



## A new vaccine is here to protect you and your loved ones from RSV this winter

FDA approved a new vaccine for older adults and expanded approval for others

**D**ecember and January are peak months for respiratory syncytial virus (RSV) infections. While anyone can get [RSV](#), severe infections are more common in young children and older adults. Fortunately, new vaccine approvals by the U.S. Food and Drug Administration (FDA) mean there are more options to avoid getting sick this winter.

In the spring of 2024, FDA licensed a new RSV vaccine, called [MRESVIA](#), for adults 60 years of age and older. There are now three RSV vaccines recommended by the Centers for Disease Control and Prevention (CDC) [for older adults](#)—the other two are [ABRYSV0](#) and [AREXVY](#).

Different RSV immunizations are recommended based on age, risk factors, and pregnancy. CDC recommendations are different from FDA approvals. Always check with your health care provider about what is right for you.

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## What is RSV?

RSV is a highly contagious common respiratory virus. People of any age can get infected. It usually causes mild, cold-like symptoms.

RSV spreads from person to person directly, such as kissing the face of a child who has RSV, or indirectly, such as through the air by coughing and sneezing. You can also catch it by touching an object or surface with the virus on it before touching your mouth, nose, or eyes.

In the United States, RSV infections usually occur from fall through spring. People with RSV are generally contagious for three to eight days. But sometimes infants and people with weakened immune systems can continue to spread the virus for as long as four weeks.

While most cases are mild, it can cause serious lung infections in certain groups at higher risk, including:

- Infants
- Older adults, especially those ages 65 and older
- People with chronic medical conditions such as heart or lung disease
- People with weakened immune systems

## What are the symptoms?

Symptoms of RSV infection usually start about four to six days after infection and may mimic the common cold:

- Runny nose
- Decrease in appetite
- Cough
- Sneezing
- Fever
- Wheezing
- Trouble breathing

## Did you know?

**RSV can survive for many hours on hard surfaces, such as tables and crib rails. It typically lives on soft surfaces, such as tissues and hands, for shorter amounts of time.**

These symptoms usually appear in stages instead of all at once. In very young infants, the only symptoms may be irritability, decreased activity, and trouble breathing. RSV can also cause more severe infections, especially in people at high risk. These infections include [bronchiolitis](#), an inflammation of the small airways in the lung, and [pneumonia](#), an infection of the lungs. If symptoms get worse over time, see a doctor right away.

## How is it diagnosed?

A doctor can diagnose RSV. They can do tests such as X-rays and blood or urine tests to check for complications in people with severe infections. A doctor can also order lab tests, but they are usually for people with severe infections.

## Immunizations to Protect Against Severe RSV

| Who Does It Protect?                                                                                   | Type of Product                                                       | Who Is It Recommended For?                                                                                                                         | When Is It Available?                                                             |
|--------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
|  Adults 60 and over | RSV vaccine                                                           | Adults ages 60-74 who are at increased risk of severe RSV<br>AND<br>Everyone ages 75 and older                                                     | Available any time, but best time to get vaccinated is late summer and early fall |
|  Babies             | RSV antibody (nirsevimab) given to baby                               | All infants whose mother did not receive RSV vaccine during pregnancy, and some children ages 8-19 months who are at increased risk for severe RSV | October through March*                                                            |
|  Babies             | OR<br>RSV vaccine (Pfizer's ABRYSVO) given to mother during pregnancy | All pregnant people during weeks 32-36 of their pregnancy                                                                                          | September through January                                                         |

[www.cdc.gov/rsv](http://www.cdc.gov/rsv)

\*Recommended timing of administration in most of the continental United States. Recommended timing of administration may differ in some areas, based on state, local, or territorial guidance.



SOURCE: [CENTERS FOR DISEASE CONTROL AND PREVENTION](#)





Young children and infants with severe RSV infections may require hospitalization.

