

**Delaying second dose of COVID-19 vaccines may be an effective public health strategy**  
*Study suggests that prioritising widespread inoculation with available first doses may reduce new infections, hospitalizations, and deaths*

Two of the COVID-19 vaccines currently approved in the United States require two doses, administered three to four weeks apart, however, there are few data indicating how best to minimize new infections and hospitalisations with limited vaccine supply and distribution capacity. A study published in *PLOS Biology* by Seyed Moghadas at York University in Toronto, Canada, and colleagues suggests that delaying the second dose could improve the effectiveness of vaccine programs.

The emergence of novel, more contagious SARS-CoV-2 variants has led to a public health debate on whether to vaccinate more individuals with the first dose of available vaccines and delay the second dose, or to prioritize completion of the two-dose series based on tested schedules in clinical trials. In order to compare the epidemiological impact of each vaccination strategy, researchers built a mathematical model that simulated both COVID-19 transmission and various delayed second dose vaccination schedules. The model simulated several scenarios, including ranging levels of preexisting immunity in the population and decreased vaccine efficacy of the first dose when followed by a longer interim between doses.

The authors found that delaying the second dose for 9-15 weeks after the first dose averted more hospitalizations, infections, and deaths compared to following the recommended schedules for Moderna and Pfizer-BioNTech vaccines. The delayed dose strategy simulation was contingent on assumptions made about the durability of the first dose and the rate of diminished protection with delayed administration of a second dose. The actual durability of the vaccine is currently unknown and a major limitation of the study.

The study had several limitations including a lack of clinical evidence quantifying the durability of the vaccines when administered under different schedules. Researchers thus assumed vaccine protection from COVID-19 infections, including stable protection levels of the first dose second doses were delayed, and that protection level after two doses when vaccinating according to schedule was identical to overall protection after delaying second doses. Further studies are needed to pinpoint the optimal time between doses for each type of vaccine.

According to the authors, "When racing against a burgeoning outbreak, our results show that prioritizing vaccine coverage with rapid distribution of the first dose would be critical to mitigating adverse outcomes and allow the healthcare system to also address non-COVID-19 medical needs of the population".

###

