

Shigellosis Outbreak Associated with a Preschool and Daycare — Brown County, May 2014



Background

On May 16, 2014 at 9:04 AM, the Brown County Health Department (BCHD) notified the Kansas Department of Health and Environment's Infectious Disease Epidemiology and Response section (KDHE) of a potential outbreak of shigellosis. BCHD identified 3 cases of shigellosis among daycare attendees through routine surveillance. In response to this notification, KDHE worked with BCHD to collect information on ill individuals and make recommendations to stop transmission of the illness. Additional cases were identified in a preschool also attended by one of the children from the daycare. Approximately 30 children divided between two classrooms attended the preschool.

Methods

Epidemiologic Investigation

A line list of was completed by one of the preschool teachers to identify ill individuals. A similar line list was requested of the daycare, but not received by BCHD. A confirmed case was defined as diarrhea with laboratory evidence of shigellosis infection between April 16, 2014 and May 14, 2014 in a person associated with the preschool or daycare. A probable case was defined as diarrhea with an epidemiological link to a confirmed case between April 16, 2014 and May 14, 2014 in a person associated with the preschool or daycare.

Recommendations were made to exclude all children and adults with diarrhea until after symptoms had ceased for 24 hours, to increase cleaning of environmental surfaces, and to practice good hand hygiene. The child care licensing program at KDHE was notified about the outbreak.

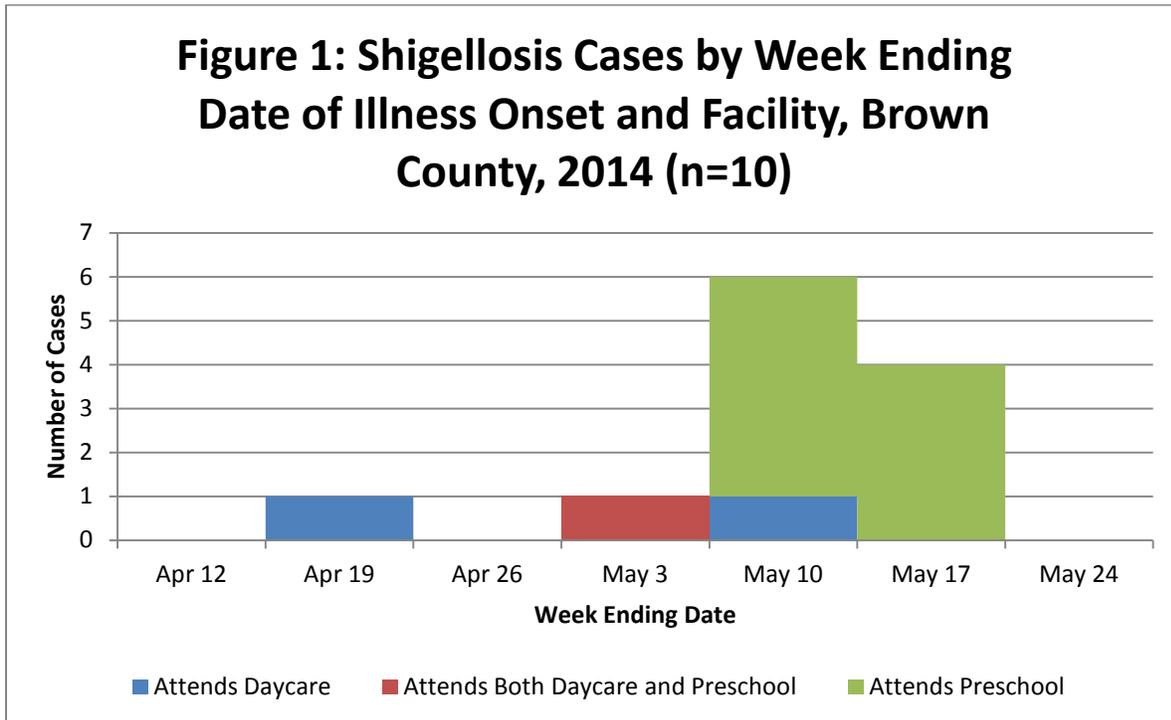
Laboratory Analysis

Three stool specimens were collected by physicians and sent for testing at private laboratories. Two of the *Shigella* isolates were sent to the Kansas Health and Environmental Laboratories (KHEL) for pulse field gel electrophoresis (PFGE).

Results

Epidemiologic Investigation

A total of 10 cases were identified. Complete clinical information was provided for three confirmed cases and limited information was provided for 7 probable cases. Nine (90%) of the cases were female, and ages of cases ranged from 3 to 50 years with a median of 5 years. Diarrhea was reported in all cases. Onset dates of illness ranged from April 16, 2014 to May 14, 2014 (Figure 1). The duration of illness and illness incubation periods were not determined.



Of seven reported preschool attendees, six were within the west classroom.

Laboratory Analysis

Three stool specimens were confirmed to be *Shigella sonnei*, subgroup D. The two isolates that were forwarded to KHEL had indistinguishable PFGE patterns. The Centers for Disease Control and Prevention identified the PFGE pattern as J16X01.0283.

Conclusions

This outbreak was caused by *Shigella sonnei* and was most likely transmitted person-to-person. *Shigella sonnei* is transmitted primarily through the fecal-oral route, either by consumption of fecally-contaminated food or water or by direct person-to-person contact. Environmental and fomite contamination may also act as a source of infection. As few as 10 to 200 organisms can cause infection.¹

Ten cases of shigellosis were identified among one daycare and one preschool. The actual number of infected individuals may have been higher than the number of reported cases, as a line list of ill children could not be attained from the daycare.

The outbreak was deemed over on May 28, 2014, when 14 days had passed without a reported case.

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On: 7/22/2014

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¹ Centers for Disease Control and Prevention. "Shigellosis: Technical Information", Accessed on July 21, 2014 at: <http://www.cdc.gov/nczved/divisions/dfbmd/diseases/shigellosis/technical.html>.