

3 doses of Pfizer–BioNTech COVID vaccine better than 2

February 14 2022



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A Kaiser Permanente study published Feb. 14, 2022, in *The Lancet Regional Health-Americas* found that one month after a third dose, the Pfizer-BioNTech COVID-19 vaccine conferred higher effectiveness

against infection and hospitalization than two doses of the vaccine after one month.

"When we looked at the effectiveness of the two doses of Pfizer–BioNTech [vaccine](#) versus three doses, we see a benefit with three doses that exceeds that achieved with two doses alone," said Sara Y. Tartof, Ph.D., an epidemiologist with the Kaiser Permanente Southern California Department of Research & Evaluation and a member of the faculty of the Kaiser Permanente Bernard J. Tyson School of Medicine, both in Pasadena.

This study assessed the the primary series of two doses of the Pfizer-BioNTech COVID-19 vaccination effectiveness against infection, hospitalization, and death up to eight months after vaccination, and also assessed the effectiveness of three doses of the vaccine up to three months after vaccination.

To assess effectiveness, this research study evaluated [electronic health records](#) of 3.1 million members of Kaiser Permanente in Southern California from December 14, 2020, to December 5, 2021. During the study period, 197,535 (6.3 percent) patients were infected with SARS-CoV-2, and of those, 15,786 (8 percent) were admitted to the [hospital](#). During the study period, the predominant variant was delta, and not omicron.

- two-dose vaccine effectiveness against infection declined from 85 percent during the first month after vaccination to 49 percent up to eight months following vaccination.
- two-dose vaccine effectiveness against hospitalization remained high (90 percent) throughout the eight months and did not wane, except among people who were 75 years of age and older, or who had compromised immune systems.

- for people who were immunocompromised, the protection against hospitalization dropped to 74 percent, and for those 75 and older, it was 77 percent.
- three-dose vaccine effectiveness was 88 percent against infection and 97 percent against hospitalization within the first three months after vaccination.

"What we see from this research is that the public health impact of a [third dose](#) to prevent [severe disease](#) is substantial," Tartof said.

"Importantly, all studies that have evaluated the vaccine effectiveness of a third dose—including ours—have shown a meaningful improvement in vaccine effectiveness against a broad range of SARS-CoV-2 outcomes."

More information: Sara Y. Tartof et al, Effectiveness of a Third Dose of BNT162b2 mRNA COVID-19 Vaccine in a Large US Health System: A Retrospective Cohort Study, *SSRN Electronic Journal* (2021). [DOI: 10.2139/ssrn.3989856](https://doi.org/10.2139/ssrn.3989856)

Provided by Kaiser Permanente

Citation: 3 doses of Pfizer–BioNTech COVID vaccine better than 2 (2022, February 14) retrieved 11 July 2023 from <https://medicalxpress.com/news/2022-02-doses-pfizerbiontech-covid-vaccine.html>

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