

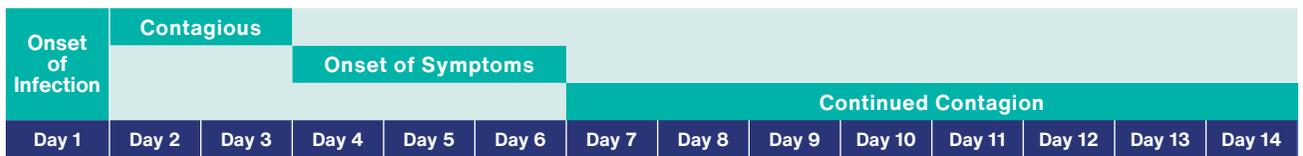


# FOCUS ON RSV IN ADULTS

## RSV

Respiratory syncytial virus (RSV) is transmitted by respiratory droplets through a cough or sneeze. RSV is highly contagious and it can also be transmitted through contact with the virus on a hard surface or contact with a person infected (e.g., kissing an infant with RSV).<sup>1</sup> Infection from RSV can result in mild, upper respiratory tract infection and cold-like symptoms, including runny nose, coughing, sneezing, fever, wheezing, and decreased appetite. As illustrated in Figure 1, symptoms typically occur within 4 to 6 days after infection and a person can be contagious from 1 to 2 days prior to symptom onset and continue for 7 to 8 days after symptoms begin.<sup>1</sup>

Figure 1.

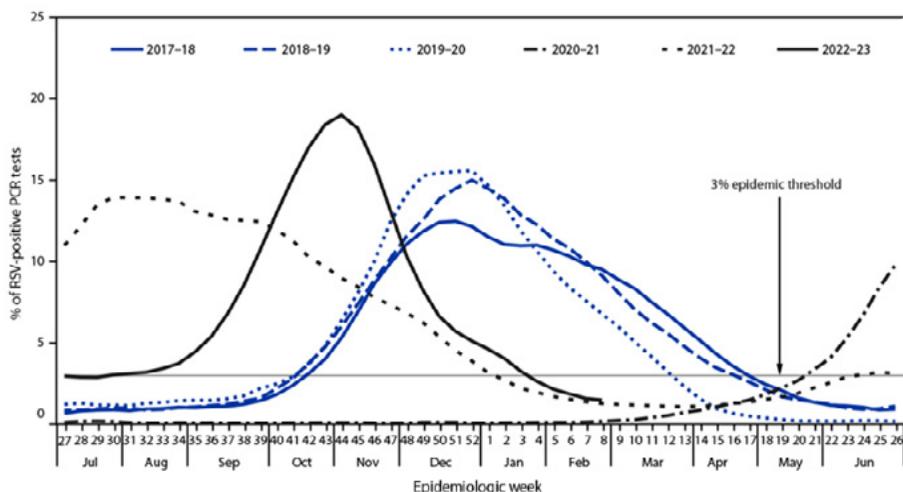


People usually experience multiple RSV infections during their lifetime. Nearly 70% of infants are infected by their first birthday.<sup>1</sup> Older children and adults can be carriers of the virus and infect others. It appears that natural immunity is neither complete nor long-lasting.<sup>2</sup>

Although RSV is one of the most common causes of respiratory illness in children, it can affect people of all ages.<sup>1</sup> Infection rates are seasonal with onset typically in the fall and a peak in the winter, comparable to influenza.<sup>3</sup> The overall rate of RSV-associated hospitalizations is 51 per 100,000 people, although that rate is higher in older adults and much higher in young children.<sup>3</sup> Complications of RSV can include pneumonia and bronchiolitis and may lead to worsening of other medical conditions (e.g., asthma, chronic obstructive pulmonary disease [COPD], congestive heart failure). It is estimated that RSV contributes to 6,000 to 10,000 deaths in the United States among adults 65 years and older annually.<sup>1</sup>

There is a seasonality typically associated with RSV infections.<sup>4</sup> Figure 2 shows the seasonality of RSV infections over a six-year period. Typically, RSV infections occur between October and April and tend to peak in December or January. Note that the COVID-19 pandemic disrupted the RSV seasonal timing.<sup>4</sup>

Figure 2. Percentage\* of polymerase chain reaction test results positive for respiratory syncytial virus, by epidemiologic week - National Respiratory and Enteric Virus Surveillance System, United States, July 2017-February 2023



Abbreviations: PCR = polymerase chain reactions, RSV respiratory syncytial virus.

\* Three-week centered moving averages of percentage of RSV-positive PCR test results nationally. The threshold for a seasonal epidemic was set at 3% RSV-positive PCR test results (not based on a moving average).



