Do the COVID-19 vaccines keep working over time?

Summary of Findings from COVID-END Living Evidence

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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 also looked to see how well COVID-19 vaccines stop infections, hospitalisations, and deaths when 3 months or more have passed since someone received an additional booster dose. 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. As such, we may need to keep doing things like mask wearing and physically distancing until the virus is completely under control.

Why do we need to know if the COVID-19 vaccines keep working over time?

Governments need to know if COVID-19 vaccines work over time. They will use this information to decide whether we need to keep wearing masks, physical distancing, and getting more vaccine doses. Scientists also agree that vaccinated people are less likely to be hospitalised for or to die from COVID-19 than unvaccinated people. It also seems that the protective effects of the vaccine may start to decrease over time. At the moment, we are not sure for how long this protection lasts.

What questions did we want to answer?

We wanted to answer two questions. First, how much protection do COVID-19 vaccines give people four months or more after being fully vaccinated. Second, we wanted to know how much protection a booster dose (third dose) of vaccine gives people three months or more after they get it. We looked at protection against infection, hospitalisation, and death for both questions

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?

For the Omicron variant, the level of protection against COVID-19 related hospitalisations after being fully vaccinated is lower than what the World Health Organization (WHO) suggests is good protection and this starts to decrease at 3 months after being vaccinated.
The initial protection against COVID-19 related hospitalisations by a booster dose fails to meet WHO minimal criteria and this starts to decrease at 3 months after being vaccinated.

Both full vaccination and booster doses of COVID-19 vaccines could not provide adequate protection and give people less protection against Omicron than against other variants like Delta. This means that you may be more likely to get infected with Omicron than other variants.

COVID-19 vaccines alone may not be enough to stop the virus from spreading. Other measures, like mask wearing, isolating when infected, and physical distancing, may still be necessary, even for fully vaccinated people.

How confident are we in these findings?

We are fairly confident in our findings because most of the studies we reviewed were well done. We do not have a lot of research about how well COVID-19 vaccines work against some variants, especially the Omicron variant, and more research is still being done. It is possible that our conclusions may change as this ongoing research is completed.

This summary is based on a larger report that can be found at: https://www.mcmasterforum.org/docs/default-source/product-documents/living-evidence-syntheses/covid-19-living-evidence-synthesis-10.9---what-is-the-long-term-effectiveness-of-available-covid-19-vaccines-for-adults.pdf?sfvrsn=50b24945_3

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