



Outbreak of Cryptosporidiosis and Giardiasis Associated with a Daycare Center

**Douglas County, Kansas
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Outbreak Investigators

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Background

On August 3 2006, the Lawrence-Douglas County Health Department (LDCHD) received a report of cryptosporidiosis. The case was an enrollee at Daycare Facility X, located in the city of Lawrence. Further investigation revealed a cluster of diarrheal illness at the daycare; in addition to the laboratory-confirmed case, three other enrollees and two staff members were also symptomatic. The daycare's total enrollment was 140; it employed 30 staff members.

LDCHD distributed stool kits to test the symptomatic individuals. By August 11, both *Giardia* and *Cryptosporidium* were detected in enrollees. LDCHD notified the Epidemiologic Services Section (ESS) at the Kansas Department of Health and Environment (KDHE) of the outbreak. An outbreak investigation was begun. The purpose of the investigation was to determine the extent of the outbreak and to implement appropriate prevention and control measures.

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Methods

Using the ESS's standard Enteric Questionnaire, LDCHD interviewed all Daycare Facility X children and staff, as well as confirmed cases of giardiasis and cryptosporidiosis among Douglas County residents. Each person's clinical information and personal history, such as exposure to daycares and recreational water, was collected.

Children and staff with symptoms of giardiasis or cryptosporidiosis were asked to submit a stool specimen for laboratory testing. Testing was performed at the Kansas Department of Health and Environmental Laboratories (KDHEL) as well as through private laboratories.

Public Health Interventions

Symptomatic children were excluded from the facility; they were allowed to reenter when asymptomatic. The same exclusion policy was applied to the daycare staff.

Daycare Facility X notified parents of the outbreak through a letter that was sent home with enrollees on August 3. LDCHD provided cryptosporidiosis and giardiasis fact sheets to supplement the letter.

Upon inspection of the facility, the LDCHD staff provided information about proper hand washing techniques of Daycare Facility X. The daycare began to monitor children to ensure proper hand washing was practiced, and water play at the daycare was suspended. Hydrogen peroxide was recommended for disinfection.

As the outbreak progressed, LDCHD took steps to alert the community. On August 11, a news release was issued, letter was sent to area childcare facilities, and, to increase detection of additional cases, a letter was faxed to area physicians. Because *Cryptosporidium* is readily transmitted through recreational water, a health alert was sent to all community pools on August 16.

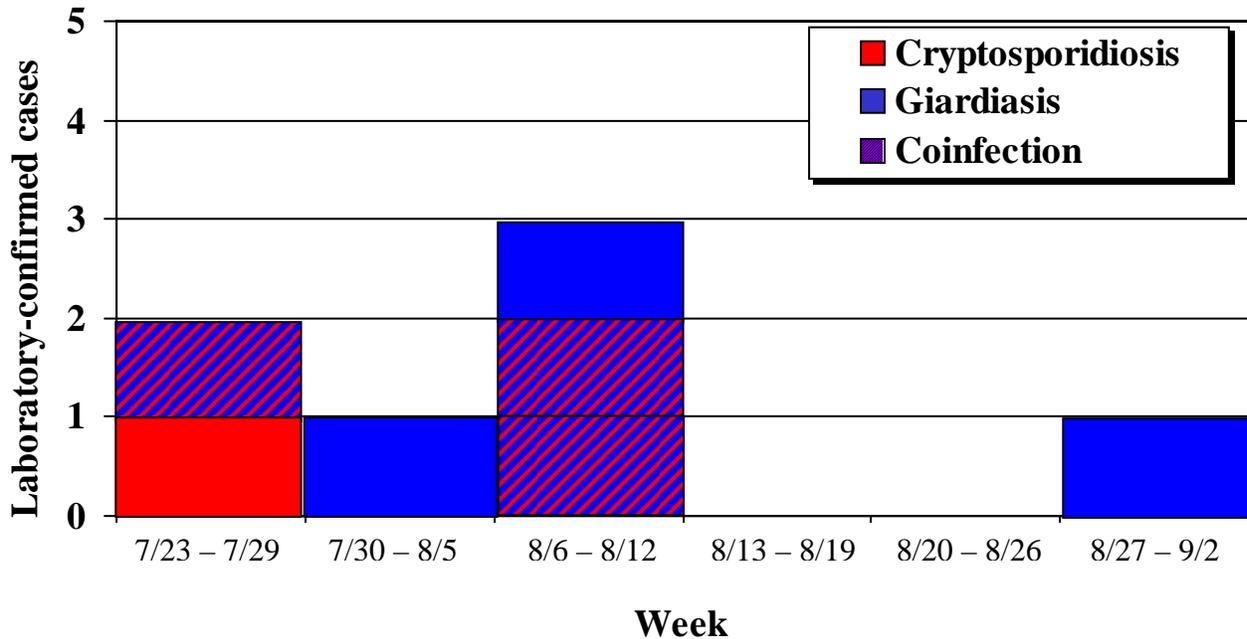
KDHE issued a health update to surrounding counties on August 16 to notifying them of the ongoing outbreak. Neighboring county health departments were asked to obtain the travel history of cases of giardiasis and cryptosporidiosis, to ascertain exposure to Douglas County.

