

Gastroenteritis Outbreak Associated with a Restaurant – Wyandotte County, September 2012



Background

On September 13, 2012, at 3:06 p.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 approximately seven colleagues became ill with nausea and diarrhea following lunch at a Wyandotte County fast food restaurant. The Wyandotte County Public Health Department (WCPHD) was notified at approximately 4:30 p.m., and immediately began an investigation.

Methods

A questionnaire was created to ask restaurant patrons about their symptoms and foods they consumed. Some questionnaires were distributed by email, and some were completed by telephone interview. Questionnaire administration began on September 13 and was completed on September 21. A case was defined as any individual experiencing vomiting and/or diarrhea within 24 hours of eating at the restaurant on September 12, 2012.

The inspection of the fast food restaurant was conducted on September 14, 2011, at 11:00 a.m. Employee surveys were distributed to identify ill food handlers and their specific food handling duties.

Laboratory testing for *Clostridium perfringens* and *Bacillus cereus* was conducted on four foods from the restaurant. One leftover burrito leftover from a complainant's meal was tested. Samples of rice, whole beans, and spicy refried beans collected during the restaurant inspection were also tested.

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

Results

WCPHD identified and interviewed ten individuals who dined at the restaurant for lunch on September 12, 2012. The ten individuals represented one party of six and one party of four. Nine reported illness, and eight met the case definition.

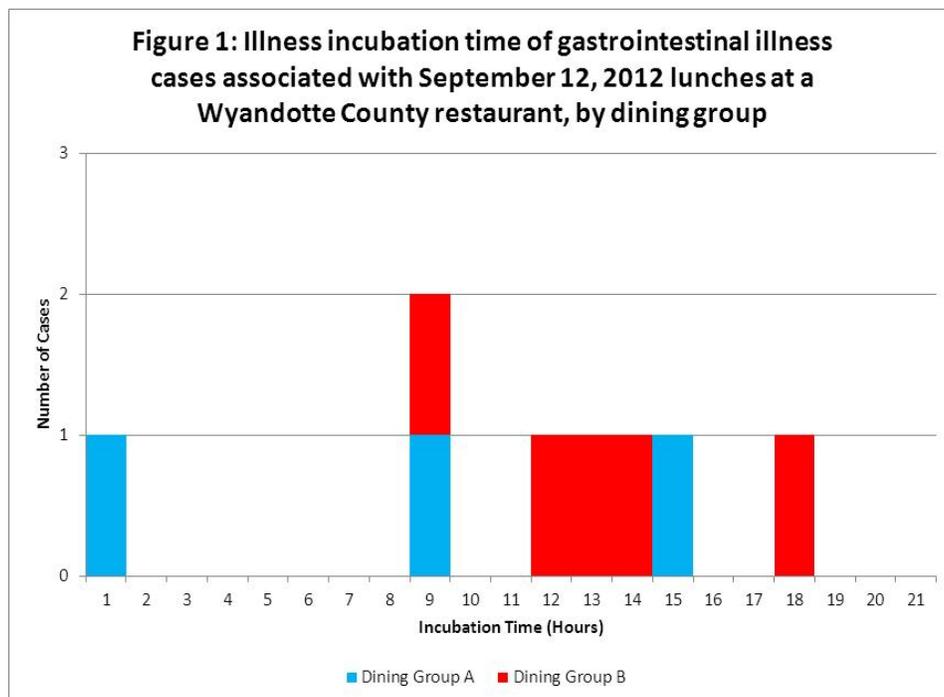
The ages of cases ranged from 26 to 46 years (median age, 30 years). Five cases were male.

All cases reported diarrhea, and one also reported vomiting (Table 1.).

Table1: Clinical Information for Cases (n=8)

<i>Symptoms</i>	<i># with Symptoms (%)</i>
Diarrhea	8/8 (100%)
Nausea	7/8 (88%)
Abdominal Pain	7/8 (88%)
Chills	2/8 (25%)
Vomiting	1/8 (13%)
Muscle Aches	1/8 (13%)

The illness incubation time ranged from one hour to 17.5 hours (median, 12.13 hours) (Figure 1). The duration of illness ranged from five and a half hours to 79 hours (median, 28 hours).



No physician visits or hospitalizations were reported.

