



# RESPIRATORY SYNCYTIAL VIRUS: Protecting Older Adults at Risk for Serious Complications

## Burden of Disease

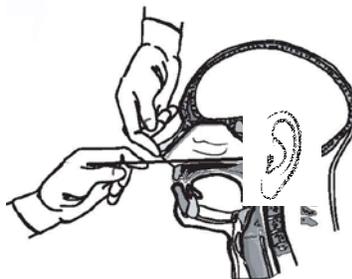
First identified as a cause of bronchiolitis in children in the 1950s, respiratory syncytial virus (RSV) infection was not discovered as a serious cause of serious respiratory infection in adults until the 1990s. RSV is a common viral respiratory pathogen, third only to influenza A and B. The annual infection rate in older adults may be as high as 10%, particularly those with chronic lung or heart disease or weakened immune system or who live in congregate settings. Compared with younger adults, older adults with RSV infection are more likely to become hospitalized and die. Exacerbation of underlying cardiopulmonary disease is common. RSV infection most commonly occurs from November through May in the United States, thus overlapping other seasonal viral respiratory infections, including COVID-19. Reinfection is common.

## RSV vs Other Viral Respiratory Infections

The rates of office visits for RSV are lower than influenza for healthy adults, but similar in high-risk adults. In hospitalized patients, RSV and influenza result in similar lengths of stay, rates of ICU admission, and mortality. However, significantly more patients hospitalized with RSV vs influenzae infection suffer from major systemic comorbidities, including chronic lung diseases, wheezing, pneumonia, and lower respiratory complications, and are more likely to require supplemental oxygen or ventilation. Bacterial superinfections are common, occurring in about 1-in-8 patients with RSV infection.

## Diagnosis

RSV infection is challenging to diagnose, particularly in older individuals, since the clinical symptoms are nonspecific and overlap with other viral respiratory infections and some bacterial infections. Low awareness of the disease in older adults has resulted in delayed diagnosis and intervention. While antigen-based tests are widely used in children, they are dramatically less sensitive in older children and adults. Real-time reverse transcriptase polymerase chain reaction (PCR) tests are the most sensitive in older adults and are usually duplexed with influenza testing. The availability of PCR results within 1 hour is clinically important as the results inform infection control measures to prevent nosocomial outbreaks in hospitals and skilled nursing facilities. The sampling technique is an important factor in the diagnosis of RSV. The sampling yield is increased by utilizing flocced swabs and sampling both the nose and throat (Figure 1).



**Figure 1. Sampling technique**



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## Preventive Measures

Preventing RSV infection is of the utmost importance because there is no approved medication for acute treatment of RSV infection in older adults. Moreover, antivirals generally work best when administered early in the disease course. Consequently, symptomatic management is the mainstay of current therapy for most adults.

Overall, preventing RSV infection is the principal strategy. Therefore, identifying adults who are at increased risk of RSV infection is essential. Overall, the risk of RSV infection in older adults (age  $\geq 65$  years) is more than 10 times the rate in young adults (age 18 to 49 years) and 3 times the rate in adults age 50 to 64 years. The age-dependent increase is observed in patients with various comorbidities, such as chronic obstructive pulmonary disease, diabetes mellitus, and congestive heart failure. For example, the incidence of RSV infection in older adults is approximately 8 times the rate in young adults and more than 4 times the rate in adults age 50 to 64 years.

Preventive measures include those widely implemented during the COVID-19 pandemic, including frequent handwashing, covering coughs and sneezes, proper masking, and social distancing. However, such measures are difficult to follow long-term.

## Vaccines

While there are no vaccines to prevent RSV infection currently approved in older adults, many are in development. Two in phase 3 development are the prefusion RSV-F protein with the AS01 adjuvant and the aluminum adjuvanted RSV fusion (F) protein recombinant nanoparticle vaccine.

While the COVID-19 pandemic has shown that concern about vaccines is common among adults, although less so in older adults, it should not be forgotten that a strong recommendation from the clinician is the single most effective strategy to promote vaccine acceptance. Other strategies are shown in Figure 2.

Educate
Be persistent
Consider affordability
Provide incentives
Make access easy
Make it a team effort
Enlist a local champion

**Figure 2. Strategies for increasing uptake of vaccinations in older adults.**