Results

From July 26 to October 1, 19 individuals (14 enrollees and 3 staff) were reported to be symptomatic. Fifteen (79%) of these individuals were tested. No staff tested positive for *Giardia* or *Cryptosporidium*. One child tested positive for *Cryptosporidium*, three tested positive for *Giardia*, and three were infected with both *Cryptosporidium* and *Giardia* (Figure 1). Laboratory-confirmed enrollees ranged from one to three years of age; the median age was one years of age.

Daycare Facility X was inspected by the Lawrence-Douglas County Health Department on August 15, 2006. The inspection confirmed that the daycare was practicing recommended guidelines for outbreak control, including the exclusion of symptomatic children as mentioned above.

Figure 1. Daycare X-related, laboratory-confirmed cryptosporidiosis and giardiasis cases by week of symptom onset, 2006 (n=7)



Outside of the daycare, five laboratory-confirmed cases of cryptosporidiosis and two laboratory-confirmed cases of giardiasis were reported among Douglas County residents during the same time period. Two of the individuals with cryptosporidiosis were enrollees in a different area daycare, Daycare Facility Y. LDCHD visited Daycare Facility Y on August 16, and instituted the same interventions that were previously introduced to Daycare Facility X.

All other Douglas County cases appeared to be sporadic, with no reported link to either childcare center. None of the confirmed cases reported swimming in recreational water while symptomatic.

Discussion

Cryptosporidium and *Giardia* are parasites that cause similar symptoms; both are spread through contact with the stool of infected persons or animals, consumption of contaminated food or water, and by person-to-person or animal-to-person contact.

This outbreak appears to be the result of person-to-person transmission within the daycare facility. The epidemic curve of this outbreak (Figure 1) supports this conclusion.

Limitations

This outbreak investigation did not include a formal study of the relationship between exposures and cryptosporidiosis (or between exposures and giardiasis). A cohort study would have been helpful in clarifying the specific exposure, or exposures, associated with infection.

Recommendations

Several prevention measures should be followed to prevent future outbreaks in daycare settings:

- Daycare enrollees should be educated on proper hand washing technique.
- Younger children enrolled in daycare should be supervised after they use the toilet, to ensure proper hand washing.
- Daycare staff and enrollees practice should always practice proper hand washing technique, including hand washing after using the toilet, after changing diapers, and before preparing, serving or eating food.
- Surfaces and hard-surface toys should be cleaned regularly; during an outbreak, they should be cleaned daily.
- The importance of restricting ill daycare enrollees and staff should be stressed, especially when the illness is gastrointestinal.

Acknowledgements

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