

## Do the COVID-19 vaccines keep working over time?

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### Why do we need to know if the COVID-19 vaccines keep working overtime?

Scientists agree that when a vaccinated person catches COVID-19, their chance of being hospitalized or dying is lower than if they were not vaccinated. However, it seems that the effects of the vaccine start to decrease over time, and we are not sure for how long this protection lasts. This is crucial information when governments are deciding whether: (a) we need to keep engaging in measures like physical distancing and facemask wearing; and (b) whether additional doses of the vaccine are needed to keep us protected.

**Summary:** We looked at research on how well COVID-19 vaccines stop infections, hospitalisations, and deaths when 4 months or more have passed since someone became fully vaccinated.

We found that, over time, COVID-19 vaccines continue to strongly protect people against being hospitalised and from dying. However, vaccines may become less effective over time in preventing people from becoming infected with COVID-19, with the Omicron variant decreasing the effects even further. Consequently, we may need to keep engaging in protective measures like mask wearing until the virus is completely under control.

### What questions did we want to answer?

We wanted to answer the following questions. *First*, how high is the protection given by COVID-19 vaccines (against infections, hospitalizations, and deaths) 4 months or more after people complete their primary vaccination? And *second*, for those that get an extra ‘booster’ dose of a vaccine, how high is the protection against infections, hospitalizations, and deaths 3 months or more after they got the booster?

### How did we answer these questions?

When scientific studies are done, their results are usually stored in “research databases”. We searched several of these databases and collected all the studies we could find on how well COVID-19 vaccines work. Our team then identified all studies that: (1) compared people who were fully vaccinated to people who were unvaccinated; (2) followed these people for at least 4 months (or 3 months for the booster dose); and (3) looked at how often people got infected, were hospitalised, or died due to COVID-19. We then combined all the data across these studies to see what was happening.

### What did we learn?

In general, we learned that fully vaccinated people continue to be strongly protected against hospitalisation and death due to COVID-19, 6-8 months after being vaccinated. Boosters provide protection against omicron infection and hospitalization 5 months after getting the extra shot.

We also found that, over time, the vaccines become less likely to prevent people from becoming infected with COVID-19 and that vaccines are less effective against Omicron than the previous variants. This means that the vaccines alone may not be enough to stop the virus from spreading. Other measures, like mask wearing, may still be necessary, even for fully vaccinated people.

### How confident are we in these findings?

Most of the studies we looked at were well conducted and of high quality. However, since research about COVID-19 vaccine effectiveness is still scarce for some variants, it is possible that our conclusions may change as more studies are done around the globe and their results become available.

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