



POSSIBLE OUTBREAK ASSOCIATED WITH A SCHOOL GARDEN CITY, FINNEY COUNTY, KANSAS JANUARY 2005

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Introduction

On Thursday, January 27, 2005, the Finney County Health Department (FCHD) notified the Epidemiologic Services Section (ESS) within the Bureau of Epidemiology and Disease Prevention (BEDP) at the Kansas Department of Health and Environment (KDHE) of a possible outbreak in Garden City, Finney County, Kansas. Preliminary information revealed that 15 students and two staff members at a school (School X) experienced gastrointestinal illness early that Thursday afternoon.

With the cooperation of ESS and the regional bioterrorism coordinator, the Finney County Health Department conducted further follow-up to verify the existence of an outbreak at School X and to determine if an epidemiologic outbreak investigation was necessary.

Background

During the 2004-05 school year, School X enrolled 465 students and employed 47 certified employees and five teacher aides¹. Food served at School X is centralized, with other schools in the district receiving the same pre-packaged meals.

Epidemiologic Follow-Up

FCHD generated a line list to gather more information related to the ill persons and to verify the existence of an outbreak. Information collected revealed that 21 (5%) of the 465 students and two (4%) of the 47 staff members reported symptoms of nausea, vomiting, or diarrhea. Of those reporting illness, only 13 persons met the case definition: a student or staff member who experienced vomiting or diarrhea on January 27, 2005. The other 10 persons reported experiencing only nausea.

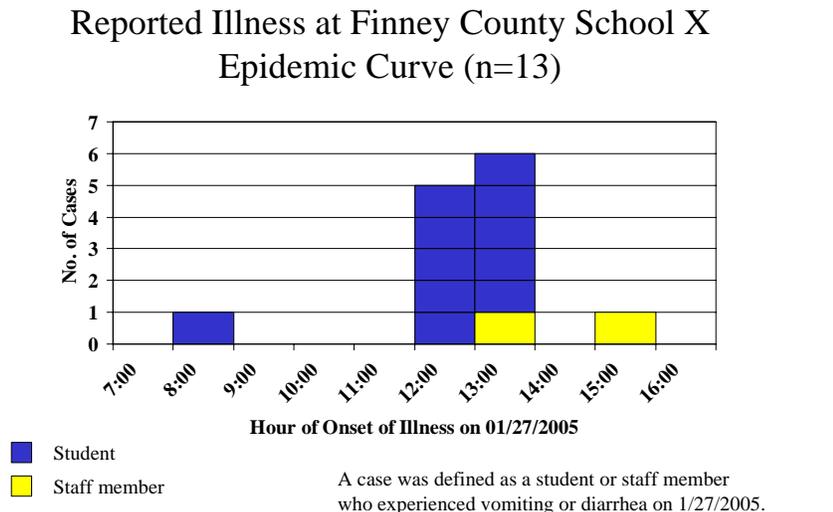
¹ Kansas State Department of Education: Quality Performance Accreditation (QPA) Annual Report, 2004-05.
<http://www.ksbe.state.ks.us>.

Of the 13 cases, 11 were students and two were staff members (Table 1). The 11 students were all male, with a median age of 12 years, and were distributed among four different classrooms. The two ill staff members included the school nurse and the custodian who cleaned the affected area.

Table 1. Persons Meeting Case Definition (n=13)

	Student (n=11)		Staff (n=2)	
	No.	(%)	No.	(%)
Gender:				
Male	11	(100)	0	(0)
Female	0	(0)	2	(100)
Classroom distribution:				
Teacher A	3	(30)	NA	
Teacher B	2	(20)	NA	
Teacher C	1	(10)	NA	
Teacher D	4	(40)	NA	
Age, median years:	12		53	
Reported the following symptoms:				
Nausea	11	(100)	2	(100)
Vomiting	11	(100)	2	(100)
Diarrhea	2	(18)	2	(100)

Figure 1. Epidemic Curve



As seen in Figure 1, the majority of the cases reported onsets of illness between 12 P.M. and 2 P.M. Symptoms usually lasted less than one day. None of the ill individuals sought medical care or submitted a specimen for diagnostic testing.

Most of the students reported eating the school breakfast and lunch on January 25th, 26th, and 27th, but the two staff members did not eat the food served at the school. Though no additional illnesses were reported among other students or staff or in other schools in the district, a food inspector was notified to conduct a food inspection.

Discussion

The attack rate of 3% among the total school population was not unexpected or unusual. In addition, no commonality, such as a particular classroom or a school meal consumed, appeared to be the source of illness among the 13 cases. However, the epidemic curve is consistent with a point-source outbreak in which the onsets of illness are clustered in time.

Several possibilities may account for this occurrence. First, psychosomatic illness among this age group is a plausible explanation for the clustering of cases. Second, other commonalities (i.e., snacks shared, other school-based interactions, neighborhood or family connections) not identified during the epidemiologic follow-up may have been the source of illness. Third, investigations of several outbreaks, particularly those caused by Norovirus, have suggested that infection may be spread through inhalation of aerosolized vomitus^{1,2,3}. The school nurse stated that a student vomited in a well-frequented hallway on January 25th around noon and that most of the cases reporting vomiting on January 27th passed by this student as he was vomiting. The custodian, who cleaned the hallway, also reported illness 48 hours after exposure to the vomit.

Conclusions

The cause and source of illness could not be determined for this group of individuals. Nonetheless, the clustered onsets of illness are an indication that some common source exposure shared among the cases could have led to illness.

Recommendations

To prevent potential occurrences in the future, the following are recommended:

- Encourage students and staff to leave school after experiencing illness
- Practice proper procedures when cleaning up bodily fluid spills and disinfecting contaminated surfaces

¹ Caul EO. Small round structured viruses: airborne transmission and hospital control. *Lancet* 1994;343:1240–2.

² Chadwick PR, McCann R. Transmission of a small round structured virus by vomiting during a hospital outbreak of gastroenteritis. *J Hosp Infect* 1994;26:251–9.

³ Marks PJ, Vipond IB, Carlisle D, Deakin D, Fey RE, Caul EO. Evidence for airborne transmission of Norwalk-like virus (NLV) in a hotel restaurant. *Epidemiol Infect* 2000;124:481–7.