

COVID-19 Boosters and Variants

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There are many COVID-19 (COVID) variants and boosters. Because I have a great deal of information to impart, much of data will be provided in bullet form for easier reading. This article is current as of January 18, 2022. Please be advised that this information changes very frequently as new data from ongoing clinical trials develops almost daily.

COVID Vaccine Duration

Boosters are necessary because the effectiveness of initial vaccinations wanes as time elapses. Because of this decrease in efficacy over time, many experts believe that being fully vaccinated should be defined as two initial vaccine doses and a booster, for the Pfizer and Moderna vaccines. How long will current initial vaccine doses remain effective? Will COVID require regular vaccines like the flu? These questions are still being studied.

Pfizer, Moderna and Johnson & Johnson (J&J) all have COVID boosters. Details on each booster is provided below.

Pfizer Booster

Requires two vaccinations to be deemed fully vaccinated. A booster requires a third dose.

Currently has FDA and CDC Emergency Use Authorization (EUA) for administration five months after the second dose for the following people:

Those 50 and older should receive boosters.

Adults over 18-49 may receive boosters.

People 18+ should get a booster shot of either Pfizer or Moderna vaccines in most situations which should be given five months after second Pfizer vaccination and six months after the second Moderna vaccination.

Teens ages 12–17 should only get a Pfizer COVID vaccine booster shot.

Moderna Booster

Requires two vaccinations to be deemed fully vaccinated. A booster requires a third dose.

The Moderna booster is only 50mcg, not the 100mcg full dose.

The immunocompromised booster dose remains the full 100mcg.

Currently has FDA and CDC EUA authorization for administration five months after the second dose for the following people:

Those 50 and older should receive boosters.

Adults over 18-49 may receive boosters.

People 18+ should get a booster shot of either Pfizer or Moderna vaccines in most situations which should be given five months after additional primary shot.

There is no current Moderna booster for teens 12-17.

J&J Booster

The J&J vaccine consists of only one vaccine.

The J&J booster was not initially reviewed by the FDA in people exposed to the Delta variant because it was not submitted in time.

The FDA noted that the J&J vaccine was less robust than claimed because of the new Delta variant, and that the Pfizer and Moderna vaccines were more effective boosters.

The current CDC recommendation for people who had an initial J&J vaccine is as follows:

People 18+ should get a booster shot of either Pfizer or Moderna vaccines in most situations, given two months after the first dose of the J&J vaccine.

Mixing and Matching Different Vaccines

An NIH study has shown that the Pfizer and Moderna boosters are better than the J&J booster.

Pfizer and Moderna boosters are safe, effective and interchangeable.

Moderna or Pfizer boosters are similarly effective.

Any combination of Pfizer and Moderna vaccines leads to increased antibodies.

A second booster with Pfizer or Moderna vaccines is more effective than second J&J dose.

What about second booster shots? The CDC currently recommends second boosters only for the immunocompromised, defined as follows:

Who Is Moderately or Severely Immunocompromised?

People are considered to be moderately or severely immunocompromised if they have:

Been receiving active cancer treatment for tumors or cancers of the blood

Received an organ transplant and are taking medicine to suppress the immune system

Received a stem cell transplant within the last two years or are taking medicine to suppress the immune system

Moderate or severe primary immunodeficiency (such as DiGeorge syndrome, Wiskott-Aldrich syndrome)

Advanced or untreated HIV infection

Active treatment with high-dose corticosteroids or other drugs that may suppress your immune response

People should talk to their healthcare provider about their medical condition, and whether getting an additional primary shot is appropriate for them. No proof of the above conditions is required for booster vaccinations.

COVID Variants

So, what is a virus variant? All viruses mutate to survive, creating what are known as variants. Viruses depend on people and/or animals (hosts) to make more virus in order to keep infections alive and kicking. Many viruses have tools that enable them to change their genetic information, helping them to overcome a host's own immune defenses and to infect other hosts more effectively.

