

Norovirus within an Extended Family – Multiple Counties, October 2011



Background

On October 25, 2011, at 1:00 PM Trego County Health Department (TCHD) was notified by a resident of Cowley County of a possible outbreak of gastrointestinal illness among eight individuals from three different households that shared a meal at a sit-down restaurant in Trego County on October 22, 2011, at 2:00 PM. TCHD contacted the Kansas Department of Health and Environment (KDHE) at 1:30 PM to report the outbreak followed by a call to the Kansas Department of Agriculture (KDA) to request an inspection of the facility. Cowley County Health Department (CCHD) was contacted to help assist with the collection of any stool specimens from ill cases. Additional interviews were conducted by TCHD during the next 48 hours to obtain further illness and exposure information from all ill individuals.

Individuals represented five distinct units of an extended family whose primary residences were in Cowley County, Wyandotte County, and out-of-state in Colorado, Indiana, and Texas. Additional common exposures among the individuals included funeral activities beginning October 20th in Republic County, Kansas, with the conclusion on October 21st in Trego County. Seven of nine ill individuals had also eaten at a restaurant in Republic County on October 20, 2011, at 8:30 PM. Information was not provided on whether the individuals shared any housing facilities while in Republic County.

Methods

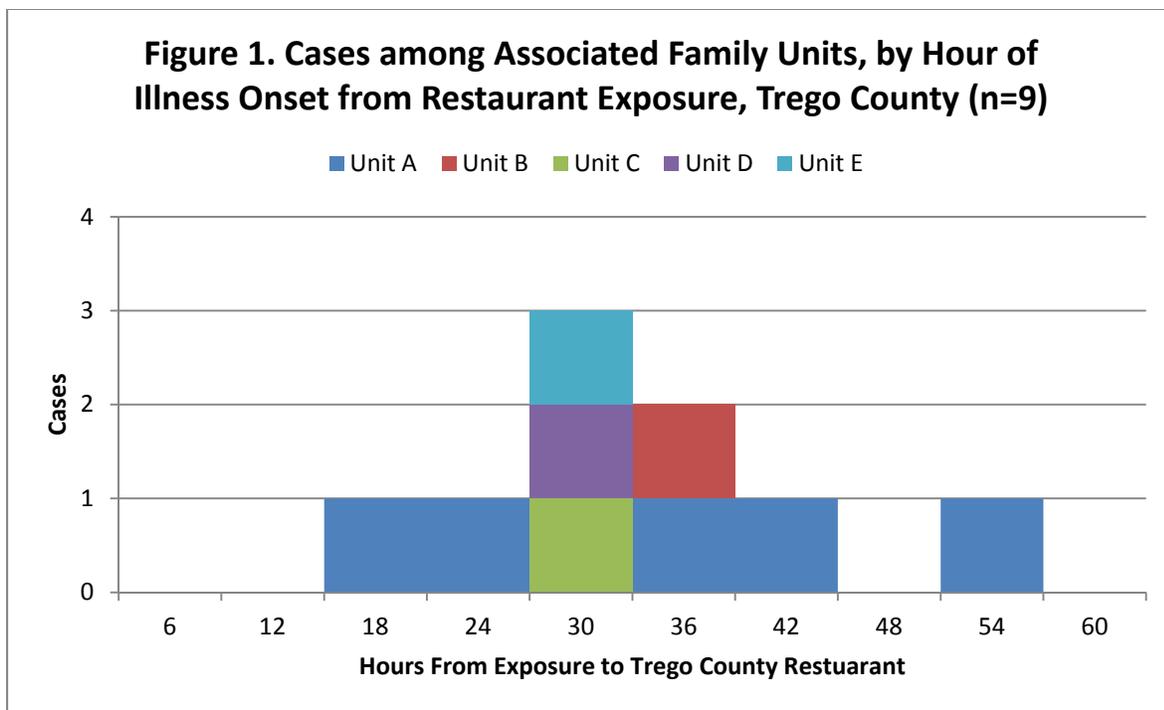
A primary case was defined as an individual who consumed food items from the Trego County restaurant on October 22, 2011, and experienced diarrhea and/or vomiting within 36 hours of exposure. A secondary case was defined as an individual associated to a primary case that experienced diarrhea and/or vomiting greater than 36 hours after the meal was consumed at the Trego County restaurant on October 22, 2011. All cases and their non-ill household members who ate at the restaurant were interviewed with a hypothesis-generating questionnaire. Stool samples were requested from any cases. An inspection of the Trego

County restaurant occurred; a manager and employees were interviewed to identify any cases in workers or other restaurant patrons.

Results

Of the twelve interviews conducted by TCHD, nine individuals reported experiencing gastrointestinal illness. Of these, seven were primary cases and two were secondary.

