

## Gastroenteritis Outbreak Associated with a Catered Dinner – Harper County, November 2012



### **Background**

On November 20, 2012, at 1:30 p.m., the Harper County Health Department (HCHD) notified the Kansas Department of Health and Environment (KDHE) of a possible foodborne outbreak. HCHD had learned of approximately ten individuals who became ill with diarrhea and abdominal pain following a catered dinner on November 17, 2012. An estimated 100 individuals attended the event. KDHE and HCHD immediately began an outbreak investigation.

### **Methods**

A questionnaire was created to ask dinner patrons about their symptoms and foods they consumed. Questionnaires were distributed by HCHD. Most were self-administered, but four were completed by telephone interview. Questionnaire administration began on November 21 and was completed on November 30. A case was defined as any individual experiencing diarrhea (three or more loose stools within a 24-hour period) within 24 hours of eating the catered dinner on November 17, 2012 at 6:15 p.m.

Odds ratios and 95% confidence intervals were calculated, and associations between illness and food exposures were assessed using the Chi-square test. Statistical analysis was conducted using SAS<sup>®</sup> software (Release 9.2, Cary, North Carolina).

Kansas Department of Agriculture (KDA) was notified of the investigation on November 21, after HCHD obtained information about the caterer. An inspection of the caterer's mobile unit was conducted on November 26 at 12:50 p.m. KDA also confirmed that the fruit tray, vegetable tray, and ranch dressing served at the event were not catered. Those items were purchased by an attendee.

No foods served at the dinner were available for laboratory testing.

Stool specimen collection kits were offered to some ill individuals for testing at the state public health laboratory. All declined testing.

## **Results**

HCHD identified 85 individuals who dined at the catered dinner on November 17, 2012. Seventy-five (88%) questionnaires were completed; three individuals refused to participate. Thirty individuals reported illness after the dinner; 22 met the case definition.

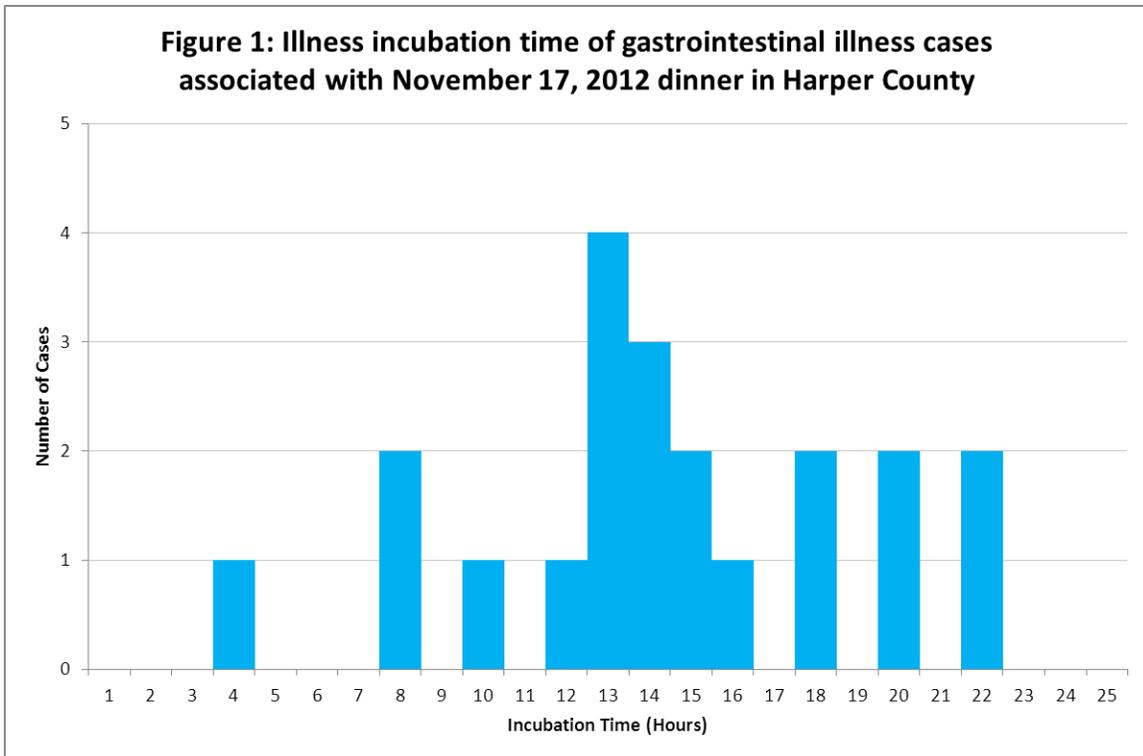
Age was reported for 19 of the 22 cases. The ages ranged from 28 to 77 years (median age, 56 years). Twelve (56%) cases were female.