### How is RSV treated?

There is no specific treatment for RSV, but most people get better on their own in a week or two. Drink lots of fluid to prevent dehydration. You can take over-the-counter pain relievers for fever or pain, but do not give aspirin to children. And do not give cough medicine to children younger than 4 years old.

### How is RSV prevented?

To avoid catching RSV, wash your hands often with soap and water for at least 20 seconds or use sanitizer hand gel that contains at least 60% alcohol. Getting one of the available vaccines if you are eligible is also an effective way to lower your risk of RSV disease.

CDC recommends everyone ages 75 and older (and adults ages 60 to 74 who are at increased risk of severe infection) get an RSV vaccine. Pregnant people during their 32nd through 36th week of pregnancy are also advised to get the ABRYSVO vaccine. Young infants whose mothers did not receive one during pregnancy can receive a protective RSV antibody ([different from a vaccine](#)). Talk with your health care provider about the best time to get your vaccine. If you have already gotten an RSV vaccine, you do not need to get another one.

RSV vaccines are usually covered by private health insurance, the Children's Health Insurance Program, Medicare Part D, Medicaid, and TRICARE for military. CDC's [Vaccines for Children](#) program also provides free immunizations for children at participating doctor's offices, pharmacies, and health clinics. ■



### FAST FACT

Each year in the United States, an estimated **100,000–160,000 adults ages 60 and older** and an estimated **58,000–80,000 children younger than 5 years old** are hospitalized due to RSV.

**SOURCE:** CENTERS FOR DISEASE CONTROL AND PREVENTION: ([RSV IN OLDER ADULTS](#), [RSV IN INFANTS AND YOUNG CHILDREN](#))

# Did you know? Supplements and medications can interact in unexpected ways



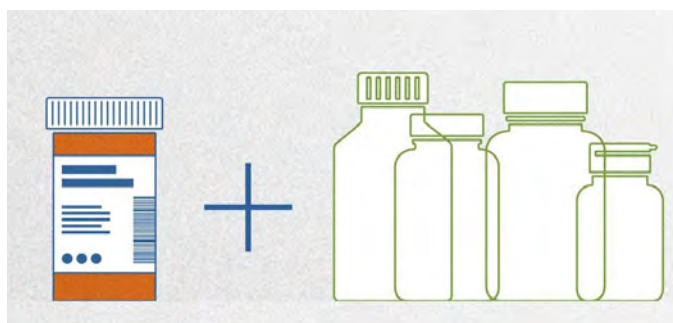
Some dietary supplements can cause your medications to work differently.

**M**any of us take [dietary supplements](#) such as vitamins, minerals, herbs, or other products to boost our health. Since many supplements contain natural ingredients, it's easy to assume they are always safe. But [just because something is "natural" doesn't mean it's without risk](#)—especially when combined with medications.

Do you take prescription or over-the-counter medications? If so, it's important to know that supplements might change how those medications work.

## How supplements can affect your medications

Some supplements can affect the way your body processes medications. This can lead to unexpected or even dangerous results.



Interactions between some medications and supplements may change how each of them works.

Certain supplements can cause medications to break down faster than normal. This reduces the amount of medicine in your bloodstream and makes it less effective. Others may slow down this process, causing medications to stay in your body for too long. This can increase the risk of side effects.

For example, herbal [St. John's wort](#) supplements, which are often used for mood disorders, can speed up certain processes in your body. This may prevent medications such as birth control pills, antidepressants, blood thinners, and some cancer treatments from working correctly.

Similarly, concentrated [green tea](#) extract can interfere with medications for heart conditions and other chronic diseases. This can pose serious risks when treating these conditions.

## Before you buy, get the facts!

Want to make informed choices about herbal supplements and other natural products? The National Center for Complementary and Integrative Health's (NCCIH) [Herbs at a Glance](#) series provides clear, science-based information about popular herbs and botanicals. Understanding the research can help you make better decisions about your health.

## Protect your health and keep your treatments working as intended

To avoid potentially harmful interactions, always keep your health care providers in the loop about any and all medications, supplements, or herbal remedies you're taking.

