

# What people with heart disease should know about vaccines today

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In some ways, the link between viruses, vaccines and heart health is simple.

Think of your heart as a house, said Dr. Jorge Alvarez, an interventional cardiologist at Methodist Cardiology Clinic of San Antonio. "You have

the walls of your house, which are like the walls of your heart. You have the doors, which are the valves. And then you have plumbing and electricity.

"A virus can affect all of those aspects of your house," he said.

That makes being vaccinated against COVID-19, flu and other illnesses an important way for people with heart disease to protect themselves.

That fact can get lost in the swirl of new information, not to mention misinformation, surrounding vaccines. Now that the [updated COVID-19 vaccine](#) is available—and can be given at the same time as the [flu shot](#)—here are more straightforward answers from the experts on what people with cardiovascular issues should know about viruses and vaccines.

## **Viruses pose serious heart risks**

Heart issues and infection are linked in many ways. One is inflammation, said Dr. Saate Shakil, an assistant professor of cardiology at the University of California, San Francisco.

Diseases caused by viruses, such as the coronavirus, influenza and [respiratory syncytial virus](#), or RSV, can cause inflammation. So can bacterial illnesses such as pneumonia.

If you have [coronary heart disease](#), [blood flow](#) is restricted by plaque-filled arteries. In such cases, inflammation could lead to a plaque rupture, blood clot and blocked artery that causes a [heart attack](#) or stroke, said Shakil, who has studied links between COVID-19 and stroke.

Other research has shown:

- Problems such as heart attacks and heart failure (the inability of the heart to pump properly) occur in about 20% of adults hospitalized with RSV, according to a [2018 study](#) in the *Journal of the American College of Cardiology*.
- COVID-19 is linked to an increased risk of irregular heartbeats, heart failure and coronary disease. In a [study](#) published in 2021 in *The Lancet*, COVID-19 was associated with a threefold to eightfold increased risk of having a heart attack and a threefold to sevenfold increased risk of having a stroke.
- The risk of a [heart attack](#) may be as much as [six times higher](#) in the week after a flu diagnosis, found a study published in 2018 in the *New England Journal of Medicine*.

A virus doesn't have to attack the heart directly to endanger it, Shakil said. Someone with pneumonia might have trouble breathing, which strains the heart.

Meanwhile, Alvarez said, a [high fever](#) caused by infection can sometimes lead to heart rhythm issues in certain people.

## **Vaccines protect against those risks**

Alvarez likens cardiovascular problems to a campfire. Cholesterol, which leads to arterial plaque, is like a growing pile of wood in his analogy. Inflammation is the lighter fluid. A viral or bacterial infection is the match that sets it all off.

A vaccine, he said, is like a bucket of water for that match, stopping the whole process.

A [research](#) letter published in February in *JACC* found that among more than 1.9 million people infected with the coronavirus, vaccination was associated with a lower risk of heart attacks, strokes and other

cardiovascular events.

Flu vaccination, meanwhile, is associated with a lower risk of stroke. In [an analysis](#) published in the *Journal of the American Heart Association* in 2021, flu vaccination also was associated with an 18% lower chance of death from cardiovascular problems and a 25% lower chance of death from any cause.

The Centers for Disease Control and Prevention says that people who have [heart disease](#) or have had a stroke should talk to their health care team about vaccinations for COVID-19, flu and pneumococcal disease, which includes pneumonia and meningitis. They should also stay current on a Tdap vaccine, which protects against diphtheria, tetanus and pertussis (also known as whooping cough).

The CDC also recommends that [adults 60 and older](#) ask about the new RSV vaccine.

A health care professional can offer advice on other vaccines, as well as whether to avoid certain formulations. For example, the CDC says people who are pregnant, have weakened immune systems or are 50 and older should not receive the nasal spray flu vaccine, which is a live virus-based vaccine. "It's not that they can't get vaccinated," Shakil said. "It's just that the type of vaccine has to be tailored for them."

## **Vaccination risks are real—but far outweighed by the benefits**

Vaccines can have side effects. The COVID-19 vaccine, for example, has been linked to rare cases of myocarditis and pericarditis, types of [heart](#) inflammation.

That has to be viewed in context, said Dr. Gregory Piazza, director of vascular medicine at Brigham and Women's Hospital in Boston.

"What we're talking about with the risks of the vaccine are very infrequent events," said Piazza, who also is an associate professor of medicine at Harvard Medical School. "And you pit that against the large degree of benefit that you get" by reducing the severity of COVID-19 and reducing the odds of being hospitalized or having a cardiovascular complication.

"Those are real, tangible benefits," he said.

Piazza, who designed and oversees a large nationwide study of COVID-19 patients, said the scope of serious side effects is "very small. Very, very small." For example, some vaccinated people had issues with blood clots.

"But many people have issues with blood clots if they are hospitalized because of COVID-19," Piazza said. A [study](#) in England published in *Circulation* in 2022 found 10,500 more cases of dangerous blood clots among 1.4 million COVID-19 patients than would be expected without COVID-19.

When Alvarez's patients express concerns about vaccine risks, he points out that their risk of getting in a major car accident on the way to his office—a risk they all were comfortable with—is higher than the risk of a serious reaction to the vaccine.

"Vaccines are safe and effective, and they help save lives," he said.

Shakil said her patients often have asked about vaccine safety, so she examined the history of each patient for risks. "I see a lot of patients, and I don't think there was a single patient where we went through their

data and felt like it was risky for them to have the vaccination. If anything, it would have been more of a risk for them to have gotten COVID and not have been immunized."

## **Vaccines aren't perfect**

Despite their overall benefits, COVID-19 and flu vaccines don't stop every infection. That does not mean they didn't work, Alvarez said.

He likens a [vaccine](#) to helping your immune system study for a test—it might not score 100%, but it's going to do a lot better than someone who didn't study at all.

## **You don't have to sort this out alone**

Worried or confused about which vaccines you need? It's OK to grill your cardiologist or primary care physician, Alvarez said.

Ask them to explain their reasoning, then be open-minded about what they say. "There should be some thought and some discussion behind some of these things," he said.

There are no silly questions, Shakil said. "The worst thing that could happen is that you walk away with more information than you came in with."

Provided by American Heart Association

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