

EPIDEMIOLOGIC INVESTIGATION SUMMARY

DIARRHEAL ILLNESS OUTBREAK AMONG CHILDREN AND STAFF OF A CHILD DAYCARE

WASHOE COUNTY, NEVADA, 2013

Department of Health and Human Services
Division of Public and Behavioral Health
Office of Public Health Informatics and Epidemiology

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PURPOSE

The purpose of this newsletter is to provide the scientific community, decision makers, healthcare providers, and the public a summary of the outbreak investigations conducted by the Division of Public and Behavioral Health.

BACKGROUND

On November 4, 2013, the Division of Public and Behavioral Health (DPBH), Office of Public Health Informatics and Epidemiology (OPHIE) was informed by a child daycare coordinator at Facility "A" of a gastrointestinal (GI) illness among children and staff. The problem was first identified by daycare staff on October 14, 2013. Symptomology of the ill included diarrhea and vomiting. The outbreak investigation began on November 4, 2013.

METHODS

Epidemiology

On November 4, 2013, DPBH provided recommendations to reduce and prevent the spread of illness in Facility "A," including the submission of outbreak case report forms to OPHIE until further notice and exclusion of symptomatic children and employees from the facility until 72 hours after symptoms resolve.

A **suspect case** was defined as a child or staff member of Facility "A" who was not lab confirmed with a GI agent but anecdotally had diarrhea or vomiting since October 25, 2013.

A **probable case** was defined as a child or staff member of Facility "A" who was not lab confirmed with a GI agent, but who had diarrhea, vomiting, and nausea since October 25, 2013.

A **confirmed case** was defined as a child or staff member of Facility "A" who was lab confirmed with a GI agent and had diarrhea, vomiting, or nausea since October 25, 2013.

A **recurrent case** was defined as a child or staff member of Facility "A," whether lab confirmed or not, who had had a GI illness with diarrhea, vomiting, and nausea two or more times since October 25, 2013.

Recurrent cases among children and staff began the week of November 2, 2013. On January 15, 2014, a site visit was conducted to investigate the continuing outbreak. It became apparent that there was a comparable group of staff and children (>12 months old) 100 feet away from where cases were who were not experiencing any GI illness. Food sources, staff members, environment, and daily practices were compared between the two groups to determine a possible cause of the outbreak. Additionally, facility staff provided attendance records prior to the outbreak to determine a baseline of illness for the daycare.

Laboratory

Laboratory testing for GI illness was highly recommended for ill residents in order to identify the etiologic agent, target infection prevention measures and control the outbreak within Facility "A." Laboratory testing was focused on the presence of rotavirus, *Clostridium difficile*, and norovirus.

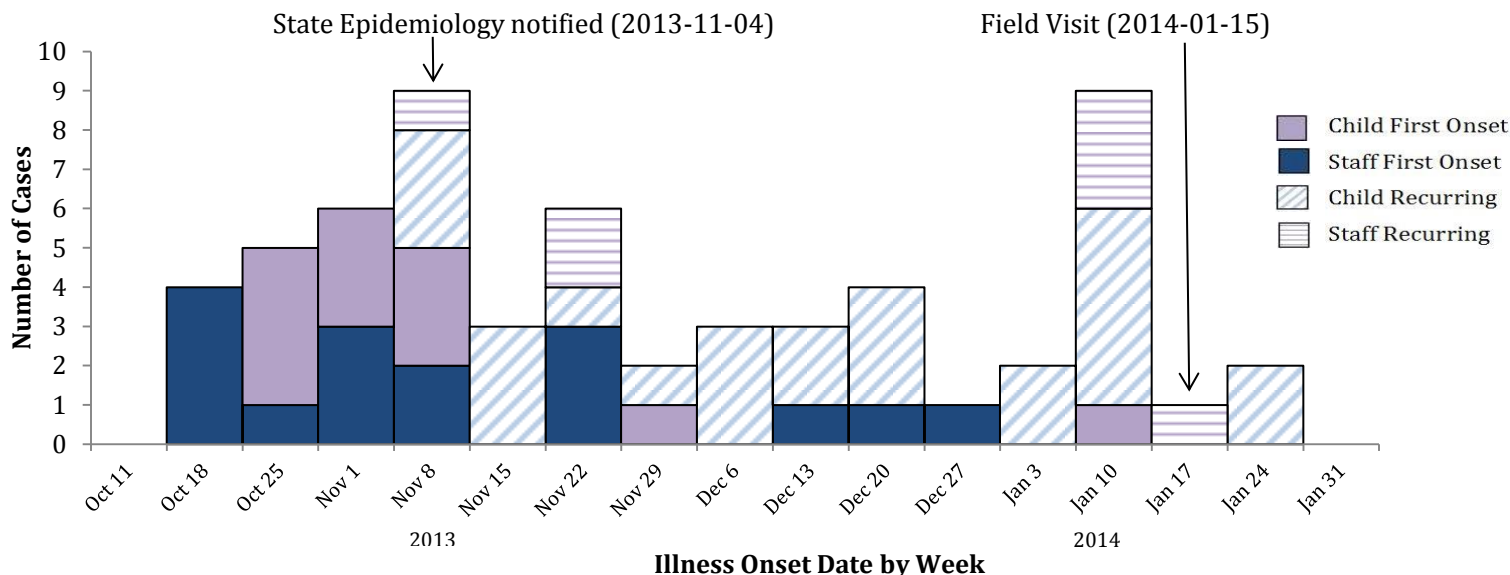


Figure 1. The epidemic curve of diarrheal illness (n=28) associated with a child care facility in Washoe County, Nevada from October 14, 2013 to January 23, 2014, by week ending date.