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## Risks

Certain conditions may put people at a higher risk for hospitalization and complications associated with RSV infection. Table 1 illustrates the incidence rates of hospitalizations in adults aged 18 years and older with certain chronic medical conditions.

**Table 1. Incidence Rates of RSV-Associated Hospitalizations in Adults 18 Years and Older With an Underlying Medical Condition<sup>5</sup>**

Chronic Medical Condition	Increased Risk of Hospitalizations in Adults
Asthma	2.0–3.6x
Chronic obstructive pulmonary disease	3.2–13.4x
Congestive heart failure	4.0–33.2x
Coronary artery disease	3.7–7.0x
Diabetes	2.4–11.4x

## Age as a Risk Factor

As people age, their immune system deteriorates (immunosenescence). This is thought to be due to decreased T-cell proliferation and B-cell responses to new antigens.<sup>2</sup>

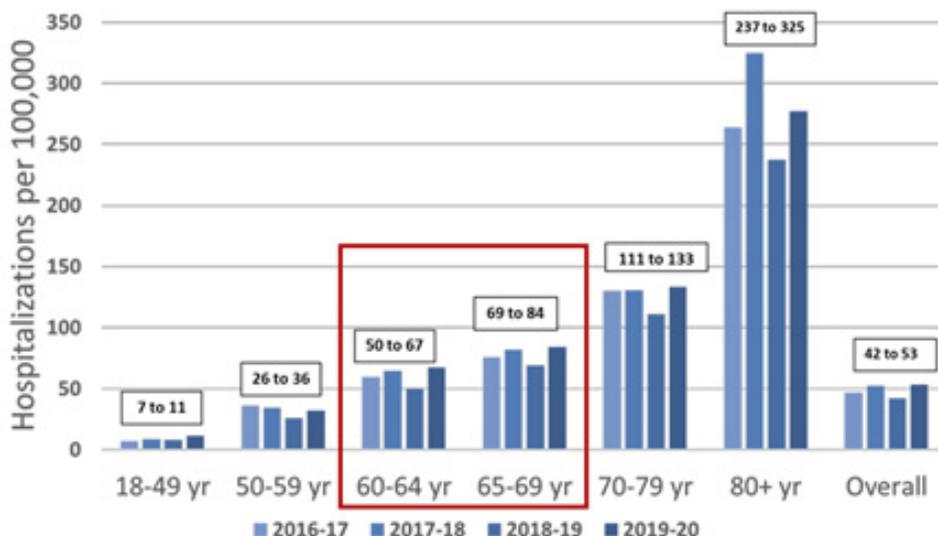
That decrease in cell-mediated and humoral immunity, coupled with physiological changes, lead to advanced age being a risk factor for severe RSV outcomes.<sup>2</sup>

There is an age stratification for hospitalizations due to RSV in people aged 65 years and older. Those aged 85 years and older have a higher hospitalization rate than those aged 65 to 74 years.<sup>5</sup> Additionally, people aged 65 years and older have a higher mortality rate due to RSV compared with adults aged 18 to 49 years.<sup>6</sup> Figure 3 describes RSV seasonal hospitalization rates based on age.<sup>7</sup>

## Immunosuppression as a Risk Factor

In general, immunosuppression can lead to complications associated with RSV infection. Immunosuppression is widely defined and could include persons with a history of organ transplantation, HIV/AIDS, cancer, chemotherapy, splenectomy, and chronic steroid use or other immunosuppressive medications. For example, patients with hematopoietic stem cell transplant and RSV infection have a high progression from upper to lower respiratory tract infection and a high mortality rate.<sup>9</sup> Additionally, evidence suggests that persons with solid tumors and those taking chronic immunosuppressive medications are at higher risk for RSV-associated hospitalizations.<sup>9,10</sup> Table 2 describes doses of some medications that may be considered immunosuppressive.<sup>10</sup>

**Figure 3. RSV-Associated Hospitalization Rates by Adult Age Group, RSV-NET 2016–2020<sup>7</sup>**



RSV-NET: unpublished data. Rates are adjusted for the frequency of RSV testing during recent prior seasons and the sensitivity of RSV diagnostic tests.

\*RSV-NET = Respiratory Syncytial Virus Hospitalization Surveillance Network.



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**Table 2. Example Medications That May Suppress the Immune System<sup>10</sup>**

Medications*	Dose for Significant Immunosuppression
Prednisone or equivalent <sup>†</sup>	≥2 mg/kg or ≥20 mg per day AND administered for ≥14 days
Methotrexate	>0.4 mg/kg/week
Azathioprine	>3 mg/kg/day
6-mercaptopurine	>1.5 mg/kg/day
Monoclonal antibodies (various)	Standard doses

\* List of medications is not exhaustive.

