Who should receive COVID-19 vaccine boosters?

Older people, immunocompromised people and those with underlying health conditions can benefit most from additional shots.

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Now that a majority of Americans have received their initial COVID-19 shots, the question is 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 vaccines authorized in the United States, from Pfizer-BioNTech, Moderna, Johnson & Johnson and Novavax, substantially reduce the risk of severe COVID illness, hospitalization and death. However, they are less effective at preventing infection and mild illness, especially against new Omicron variants.

COVID vaccines generate both antibody (humoral) and cellular immune responses. Antibodies directly target the virus and can prevent infection, but levels wane after a few months. Memory B cells are left behind to produce more antibodies if the virus is encountered again, and T cells attack virus-infected cells. But B cell and T cell responses take a few days to kick in. While they may not act quickly enough to prevent infection, they can stop the virus from taking hold in the body and causing serious illness.

In August 2021, 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. The third dose is now considered part of the initial, or primary, vaccine series for this population.

In November 2021, the CDC went further, recommending boosters for all adults; this recommendation was later extended to children ages six months or older. In August 2022, the Food and Drug Administration authorized updated bivalent boosters that contain proteins from

both the original and omicron SARS-CoV-2 variants, making them a better match for circulating strains. Bivalent boosters are recommended for all adults and for children ages six months and up. People do not need to get the same vaccine brand they originally received as a booster.

Older people, those with underlying health conditions and people with compromised immunity are most susceptible to severe COVID and their immune responses may be weaker and less durable, so these groups benefit most from keeping up to date with boosters.

According to the CDC, people can get the new boosters at least two months after their last vaccine dose or about three months after a prior bout of COVID. However, some experts think it's better to wait about six months after a previous vaccine dose or infection to give the immune system more time to mount a complete response. It is unclear how often people will need COVID boosters, but some health officials expect that they might be given annually, like flu vaccines.

Vaccine and booster guidelines evolve as scientists learn more about COVID and how best to prevent it. Click here to see the CDC's latest recommendations.

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