Genetically-modified viruses which are made up of a series of viral mutations are known as variants. Different viruses change their genetic information at different rates, meaning that certain types of viruses are better at this than others. For example, HIV replicates much faster than COVID. The success of viral variants also depends on other factors, such as how many hosts have already been infected with the virus. The more hosts that have been infected, the greater the opportunity for the virus to produce genetic variants. The more COVID spreads unchecked, the more variants develop. We know that hundreds of millions of people have been infected with COVID worldwide. Variants also develop more quickly in the immunosuppressed who have less defenses against the virus.

We have experienced international variants from the United Kingdom (UK), Brazil, South Africa, the Delta variant from India and Omicron from South Africa. One variant eventually overtakes other variants, often in very short order. Not long ago, the Delta variant overtook all other variants in the US. Now Omicron has overtaken the Delta variant in record time. To date, no variant has overtaken vaccines used in the US. Omicron may prove to be the first exception.

Delta Variant

Delta variant is more infectious and more deadly than previous variants. So far, Pfizer, Moderna and J&J vaccines remain effective against the Delta variant. Most breakthrough cases that occur in people fully vaccinated and boosted do not cause severe COVID, resulting in hospitalization, death, or the need for oxygen or ventilators. Variants may eventually overpower our vaccines if more people fail to be fully vaccinated and/or boosted.

Omicron Variant – How Effective Are Second Boosters?

Worldwide notification of identification of the Omicron variant from South Africa occurred in November of 2021. Omicron may result in less severe disease because it thrives in the bronchial area of the chest rather than deep within the lungs. But Omicron is even more transmissible than the Delta variant, resulting in exponentially higher case numbers than the world experienced at the initial onset of COVID.

The Israelis are leaders in the field of COVID boosters. According to Israeli Prime Minister Naftali Bennett, a new preliminary Israeli study, looking into the effects of a second booster of the Pfizer COVID vaccine, showed with a high degree of certainty it is safe and increased antibodies by fivefold one week after vaccination, and showed a very high likelihood that the fourth dose will protect vaccinated people to a great degree against infection to some degree and against severe symptoms. Based on this data, the Israeli government made recommendations that a second Pfizer booster should be made available to healthcare workers and people over 60, four months after their first booster shot.

Dr. Gili Regev-Yochay, an important Israeli researcher, does not think a second Pfizer booster is effective enough against the Omicron variant. She believes the second booster increases antibodies in numbers similar to the first booster which does not make it equivalent to a booster. Dr. Regev-Yochay indicated that a second booster may be helpful to the immunocompromised, but it may not be very helpful to the entire population.

The Israeli data is very preliminary. Studies in Israel are continuing, including studies comparing Pfizer and Moderna boosters. We will have more information soon. It will be up to the FDA and the CDC to sort out the best use of second boosters in the United States.

The search is on for a universal COVID vaccine that will remain effective against all COVID variants. Stay tuned for the latest COVID vaccine, booster and variant information.

Be sure to get vaccinated and boosted as soon as possible. Be sure to also mask up. All these prevention strategies are your best protection against serious COVID. The life you save may be your own or that of someone you love. Don't forget to get your second vaccine and booster when indicated. Here are links to vaccine sites in Baltimore City and Maryland:

[Where To Get Tested For COVID-19 In Baltimore](#) [Where To Get Tested For COVID-19 In Maryland](#)

Watch for COVID Symptoms

According to the CDC, “people with COVID-19 have had a wide range of symptoms reported – ranging from mild symptoms to severe illness. Symptoms may appear 2-14 days after exposure to the virus. Anyone can have mild to severe symptoms. People with these symptoms may have COVID-19:

Fever or chills

Cough

Shortness of breath or difficulty breathing

Fatigue

Muscle or body aches

Headache

New loss of taste or smell

Sore throat

Congestion or runny nose

Nausea or vomiting

Diarrhea

This list does not include all possible symptoms. CDC will continue to update this list as we learn more about COVID-19. Older adults and people who have severe underlying medical conditions like heart or lung disease or diabetes seem to be at higher risk for developing more serious complications from COVID-19 illness.”

You can find testing sites in Baltimore City and Maryland, using the following links:

[Where To Get Tested For COVID-19 In Baltimore](#) [Where To Get Tested For COVID-19 In Maryland](#)

Good luck and be safe.