All cases reported diarrhea (Table 1). No cases reported vomiting or fever. No physician visits or hospitalizations were reported.

**Table 1: Clinical information for cases (n=22)**

<i>Symptoms</i>	<i>Cases with Symptoms (%)</i>	
Diarrhea	22	(100%)
Abdominal Pain	16	(73%)
Nausea	4	(18%)
Chills	2	(9%)
Muscle Aches	1	(5%)

Specific onset and recovery times were available for all but one case. The illness incubation time ranged from 4 hours to 22 hours (median, 14 hours) (Figure 1). The duration of illness ranged from 3 hours to 62 hours (median, 25 hours).



Each food and drink item served at the dinner was analyzed for association with illness. Consumption of pulled pork was the only statistically significant item (Table 2). Individuals who reported eating the pulled pork were 7.4 times more likely to become ill than those that reported not eating the pulled pork.

**Table 2: Illness association with selected food exposures at November 17, 2012 dinner in Harper County**

Food	Cases Exposed	Controls Exposed	Odds Ratio	95% Confidence Interval	P-Value
Pulled Pork	21 (95%)	37 (74%)	7.4	0.9 – 60.4	0.0354
Brisket	17 (77%)	44 (86%)	0.5	0.2 – 1.9	0.3443
Turkey	19 (86%)	37 (73%)	2.4	0.6 – 9.4	0.2032
Fruit Tray	15 (71%)	23 (51%)	2.4	0.8 – 7.3	0.1227
Vegetable Tray	17 (77%)	29 (63%)	2.0	0.6 – 6.4	0.2441

An inspection was performed by KDA. The caterer’s mobile unit was cleaned and winterized after the dinner. Because no further catering events were scheduled until the spring, a full inspection could not be performed, and a Hazard Analysis and Critical Control Point (HACCP) review was not conducted. The caterer reported that four pans of pork were cooked for eleven

hours on the day of the event. The pork was then removed from the cooker, lightly covered with foil, and transported to the event site in coolers. On arrival, the pork was pulled, combined into one serving pan, and served over a double boiler.

## **Conclusions**

Twenty-two cases of gastroenteritis were associated with consuming pulled pork at the catered dinner. No food samples or clinical specimens were available for testing; however, the clinical data suggests a bacterial intoxication caused by *Clostridium perfringens* or *Bacillus cereus*.

*C. perfringens* type A enterotoxin is a common cause of foodborne illness in the United States; an estimated 248,520 people are infected with *C. perfringens* every year—100% of these infections are foodborne.<sup>1</sup> The sudden onset of diarrhea is common 10-12 hours after consumption of contaminated food, and usually subsides within 24 hours. Nausea and abdominal cramps may occur; vomiting and fever are usually absent.<sup>2</sup> *C. perfringens* may proliferate in meats, stews, or gravies when "spores survive normal cooking temperatures, germinate and multiply during slow cooling, storage at ambient temperature, and/or inadequate re-heating."<sup>3</sup> *B. cereus* is another possible causative agent. The diarrheal form of *B. cereus* intoxication mirrors the symptoms caused by *C. perfringens*, with an identical incubation period and duration of illness.

The investigation began shortly after HCDH became aware of the illnesses, and KDA was quickly notified. Outbreak questionnaires were distributed as soon as possible, however, questionnaire administration occurred between 4 and 13 days following this event. This delay may have contributed to recall bias among respondents — inaccuracies may be present in the food and symptom histories. The high response rate (questionnaires were completed for 75 of 85 (88%) attendees) was a strength of the investigation.

KDA was quickly notified about the potential foodborne outbreak, but a full inspection of the caterer was not possible because the catering vehicle had been winterized. The caterer could not be evaluated on cooking, cooling, and re-heating procedures.

*Report by: Daniel Neises, MPH (Kansas Department of Health and Environment)*  
*On: December 4, 2012*

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<sup>1</sup> Mead PS. Food related illness and death in the United States. *Emerging Infectious Diseases*, 1999. 5(6):607-625.

<sup>2</sup> Heymann DL, ed. *Control of Communicable Diseases Manual*. 18<sup>th</sup> ed. Washington, D.C.: American Public Health Association; 2004.

<sup>3</sup> Ibid.

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