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Ongoing Raw Milk *Campylobacter* Outbreak — Southcentral Alaska, July 2011

Background

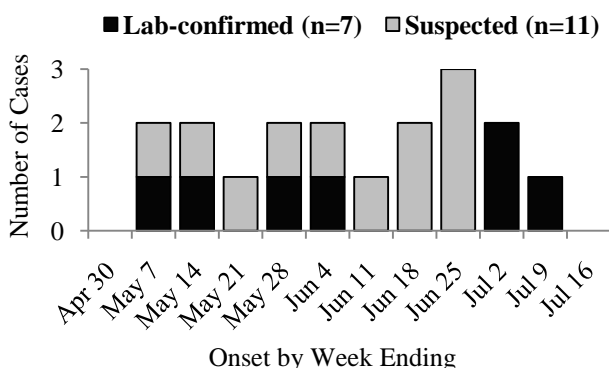
On June 27, 2011, the Alaska Section of Epidemiology (SOE) released an *Epidemiology Bulletin* detailing an outbreak of campylobacteriosis associated with the consumption of raw milk from Farm A in the Mat-Su Valley.¹ This follow-up *Bulletin* provides updated information about the investigation.

Active Case finding

On June 24, SOE distributed an Advisory through the Public Health Alert Network (PHAN) to alert health care providers of the outbreak and to recommend testing for *Campylobacter* in patients who present with acute gastrointestinal (GI) illness and a history of raw milk consumption. Through the PHAN, the June 27 *Bulletin*, and associated press releases, members of the public were also asked to contact SOE and report acute GI illness following consumption of raw milk. SOE received calls from five community members reporting current and previous GI illness among persons in their households with a preceding history of consuming Farm A raw milk or cream. Public health nurses facilitated collection of stool specimens from recently ill persons for enteric bacterial pathogen testing at the Alaska State Public Health Laboratory (ASPHL).

Stool specimens were collected from six persons with recent GI illness and consumption of Farm A raw dairy products. Three of the six samples tested positive for *Campylobacter jejuni*; all isolates were the same rare strain of *C. jejuni* found in the four other laboratory-confirmed cases in this outbreak (pulsed-field gel electrophoresis [PFGE] pattern AKDBRS16.0166/AKDBRK02.0093). These three persons shared raw dairy products obtained from Farm A during the first week of July. A total of 11 persons who reported acute GI illness with routine consumption of Farm A dairy products but were not-laboratory confirmed were considered to have suspected campylobacteriosis (Figure).

Figure. Cases of *Campylobacter jejuni* Infection associated with Consumption of Farm A Raw Milk, by Onset Date — Southcentral AK, May–July 2011



Environmental and Milk Testing Results

Eleven composite cow manure samples, one composite chicken manure sample, and one swab from the milking parlor drain were collected on June 22. ASPHL cultured the samples with guidance from the Centers for Disease Control and Prevention (CDC) *Campylobacter* Laboratory. Any culture suspicious for *Campylobacter* growth had up to six colonies chosen and plated for identification. From the 13 samples collected at the farm and submitted for culture, 18 separate colonies were identified as *C. jejuni* and underwent PFGE analysis; seven different PFGE patterns were identified. PFGE pattern AKDBRS16.0166/AKDBRK02.0093 was isolated in manure samples from the grazing field and the calf barn; this pattern was identical to the pattern of the *C. jejuni* isolated from the seven laboratory-confirmed patients.

Farm A bulk tank milk samples collected on June 22 and 27 tested negative for *C. jejuni*, but positive for *Listeria monocytogenes*. None of the Farm A raw milk that was actually consumed by ill persons was available for testing.

Discussion

The identical rare strain of *C. jejuni* has been identified in all laboratory-confirmed patients associated with this outbreak and Farm A cow manure specimens. These laboratory findings combined with the epidemiologic finding that Farm A raw dairy product consumption is the only exposure common to all seven laboratory-confirmed cases (and the 11 suspect cases) affirms the conclusion that this outbreak is due to consumption of Farm A raw dairy products. Contamination might have resulted from introduction of manure into the milk or cream at some point in time from milking to filling the containers, or a cow (or cows) with an infected udder may be intermittently shedding *Campylobacter* directly into the milk. Regardless of the exact mechanism of contamination, with confirmed cases reporting consumption of dairy products over an 8-week period from May to July, this outbreak poses an *ongoing threat to Farm A raw dairy product consumers*.

It is not surprising that *C. jejuni* was not detected in Farm A bulk tank samples because *C. jejuni* is notoriously difficult to culture from environmental specimens other than raw stool,² and few campylobacteriosis outbreak investigations yield laboratory confirmation of an implicated food source such as raw milk or produce.³ Furthermore, none of the raw milk that was actually consumed by ill persons prior to their illness onset was available for testing. Numerous *C. jejuni* strains were detected on Farm A, which was anticipated given that many farm animals are known reservoirs for the bacteria. Finding only a single or predominant strain shared by the human cases is not unusual, and might relate to factors associated with seasonality or adaptation of the strain to humans.⁴ Finally, as was the case in May, the Farm A raw milk samples collected in June tested positive for *L. monocytogenes*, which can cause life-threatening meningitis in children and persons with compromised immune systems.

Recommendations

1. Health care providers should be aware that this *C. jejuni* outbreak is ongoing and should collect stool specimens for enteric bacterial pathogen testing on all persons with acute GI illness and a recent history of raw dairy product consumption. ASPHL offers free testing; collection guidelines are available at: http://www.hss.state.ak.us/dph/labs/publications/image/Lab_Svcs_Manual.pdf
2. Health care providers are required to report all clinical and laboratory-confirmed cases of *Campylobacter* infection (7 AAC 27.005). Please call 907-269-8000 Mon–Fri 8AM to 5PM, or 907-561-1324 or 800-478-1700 if calling after hours or from outside of Anchorage.
3. Providers should educate their patients about the potential serious risks of raw dairy product consumption. Educational materials are available on-line.⁵

References

1. Alaska Epidemiology *Bulletin*. *Campylobacter* Outbreak Associated with Consumption of Raw Milk, May–June 2011. No. 18, June 27, 2011. Available at: http://www.epi.alaska.gov/bulletins/docs/b2011_18.pdf
2. Mahon CR, Dehman DC, eds. *Textbook of Diagnostic Microbiology*, 3rd ed. Philadelphia: Saunders Elsevier, 2007.
3. Stern NJ, Line JE. Comparison of three methods for recovery of *Campylobacter* spp. from broiler carcasses. *J Food Prot* 1992;55:663–6.
4. Sopwith W, Birtles A, Matthew M, et al. Identification of potential environmentally adapted *Campylobacter jejuni* strain, United Kingdom. *Emerg Inf Dis* 2008;14(11):1769–73.
5. *Real Raw Milk Facts*, available at: <http://www.realrawmilkfacts.com/>