Researchers find hybrid immunity is the best protection against COVID-19

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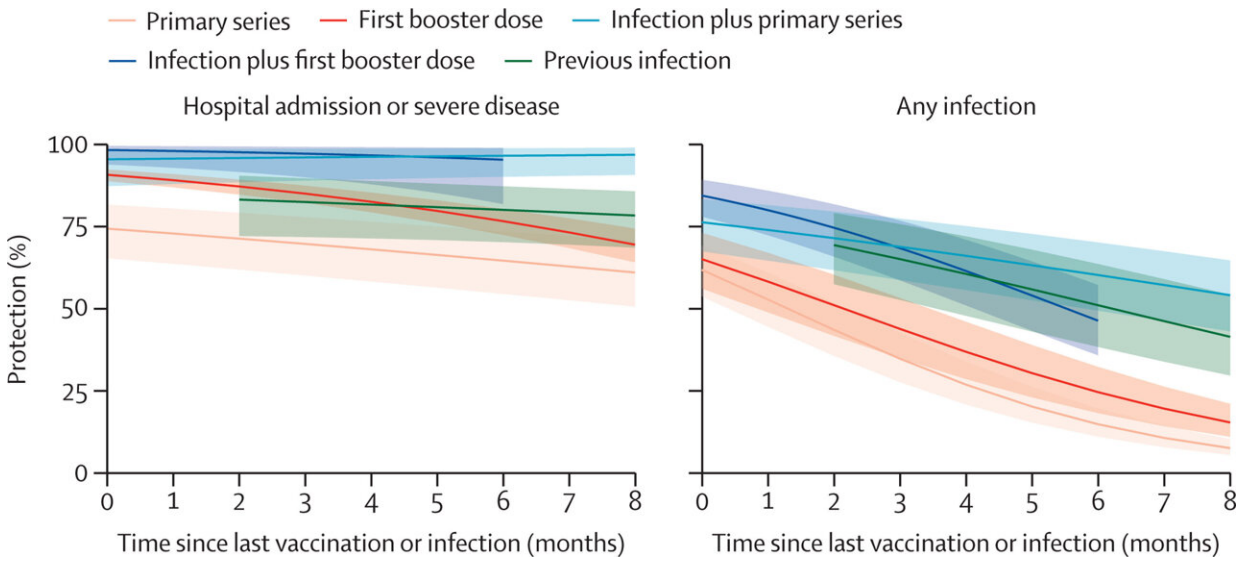

Protection against omicron variant conferred by the primary series vaccine, first booster vaccine, previous infection, and hybrid immunity compared to immune-naive individuals over time. The shaded areas denote 95% CIs. Vaccine effectiveness data were procured from a separate systematic review. Credit: *The Lancet Infectious Diseases* (2023). DOI: 10.1016/S1473-3099(22)00801-5

A University of Calgary research group joined forces with members of the World Health Organization (WHO) to tackle a global health question. What is the best protection against COVID-19? Analyzing data from controlled studies throughout the world, researchers discovered people with hybrid immunity are the most protected against severe

illness and reinfection.

Hybrid immunity occurs when someone has had at least the full series of vaccines and has a prior infection, in any order. The study published in *The Lancet Infectious Diseases* helps public policy makers understand the optimal timing of vaccinations.

"The results reinforce the global imperative for vaccination," says Dr. Niklas Bobrovitz, first author on the study. "A common question throughout the pandemic was whether previously infected people should also get vaccinated. Our results clearly indicate the need for vaccination, even among people that have had COVID-19."

The global emergence and rapid spread of the omicron variant of concern required scientists and policymakers to reassess population protection against omicron infection and severe disease. In the study, investigators were able to look at immune protection against omicron after a prior SARS-CoV-2 infection (the virus that causes COVID-19), vaccination, or hybrid immunity.

"Protection against hospitalization and severe disease remained above 95 percent for 12 months for individuals with hybrid immunity," says Dr. Lorenzo Subissi, MSc, Ph.D., WHO-Scientist and senior author on the study. "We know more variants are going to emerge. The study shows to reduce infection waves, vaccinations could be timed for roll-out just prior to expected periods of higher infection spread, such as the winter season."

The systematic review and meta-analysis find that protection against omicron infection declines substantially by 12 months, regardless of whether you've had an infection, vaccinations, or both, which means that vaccination is the best way to periodically boost your protection and to keep down levels of infection in the population. In total, 4,268 articles

were screened and 895 underwent full-text review. A difficult task before the assistance of experts in health informatics.

"This study demonstrates the power of machine translation. We were able to break through language barriers, most of the time systematic reviews aren't done in every language they are limited to one or two," says Dr. Tyler Williamson, Ph.D., director of the Centre for Health Informatics at the Cumming School of Medicine.

"These former BHSc classmates along with the large diverse team they brought together have emerged as global leaders in SARS-CoV-2 research and delivered decision-grade evidence to the world." And while the findings demonstrate that vaccination along with a prior infection carries the most protection, the scientists warn against intentional exposure to the virus.

"You should never try to get COVID-19," says Bobrovitz. "The virus is unpredictable in how it will affect your system. For some, it can be fatal or send you to hospital. Even if you have a mild infection, you risk developing long COVID."

The group says the next phase of this research would be to investigate how the bivalent vaccine performs against severe disease.

The study is supported by WHO COVID-19 Solidarity Response Fund and the Coalition for Epidemic Preparedness Innovation (CEPI). The views reported do not necessarily reflect the official position of WHO or CEPI.

Findings from the study complement data on the serotracker dashboard which monitors studies and news reports to track seroprevalence data—the percentage of people in a population who have antibodies against the novel coronavirus. The website aggregates serology data from

studies and news reports in different populations, and built-in filters allow users to compare seroprevalence levels between countries, occupations, and demographic groups.

More information: Niklas Bobrovitz et al, Protective effectiveness of previous SARS-CoV-2 infection and hybrid immunity against the omicron variant and severe disease: a systematic review and meta-regression, *The Lancet Infectious Diseases* (2023). DOI: 10.1016/S1473-3099(22)00801-5

Serotracker dashboard:serotracker.com/en/Explore

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