



Respiratory Syncytial Virus Overshadowed by EV-D68

Enterovirus D68 and RSV are two viruses that pose unique threats to young children. While RSV is responsible for more than 100,000 hospitalizations and thousands of fatalities each year, EV-D68 dominated headlines in 2014.

BY CASSANDRA PEREZ

Enterovirus D68 (EV-D68), a non-polio enterovirus, and respiratory syncytial virus (RSV), a respiratory virus, are two viruses that can affect persons of all ages but particularly pose the threat of severe illness and fatality to young children. However, despite frequent coverage in the media of the former, various experts in the medical community believe RSV is the more deadly virus in need of more attention from the public and media. This article will examine the basic facts about each condition, the dangers each pose to children, and why healthcare professionals deem RSV a severe threat worthy of further attention in the media spotlight.

Respiratory Syncytial Virus

RSV is a respiratory virus that is a common cause of bronchiolitis and pneumonia in children under 1 year of age in the United States. According to the Centers for Disease Control and Prevention (CDC), 75,000 to 125,000 children in this age group are hospitalized due to RSV infection each year. While almost all children are infected with this virus by their second birthday, only a small percentage develops severe disease as a result. The CDC reports that RSV infections generally occur in the United States from November to April, though the timing of the season may differ among locations each year.



The population most at-risk for this illness is premature infants, children less than 2 years of age with congenital heart or chronic lung disease, as well as children with compromised immune systems.¹ In addition, adults with compromised immune systems and those 65 years and older are also at an increased risk of severe disease.

RSV Symptoms and Care

The CDC reports that the symptoms of RSV infection are similar to other respiratory infections and can include cough, sneezing, fever, wheezing, runny nose, and a decrease in appetite. In very young infants, decreased activity, irritability, and breathing difficulties may be the only symptoms of infections.¹ According to the Mayo Clinic, signs and symptoms of respiratory syncytial virus infection generally appear about 4 to 6 days after exposure to the virus.² RSV can lead to a lower respiratory tract illness, such as pneumonia, and signs and symptoms in severe cases include severe cough, fever, wheezing, cyanosis, and difficulty breathing or rapid breathing.

The Mayo Clinic reports that most children and adults recover from this illness in 1 to 2 weeks.² However, in younger at-risk children, the virus may cause a more severe and possibly life-threatening infection that requires hospitalization. Currently, there are no specific treatments for RSV infection, though certain symptoms can be alleviated. Karen Davis, MD, of Saint Joseph Regional Medical Center in Mishawaka, Ind, explained, "There are no new developments in the treatment of RSV. The treatment for RSV is mainly supportive care, providing oxygen if needed, IV fluids if the patient is unable to drink well. There are no medications indicated for the treatment of RSV."

RSV Transmission and Prevention

Individuals infected with RSV are typically contagious for 3 to 8 days, though some infants and persons with a weakened immune system can be contagious for as long as 4 weeks.

According to the CDC, RSV can be spread when droplets containing the virus are sneezed or coughed into the air by an infected person. Additionally, infection can result from direct and indirect contact with nasal or oral secretions from infected persons, such as kissing the face of a child with RSV or touching an environmental surface, like a doorknob, with the virus on it.

Presently, researchers are working to develop RSV vaccines, but none are available yet. As such, frequent hand washing and wiping of hard surfaces with soap and water or disinfectant may help stop infection and the spread of this virus. In addition, persons with an RSV infection should not share eating utensils or cups with others.

Enterovirus D68

EV-D68, a non-polio enterovirus, was first identified in California in 1962. An EV-D68 infection can cause mild to severe respiratory illness. In general, infants, children, and teenagers are most likely to get infected with enteroviruses and become ill, as they do not have immunity from previous exposures to such viruses. As such, the CDC believes this is also true for EV-D68.³ Adults can get infected with these types of viruses but are more likely to have no symptoms or mild symptoms.

Children with asthma are at risk for severe symptoms from EV-D68. Marc Siegel, MD, wrote, "It is a respiratory strain that is especially sickening to young children with asthma, leading to numerous hospitalizations and...has even been linked to four deaths."⁴ This respiratory strain seems to be more widespread in recent months and it has likely changed or mutated to become more transmissible, though this has not been proven.

EV-D68 Symptoms and Care

Mild symptoms of an EV-D68 infection include fever, cough, runny nose, sneezing, and body and muscle aches. Severe symptoms of this type of infection include wheezing and

difficulty breathing. Presently, there is no specific treatment for individuals with respiratory illness caused by EV-D68. The CDC recommends parents and caregivers talk to their child's physician in order to manage related symptoms. Also, there are currently no antiviral medications available for those infected with EV-D68.

People with mild illness caused by non-polio enterovirus infection usually only require treatment of symptoms and typically recover completely. However, some respiratory illnesses caused by enterovirus may be severe enough to require hospitalization.

