

What doctors want patients to know about COVID-19 vaccine boosters

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When the COVID-19 [Delta variant](#) became the dominant strain of SARS-CoV-2 in the United States, it was found that people's immunity against infection started to wane months after they finished their primary vaccine series.

This led to the emergency use authorization (EUA) of COVID-19 vaccine booster shots from the Food and Drug Administration (FDA) and recommendation from the Centers for Disease Control and Prevention (CDC). Now, four COVID-19 vaccines—Pfizer BioNTech, [Moderna, Novavax and Johnson & Johnson](#)—have received EUA for booster shots. Yet with newly emerging subvariants and the availability of bivalent booster doses, many patients have questions. One physician expert aims to clear the air about COVID-19 vaccine boosters.

The AMA's What Doctors Want Patients to Know™ series provides physicians with a platform to share what they want patients to understand about today's health care headlines, especially throughout the COVID-19 pandemic.

For this installment, AMA member [Rambod A. Rouhbakhsh, MD](#), took time to discuss what patients need to know about COVID-19 vaccine boosters. Dr. Rouhbakhsh is a faculty physician and program director at the Forrest General Hospital Family Medicine Residency Program and the principal investigator for Hattiesburg Clinic MediSync Clinical Research. He is also one of the leading physicians over the Moderna COVID-19 vaccine trial at Hattiesburg Clinic—a member of the [AMA Health System Program](#).

There are bivalent vaccine boosters

An updated COVID-19 vaccine booster that was designed to better match the Omicron BA.4 and BA.5 subvariants is available. The [bivalent COVID-19 vaccine booster](#) is composed of the original SARS-CoV-2 strain, and the Omicron BA.4 and BA.5 subvariants.

The only bivalent boosters currently authorized and recommended are mRNA vaccines manufactured by Pfizer-BioNTech and Moderna. This is the first time the COVID-19 mRNA vaccines have been updated.

Pfizer's bivalent booster is authorized for those 5 or older. Meanwhile, Moderna's authorization is for patients 6 or older. Patients must complete a primary COVID-19 vaccine series before getting the booster.

It is recommended that people should wait at least two months from their last COVID-19 primary series dose or monovalent booster dose to get a bivalent booster. And if you have a prior COVID-19 infection, the CDC advises that it is probably best to wait at least three months after an infection to get the bivalent booster.

Boosters offer added protection

“What we have seen is that the efficacy of the vaccine diminishes over time, which is to be expected—all vaccines do to some degree,” said Dr. Rouhbakhsh, noting “it takes some time for us to figure out how many doses and at what intervals we need.

“Think about childhood vaccines. We’re supposed to get five Tdap—tetanus, diphtheria and acellular pertussis—and those have differing intervals,” he added. “It takes time to establish an optimal interval.”

For COVID-19 vaccines, “we’re figuring this out as we go along. Fortunately, we have ongoing clinical trials,” said Dr. Rouhbakhsh. “I’m a part of the Moderna clinical trial, where the participants in our trial are actively re-evaluated to assess their antibody titers post-vaccination. Then we follow them to see how many wind up getting sick to determine if there is a correlation between antibody levels and likelihood for illness.”

In the face of the Omicron variant, the CDC found that, [compared with people who are fully vaccinated with booster doses](#), unvaccinated adults 50–64 years old were 7.4 times more likely to be hospitalized from COVID-19. Unvaccinated seniors were 5.4 times likelier to land in the hospital. Additionally, unvaccinated adults 18 to 49 years old were 3.5 times more likely to be hospitalized while adolescents were 3.4 times likelier and children 5 to 11 years old were 1.7 times likelier.

Research published in *Morbidity and Mortality Weekly Report* also shows that [during Omicron BA.2 and BA.5-predominant periods](#), vaccine effectiveness against COVID-19-associated hospitalization wanes over time. During the BA.2 and BA.5 periods, receipt of a third vaccine dose was 79% and 60%, respectively, during the initial 120 days after the third dose. Effectiveness decreased to 41% during the BA.2 wave and 29% for the BA.5 surge after 120 days from vaccination.

