

**Campylobacteriosis Outbreak Associated with Consumption of Unpasteurized
Milk – Butler County, December 2011**



Background

On January 31, 2012 at 1:03 p.m., the Butler County Health Department (BCHD) notified the Kansas Department of Health and Environment (KDHE), Bureau of Epidemiology and Public Health Informatics (BEPHI) of a possible outbreak of campylobacteriosis associated with consuming raw milk. The outbreak was detected through routine disease surveillance. The BCHD, after conducting several interviews with individuals that had been diagnosed with campylobacteriosis, discovered that each had consumed unpasteurized milk purchased at a dairy located in Whitewater, KS. This unpasteurized milk was served at a private gathering attended by multiple families. Several families that had attended the gathering had later purchased raw milk from the same dairy, and consumed it on several occasions. Initial reports indicated that some individuals had become ill from drinking milk at the gathering while others became ill after consuming milk purchased at later dates. On January 31, at 1:39 p.m., in response to this report, an outbreak investigation was initiated by BEPHI and BCHD to determine the source of the raw milk, determine the extent of the outbreak and implement appropriate prevention and control measures to stop transmission of the illness.

Methods

Individuals were interviewed and demographic, clinical, and raw milk exposure information was collected, including the location and name of the dairy.

A case was defined as an individual with a positive laboratory result for campylobacteriosis. A probable case was defined as an individual with symptoms of diarrhea and abdominal cramps.

The Kansas Department of Agriculture (KDA) dairy inspection program was notified of the potential outbreak. BEPHI requested an inspection of the facility on February 2, after BCHD had identified the dairy where the milk had been purchased.

Results

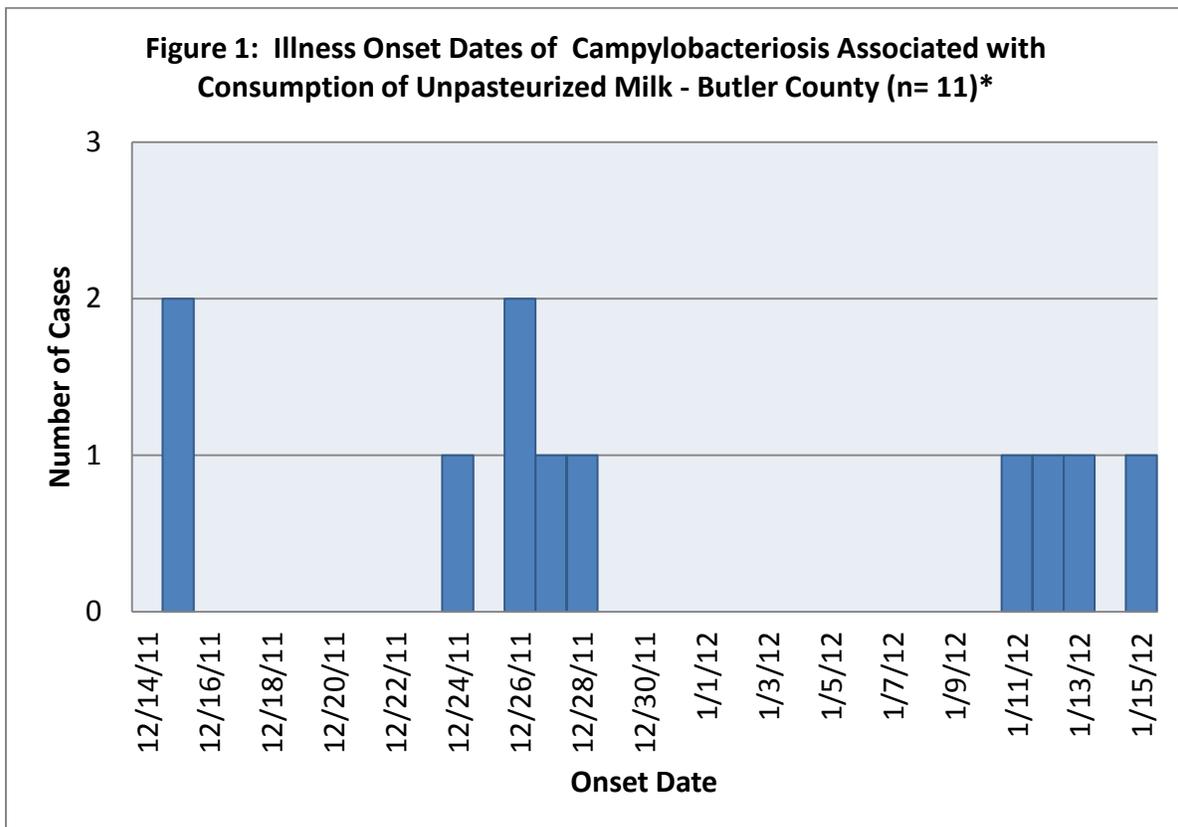
Epidemiologic Investigation

The BCHD interviewed 18 ill individuals from eight families. Seven cases were confirmed and eleven were probable. The age of case-patients ranged from one to 49 years (median age 12 years) and nine (50%) cases were male. The most commonly reported symptoms were diarrhea, abdominal cramps, and myalgia (Table 1). Onset of illness was reported by 11 individuals and ranged from December 15, 2011 to January 15, 2012 (Figure 1). The incubation period could not be calculated because of multiple exposures to raw milk. Duration of illness was reported by eight individuals and illness ranged from six to 19 days with a median of eight

days. No case-patients were hospitalized and six individuals reported seeking care from a medical provider.

