

Variant-specific vaccines offer better protection against COVID, shows study

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Newer variant-specific bivalent vaccines offer on average 1.6 times better immunity against COVID-19 than the original, single-strain "ancestral" vaccines, new research by UNSW's Kirby institute published today in *Nature Medicine* shows.

"We're in an incredible position now where we have high availability of a number of different COVID-19 vaccines. But with this comes questions around which vaccines policy bodies should recommend, and which ones countries should purchase," says the study's lead author, Associate Professor Deborah Cromer.

"We've crunched the numbers and found that getting boosted with any of the available vaccines will provide significant protection against COVID-19, although a variant-specific booster provides marginally higher protection."

This is the first analysis globally to aggregate data from the available clinical studies that have administered booster vaccination with both ancestral-based vaccines and variant-modified vaccines. The Kirby Institute researchers, in collaboration with colleagues from the Doherty Institute, collated the available data, and then used it to conduct an analysis that predicted the relative effectiveness of these booster vaccines.

"If we assume that we are in a position where people in the population have around 50% protection from COVID-19 disease, then this protection can be boosted extremely well—up to 86%—by the ancestral vaccines. But when the option is available, boosting with a variant-specific vaccine can increase protection in the population up to 91%. Any improvement in protection may be important for people at higher risk of serious infection or hospitalization, such as the elderly and immunocompromised," says A/Prof. Cromer.

An earlier version of this analysis was published as a pre-print in November last year and has been cited in vaccination statements from the Australian Technical Advisory Group on Immunization (ATAGI) and World Health Organization.

"As we move into this next phase of the [pandemic](#), it is important that the population as a whole remains well protected to reduce the spread of COVID-19, especially for those in our community who are most vulnerable. Our analysis provides evidence that boosting with any vaccine is an effective way to protect against COVID-19, although variant-specific vaccines offer slightly better protection," A/Prof. Cromer says.

In May 2021, the same team of researchers [showed](#) how the early immune response in a person who has been vaccinated for COVID-19 can predict the level of protection they will have against the virus over time.

[A follow-up study](#) in late 2021 built on that work, predicting protection against variants using neutralizing antibodies, and providing insights that can inform [vaccine](#) rollouts.

More information: David S. Khoury et al, Predicting the efficacy of variant-modified COVID-19 vaccine boosters, *Nature Medicine* (2023). [DOI: 10.1038/s41591-023-02228-4](https://doi.org/10.1038/s41591-023-02228-4)

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