No common exposures other than the restaurant were reported. Patrons reported eating a variety of beef, pork, steak, and chicken dishes, most of which were served with rice and beans. Based on the food histories of the eight cases and two other individuals, the cause of illness could not be conclusively linked to a food item.

The restaurant inspection by KDA revealed ten critical violations of the Kansas Food Code:

1. 2-401.11 - Eating, Drinking, or Using Tobacco
 - Open drink container in kitchen
2. 2-301.14(G) - When to Wash Hands - Between working with raw food and ready-to-eat food
 - Cook handling raw beef and didn't wash hands before handling ready-to-eat corn tortilla
3. 3-301.11(B) - No bare hand contact with ready-to-eat food
 - Cook used bare hand to handle ready-to-eat bread
4. 3-302.11(A)(1)(b) - Separation - Raw & cooked ready-to-eat
 - Tube of raw beef touching a bag of corn tortillas
5. 4-501.114(A) - Chemical Sanitization - Chlorine concentration
 - Three-vat sink had greater than 200 parts per million chlorine sanitizer solutions
6. 4-601.11A - Food Contact Clean to Sight and Touch
 - One vegetable dicer stored with food debris
7. 3-501.14(A)(1) - Cooling potentially hazardous food -135°F to 70°F within the first 2 hours
 - One container of rice at 94.1°F made at 9:00 a.m. cooling for three hours without reaching 70°F
8. 3-501.16(A)(2)(a) - potentially hazardous food cold holding =<41°F
 - Observed fresh-made pico de gallo with tomatoes at 61.1°F
9. 3-501.18(A)(2) - ready-to-eat potentially hazardous food, Disposition - discard if in a container without a date
 - Reach-in cooler: two containers of pork, two containers of salsa, one container of chicken, two containers of beans, one container of menudo. All held greater than 24 hours without having been dated
10. 7-102.11 - Common Name, Working Containers
 - Observed orange liquid in unlabeled spray bottle
11. 6-501.111(C) - Effective pest control measures in place
 - Observed 1 live adult roach
12. 4-101.11 - Utensils/food-contact surfaces of safe materials
 - Observed bread, corn tortilla, tamales, raw bacon, cooked beef and raw beef stored in non-food-grade bags

Six employee surveys were returned to KDHE; none of the employees reported gastrointestinal illness since September 10, 2012.

Food testing conducted by a private laboratory on September 23, 2012. All four food items tested were negative for *Clostridium perfringens* and *Bacillus cereus*, with one exception. *B. cereus* was detected at 30 colony-forming units (CFU) per gram in the sample of spicy refried beans.

Conclusions

Eight cases of gastroenteritis were associated with the restaurant, but the etiological agent and vehicle of transmission could not be determined. While *B. cereus* was detected in a sample of refried beans at 30 cfu/g, this level is below the 100,000 organisms per gram infective dose usually associated with human illness.¹ Additionally, *B. cereus* intoxication usually has a shorter incubation period and causes more vomiting than what was reported among cases in this outbreak.

The clinical data and inspection results suggest *C. perfringens* enterotoxin may have caused the outbreak. *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.² The sudden onset of diarrhea is common 10-12 hours after infection, and usually subsides within 24 hours. Nausea and abdominal cramps may occur; vomiting and fever are usually absent.³ *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."⁴

The restaurant inspection occurred in a timely manner and education was provided on proper food safety procedures. A follow-up inspection was scheduled to ensure that necessary changes were instituted.

The investigation began shortly after a complaint was filed with KDA. Because the complaint was received late in the business day, and some WCPHD staff were not available on September 13 and 14, most of the interviews had to be conducted during the following business week. WCPHD staff contacted and interviewed all complainants within eight days of the initial complaint.

¹ Lampel KA, editor. Bad Bug Book - Foodborne Pathogenic Microorganisms and Natural Toxins. 2nd ed. Washington, D.C.: U.S. Food and Drug Administration, 2012. Available online at <http://www.fda.gov/Food/FoodSafety/FoodborneIllness/FoodborneIllnessFoodbornePathogensNaturalToxins/BadBugBook/default.htm>.

² Mead PS. Food related illness and death in the United States. *Emerging Infectious Diseases*, 1999. 5(6):607-625.

³ Heymann DL, ed. *Control of Communicable Diseases Manual*. 18th ed. Washington, D.C.: American Public Health Association; 2004.

⁴ Ibid.

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