Six persons (3 children and 3 staff) submitted stool samples for testing.

Mitigation

In order to prevent further spread of illness, the OPHIE Outbreak Response Team disseminated information and recommendations for the prevention and control of norovirus gastroenteritis outbreaks.

RESULTS

Epidemiology

A total of 28 people (26 probable and 2 confirmed) were reported to be ill. Illness onset occurred between October 14, 2013 and January 23, 2014. The epidemic curve is presented in Figure 1 and shows the distribution of illness onset dates.

The peak illness onset date was January 6, 2014. Among the 28 cases, 16 were children (<24 months old) and 12 were staff members (>17 years olds) of Facility "A." The average age for children was 9 months old (range 3-23 months) and for staff members was 36 years old (range 18-73 years). Males comprised 75% of child cases and females comprised 100% of staff cases.

Symptoms of the children were limited to those observed and measured, as the children were unable to verbalize their symptoms. Symptomatic children were reported to have diarrhea (100%), fever (12.5%), vomiting (6.3%), and nausea (6.3%). The duration of illness of most child cases was 6 days (range 2-12 days). Symptomatic staff members reported nausea (100%), diarrhea (91.7%), vomiting (91.7%), body aches (83.3%), abdominal pain (25%), and fever (8.3%). The duration of illness of most staff cases was 4 days (range 2-6 days). The child attack rate was 50%, the staff attack rate was 54.5%, and the overall attack rate was 51.9%. Children had a recurrence of illness of 68.8% and staff 41.7%.

During the site visit, it appeared to the outbreak team that correct preventive measures were being taken, including washing and disinfecting of toys often, shoes not being worn inside, and hand washing frequently by staff. The kitchen was found to be small and contained the food for staff and for children. However, when looking at the comparable group of children of the next age group 100 feet away, environmental exposures, food sources, and activities were reported to be the same. Staff members were also shared between the age groups from time to time.

Baseline data showing absentee numbers (due to any reason and only for children) prior to the outbreak found the outbreak was above what was expected.

Laboratory

Of 6 specimens tested, 1 child and 1 staff member tested positive for *Clostridium difficile*.

Mitigation

As the cause of the outbreak was classified as undetermined, DPBH reiterated to the facility the recommendations for preventing and controlling future norovirus gastroenteritis outbreaks.

CONCLUSIONS

A diarrheal illness outbreak occurred among children and staff at Facility "A," a child daycare in Washoe County, Nevada from October 14, 2013 through January 23, 2014. Laboratory test results were conducted, with *Clostridium difficile* being found in 1 staff member and 1 child. However, the descriptive epidemiology did not support this pathogen being the cause of this outbreak. The outbreak was classified as a diarrheal illness not otherwise specified and mode of transmission remains unknown.

In total, 2 persons were classified as confirmed (1 child and 1 staff member) and 26 persons were classified as probable cases (16 children and 12 staff). Symptoms included diarrhea, nausea, vomiting, body aches, abdominal pain, and fever with illness duration lasting an average of 6 days for children and 4 days for staff. Staff of the facility had the highest attack rate (54.4%), but the children had the highest recurrence rate (68.8%). The epidemiologic link between cases was believed to be the daycare facility where the children spent time and the staff worked.

The outbreak ceased as of January 24, 2014.

RECOMMENDATIONS

To prevent outbreaks of infectious diseases, such as diarrheal illnesses, in child care settings, the following public health measures are recommended:

- Follow hand-hygiene guidelines. Have staff carefully wash their hands with soap and water frequently and wash the hands of children when they first arrive at the child care facility, after diaper changes, and before eating.

- Exclude any child with diarrhea from the child care setting until the diarrhea has stopped.
- Reinforce good diapering practices. Separate diaper-changing areas from play and food preparation areas. Use disposable paper over diaper-changing surfaces and change it after each diaper change. Ensure children wear clothing over their diapers to reduce the opportunity for leakage.
- Disinfect surfaces and objects, such as toys, tabletops, diaper-changing areas, food-preparation areas, and bathrooms.¹

REFERENCES

1. Centers for Disease Control and Prevention. *Prevention Measures*. February 6, 2012. Retrieved May 13, 2014, from <http://www.cdc.gov/parasites/crypto/daycare/prevent.html>.

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