

Who should receive COVID-19 vaccine boosters?

Older and immunocompromised people could benefit most from additional shots.

December 4, 2021 By Liz Highleyman

Now that a majority of Americans have received their initial COVID-19 shots, the question becomes who needs additional doses to maintain or increase protection against SARS-CoV-2 (the coronavirus that causes COVID-19). Two main factors determine whether boosters are needed:

- Do the original vaccines still work against current SARS-CoV-2 variants?
- Does immunity wane over time?

The three vaccines authorized in the United States, from [Pfizer-BioNTech](#), [Moderna](#) and [Johnson & Johnson](#), offer substantial protection against the Delta and Omicron variants. However, while they still provide good protection against severe disease, hospitalization and death, they are less effective at preventing infection.

Immunity against SARS-CoV-2, after either infection or vaccination, does wane over time. But while antibody levels begin to decline after a few months, memory B cells are left behind to produce more antibodies if the virus is encountered again. T cells also play a role. However, [B cell and T cell responses](#) take a few days. While they may not act quickly enough to prevent initial infection, they can stop the virus from taking hold in the body and causing serious illness.

In August 2021, the Food and Drug Administration (FDA) authorized and the Centers for Disease Control and Prevention (CDC) recommended an additional Pfizer-BioNTech or Moderna vaccine dose [for moderately to severely immunocompromised people](#), including [organ transplant recipients](#), [people being treated for cancer](#) and those with advanced or untreated HIV. People with suppressed immune function may not produce enough antibodies after the first two doses. For some, a third dose does the trick, but others are still not fully protected.

The FDA and CDC [later went further](#), recommending Pfizer-BioNTech and Moderna boosters after six months for all people ages 65 and older, younger adults with [underlying health conditions](#)—including cancer and HIV—and those at high risk for exposure due to their work or living situation. They also said all adults who received the J&J vaccine can get another dose two months after their first shot. Finally, the agencies gave the green light to [boosters for all adults](#) on

November 19. When the Omicron coronavirus variant emerged, the CDC strengthened its recommendation, shifting from saying adults under 50 may get a booster to saying they should get one.

People do not need to get the same vaccine brand they originally received for a booster, and some studies have found that a mix-and-match strategy produces strong immune responses. However, health officials encourage those who initially received the J&J vaccine to get the Pfizer-BioNTech or Moderna mRNA vaccines as a booster.

Some experts disagree about whether all healthy younger adults need boosters, as protection against severe disease appears to be holding up well after two doses. But the argument in favor of boosters is stronger in the face of the Omicron variant. Studies show that an additional dose raises antibody levels and reduces hospitalization, especially for older people. And on a public health level, boosters can help curb transmission.

It is unclear how often people will need COVID-19 boosters. Some experts think that because the first two Pfizer-BioNTech and Moderna shots are given so close together (three or four weeks, respectively), a third dose with longer spacing could lead to stronger immune responses, and frequent boosters won't be necessary. While the increase in antibodies after a booster may only last another several months, memory B cells and T cells provide longer-lasting protection.

New types of COVID-19 vaccines may be an option in the future. Current boosters are additional doses of the same vaccine, but researchers are working on vaccines tailored to the Delta and Omicron variants as well as others that would work more broadly [against different coronaviruses](#). Scientists are also testing [nasal vaccines](#), which produce mucosal antibodies in the nose, in the hope that they will better prevent infection and transmission.

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