Table 1: Clinical Information for Campylobacteriosis Cases Associated with Consumption of Unpasteurized Milk— Butler County, December 2011 (n = 18)

Symptoms	# with Symptoms/ Total Reporting (%)
Diarrhea	17/17 (100%)
Abdominal Cramps	17/17 (100%)
Myalgia	10/11 (91%)
Chills	9/11 (82%)
Fever	9/11 (82%)
Nausea	8/11 (73%)
Vomiting	6/11 (55%)
Bloody Stool	3/17 (18%)



**Onset date is unknown for seven individuals*

Fourteen of the eighteen individuals interviewed reported consuming unpasteurized milk purchased from the dairy in Whitewater, KS.

Environmental Assessment

KDA conducted an inspection of the dairy farm on February 9, 2012 and found no violations. The owner of the dairy farm voluntarily quit selling raw milk on January 17, 2012 after hearing about the reported illnesses. The inspector noted that the farm's milking procedures met or exceeded the Food and Drug Administration's Pasteurized Milk Ordinance regulations¹.

Laboratory Analysis

Five of the cases were culture positive for *Campylobacter jejuni*, two cases tested positive for campylobacteriosis by an antigen test, and eleven other individuals were symptomatic but not tested.

Unpasteurized milk was sampled on February 13, 2012. The standard plate count was less than or equal to 2,500 cfu/mL (regulatory limit is 100,000 cfu/mL), and the somatic cell count was less than or equal to 100,000 cfu/mL (regulatory limit is 750,000 cfu/mL). The unpasteurized milk was not tested for *Campylobacter*.

Conclusions

This outbreak of campylobacteriosis was likely caused by consumption of unpasteurized milk purchased from a dairy farm in Whitewater, Kansas. *Campylobacter jejuni* is a gram-negative, microaerophilic bacterium that can cause disease in humans and animals. Symptoms that are commonly reported with campylobacteriosis are diarrhea (which is often bloody), abdominal cramps, and fever. The incubation period ranges from two to five days and symptoms typically last one week. A serious but rare complication of campylobacteriosis is Guillain-Barré syndrome (GBS). GBS affects the nerves in the body and approximately one in every 1,000 reported *Campylobacter* illnesses develops GBS. *Campylobacter* is the most common bacterial cause of diarrheal illness with an estimated 2.4 million persons affected each year. Outbreaks of *Campylobacter* have been associated with consuming unpasteurized milk or contaminated water. Unpasteurized milk can become contaminated if it has contact with manure or if the cow has a *Campylobacter* infection of the udder².

¹ Grade A Pasteurized Milk Ordinance – 2009 Revision.

<http://www.fda.gov/downloads/Food/FoodSafety/Product-SpecificInformation/MilkSafety/NationalConferenceonInterstateMilkShipmentsNCIMSMoelDocuments/UCM209789.pdf>. Accessed 7/3/2102.

² Campylobacter General Information -

<http://www.cdc.gov/nczved/divisions/dfbmd/diseases/campylobacter/> Accessed 4/4/2012.

Although it is against federal law to sell raw milk across state lines, Kansas law allows raw milk and raw milk products to be sold directly to the consumer as long as the transaction occurs on the farm premises³.

In 2007, two campylobacteriosis outbreaks were reported in Kansas. One outbreak affected 25 individuals and was associated with the consumption of raw milk that was purchased from a dairy farm located in Reno County. Environmental assessment of the dairy indicated that the cattle appeared healthy and the dairy was operating according to proper procedures⁴. The second outbreak was associated with using unpasteurized milk to make fresh soft cheese and affected 67 individuals. The dairy that supplied the unpasteurized milk was inspected by KDA; no violations were found during the inspection.⁵

Consumers are advised not to consume raw milk or dairy products made from raw milk. The unpasteurized milk may contain pathogenic bacteria that can cause illness.

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³ Consumer Information – Dairy Products <http://www.ksda.gov/dairy/content/123> Accessed 2/22/2012.

⁴ Neises, D. Campylobacteriosis Outbreak Associated with Unpasteurized Milk – Reno County and Butler County, August – December 2007. http://www.kdheks.gov/epi/download/BU_RN_Campy_Nov07_final_report.pdf Accessed 2/22/2012.

⁵ Centers for Disease Control and Prevention. “Campylobacter jejuni Infection Associated with Unpasteurized Milk and Cheese – Kansas, 2007.” MMWR 2009: 57. <http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5751a2.htm> Accessed 4/04/2012.