

What is a COVID-19 booster dose?

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A booster dose refers to a single dose of a COVID-19 vaccine given after the protection provided by the primary dose(s) has begun to decrease over time. A booster dose helps people maintain their immunity for longer.

Pfizer-BioNTech, Moderna and Johnson & Johnson each have a U.S. Food and Drug Administration (FDA)-authorized COVID-19 booster. Each booster has specific [eligibility requirements and criteria](#), which is subject to change as evidence evolves.

Currently, the Pfizer-BioNTech or Moderna mRNA COVID-19 vaccines are preferred for both the primary series and booster dose over the Johnson & Johnson COVID-19 vaccine, for those 18 years of age and older, due to the rare risk of thrombosis with thrombocytopenia (TTS). Adolescents ages 16 to 17 years may receive a single booster dose of Pfizer-BioNTech COVID-19 vaccine at least 6 months after completion of the primary series.

What experts are saying about COVID-19 boosters

ACIP, FDA booster approval process

In the Sept. 28, 2021, [COVID-19 video update episode](#), Sandra Fryhofer, MD, chair-elect, AMA Board of Trustees; AMA's liaison to the Advisory Committee on Immunization Practices (ACIP), discusses the initial process that the Biden administration, ACIP and FDA underwent to determine the Centers for Disease Control and Prevention's (CDC) [official recommendations for the COVID-19 booster](#).

As part of the process, Dr. Fryhofer explains that the CDC director, Rochelle Walensky, MD, "overruled ACIP's refusal to allow boosters for those at occupational risk. She aligned CDC's final policy more closely with FDA's emergency use authorization. She explained

that making booster shots available to health care workers, teachers and others who risk contracting disease on the job would best serve the nation's public health needs.”?

“With all this talk about boosters, the top priority is still, we need to vaccinate those not vaccinated.”

—Sandra Fryhofer, MD, chair-elect, AMA Board of Trustees; AMA's liaison to the Advisory Committee on Immunization Practices

Receiving the primary dose(s) of any of the three current vaccines are necessary before a booster dose(s) of the vaccine can be given.

"Mix and match" vaccine booster strategy

Dr. Fryhofer says individuals can boost with any authorized COVID-19 vaccine, though boosting with mRNA vaccines is now preferred. The booster does not have to match the primary vaccine series type. This is called heterologous boosting. On the other hand, boosting with the same type of vaccine as the one you originally received is called homologous boosting. Either strategy is permitted, but those who received a Johnson & Johnson vaccine as their primary dose are recommended to receive an mRNA (Pfizer-BioNTech or Moderna) booster.

Further, “COVID vaccines can be co-administered with other vaccines so you can get your vaccine and your flu shot at the same time, and you do need both,” says [Dr. Fryhofer](#).

The boosters have similar adverse effects after injection as the primary series: pain at the injection, headache, fatigue, muscle aches, fever and chills. Dr. Fryhofer, however, stresses that vaccine-specific adverse effects in certain populations should be considered.

Vaccines, boosters and immunocompromised patients

The effects of the vaccines and boosters are different in those who are immune compromised. At least 2.7% of all U.S. adults are immunocompromised and that's about five to six million people, [Dr. Fryhofer states in a July 27, 2021, interview](#). “This includes

those who've had organ transplants, stem cell transplants and cancer, as well as those with so-called primary immunodeficiency and those treated with immunosuppressive medications. Some people living with HIV are also immunocompromised."

Immunocompromised people can receive COVID-19 vaccination because it is not a live vaccine. An additional primary dose of the Pfizer-BioNTech or Moderna mRNA two-dose primary series was approved on Aug. 12, 2021, to provide adequate protection against COVID-19.

Booster shots are also available for immunocompromised patients who have already received their two-dose mRNA primary series and their additional primary dose of the same mRNA COVID-19 vaccine.

Yet, for those who are immunocompromised, "even when you boost, you should be aware that the rates of protection do not get up to the range usually that we see with those who don't have immunocompromise," says Peter Marks, MD, PhD, director of the Center for Biologics Evaluation and Research at the FDA, in a [November 2021 webinar on booster shots](#).

The cut-off level when monitoring antibody responses to assess immunity in immunocompromised individuals is currently a challenge to determine.

Dr. Marks notes that "Right now, what we're saying is, in general, it looks like after a third dose, somewhere between 40% and 60% of people moved from being poor responders over to being better responders. But it's certainly not 100%."

Immunocompromised individuals 18 years of age and older who received an mRNA COVID-19 vaccine primary series and an additional primary dose should receive a COVID-19 booster dose (Pfizer-BioNTech or Moderna) at least 6 months after completing their additional primary dose.

Immunocompromised individuals aged 16 or 17 years who received the Pfizer-BioNTech COVID-19 vaccine primary series and an additional primary Pfizer-BioNTech vaccine dose may also receive a single Pfizer-BioNTech COVID-19 booster dose at least 6 months after completing their additional primary dose.

AMA, health experts strongly urge vaccinations

Regarding primary vaccination and booster shots, AMA president Gerald Harmon, MD, said [in an AMA statement](#),

"The scientific evidence is clear that the vaccines against COVID-19 are safe and remain effective. We continue to strongly urge everyone who has not yet been vaccinated against COVID-19 and is eligible, including children aged 5 and older and pregnant people, to get vaccinated as soon as possible to protect themselves and their loved ones."

Explore other AMA resources on COVID-19

To keep current with the latest information and recommendations about the COVID-19 boosters, the AMA has created a [frequently asked questions](#) list to assist physicians in discussing the boosters with their patients.

The AMA's [COVID-19 resource center](#) has evidence-based [news](#), guidance, [videos](#), podcasts, research highlights and more on the pandemic. Read about the latest on [COVID-19 vaccines](#).

Other key COVID-19 resources include:

- [JAMA Network™ coronavirus resource center](#)
- [AMA Ed Hub™ coronavirus education center](#)
- [AMA Journal of Ethics COVID-19 Ethics resource center](#)
- [What to tell immunocompromised patients about COVID-19 vaccines](#)
- [COVID-19 vaccines FAQs: Clinical considerations](#)

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