

# Study looks at Moderna COVID-19 vaccine effectiveness

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New Kaiser Permanente research published February 21, 2022 in *Nature Medicine* shows that while Moderna COVID-19 vaccine protection is strong against coronavirus infection by the Delta variant, it is not as

strong against infection from the Omicron variant.

Three doses of the Moderna COVID-19 vaccine were highly effective against hospitalization caused by infection from either the Omicron or Delta variant.

This study was conducted within the racially and ethnically diverse membership of Kaiser Permanente in Southern California using specimens collected between December 6 and December 31, 2021.

It included 26,683 patients who tested positive for COVID-19, 16% of whom had Delta infections and 84% of whom had Omicron infections, and more than 67,000 individuals who tested negative as a comparison group. Specimens were primarily collected using nasopharyngeal or oropharyngeal swabs for people with COVID-19 symptoms and saliva for people who did not have symptoms.

- Two doses of the Moderna COVID-19 vaccine were 44% effective against Omicron infection within 3 months after vaccination, and effectiveness quickly declined thereafter.
- Three doses of the Moderna COVID-19 vaccine within 2 months of vaccination were 94% effective against Delta infection and 72% effective against Omicron infection.
- For people who had compromised immune systems, 3-dose effectiveness against Omicron infection was lower at 29%.
- The 3-dose effectiveness against hospitalization with Delta or with Omicron was above 99%.

"Our results suggest that third doses may be needed sooner than 6 months after the second dose of the Moderna COVID-19 vaccine to protect against Omicron infection," said Hung Fu Tseng, Ph.D., a researcher with the Kaiser Permanente Southern California Department

of Research & Evaluation and a faculty member of Kaiser Permanente Bernard J. Tyson School of Medicine, both located in Pasadena, Calif. "And that 3 doses may be inadequate to protect people who are immunocompromised from Omicron infection."

He added that "reassuringly, 3 doses provide strong protection against COVID-19 hospitalization due to either the Omicron or Delta variant."

**More information:** Hung Fu Tseng et al, Effectiveness of mRNA-1273 against SARS-CoV-2 Omicron and Delta variants, *Nature Medicine* (2022). [DOI: 10.1038/s41591-022-01753-y](https://doi.org/10.1038/s41591-022-01753-y)

Provided by Kaiser Permanente

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