### Understanding the science

You know the basics, now [Know the Science: How Medications and Supplements Can Interact!](#) This handy digital resource from NCCIH provides information about interactions between supplements and medication to help you understand the risks. It also offers practical advice such as:

- Why it's important to [speak with your doctor](#) and other health care providers about what you're taking (and what information you should share with them)
- How different supplements might impact your medication's effectiveness
- Common interactions to watch out for, including how supplements could [interact with surgical procedures](#)
- Tips for [how to read labels](#) on dietary supplements

Dietary supplements can interact dangerously with medications, altering drug effectiveness and potentially causing serious side effects.



### Test your knowledge

Think you have a handle on medication-supplement interactions? Take a [short quiz](#) to see how well you understand the risks! It's a fun way to ensure you're making informed decisions about your health. ■

*\*This article was originally published in December 2021. It has been updated.*

## Black Bean Soup

**Prep time:** 15 minutes

**Cook time:** 45 minutes

**Total time:** 60 minutes

**Number of servings:** 12

### INGREDIENTS

- 1 tablespoon vegetable oil
- 1 small onion, chopped (about 1 cup)
- 4 cloves garlic, minced, or 1 teaspoon garlic powder
- 1 can (15 ounces) diced tomatoes
- 2 cans (15 ounces each) black beans, drained and rinsed
- 2 medium potatoes (any kind), peeled and diced
- 4 cups water
- 1/2 cup fresh cilantro, chopped
- 1 tablespoon cumin
- 1/3 cup lime juice or juice from 1 lime
- hot sauce to taste



### DIRECTIONS

1. Wash hands with soap and water.
2. Heat oil in a large pot over medium-high heat. Sauté the onion for 2 minutes. Add the garlic and tomatoes and cook for 2 minutes, stirring often.
3. Add the beans, potatoes, and water. Bring to a boil; then reduce to medium-low heat. Cover and simmer for 20 minutes.
4. Add the cilantro, cumin, lime juice, and hot sauce, if desired. Stir and cook for 10 minutes. Serve hot.
5. [Refrigerate leftovers within 2 hours and up to 4 days.](#) Leftovers can be frozen indefinitely but may lose moisture after 3-4 months.

### NOTES

- Try topping soup with nonfat sour cream, chopped cilantro, and baked tortilla chips.



# What makes urine yellow?

## The answer lies in your gut

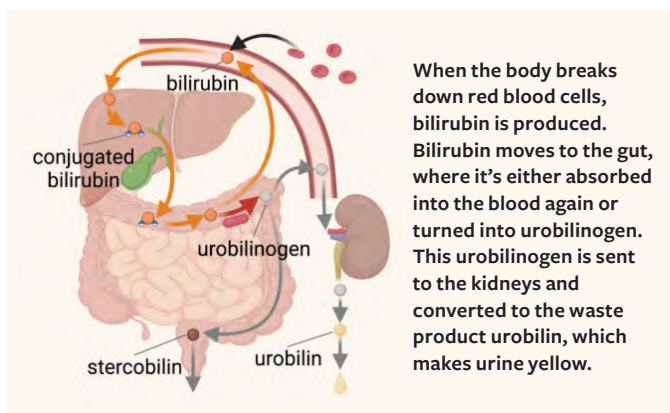
Researchers knew that urobilin is what makes your urine yellow, but they hadn't discovered the enzyme that was key to this chemical process.



**E**ver wonder why urine is yellow or why skin looks yellow in people with jaundice? Scientists have known for more than a century that urobilin is the chemical responsible for that yellow color. But the enzyme responsible for making urobilin was a mystery...until recently. Researchers at the National Library of Medicine (NLM) [found the answer](#) in an unexpected place: the gut [microbiome](#). Their findings can help us better understand certain health conditions, how our bodies work, and why some babies get jaundice.

