Subject: Enterovirus 68 (EV68) - who to refer for testing

In mid-August, the CDC received reports of an increased number of cases of severe respiratory illness in children in two separate clusters occurring in Kansas City, Missouri and Chicago, Illinois (www.cdc.gov/mmwr/preview/mmwrhtml/mm63e0908a1.htm). Some children have required admission to pediatric intensive care units (ICU). The majority of hospitalized patients are <5 years of age, although some have been adolescents, and most have a history of asthma. Patients have presented with wheezing or difficulty breathing with hypoxia. Of note, only ~20% of patients have been febrile. Chest radiographs frequently show perihilar infiltrates, often with atelectasis. Several patients have required mechanical ventilation or bilevel positive airway pressure ventilation; one has required extracorporeal membrane oxygenation (ECMO). Initial testing at hospitals identified enterovirus or rhinovirus. Subsequent testing at CDC identified enterovirus D68 (EV-D68). There are no available vaccines or specific treatments for EV-D68, and clinical care is supportive.

Enteroviruses are associated with various clinical symptoms, including mild respiratory illness, febrile rash illness, and neurologic illness. EV-D68, however, primarily causes respiratory illness, although the full spectrum of disease remains unclear. Since the original isolation of EV-D68 in California in 1962, EV-D68 has been reported rarely in the United States; the National Enterovirus Surveillance System received 79 EV-D68 reports during 2009–2013. Small clusters of EV-D68 associated with respiratory illness were reported in the United States during 2009–2010.

In California, influenza-like illness (ILI) activity, monitored through the Outpatient Influenza-like Illness Surveillance Network (ILINet), has remained low. Likewise, CDPH has not received reports of clusters of severe respiratory illness in young children. However, early identification of EV-D68 will help alert clinicians to the presence of the disease in California, and may assist with education, management of outbreaks, and containment strategies.

Local health jurisdictions and local public health laboratories are encouraged to work with health care providers and hospitals in their jurisdictions to consider EV-D68 as a possible cause of acute, unexplained severe respiratory illness in children.

Specifically, CDPH is requesting the following:

- In children under the age of 18 years with severe respiratory illness, especially with wheezing, who are admitted to a PICU, respiratory specimens (e.g., nasopharyngeal swabs, throat swabs, endotracheal aspirates) should be collected and sent for polymerase chain reaction (PCR) testing for multiple viral pathogens, including influenza, rhinovirus and/or enterovirus. Testing for multiple viral pathogens is available at select local public health laboratories, commercial laboratories, and certain large hospital laboratories.
- Specimens that test positive for rhinovirus or enterovirus by PCR at a commercial or hospital laboratory should be sent to the local public health laboratory. Local public health laboratories should forward all rhinovirus/enterovirus positive specimens to the CDPH Viral and Rickettsial Disease Laboratory for further characterization. Specimens should be accompanied by the following Enterovirus D68 Surveillance Submittal Form available at: www.cdph.ca.gov/programs/vrdl/Documents/Enhanced%20Enterovirus%20%20EV-D68%20Surveillance%20140909.pdf.
- LHJs should be vigilant for and report to CDPH any clusters or outbreaks of severe respiratory illness, regardless of the setting where they occur or the age group involved. Outbreak surveillance and testing
of specimens provides an opportunity to identify circulating viruses and inform possible control strategies. For all respiratory outbreaks, specimens should be collected and forwarded to the public health laboratory for influenza testing. If influenza testing is negative, the specimens should be forwarded to VRDL for non-influenza respiratory virus testing, including enterovirus and rhinovirus.

For questions about laboratory testing, please contact the CDPH Viral and Rickettsial Disease Laboratory (VRDL) at (510) 307-8585.

CDC is expected to issue a Health Alert this week that will provide additional information, including infection control strategies. CDC’s webpage for non-polio enteroviruses can be accessed at: [www.cdc.gov/non-polio-enterovirus/](http://www.cdc.gov/non-polio-enterovirus/)

Information for parents and healthcare personnel

**For parents:**

1. **What is EV68?** Enterovirus 68 (EV68) is not a new virus, but over the past few years it has caused outbreaks of respiratory illness in the fall. These outbreaks are similar to what we see later in the year with influenza and RSV. What's different is that these outbreaks happen earlier in the fall and with a different virus.

2. **Who does this virus infect?** In the current outbreak, most patients are children under 16 with a prior history of asthma or wheezing. Symptoms include rapid onset of cough, wheezing and difficulty breathing. EV68 rarely causes fever. Most children with suspected EV68 infection respond quickly to supportive care that includes breathing treatments, such as inhalers prescribed by a health care provider.

3. **What should I look out for?** If your child or family member develops rapid onset of cough, wheezing or difficulty breathing, please contact their healthcare provider. While most patients do not require hospitalization, children can develop symptoms rapidly, so a quick call or visit to a health care clinic might be necessary.

4. **Is there an antibiotic I can take or a vaccine?** No, EV68 is a virus so antibiotics do not treat it and there are no currently available antiviral medications that treat EV68. There is also no vaccine. However, that does not mean that your child can't be treated. Children with severe respiratory distress can receive several forms of breathing treatments that reduce their symptoms and get them on the road to recovery.

5. **Are pregnant women at risk?** Pregnant women have a greater chance of being infected if they do not have immunity (protection) from previous infection with EV68. However, most pregnant women who become infected will not get sick, or they will only have mild illness. Right now, there is no clear evidence that pregnant women with enterovirus infection will have severe complications, like miscarriage, stillbirth, or congenital defects. But, if a pregnant woman is infected shortly before delivery, she can pass the virus to her baby. These babies usually have only mild illness. In rare cases, they may have severe infection.

**For healthcare personnel:**

1. EV68 is only rarely associated with high fevers. Thus, presence of fever is not an effective question for screening visitors for illness. Thus, facilities currently experiencing an outbreak of EV68 or an uptick in viral respiratory illnesses, may consider restricting access to visitors under the age 16 (the oldest confirmed case in the CDC report). Of course, exceptions should be made in certain situations.
2. Standard and contact precautions are typically recommended for patients with enterovirus infections. However, because EV68 is predominantly a respiratory virus, droplet precautions may also be considered.

3. Healthcare personnel who are ill or suspect they might have a viral respiratory illness should follow their hospital policies concerning work attendance.

4. Alcohol-based hand sanitizers have limited effectiveness against enteroviruses and are not recommended for hand hygiene by healthcare personnel providing care to EV68 patients.