EV-D68 Transmission and Prevention

According to the CDC, since EV-D68 causes respiratory illness, the virus can be found in an infected person's respiratory secretions, such as nasal mucus, saliva, or sputum. The virus likely spreads from person to person when an infected person sneezes, coughs, or touches a surface that is then touched by others. In order to prevent contracting and spreading EV-D68, the following steps to prevent general respiratory illness can help: clean and disinfect touched surfaces, especially if someone is sick; avoid close contact with infected individuals; avoid touching the nose, mouth, and eyes with unwashed hands; and cover coughs and sneezes with a tissue or shirt sleeve, not your hand.



Editor's Note

You can access the references for this article in the tablet edition of *RT Magazine*.

Primary Differences

Both EV-D68 and RSV have comparable symptoms, yet they have several differences and each pose different health threats. Paul Checchia, MD, medical director of the cardiovascular intensive care unit at Texas Children's Hospital, Houston, explained, "These are two distinct viruses. RSV primarily attacks the lungs and the upper airways and leads to bronchiolitis. EV-D68 primarily attacks the upper airway and mainly acts like a 'common cold.'"

In addition, Davis said other significant differences are the age group affected and the time of year the illness is typically seen. "RSV primarily affects children 2 years and younger and is seen in fall and winter with its peak in January or February. EV-D68 affects children of all ages and it is seen in summer and fall," Davis said.

The Viral Dangers

EV-D68 and RSV can both pose considerable threats to a person's health. Davis explained that since both are respiratory illnesses, "the main danger is respiratory compromise, which can lead to respiratory failure." RSV specifically can lead to respiratory failure in infants, while EV-D68 rarely causes serious disease, according to Checchia. "There are reports of respiratory failure, but these come in individuals with reactive airway disease and asthma. Also, very rarely, it can cause acute flaccid myelitis, which is a paralysis," he said.

Media Frenzy Around EV-D68

In 2014, EV-D68 received a significant amount of attention in the media, with headlines ranging from "What Is Enterovirus EV-D68, the Disease Causing Alarm in the Midwest" to "What You Need to Know About the Fast-Spreading Respiratory Virus EVD68." Davis said, "EV-D68 has received so much attention because of the spike in hospitalizations over the past couple of months. This was quite

uncharacteristic for this type of infection and this time of year." Anthony Fauci, MD, of the National Institute of Allergy and Infectious Diseases, added that EV-D68 is also garnering attention because of the unusual patterns of infection. Fauci stated, "It isn't that often that you get this wide an outbreak of enterovirus D-68."⁵

However, many in the medical community, including Checchia, believe that RSV may be the more dangerous threat to infants and young children and feel the viral killer warrants more attention in the media spotlight.

"Enterovirus must have a really good PR agent because it is getting all the press and there is no real need for it. It is a significant respiratory pathogen, but it is not really different from a lot of other respiratory pathogens out there," Checchia said in an interview with NBC news. He believes RSV is more dangerous. "We know that year after year, this virus causes severe disease and death in infants at risk (premature, congenital heart disease, chronic lung disease)."

In addition to the thousands of hospitalizations RSV is responsible for each year, annually this virus kills as many as 200.⁵ The virus is also dangerous for adults: RSV infection kills 10,000 elderly Americans each year.⁵ By comparison, the CDC reports that the number of deaths in patients who were infected with EV-D68 is now nine.⁶ Given these alarming statistics, Davis said this potentially dangerous virus is in need of more public attention. "RSV typically causes more hospitalizations. It deserves more attention because it is a problem year to year; EV-D68 was somewhat of an anomaly in the number of hospitalizations it caused," she said.

Moving Toward a Healthy Future

With the clear dangers of RSV, there is a need for increased education and awareness about this viral killer. Comprehensive coverage on RSV from the media is one measure that can help families, caregivers, and the general public be aware of the symptoms and possible dangers of this virus in order to protect vulnerable populations. Medical professionals are also essential in educating the public about the threat of RSV. Checchia proposes educating at the source: the newborn; specifically, "education in the NICU and the OB offices," he proposed.

Davis also suggested general education on healthy hygiene practices. As there are no RSV treatments currently available, only symptom management, performing proper cleaning and sanitation is crucial for prevention of this virus and its related illnesses. "As in the past, the public should be educated on the importance of good hand washing, avoid exposing others if they are sick, covering coughs, etc. This is no different than education that has occurred in the past," Davis said.

Health education builds knowledge and encourages the public to improve and maintain their health in addition to reduce risky behaviors. Comprehensive education and information about symptoms, complications, and prevention is one of the most essential means of preserving the health and safety of those most at-risk of RSV infection. With the aid of the medical community and informed communication and media coverage, each of us can mitigate the dangers of RSV. **RT**

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