

# First efficacy data on bivalent boosters shows they work against infection

"The bottom line is: We need more Americans vaccinated."

Beth Mole - Nov 22, 2022 6:55 pm UTC



[Enlarge](#) / Dr. Anthony Fauci, White House chief medical adviser, speaks alongside COVID-19 Response Coordinator Dr. Ashish Jha during a briefing on COVID-19 at the White House on November 22, 2022, in Washington, DC. Fauci spoke on the updated COVID-19 booster shots and encouraged individuals to get their vaccines. (Photo by Win McNamee/Getty Images)

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The updated bivalent COVID-19 booster vaccine increased protection against symptomatic disease compared with the original monovalent vaccine given as recently as two months ago.

That's the takeaway from [a study released Tuesday morning from the Centers for Disease Control and Prevention](#), which offered the first clinical efficacy data for the bivalent shot since its national rollout in September.

In adults, the *relative* effectiveness of the bivalent vaccine's protection against symptomatic infection ranged from about 30 percent to up to 56 percent compared with that of the monovalent vaccine, with the relative efficacy estimated to be larger the more time had passed since a person's last monovalent shot.

The real-world look at the relative efficacy was based on data from 360,000 people. CDC researchers conducted the study between September 14 and October 11, when the omicron subvariants BA.4/5 and their sublineages dominated.

The study enrolled people already tapped into a national program aimed at increasing COVID-19 testing in areas with high social vulnerability. The study looked at people with COVID-19-like symptoms who came into partnering retail pharmacies for COVID-19 testing. Researchers collected their test results as well as their vaccination and infection history and other medical information. The study excluded people who were immunocompromised.

Of the 360,626 tests given, 121,687 (34 percent) were positive for COVID-19. Of just the positive tests, 28,874 (24 percent) were among unvaccinated people, 87,013 (72 percent) were from people who had received between two and four monovalent vaccine doses but no bivalent booster dose, and 5,800 (5 percent) had received a bivalent booster dose.

## Relative effectiveness

For people ages 18 to 49, the relative vaccine effectiveness (rVE) for a bivalent booster against a symptomatic infection was 30 percent compared with people who had received two or more monovalent doses, with their most recent shot between two to three months ago. The rVE in this age group jumped to 56 percent when compared to people with two more monovalent doses, if the most recent dose was given eight or more months ago.

For the same comparisons in people ages 50 to 64, rVE ranged from 31 percent to 48 percent. And in those age 65 or older, rVE ranged from 28 percent to 43 percent.

**TABLE 3. Relative vaccine effectiveness of a single bivalent mRNA COVID-19 booster dose against symptomatic SARS-CoV-2 infection\* received after 2, 3, or 4 monovalent vaccine doses, by age group, number of monovalent COVID-19 vaccine doses received, and interval since last monovalent dose — Increasing Community Access to Testing program, United States, September–November 2022**

Age group, yrs/mos since receipt of most recent monovalent dose	Relative VE (95% CI), by no. of monovalent doses received <sup>†</sup>			
	2 doses	3 doses	4 doses <sup>‡</sup>	≥ 2 doses
<b>18–49</b>				
2–3	45 (31–56)	24 (14–33)	NA	30 (22–37)
4–5	47 (35–57)	41 (35–47)	NA	43 (38–48)
6–7	42 (30–52)	47 (42–52)	NA	46 (41–50)
≥ 8	53 (45–60)	58 (56–61)	NA	56 (53–58)
<b>50–64</b>				
2–3	—	15 (–4–31)	33 (24–41)	31 (24–38)
4–5	44 (18–62)	31 (18–42)	36 (29–43)	36 (30–41)
6–7	46 (22–62)	36 (25–45)	40 (32–47)	38 (32–43)
≥ 8	61 (49–70)	51 (45–55)	NA	48 (45–51)
<b>≥ 65</b>				
2–3	—	—	32 (23–40)	28 (19–35)
4–5	—	21 (1–36)	36 (29–42)	33 (27–39)
6–7	—	14 (–6–30)	40 (33–46)	36 (29–41)
≥ 8	45 (27–58)	42 (35–48)	NA	43 (39–46)

**Abbreviations:** NA = not applicable; VE = vaccine effectiveness.

[Enlarge](#) / Table showing relative vaccine effectiveness by age, number of vaccine doses, and time since last vaccination.

[CDC](#)

"Results from this study show that bivalent boosters provide protection against symptomatic SARS-CoV-2 infection during circulation of BA.4/BA.5 and their sublineages and restore protection observed to wane after monovalent vaccine receipt, as demonstrated by increased rVE with longer time since the most recent monovalent dose," the CDC authors concluded. "All persons should stay up to date with recommended COVID-19 vaccines, including bivalent booster doses, if it has been ≥2 months since their last monovalent vaccine dose."

The study has limitations, including that it's based on self-reported data, it doesn't account for different exposure risks, combinations of vaccinations and past infections, or different behaviors, such as mask wearing and social distancing. Vaccine estimates could also change with future SARS-CoV-2 variants.

But, overall, it shows the bivalent vaccines provide "additional protection against infection compared with previous vaccination with two, three, or four monovalent vaccines alone."

## Fauci's final message

In a White House press briefing Tuesday, top infectious disease expert Anthony Fauci emphasized the need for more Americans to get their fall booster shot ahead of end-of-year holidays and gatherings. Fauci's White House appearance was likely his last in his current role as chief medical adviser to the president and leader of the NIH. He is [planning to retire by the end of the year](#), ending an esteemed decades-long career in federal research.

In his time at the podium today, he went point by point through a list of reasons to get vaccinated, including protection against severe disease, solid safety data, and the risk of future variants. He then turned to the CDC's new data.

The clinical efficacy data is "really quite good," Fauci said.

"We know [the booster] is safe. We know that it is effective. So, my message—and my final message, maybe the final message I give you from this podium—is that: please, for your own safety, for that of your family, get your updated COVID-19 shot as soon as you're eligible to protect yourself, your family, and your community."

White House COVID-19 Response Coordinator Ashish Jha echoed Fauci's call, noting that the administration today also released plans for a six-week campaign to get more Americans vaccinated against COVID-19 this fall, particularly seniors and nursing home residents.

We're "redoubling" efforts, Jha said. "The bottom line is: We need more Americans vaccinated."

Currently, **only 11.3 percent of eligible Americans** have received a bivalent booster shot.



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