Meanwhile, a *JAMA* study shows that receipt of [three doses of a mRNA COVID-19 vaccine](#)—compared with being unvaccinated or having received two doses—was associated with protection against both the Omicron and Delta variants.

Expect the same side effects

For those who are eligible for a COVID-19 vaccine booster, the side effects are likely to be similar to their initial full series.

Some of those side effects include “injection-site pain and swelling, fatigue, headache, possibly some muscle aches, or what we’d call myalgias or joint aches, and arthralgias,” said Dr. Rouhbakhsh. “The [myocarditis cases](#) have been very rare, mostly seen in young males.”

With myocarditis, it “would be more shortness of breath-type symptoms and sometimes chest pain,” he said. “Fortunately, the cases of myocarditis have been mild, and people have gotten better on their own.”

Young children are not eligible for a booster

Recommendations also differ for children 6 months to 4 years old. Children younger than 5 years old who received a primary Pfizer COVID-19 vaccine series, which is based on the original viral strain, are not currently eligible for a booster dose.

This also includes kids 6 months to 4 years old who have a weakened immune system.

Mixing and matching is OK for boosters

Through the FDA's authorization and the CDC's recommendation, heterologous boosting—aka "[mixing and matching](#)"—is allowed with a single dose of any of the authorized COVID-19 vaccine boosters. For example, those who got Johnson & Johnson's one-dose series can receive a booster shot from Moderna or Pfizer.

Physicians will look at the clinical considerations, including rare adverse events, and perform an individual benefit-risk assessment to inform patients about which booster vaccine to use. Mixing and matching may only be considered for the booster dose.

Primary series for immunocompromised

For [patients with compromised immune systems](#), they are recommended to receive a three dose primary series of an mRNA COVID-19 vaccine or a two dose primary series of the J&J or Novavax vaccine. An updated bivalent booster dose is recommended at least two months after the completion of the primary series.

"An additional dose is not the same as a booster dose," explained Dr. Rouhbakhsh. "There had been a group of individuals who had already been recommended to get a third dose. And it's those people with immunocompromised states or those less likely to mount an adequate immune response."

"We know the older you are, the less robust your immune response is, and you have to have more of the vaccine," he said. "This is what we do with the flu shot, where people above the age of 65 get four times the potency that people under the age of 65 get."

Additionally, the CDC recommends that children 6 months or older with moderately or severely compromised immune systems get an additional primary dose of vaccine at least 8 weeks after their second Pfizer dose or four weeks after their second Moderna dose. The Pfizer-BioNTech and Moderna COVID-19 vaccines are the only ones authorized and recommended for this age group. This is consistent with the CDC's previous recommendation for [adults who have compromised immune systems](#).

Bring your vaccine card

There are extra spaces on the [COVID-19 vaccine cards](#) for a reason. Those who are eligible for a COVID-19 vaccine booster are being “asked to bring their cards,” said Dr. Rouhbakhsh. Whether it is through a pharmacy or your physician's office, the COVID-19 vaccine card will need to be updated with the bivalent booster information.

For patients with compromised immune systems who are to receive an extra primary series dose of Moderna or Pfizer, “it's pretty much going on an attestation. In other words, an honor system—you must attest that you need the booster dose,” he added. That means “you're one of the people who fits these categories and you've had the second dose six months prior” for Moderna and Pfizer. For Johnson & Johnson, it is two months after their initial shot in the one-dose series.

More people must get their booster shots

It's imperative that as many people get vaccinated as possible to avoid a SARS-CoV-2 variant “that could outwit our vaccines,” he said.

The next variant could be “even more deadly than what we've seen,” said Dr. Rouhbakhsh. “So, if you are eligible or you are a high-risk person, you should consider yourself lucky to be in a place that has rapid access to vaccines—whether it's at your doctor's office or your local pharmacy. Unfortunately, that's not the case in other areas of the world.”

“Sometimes, we don't value that which comes easily. And the fact that we have this brand-new technology that was rapidly acquired and available virtually on every corner pharmacy in the entire country is a remarkable feat that we may be taking for granted,” he added.

“Please don’t. It is a luxury that we have as Americans, and I would recommend everyone take advantage of it if they can.”