<sup>†</sup> Does not apply to topical administration. Oral prednisone 5 mg equivalent to oral methylprednisolone 4 mg equivalent to oral dexamethasone 0.75 mg.

## RSV Versus Influenza in the Older Population

RSV and influenza infections tend to peak in the winter months. Both infections may lead to symptoms of cough, nasal congestion, sneezing, and runny nose.<sup>11</sup> Older adults are at increased risk for complications associated with both infections. Complications during a hospitalization have been shown to be more prevalent with RSV versus influenza; this includes complications affecting the lower respiratory tract, cardiovascular system, and bacterial superinfections.<sup>6</sup> Mortality rates tend to be higher with influenza, particularly when an A/H3N2 strain is prevalent.<sup>6</sup> There appears to be more antigenic drifting and shifting with influenza versus RSV.<sup>6</sup> This drifting is part of the reason an annual influenza vaccination is needed. Currently, there is insufficient evidence to determine the need for revaccination after receipt of a single dose of RSV vaccine in older adults (aged 60 years and older).<sup>12</sup>

## RSV in Pregnant Persons

Pregnancy provides an opportunity to protect infants from RSV prior to birth. When a pregnant person is seasonally administered the vaccine between 32-36 weeks gestation, their infant can be born with protection against RSV for the first 6 months of life.<sup>13</sup>

## Vaccines

Several vaccines and antibodies are either approved by the U.S. Food and Drug Administration (FDA) or are being evaluated by the FDA for the prevention and treatment of RSV infections.<sup>14</sup> Two vaccines granted FDA approval in 2023 for use in adults 60 years and older are the bivalent RSVpreF vaccine (Abrysvo—Pfizer) and the adjuvanted RSVPreF3 vaccine (Arexvy—GSK). One vaccine, the bivalent RSVpreF vaccine (Abrysvo—Pfizer) is approved for use in pregnant persons. Table 3 describes the approved vaccines.<sup>15,16</sup>

**Table 3. FDA-Approved RSV Vaccines<sup>15,16</sup>**

Vaccine	Approval Age	Dose and Route	Notes	Storage
Adjuvanted RSV (Arexvy)	60 years and older	0.5 mL IM	Must combine the antigen powder with the adjuvant suspension	Store adjuvant and antigen 2°C–8°C in original packaging to protect from light Once reconstituted, store in refrigerator <u>or</u> at room temperature for up to 4 hours
Bivalent RSV (Abrysvo)	60 years and older AND pregnant people during 32 through 36 weeks gestation, using seasonal administration	0.5 mL IM	Kit includes lyophilized antigen powder, sterile water diluent, and vial adapter	Store carton at 2°C–8°C Once reconstituted, store at room temperature for up to 4 hours

FDA = U.S. Food and Drug Administration; IM = intramuscular; RSV = respiratory syncytial virus.

**Adults aged 60 years and older may receive a single dose of RSV vaccine using shared clinical decision-making.<sup>12</sup>**



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## ACIP Recommendations

In July 2023, the Advisory Committee on Immunization Practices (ACIP) published recommendations for the use of RSV vaccines in older adults. Adults aged 60 years and older may receive a single dose of RSV vaccine using shared clinical decision-making.<sup>12</sup>

Shared clinical decision-making involves a pharmacist having a conversation with a patient to identify risks that would make a patient more susceptible to severe complications due to RSV infection. Consideration should be given to individual patient characteristics, values, and preferences. The pharmacist's clinical discretion and characteristics of the vaccine also should be a part of shared clinical decision-making.<sup>17</sup>

For more information on the use of RSV vaccines in older adults, the ACIP recommendations published in the [Morbidity and Mortality Weekly Report](#) are available on the Centers for Disease Control and Prevention website.<sup>12</sup>

## Implementing RSV Vaccines in Practice

The RSV vaccines represent a milestone for public health; no preventive options were previously available to adults since RSV was first identified as a pathogen in 1956. With any new vaccine, patient understanding and acceptance is uncertain. Pharmacists should provide education about RSV infection ahead of the anticipated RSV season. The RSV vaccine is currently FDA-approved and ACIP-recommended as a single dose and should be offered (via shared clinical decision-making).<sup>12</sup>

Patients at high risk for complications due to RSV infection are a good target group to provide initial education.

This population includes people aged 60 years and older (particularly those in their 70s and older) because of immunosenescence. Additionally, adults aged 60 years and older who have asthma, COPD, congestive heart failure, coronary artery disease, diabetes, or immunosuppression would likely benefit from RSV education and vaccination. A patient's medication profile can be reviewed to determine chronic conditions that would put that individual at higher risk of RSV infection.

