

Increase in Protection Against SARS-CoV-2 Omicron via mRNA Boosters

In November 2021, the World Health Organization (WHO) classified the rapidly spreading [severe acute respiratory syndrome coronavirus 2](#) (SARS-CoV-2) Omicron variant B.1.1.529 as a variant of concern (VOC). This variant has since spread to over 50 countries worldwide.

In a recent study, researchers evaluate [vaccine effectiveness](#) (VE) against the SARS-CoV-2 Omicron and Delta variants in individuals who have received a complete two-dose vaccine regimen or a third booster dose of the vaccine.



Study

In the present study, researchers collected data regarding reverse transcriptase-polymerase chain reaction (RT-PCR)-confirmed SARS-CoV-2 cases in individuals who were fully vaccinated with two-dose or booster BNT162b2 or [mRNA-1273 vaccines](#) from Danish health registries between November 20, 2021, and December 12, 2021. In order to differentiate between Delta and Omicron variants, the researchers performed whole-genome sequencing on the RT-PCR-confirmed SARS-CoV-2 samples.

VE was evaluated by a time-to-event analysis by comparing the rate of [infection](#) between unvaccinated and vaccinated individuals with two-dose or booster BNT162b2 or mRNA-1273 vaccination series.

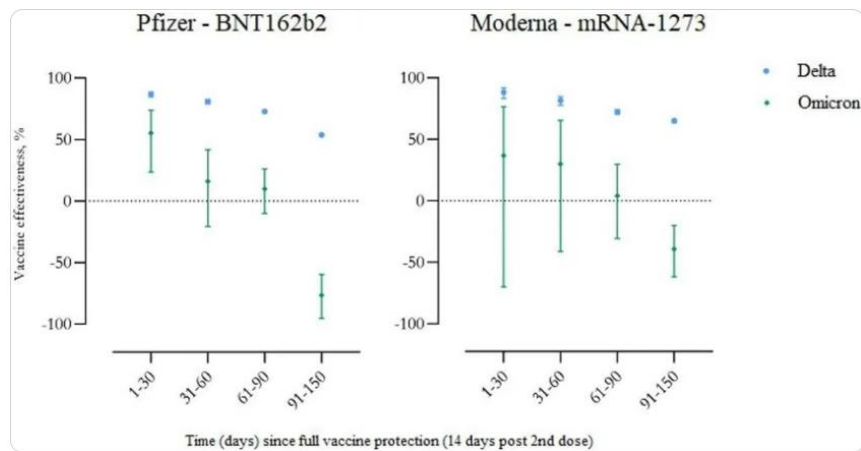
Findings

By the end of the study period on December 12, 2021, 5,767 Omicron cases were identified in Denmark with a median age of 28 years. Initially, VE against the Omicron variant in recipients of the [BNT162b2](#) and mRNA-1273 vaccines were 55.2% and 36.7%, respectively; however, VE declined rapidly thereafter for both vaccines.

For those who had received booster dose 14 to 44 days before the study period, VE rose to an average of 54.6%. The VE from both vaccines showed significantly higher protection against SARS-CoV-2 infection with the [Delta variant](#) as compared to the Omicron variant.

The high transmissibility of the Omicron variant further resulted in negative estimates, which indicated differences in the behaviors and exposure patterns of SARS-CoV-2 infection between vaccinated and [unvaccinated individuals](#).

Another study in England found 75.5% VE among BNT162b2 [booster-vaccinated individuals](#). However, the increase in VE after the booster dose also declined rapidly over time, which supports the present study findings.



Conclusion

Overall, the current study showed that protection against the SARS-CoV-2 [Omicron variant](#) declines rapidly over time after primary vaccination with BNT162b2 or mRNA-1273 vaccines. However, booster doses can significantly increase protection. Importantly, the researchers observed that VE against SARS-CoV-2 Delta infection is higher in comparison to that against [Omicron infection](#).

Source:

<https://www.news-medical.net/news/20211229/MRNA-boosters-shown-to-increase-protection-against-SARS-CoV-2-Omicron.aspx>