### Why does urine look yellow?

When your body replaces old red blood cells, it creates bilirubin. This substance then moves to your gut, where it either gets absorbed back into the bloodstream or is broken down into a chemical called [urobilinogen](#). Your kidneys then turn urobilinogen into urobilin—this makes your urine yellow.



While researchers knew about this process, one piece of the puzzle was still missing: What causes bilirubin to break down into urobilinogen? But researchers at NLM and the University of Maryland Hall Lab recently found the missing puzzle piece—a key [enzyme](#) called bilirubin reductase.

### How did researchers discover this?

Their first step was to find a group of bacteria that could reduce bilirubin. Many gut bacteria need low-oxygen environments to survive. This is hard to do in a lab setting, so the scientists also used computer experiments to look at the [genomes](#) of multiple bacteria at a time. A [genome](#) is the entire set of DNA instructions found in a cell.

Then from the bacterial genomes, researchers waded through all that bacterial data to find the gene that encoded the enzyme that breaks down bilirubin.

“We were able to confirm their functions and then look at bigger picture trends, like the relationship of that gene to different kinds of diseases,” said Keith Dufault-Thompson, Ph.D., a staff scientist in NLM’s Division of Intramural Research (DIR).

### Why does this research matter?

Most of the time, our bodies break down bilirubin every day without any issues. But when something goes wrong, bilirubin can build up in the blood. This can lead to health problems such as jaundice, in which your skin and the whites of your eyes turn yellow. Jaundice is common in infants and people with liver disease. It can lead to pain, fevers, hearing loss, and even brain damage in severe cases.



Infants are especially vulnerable to jaundice in the first few weeks of life. Photo (blue light) therapy is one way to treat infant jaundice.

Researchers wanted to see how the bilirubin reductase enzyme affects our health. After their discovery, they analyzed data from past studies on the gut microbiome (the ecosystem of bacteria and other microbes that live in the intestines). They took genetic samples from the microbiomes of healthy adults, young infants, and patients with inflammatory bowel disease (IBD) and searched for the gene that produces bilirubin reductase. Xiaofang Jiang, Ph.D., a principal investigator in the NLM DIR, and her team found that about 70% of infants don't have the bacterial gene key to producing bilirubin reductase in their first month of life. This may explain why jaundice affects many newborns—their gut microbiomes aren't as developed. The study also showed that more than 30% of adults with IBD don't have the bacterial gene present, either.

This new research may lead to better outcomes for infants and other people with these conditions. It can also teach us more about the gut microbiome's role in overall human health.

### What's next for this research?

Since the bilirubin reductase discovery, the research team went back to look at previous data on gut microbiomes. They want to see how the enzyme evolved in the gut environment.

Dr. Dufault-Thompson said this work could help us understand bilirubin-reducing bacteria and pave the way for new treatments. Thanks to this study, the team can learn more what kind of functions gut bacteria can do and how they affect our bodies. These include how microbes metabolize (break down) artificial sweeteners and different types of hormones.

"These projects have helped us broaden our understanding of the impact of microbes on human health and demonstrate the wide range of functions that our microbiomes carry out," he said. ■

*\*This article was adapted from the NLM Director's Musings from the Mezzanine blog. Read the [original article](#) to learn more about this study and the researchers behind it.*

**"These projects have helped us broaden our understanding of the impact of microbes on human health and demonstrate the wide range of functions that our microbiomes carry out."**

*—Keith Dufault-Thompson, Ph.D., a staff scientist in the NLM Division of Intramural Research*

# Of mice and medicine: Our favorite NIH research highlights from 2024

It's hard to keep track of all the scientific advances coming out of NIH-funded studies every year! Refresh your memory of some of 2024's highlights with this quick roundup.



NIH-supported scientists collaborate on research in all areas of human health.

## 1. Could a new molecule prevent blood clots without increasing the risk of bleeding?

Blood clots can form when substances in the blood clump together. If they block blood vessels, they can prevent blood from flowing to important organs. Blood thinners help prevent clots from forming and growing larger, but they can also cause bleeding. Researchers wanted to see whether a new compound, called MPI 8, could help prevent blood clots without bleeding. While the research was done in mice, with further study, MPI 8 could one day also be used to treat patients.

