

Respiratory Syncytial Virus and Bronchiolitis

Bronchiolitis is a common, acute viral infection with upper respiratory symptoms and lower respiratory infection of the bronchioles due to inflammation. The infection occurs primarily in winter and early spring. By 3 years old, most children have been infected at least once. RSV infection is the most frequent cause of hospitalization in children younger than 1 year old. In addition, severe RSV infections in the first year of life represent a significant risk factor for the development of asthma up to 13 years old ([Knudson and Varga, 2015](#)). RSV infection may also occur in children older than 1 year of age who have a chronic or serious disabling illness. Although most cases of bronchiolitis are caused by RSV, adenoviruses and parainfluenza viruses are also implicated; human metapneumovirus has also been associated with bronchiolitis in children. It can also rarely be caused by *M. pneumoniae*.

RSV is transmitted from exposure to contaminated secretions. RSV can live on fomites for several hours and on hands for 30 minutes ([American Academy of Pediatrics Committee on Infectious Diseases and Pickering, 2012](#)).

Pathophysiology

RSV affects the epithelial cells of the respiratory tract. The ciliated cells swell, protrude into the lumen, and lose their cilia. The walls of the bronchi and bronchioles are infiltrated with inflammatory cells, and varying degrees of intraluminal obstruction lead to hyperinflation, obstructive emphysema resulting from partial obstruction, and patchy areas of atelectasis. Dilation of bronchial passages on inspiration allows sufficient space for intake of air, but narrowing of the passages on expiration prevents air from leaving the lungs. Thus, air is trapped distal to the obstruction and causes progressive overinflation (emphysema).

Clinical Manifestations

The illness usually begins with a URI after an incubation of about 5 to 8 days. Symptoms such as rhinorrhea and low-grade fever often appear first. OM and conjunctivitis may also be present. In time, a cough may develop. If the disease progresses, it becomes a lower