

Three COVID-19 vaccines may provide greater protection from COVID-19 infections than two

Two vaccine doses provide only limited and short-lived protection against SARS-CoV-2 infection with the Omicron variant. A study published in *PLOS Medicine* by Mie Agermose Gram at Statens Serum Institut, Copenhagen, Denmark and colleagues suggests that a third COVID-19 vaccine dose increased the level and duration of protection against Omicron infection and hospitalization.

Emergence of new SARS-CoV-2 variants may decrease long-term vaccine durability, increasing the risk of infection and hospitalization. However, the vaccine effectiveness of three vaccines over time is unknown. In order to estimate the effectiveness of two or three vaccine doses COVID-19 infection and hospitalization, researchers conducted a nationwide cohort study of all previously uninfected Danish residents aged 12 and older by accessing individual-level data stored in the national Danish Civil Registration System and Danish Vaccination Registry. The researchers then estimated vaccine effectiveness using vaccination status as a time-varying exposure, adjusting for age, sex, geographic location, and comorbidities, and by comparing infection and hospitalization rates to unvaccinated individuals.

The researchers found that a third vaccine dose provided greater protection against infection and hospitalization from the Omicron variant and durability of the vaccine's effectiveness over time than two vaccines. Future studies are needed to better understand the durability of a third vaccine dose after 120 days and evaluate the need for subsequent boosters.

According to the authors, "Our findings indicate that a third dose is necessary to maintain protection against infection for a longer time and to ensure a high level of protection against COVID-19 hospitalization with the Omicron variant. Continued emergence of new variants and waning vaccine durability require ongoing evaluation of vaccine effectiveness against infection and hospitalization to inform future vaccination strategies".

###