

Tuesday, October 11, 2022

Severe Respiratory Illnesses Associated with Rhinoviruses and/or Enteroviruses Including EV-D68 – Multistate, 2022

Summary

Healthcare providers and hospitals in several regions of the United States notified the Centers for Disease Control and Prevention (CDC) during August 2022 about increases in pediatric hospitalizations in patients with severe respiratory illness who also tested positive for rhinovirus (RV) and/or enterovirus (EV). RVs and EVs can have clinically similar presentations and are indistinguishable from one another on multiplex assays often used in clinical settings. Upon further typing, some specimens have been positive for enterovirus D68 (EV-D68). Concurrently, pediatric acute respiratory illness sentinel surveillance sites are reporting a higher proportion of EV-D68 positivity in children who are RV/EV positive compared to previous years. Although it primarily causes acute respiratory illness, EV-D68 has been associated with acute flaccid myelitis (AFM), a rare but serious neurologic complication involving limb weakness.

The purpose of this Health Alert Network (HAN) Health Advisory is to

1. Notify healthcare providers and infection control specialists about recent increases in severe respiratory illness requiring hospitalization in children,
2. Urge healthcare providers to consider EV-D68 as a possible cause of acute, severe respiratory illness (with or without fever) in children,
3. Advise of the potential for an increase in AFM cases in the upcoming weeks, and
4. Provide healthcare providers and infection preventionists with information on how to report suspected cases to Delaware Public Health District (DPHD).

Background

RVs and EVs are both part of the *Enterovirus* genus. RVs are typically associated with acute respiratory illness (ARI), including asthma exacerbations. EVs can also cause ARI but are associated with other clinical presentations, such as febrile rash and neurologic illness, including aseptic meningitis, encephalitis, or AFM. EV-D68 has biologic and genomic similarities to RVs; respiratory symptoms are similar in patients infected with RVs and EV-D68. Common symptoms among hospitalized children with EV-D68 include cough, shortness of breath, and wheezing; fever is reported in approximately half of known cases. *On rare occasions, EV-D68 may cause AFM.* This rare but serious neurologic condition primarily affects children and typically presents with sudden limb weakness. There are no available vaccines or specific treatments for RV or EV, including EV-D68, and clinical care is supportive.

In the United States, RVs circulate year-round, with typical peaks in the spring and fall. The typical EV season is late summer and early fall; similarly, EV-D68 is thought to peak in late summer and early fall. In 2014, EV-D68 caused a nationwide outbreak of severe respiratory illness in the United States ⁽¹⁾. Since then, U.S. surveillance has expanded and detected increased EV-D68 activity in the fall of 2016, 2018, and to a lesser degree in 2020. The relatively lower circulation in 2020 may reflect the use of COVID-19 pandemic infection mitigation measures, which are known to have interrupted the circulation of other respiratory viruses ⁽²⁾. Consistent with these annual trends, national numbers of AFM cases also had peaks in the fall of 2014, 2016, and 2018 ⁽³⁾.

In 2018, when EV-D68 most recently circulated at high levels in the United States, the median age of children seeking emergency department or inpatient care for EV-D68-associated respiratory illness was approximately 3 years; however, all ages of children and adolescents can be affected ⁽⁴⁾. Children with a history of asthma or reactive airway disease may be more likely to require medical care, though children without a known history of asthma can also present with severe illness ^(1,5). EV-D68 in adults is less understood but is thought to be more commonly detected in patients with underlying conditions ⁽⁶⁾.

In August 2022, CDC was notified by healthcare providers and hospitals in several regions of the United States of increases in severe respiratory illness in children who also tested positive for RV/EV. Consistent with this, an increase in respiratory specimens positive for RV and/or EV was noted in the National Respiratory and Enteric Virus Surveillance System (NREVSS). As of August 30, 2022, CDC had not received increased reports of AFM cases with onset in 2022. Typically, increases in EV-D68 respiratory illnesses have preceded cases of AFM. DPHD is asking that providers maintain increased vigilance for AFM in the coming weeks.

