

Pfizer-BioNTech and AstraZeneca vaccines offer high protection against severe COVID-19, 6 months after second doses

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Protection against severe COVID-19 by two doses of Pfizer-BioNTech and AstraZeneca COVID-19 vaccines remained high up to six months

after second doses, finds new research which analysed NHS health record data on over seven million adults. Reassuringly, the University of Bristol-led study published in *The BMJ* today, found protection in older adults aged over 65 years, and in clinically vulnerable adults.

Researchers from Bristol Medical School sought to investigate how quickly [vaccine effectiveness](#) waned over time in adults without prior SARS-CoV-2 infection and who received two doses of BNT162b2 (Pfizer-BioNTech) or ChAdOx1 (AstraZeneca) COVID-19 [vaccine](#) compared with unvaccinated individuals.

Using linked GP, hospital, and COVID-19 records on 1,951,866 and 3,219,349 adults who had received two doses of BNT162b2 and ChAdOx1, respectively and 2,422,980 unvaccinated adults, researchers were able to provide a clearer picture of vaccine effectiveness against COVID-19 hospital admission, COVID-19 death, and positive SARS-CoV-2 test.

Rates of COVID-19 hospital admission and COVID-19 death were substantially lower among vaccinated than unvaccinated adults up to six months after their second dose. Vaccine effectiveness against these events was found to be at least 80 per cent for BNT162b2, and at least 75 per cent for ChAdOx1. However, waning vaccine effectiveness against infection with SARS-CoV-2 meant that rates in vaccinated individuals were similar to or higher than in unvaccinated individuals by six months after the second dose.

Dr. Elsie Horne, Senior Research Associate in Medical Statistics and Health Data Science in Bristol Medical School: Population Health Sciences (PHS) and the study's lead author, said: "Until now there has been limited and conflicting evidence relating to the rate of waning following second dose of COVID-19 vaccines, whether it extends to severe COVID-19, and whether the rate differs according to age and

clinical vulnerability.

"Although we found that protection against severe COVID-19 provided by two doses of vaccine wanes over time, the very high initial protection means that, despite waning, protection remains high six months after the second dose. This finding was consistent across all adults, including [older adults](#) and those who are at risk of severe COVID-19."

Jonathan Sterne, Professor of Medical Statistics and Epidemiology in Bristol Medical School: PHS, Director of the National Institute for Health and Care Research Bristol Biomedical Research Centre (NIHR Bristol BRC), Director of Health Data Research UK (HDR UK) South-West and co-author, added: "We found that the rate at which vaccine effectiveness waned was consistent across subgroups defined by age and clinical vulnerability. Studying how long COVID-19 vaccines remain effective continues to be important to scheduling and targeting of booster vaccinations."

The researchers now plan to lead a follow-up study looking at vaccine effectiveness to one year post-second dose and into the era of the Omicron variant. They are also investigating the rate of waning in vulnerable clinical subgroups, such as those with [chronic kidney disease](#) and with cancer.

The study was supported by two COVID-19 National Core Studies (NCS) programmes: COVID-19 Longitudinal Health and Wellbeing and COVID-19 Data and Connectivity; Asthma UK; NIHR (National Institute for Health and Care Research) and Wellcome. TPP provided technical expertise and infrastructure pro bono in the context of a national emergency.

More information: Waning effectiveness of BNT162b2 and ChAdOx1 covid-19 vaccines over six months since second dose:

OpenSAFELY cohort study using linked electronic health records',

Provided by University of Bristol

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