

## Outbreak of Enterovirus D68 — Morton County, August 2014



### **Background**

On August 25, 2014 at 12:00 PM, the Kansas Department of Health and Environment's Infectious Disease Epidemiology and Response section (KDHE) received a report from the Morton County Health Department (MCHD), of a severe respiratory illness affecting seven students, resulting in five hospitalizations; all students attended a school in Oklahoma but the majority of students hospitalized were Morton County residents. An outbreak investigation began immediately to determine the cause and scope of illness.

### **Methods**

MCHD contacted the area hospital to obtain clinical records of patients who were either hospitalized or seen in the Emergency Department (ED).

Six nasopharyngeal swabs were collected from symptomatic patients and sent to the Kansas Health and Environmental Laboratories (KHEL), where molecular testing was performed using a respiratory viral panel (RVP) capable of detecting the nucleic acids of twelve respiratory viruses. Positive specimens were forwarded to the Centers for Disease Control and Prevention (CDC) for typing.

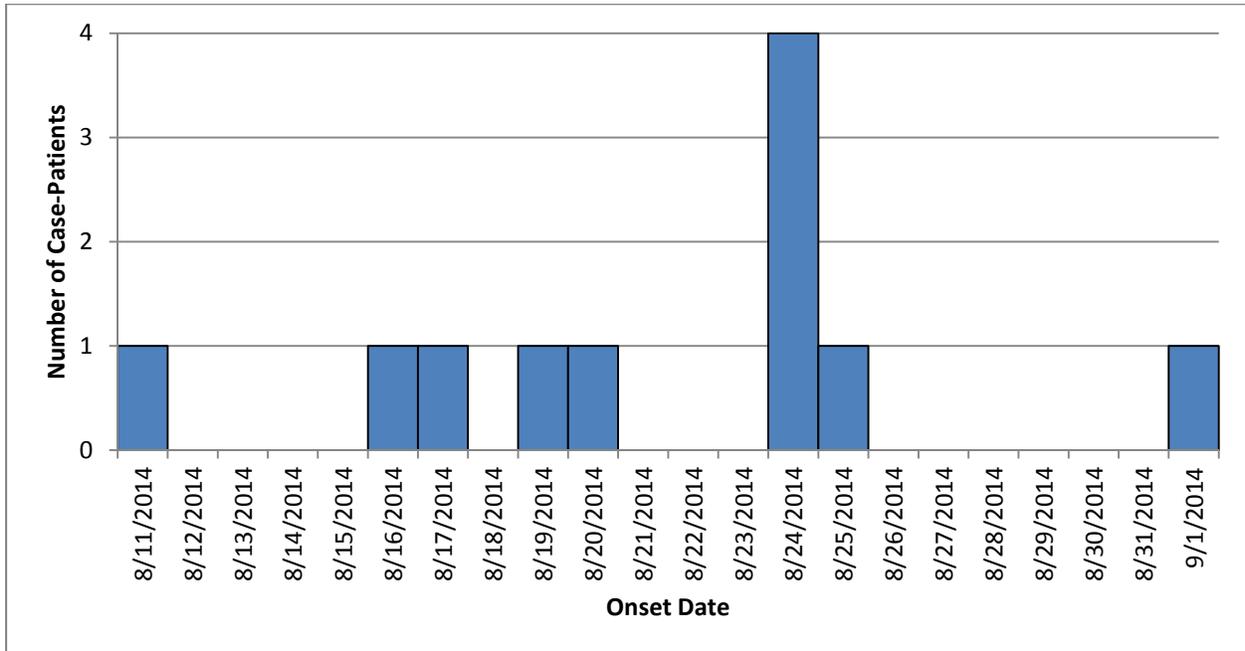
Cases were defined as a cough illness with laboratory confirmation of enterovirus D68 or an epidemiologic link to a person with a laboratory confirmed case with onset between August 16, 2014 and September 1, 2014. Probable cases were defined as a cough illness in a student who attended one of the two affected schools or was a contact to a student with onset between August 16, 2014 and September 1, 2014.

### **Results**

Eleven persons were cases; seven were confirmed and four were probable. The first case-patient became ill on August 11, 2014, and the last case-patient became ill on September 1, 2014 (Figure 1). The first individuals who became ill attended an elementary school in Oklahoma, but were residents of Kansas. A second elementary school in Kansas began reporting ill students on August 24, 2014.

The patients' ages ranged from 1 to 9 years with a median of 4 years of age. Four (36%) were female, and 7 (64%) were male.

**Figure 1: Case-patients by illness onset date (n=11)**



Ten case-patients reported cough, nine reported shortness of breath, and eight reported wheezing (Table 1). Nausea, gastrointestinal symptoms, and fever were also reported. Three (27%) had a history of asthma.

**Table 1: Clinical information for case-patients (n=11)**

Symptoms	# Cases Reporting / # Cases with Information	Percentage
Cough	10 / 10	100%
Shortness of Breath	9 / 9	100%
Wheezing	8 / 9	89%
Nausea	6 / 8	75%
Fever	7 / 10	70%
Vomiting/Diarrhea	5 / 9	56%

Six nasopharyngeal swabs were collected and tested at KHEL using a respiratory viral panel. Rhinovirus/enterovirus was detected in six specimens. Those six specimens were forwarded to the CDC laboratory for further testing, and five of the six were determined to be enterovirus D68 (EV-D68); the sixth specimen tested negative at CDC.

## **Conclusions**

This respiratory illness outbreak was attributed to enterovirus D68. Enteroviruses are common viruses that cause tens of thousands of hospitalizations each year, particularly during the summer and fall.<sup>1</sup> EV-D68 has been reported to the CDC regularly since 1987, but in 2014 there was a dramatic increase in the number of people reported with confirmed infections. From mid-August 2014 to January 15, 2015, CDC or state public health laboratories confirmed a total of 1,153 people in 49 states and the District of Columbia with respiratory illness caused by EV-D68. Almost all of the confirmed cases were among children, many whom had asthma or a history of wheezing.<sup>2</sup> It is believed that children are at greater risk for EV-D68, and those with asthma may be at an even higher risk.<sup>3</sup>

### References:

1. Centers for Disease Control and Prevention. Non-Polio Enteroviruses: Overview. Accessed online at: <http://www.cdc.gov/non-polio-enterovirus/about/overview.html>. Page last updated: September 9, 2014.
2. Centers for Disease Control and Prevention. Enterovirus D68 in the United States, 2014. Accessed online at: <http://www.cdc.gov/non-polio-enterovirus/outbreaks/ev-d68-outbreaks.html>. Page last updated: January 8, 2015.
3. Centers for Disease Control and Prevention. Enterovirus 68. Accessed online at: <http://www.cdc.gov/non-polio-enterovirus/about/overview.html>. Page last updated: September 25, 2014.

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