The median age of cases was 52 years with a range from 22 to 60 years. Six cases were males. The first reported an onset was October 21, 2011, at 8:00 AM, and the final reported onset was October 24 at 5:00 PM (Figure 1). Using the exposure to the restaurant in Trego County as the potential source, the median incubation period for the primary cases was 27 hours.



Abdominal pain (n=7) and diarrhea (n=8) were the most frequently reported symptoms (Table 1). Among the four individuals that had recovered at the time they were interviewed, the duration of illness ranged from 36 to 63 hours; the median duration of illness was 54 hours.

Table1: Clinical Information for Cases (n=9)

<i>Symptoms</i>	<i># of cases (%)</i>	<i>Symptoms</i>	<i># of cases (%)</i>
Abdominal Pain	7/8 (88%)	Headache	2/2 (100%)
Bloody Diarrhea	0/8 (0%)	Muscle Aches/pains	8/9 (89%)
Chills	6/9 (67%)	Nausea	9/9 (100%)
Diarrhea	8/8 (100%)	Vomiting	5/9 (60%)
Fever	3/9 (33%)		

Three stool specimens from one primary case were collected and all tested positive by polymerase chain reaction for norovirus at the Kansas Department of Health and Environment Laboratories.

The KDA conducted an inspection of the Trego County restaurant on November 2nd. There were no violations noted that would have contributed to the spread of norovirus. The manager did report that employees had been absent from work for gastrointestinal illness during the time period in question, but that no employees had worked while ill. No other complaints were received on food borne illness associated to the restaurant.

While the lettuce and ice were food items of concern during the investigation, there was not enough evidence to implicate either as a cause of the illness.

Conclusions

This outbreak was likely caused by norovirus. The incubation period for norovirus-associated gastroenteritis in humans is usually between 24 and 48 hours (median in outbreaks, 33 to 36 hours), but cases can occur within 12 hours of exposure. Noroviruses are transmitted primarily through the fecal-oral route, either by consumption of fecally contaminated food or water or by direct person-to-person spread. Environmental and fomite contamination may also act as a source of infection. Noroviruses are highly contagious and as few as 10 viral particles may be sufficient to infect an individual. Although pre-symptomatic viral shedding may occur, shedding usually begins with onset of symptoms and may continue for 2 weeks or more after recovery.¹

Nine individuals from five different households became ill with diarrhea and/or vomiting after sharing a meal at the Trego County Restaurant, but the incubation period for two of the individuals suggests a secondary person-to-person spread. All of the individuals shared additional exposures outside of the restaurant and the illness cannot be conclusively linked to the shared restaurant meal.

The inspection of the restaurant did occur but was delayed because the name provided by the complainant did not match any licensed restaurant in Trego County. Future investigations should include a rapid inquiry at the local level to establish the location of any accused facility. This would be especially important in identifying unlicensed vendors. Another weakness of the investigation was stool samples, while collected, were only collected from one individual. It should be stressed in future investigations that three to five samples are needed from different individuals and/or households. Strengths of the investigation were the rapid response of the TCHD and the cooperation among local health departments.

¹ Centers for Disease Control and Prevention. "Norovirus: Technical Fact Sheet", Accessed on November 18, 2011 at: <http://www.cdc.gov/ncidod/dvrd/revb/gastro/norovirus-factsheet.htm>.

Recommendations for preventing the spread of norovirus include:

- Exercising frequent and appropriate hand washing.
- Using alcohol-based hand sanitizers ($\geq 62\%$ ethanol) only as an adjunct method of hand hygiene, not a replacement of washing with soap and water.
- Education of foodhandlers on the correct handling of cold and ready to eat foods and the use of frequent hand washing, especially after returning to work after illness.
- Sick leave when needed should be available for food handlers.
- Disinfecting environmental surfaces that may be contaminated by norovirus using a chlorine bleach solution with a concentration of 1000-5000 ppm (5-25 tablespoons of household bleach [5.25%] per gallon of water) or other disinfectant registered as effective against norovirus by the Environmental Protection Agency²

*Report by: M. Ella Vajnar, MT (ASCP) (Kansas Department of Health and Environment)
On: November 18, 2011*

Investigation by:

Trego County Health Department

201 N. Main
Wakeeney, Ks. 67672

<http://www.kalhd.org/trego/>

City-Cowley County Health Department

320 E. 9th, Suite B
Winfield, KS 67156

<http://www.cowleycounty.org/health/>

**Kansas Department of Agriculture
Division of Food Safety and Lodging**

109 SW 9th Street, 3rd Floor
Topeka, KS 66612

http://www.ksda.gov/food_safety/

**Kansas Department of Health & Environment
Bureau of Epidemiology and Public Health Informatics**

1000 SW Jackson St., Suite 210
Topeka, Kansas 66612

<http://www.kdheks.gov/>

² Centers for Disease Control and Prevention. "Norovirus: Technical Fact Sheet", Accessed on November 18, 2011 at: <http://www.cdc.gov/ncidod/dvrd/revb/gastro/norovirus-factsheet.htm>.