## Adult Immunization Standards

To provide recommendations for vaccination, pharmacists should assess immunization status of patients at every clinical encounter. A strong provider recommendation has been shown to improve vaccination rates. Conversations with patients should involve tailored reasons why the vaccination is right for the patient. The pharmacist should also address any questions or concerns that the patient may have. If the opportunity to vaccinate arises and the pharmacist does not stock the vaccine, then a referral should be made to another provider. Lastly, pharmacists should document the vaccination in the immunization registry.<sup>18</sup>

## Tips to Initiate a Conversation About RSV Vaccination

Tips to start a conversation between pharmacists and patients can be useful to facilitate shared clinical decision-making. After identifying patients who may benefit from the RSV vaccine, the next step is to engage them. Asking permission to discuss vaccines helps build trust. Additionally, phrasing a recommendation in an opt-out manner can enhance vaccine uptake.<sup>19</sup>

### *Here are some conversation starters:*

- "If it is okay with you, I would like to spend 4 or 5 minutes to talk about RSV vaccines and your health."
- "While you're here picking up your medication, let's quickly chat about RSV. What do you know about RSV infection?"
- "I took some time to review your medication history. Having [COPD, asthma, heart failure, diabetes, etc.] puts many people at risk of getting sicker if they get RSV. Would you be interested in setting up an appointment for the RSV vaccine?"
- "Thank you for stopping by to pick up your medication for [relevant disease state] today. I wanted to take a few minutes to see how you are doing and if you have any questions for me about the RSV vaccine."
- "How's the chemotherapy going for your spouse? There's a new RSV vaccine that can help protect you and your spouse. May I have a moment to give you more information?"
- "As you approach your third trimester of pregnancy, do you have a moment to talk about ways you can protect your baby even before they are born?"
- "Your baby is due in the winter. There is a new RSV vaccine that you can get while still pregnant to protect your baby over the winter. Do you have a few minutes to discuss?"



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## Answering Patient Questions About RSV Vaccination

### *How is RSV transmitted?*

RSV is transmitted through respiratory droplets from a cough or sneeze, direct contact with the virus such as kissing the face of a child with RSV, or touching surfaces within a few hours of contact with RSV.

### *Am I contagious with RSV even if I don't have symptoms?*

People with RSV are usually contagious for 3 to 8 days. Individuals with immunosuppression can spread the virus for up to 4 weeks. A person can spread the virus beginning 1 or 2 days before exhibiting any symptoms.

### *How do I know if I'm at risk for severe illness from RSV?*

People with chronic medical conditions such as heart failure, asthma, or COPD are at increased risk for complications and hospitalizations due to RSV infection. Likewise, older adults and those with immunosuppression are also at higher risk for severe disease from RSV infection.

### *Am I high risk even if my chronic heart or lung disease is controlled?*

Yes, controlled chronic heart and lung disease can still put a person at increased risk for complications due to RSV infection.

### *What should I do to prevent RSV infection?*

Frequent handwashing, covering coughs and sneezes, and avoiding people who are sick with RSV are good prevention strategies. Additionally, frequently disinfecting surfaces that may come in contact with RSV respiratory droplets and avoiding touching the face can also help prevent RSV transmission. Two vaccines are FDA-approved in older adults for the prevention of lower respiratory tract disease caused by RSV infection.

### *Is this vaccine for babies?*

Currently, two RSV vaccines are approved for adults ages 60 years and older. One of those may also be given to someone who is 32 to 36 weeks pregnant to provide protection to the baby. Alternatively, there is an option called a monoclonal antibody that could be used in babies.

### *Should I take this vaccine if I'm pregnant?*

There is one RSV vaccine approved for use later in pregnancy during 32 to 36 weeks gestation if the baby is due when RSV is circulating. The baby gets protection against RSV disease because the pregnant person has received the vaccine.

### *Will I need an RSV vaccine with every pregnancy?*

When given during pregnancy, the RSV vaccine is meant to provide protection to the baby. Each pregnancy would be an indication for the vaccine, if seasonally appropriate.

### *Will I need vaccination against RSV every year?*

This is currently unknown. There is insufficient evidence at this time to determine the need for revaccination after receipt of a single dose of RSV vaccine. Studies are ongoing to determine immunity beyond 1 year.

### *Can I get the RSV vaccine with the flu shot?*

Getting RSV vaccine and other adult vaccines on the same day (known as coadministration) is acceptable. Coadministration of RSV vaccine and seasonal influenza vaccine resulted in acceptable antibody levels (known as immunogenicity) compared with the levels when each was administered at separate times. Administering RSV vaccine with other vaccines at the same visit might increase the risk for local or systemic reactions.



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