2014. The only commonality among the three households was sharing the meal at a private residence. One case reported an unusually short incubation period, considering the norovirus incubation period usually ranges from 12 to 48 hoursⁱ. No other illnesses associated with this restaurant have been reported and no employees that worked at the restaurant reported any illness. Therefore, it is uncertain whether this restaurant was the source of transmission.

Norovirus is a highly contagious pathogen with a very low infectious dose, estimated to be between 10-100 viral particlesⁱⁱ. Transmitted primarily through fecal-oral route, norovirus particles may be spread through direct contact or through consuming fecally-contaminated food or water. Spread via aerosolized vomitus is also possible. Once infected, norovirus shedding can begin prior to the onset of symptoms and can persist for weeks after clinical symptoms have ceased. Norovirus has been detected

in fecal specimens 3 to 14 hours before onset of clinical symptoms and can be detected for 13 to 56 days after exposure to the virusⁱⁱⁱ. Approximately 20% of norovirus infected individuals do not have clinical symptoms^{iv}. However, these individuals can still shed norovirus and can be potential sources of contamination.

Simple measures, including strict hand washing after using the bathroom and before handling food items, and excluding employees with gastrointestinal illness from food handling may substantially reduce foodborne transmission of noroviruses^v.

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ⁱ Centers for Disease Control and Prevention. Updated norovirus outbreak management and disease prevention guidelines. MMWR Recomm Rep 2011;60:1-18.

ⁱⁱ Teunis PFM, Moe CL, Liu P, et al. Norwalk virus: how infectious is it? J Med Virol **2008**; 80:1468-76.

ⁱⁱⁱ Atmar RL, Opekum AR, Gilger MA, et al. Norwalk virus shedding after experimental human infection. Emerg Infect Dis **2008**; 14:1553-1557.

^{iv} Moe CL. Preventing norovirus transmission: How should we handle food handlers? Clin Infect Dis **2009**; 48:38-40.

^v Centers for Disease Control and Prevention. "Norovirus Illness: Key Facts", Accessed on January 27, 2014 at: <http://www.cdc.gov/norovirus/downloads/keyfacts.pdf> .