

**Short Communication**

## Overview of Viral Respiratory Tract Infections in Children

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Received: 26.09.2021

Accepted: 06.11.2021

Published: 10.11.2021

**Journal homepage:**<https://www.easpublisher.com>**Quick Response Code**

Many different viruses infect the respiratory tract. In children, rhinoviruses, influenza viruses (during annual winter epidemics), parainfluenza viruses, respiratory syncytial virus (RSV), enteroviruses, coronaviruses, and certain strains of adenovirus are the main causes of viral respiratory infections.

Most often, viral respiratory tract infections spread when children's hands come into contact with nasal secretions from an infected person. These secretions contain viruses. When the children touch their nose or eyes, the viruses gain entry and produce a new infection. Less often, infections spread when children breathe air containing droplets that were coughed or sneezed out by an infected person.

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For various reasons, nasal or respiratory secretions from children with viral respiratory tract infections contain more viruses than those from infected adults. This increased output of viruses, along with typically lesser attention to hygiene, makes children more likely to spread their infection to others. The possibility of transmission is further enhanced when many children are gathered together, such as in child care centers and schools. Contrary to what people may think, other factors, such as becoming chilled, wet, or tired, do not cause colds or increase a child's susceptibility to infection.

### Symptoms of Viral Respiratory Infections

When viruses invade cells of the respiratory tract, they trigger inflammation and production of mucus. This situation leads to nasal congestion, a runny nose, scratchy throat, and cough, which may last up to 14 days. Some children may continue to cough for weeks after the upper respiratory infection has resolved. Fever, with a temperature as high as 101 to 102° F (about 38.3 to 38.9° C), is common in young children or those with influenza. The child's temperature may even rise to 104° F (40° C).

Other typical symptoms in children include decreased appetite, lethargy, and a general feeling of illness (malaise). Headaches and body aches develop, particularly with influenza. Infants and young children are usually not able to communicate their specific symptoms and just appear cranky and uncomfortable.

### Complications of viral respiratory tract infections

Because newborns and young infants prefer to breathe through their nose, even moderate nasal congestion can create difficulty breathing. Nasal congestion leads to feeding problems as well, because infants cannot breathe while suckling from the breast or bottle. Because infants are unable to spit out mucus that they cough up, they often gag and choke.

The small airways of young children can be significantly narrowed by inflammation and mucus, making breathing difficult. Children breathe rapidly and may develop a high-pitched noise heard on breathing out (wheezing) or a similar noise heard on breathing in (stridor). Severe airway narrowing may cause children to gasp for breath and turn blue (cyanosis). Such airway problems are most common with infection caused by parainfluenza viruses, RSV, and human metapneumovirus infection. Affected children need to be seen urgently by a doctor.

Some children with a viral respiratory tract infection also develop an infection of the middle ear (otitis media) or the lung tissue (pneumonia). Otitis media and pneumonia may be caused by the virus itself or by a bacterial infection that develops because the inflammation caused by the virus makes tissue more susceptible to invasion by other germs. In children with asthma, respiratory tract infections often lead to an asthma attack.

## **Diagnosis of Viral Respiratory Infections**

### **A doctor's evaluation**

Doctors and parents recognize respiratory tract infections by their typical symptoms. Generally, otherwise healthy children with mild upper respiratory tract symptoms do not need to see a doctor unless they have trouble breathing, are not drinking, or have a fever for more than a day or two.

X-rays of the neck and chest may be taken in children who have difficulty breathing, stridor, or wheezing or if the doctor can hear congestion in the lungs. Blood tests and tests of respiratory secretions are rarely helpful

## **Prevention of Viral Respiratory Infections**

### **Good hygiene**

#### **Vaccination for influenza**

The best preventive measure is practicing good hygiene. An ill child and the people in the household should wash their hands frequently. In general, the more intimate physical contact (such as hugging, snuggling, or bed sharing) that takes place with an ill child, the greater the risk of spreading the infection to other family members. Parents must balance this risk with the need to comfort an ill child. Children should stay home from school or child care facilities until the fever is gone and they feel well enough to attend.

Influenza is the only viral respiratory infection preventable by vaccination. All children age 6 months or older should receive a yearly vaccination, as should all adults (see also influenza vaccination). Vaccination is particularly important for children and adults who have certain disorders, such as heart or lung disease

(including cystic fibrosis and asthma), diabetes, kidney failure, and sickle cell disease. Additionally, children who have a weakened immune system, including children with human immunodeficiency virus (HIV) infection and those undergoing chemotherapy, should receive the vaccine.

## **Treatment of Viral Respiratory Infections**

### **Rest and fluids**

#### **Drugs for fever and pain**

Antibiotics are not necessary and do not help treat viral respiratory tract infections. Children with respiratory tract infections need additional rest and should maintain normal fluid intake. Acetaminophen or nonsteroidal anti-inflammatory drugs (NSAIDs), such as ibuprofen, can be given for fever and aches. School-aged children may take a nonprescription (over-the-counter) decongestant for bothersome nasal congestion, although the drug often does not help. Infants and younger children are particularly sensitive to the side effects of decongestants and may experience agitation, confusion, hallucinations, lethargy, and rapid heart rate and should never take these drugs.

In infants and young children, congestion may be relieved somewhat by using a cool-mist vaporizer to humidify the air and by suctioning the mucus from the nose with a rubber suction bulb.

There are antiviral drugs for influenza that can be used in children. However, these drugs work only if taken within the first day or two after symptoms begin, and they shorten the duration of fever and symptoms only by a day or so and are not often used in otherwise healthy children.

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**Cite This Article:** Shankar Prasad Bhattacharya (2021). Overview of Viral Respiratory Tract Infections in Children. *East African Scholars J Med Surg*, 3(11), 214-215.