

# UK study shows that COVID-19 vaccine lowers the risk of cardiovascular complications

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Almost as soon as the COVID-19 pandemic started, the ruling class campaigned vigorously against any measures that, while fighting against the virus, might interfere with their ability to accumulate profits.

The world's governments soon decided on a vaccine-only strategy, discarding other public health measures. This has now been largely replaced by a total "let it rip" policy as even vaccines become harder to access, for those populations that ever had access to them in significant numbers on the first place.

To justify this destructive course of action, information about the virus has been withheld or misrepresented and various pseudo-scientific claims made to play down the seriousness of the disease. This has created a fertile environment for backward anti-vaccine conceptions and conspiracy theories, openly supported by some of the most deranged sections of the ruling class.

One of the arguments cited most often by "anti-vaxers" is the existence of a few cases of people developing cardiovascular complications following vaccination—a tiny number of which resulted in the tragic deaths of the vaccinated individuals. They argue that the possibility of said complications justifies the rejection of the vaccine, minimising or denying the benefits of the vaccine in preventing COVID-19, a serious disease with a significant death rate and very well-documented long-term, life-altering consequences.

A study published in the journal *Nature Communications* debunks this claim by analysing the incidence of cardiovascular complications across a very large population of vaccinated individuals.

Research led by the Universities of Cambridge, Bristol and Edinburgh—and enabled by the British Heart Foundation (BHF) Data Science Centre at Health Data Research UK—analysed de-identified health records from 46 million adults in England between December 8, 2020 and January 23, 2022.

Data scientists compared the incidence of cardiovascular diseases after vaccination with the incidence before or without vaccination, during the first two years of the vaccination programme. They specifically evaluated the incidence of cardiovascular and thrombotic events following the first, second, and booster doses of COVID-19 vaccines from December 2020 to January 2022. The vaccines studied include the mRNA vaccines (Pfizer's BNT-162b2 and Moderna's mRNA-1273) and the adenovirus-based ChAdOx1 vaccine (AstraZeneca).

The study employed Cox regression models to calculate adjusted hazard ratios (aHRs), which compare the risk of cardiovascular events after vaccination to the risk before or in the absence of vaccination. Across all doses and vaccine types, the incidence of thrombotic events (e.g. blood clots) was lower following vaccination, for both arterial and venous events. The reduction was apparent already after the first dose, with a 10 percent lower risk for arterial thrombotic events after the administration of the first dose of the Pfizer vaccine.

An even more substantial reduction in cardiovascular events was observed after the second dose across all vaccine brands. For example, there was a 27 percent reduced risk for arterial thrombotic events after the second dose of AstraZeneca's ChAdOx1. The aHRs for other conditions like pulmonary embolism and deep vein thrombosis were also lowered.

Similar trends were observed for booster doses, which helped maintain lower rates of events compared to pre-vaccination levels. The study noted that the reduction in cardiovascular events was most pronounced in the weeks immediately following vaccination.

Both mRNA vaccines (Pfizer and Moderna) and the adenovirus-based AstraZeneca vaccine showed reductions in arterial and venous events. However, the magnitude of risk reduction varied slightly by brand and dose, with mRNA vaccines showing slightly lower aHRs overall, particularly

after booster doses.

Although the reductions were still evident up to 24 weeks post-vaccination, the degree of reduction decreased over time.

Previous research found that the incidence of rare cardiovascular complications is higher after some COVID-19 vaccines. This study supports these findings, but importantly it did not identify new adverse cardiovascular conditions associated with COVID-19 vaccination and offers further reassurance that the benefits of vaccination outweigh the risk.

These uncommon complications fall into two categories: Vaccine-Induced Thrombotic Thrombocytopenia (VITT) with AstraZeneca's vaccine, and myocarditis and pericarditis with mRNA Vaccines (Pfizer and Moderna).

VITT is a rare condition characterized by blood clots accompanied by low platelet counts. It can lead to serious complications, such as intracranial venous thrombosis (ICVT), which affects blood vessels in the brain. The study found a higher-than-normal incidence of VITT following the first dose of the AstraZeneca vaccine, with the highest risk appearing within the first two weeks post-vaccination.

There was no increased risk of VITT observed after the second dose of ChAdOx1 or following any dose of the mRNA vaccines, indicating that the risk is predominantly associated with the first dose of the AstraZeneca vaccine.

Myocarditis is an inflammation of the heart muscle, while pericarditis is an inflammation of the lining surrounding the heart. Both conditions can cause chest pain, fatigue, and other cardiac symptoms but are often mild and self-limiting. The elevated risk for both myocarditis and pericarditis was highest in the first week post-vaccination for both the Pfizer and Moderna vaccines, with risk generally returning to baseline levels within four weeks after vaccination.

While rare complications were associated with COVID-19 vaccines, they were primarily linked to the first dose and generally occurred within the initial weeks following vaccination. The study emphasizes that these risks, while present, are outweighed by the broader protective benefits of vaccination against COVID-19 and its associated cardiovascular risks.

A big strength of the study is the significant number of people examined, which enabled the researchers to assess the effects of the vaccines across a wide variety of demographics and clinical subgroups, such as age, sex, ethnicity, and prior health conditions. The broad reduction in thrombotic events was observed across all subgroups, reinforcing the vaccines' value in preventing COVID-19-related cardiovascular complications.

The effects of the vaccines were particularly effective for older adults (over 40 years old), for whom the risk of rare

complications like myocarditis was notably lower, while the benefits in terms of reduced cardiovascular events were even more pronounced.

Co-lead author Dr. Samantha Ip, Research Associate at the Department of Public Health and Primary Care, University of Cambridge, told Health Data Research UK: "This research further supports the large body of evidence on the safety of the COVID-19 vaccination programme, which has been shown to provide protection against severe COVID-19 and saved millions of lives worldwide."

Professor William Whiteley, Associate Director at the BHF Data Science Centre and Professor of Neurology and Epidemiology at the University of Edinburgh, added that the study "demonstrates that the benefits of second and booster doses, with fewer common cardiovascular events include heart attacks and strokes after vaccination, outweigh the very rare cardiovascular complications".

The results show the enormous potential of the creative and productive forces of society. However, while vaccines are an important tool in the fight against the pandemic, they are not enough on their own. Without a policy of complete elimination of the virus through a comprehensive regime of testing, tracing and quarantine, a vaccination programme amounts merely palliative care.

This can be seen currently with the UK's autumn vaccine booster campaign. Firstly, the vast majority of the people are no longer eligible for a free vaccine through the National Health Service and must pay privately for one. While the NHS is offering free vaccines to old and clinically vulnerable people, those available were designed for the KP or even older variants of the virus.

The XEC variant currently leading a new surge in infections is expected to become dominant. It is unclear exactly how effective the current boosters are against it, but experience indicates that they will not be as effective as against the variant they were designed for. The ability of the virus to mutate to bypass protection conferred by vaccines or previous infections is helped immensely by the fact that COVID-19 has been allowed to roam unimpeded through society after the main mitigation measures were all lifted as long ago as March 2022.



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