Recommendations for Healthcare Providers

- Consider EV-D68 as a possible cause of acute, severe respiratory illness (with or without fever) in children. Adults may also become infected with EV-D68, but it is thought to be more commonly detected in adults with underlying conditions.
- Consider laboratory testing of respiratory specimens for RVs and EVs (typically part of multiplex respiratory assays) when the cause of respiratory infection in severely ill patients is unclear, if not already part of typical diagnostic routine.
- Provide supportive clinical management for RV or EV, including EV-D68. There are no available vaccines or approved antiviral treatments.
- Report clusters of severe respiratory illness to DPHD.
- Strongly consider AFM in patients with acute flaccid limb weakness, especially after respiratory illness or fever, and between the months of August and November 2022.
- Collect specimens from multiple sources (cerebrospinal fluid [CSF], serum, stool, and a nasopharyngeal [NP] or oropharyngeal [OP] swab) from patients presenting with possible AFM as early as possible and preferably on the day of onset of limb weakness.

Recommendations for Infection Control in Healthcare Settings

- Place patients with respiratory symptoms who test positive with RV or EV in a single-person room and use recommended personal protective equipment depending on the suspected pathogen. If EV-D68 is suspected, gowns, gloves, and a mask are recommended. Eye protection should be used if the risk for splashes and sprays exists (e.g., near a coughing patient).
- Use hospital-grade disinfectant with an EPA label claim against EV-D68 or any of several other non-enveloped viruses (e.g., norovirus, poliovirus, rhinovirus) to disinfect surfaces in healthcare settings. Follow the manufacturer's instructions for non-enveloped viruses. Use disinfectant products following the manufacturer's instructions for the specific label claim and in a manner consistent with environmental infection control recommendations.
- During periods of high respiratory illness activity, consider requiring visitors to wear well-fitting masks at all times in the facility; visitors with respiratory symptoms or underlying respiratory conditions should delay in-person visitation.

Reporting to Delaware Public Health District

Report possible cases of AFM to Delaware Public Health District by calling (740) 368-1700 or by fax at (740) 203-2044.

Coordinate with Delaware Public Health District to send AFM specimens to Ohio Department of Health Laboratories for AFM and polio testing.

Contact the Disease Control and Response Team during business hours by calling (740) 368-1700 or during after-hours by calling the emergency on call number (740) 815-6518.

References

This Health Alert adapted from the CDC HAN-00474 released on Sept 9, 2022

1. Midgley CM, et al. Severe Respiratory Illness Associated with a Nationwide Outbreak of Enterovirus D68 in the USA (2014): A Descriptive Epidemiologic Investigation. *Lancet Resp Med* 2015; 3:879-887.
[https://doi.org/10.1016/S2213-2600\(15\)00335-5](https://doi.org/10.1016/S2213-2600(15)00335-5).
2. Olson SJ, et al. Changes in Influenza and Other Respiratory Virus Activity during the COVID-19 Pandemic—United States, 2020-2021. *MMWR Morb Mort Wkly Rep* 2021;70:1013-1019.
<https://dx.doi.org/10.15585/mmwr.mm7029a1>.
3. CDC Acute Flaccid Myelitis: AFM Cases and Outbreaks | CDC.
4. Shah MM, et al: Enterovirus D68-Associated Acute Respiratory Illness – New Vaccine Surveillance Network, United States, July–November 2018–2020. *MMWR Morb Mort Wkly Rep* 2021;70:1623-1628.
<http://dx.doi.org/10.15585/mmwr.mm7047a1>.
5. Biggs HM, et al: Enterovirus D68 Infection Among Children with Medically Attended Acute Respiratory Illness, Cincinnati, Ohio, July-October 2014. *Clin Infect Dis* 2017; 65(2): 315-323.
<https://doi.org/10.1093/cid/cix314>.
6. Kramer R, et al. Molecular Diversity and Biennial Circulation of Enterovirus D68: A Systematic Screening Study in Lyon, France 2010-2016. *Euro Surveill.* 2018; 23(37): 1700711.
<https://doi.org/10.2807/1560-7917.ES.2018.23.37.1700711>.