Learn more about this and other blood clot research [here](#).

## 2. Air pollution rates increase along neighborhood racial segregation lines

Communities of color often have the highest exposure to chemicals in the air they breathe. This disparity is linked to racial residential segregation—when people of different races live in separate areas, often due to social, economic, or discriminatory factors. When these areas are exposed to more pollution, it can increase health risks for the people who live there. A study found a link between outdoor air pollution and asthma attacks in children and teenagers living in those areas.

Learn more about this research and other environmental health findings [here](#).

## 3. Staying hydrated can lower your chances of developing chronic diseases

A study found that people who stay hydrated throughout their lives are less likely to develop chronic diseases. They may even live longer, healthier lives. Researchers tracked the health of more than 11,000 adults for 30 years. They measured levels of blood sodium, which rise when we're dehydrated. Researchers found that people with higher sodium levels were more likely to develop chronic diseases later in life. These included heart failure, diabetes, and dementia. They also showed more signs of advanced [biological aging](#).

Learn more about the study and tips for staying hydrated [here](#).

## 4. Better screening before and after birth could reduce maternal sepsis and save lives

Pregnant people and infants are at higher risk for sepsis—the body's extreme response to an infection. It can be fatal, and unfortunately, screening for maternal sepsis can be challenging. That's because common pregnancy-related changes in the body, such as a faster heart rate, can mask signs of sepsis. Researchers looked at existing screening tools that health care providers use to check for



NIH supports thousands of studies on new treatments for common diseases.



maternal sepsis. They found that screenings done between 20 weeks (about five months) of pregnancy and three days after delivery were more accurate when the provider adjusted the tool for pregnancy. This means the provider accounted for specific changes that occur in the body during pregnancy when they screened a patient.

Learn more about the risks of maternal sepsis and what's being done about it [here](#).

## 5. Making HIV treatment more convenient for people with limited resources

While there is no cure for HIV, it can be managed with antiretroviral therapy (ART). People with HIV need to take ART for the rest of their lives, but this can be hard for those who can't afford or otherwise access health care. A study tested how well long-acting ART injections worked for people with limited access to health care. The study participants got regular injections, reminders from pharmacy staff, and frequent health checks by researchers. For most people whose HIV was not suppressed when they enrolled, the virus *was* suppressed by the end of the study.

Learn more about this and other ART delivery approaches [here](#).

## 6. Gut bacteria may affect your desire to exercise

Can gut microbes influence our motivation to exercise? To answer that question, researchers studied exercise performance in mice. They found that mice ran on a wheel less and got tired faster when they had fewer gut microbiomes. For mice with healthy gut microbiomes, exercise increased dopamine—a brain chemical associated with pleasure, motivation, and reward (like a “runner's high”). This motivated them to keep moving. The researchers learned that during exercise, bacteria in the gut produce a certain chemical that tells the brain to release more dopamine.

Learn more about this research [here](#).



Every day, NIH furthers scientific discoveries that affect us from head to toe.

## 7. A quick skin biopsy could help spot major brain disorders

Researchers are trying new ways to detect brain disorders. One study developed a simple skin biopsy that may identify people with Parkinson's disease, Lewy body dementia, and related disorders. This quick, nearly painless test looks for a protein that's associated with certain neurodegenerative diseases. Using these skin samples, researchers found the key protein in more than 90% of people with one of these disorders. This could lead to faster, more accurate diagnoses and earlier treatments for patients.

Learn more about this and other studies on the brain [here](#). ■

### WHO WE ARE

The National Institutes of Health (NIH) is the **nation's premier medical research agency**, made up of 27 different Institutes and Centers. The National Library of Medicine (NLM) at NIH is a leader in biomedical informatics and data science research and the world's largest medical library.

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Thanks for reading!

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