

Pfizer vaccine reduces the risk of COVID-19 infection in children

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A single dose of the Pfizer vaccine reduces the risk of COVID-19 infection in children, new research has found. Data also showed a single dose made infection milder during the delta period as well as shorter in duration, benefits that were noticeably less pronounced during the period of omicron.

The pre-print study, published today on MedRxiv by scientists from King's College London and ZOE Ltd analyzes the data from 115,775 children aged 12–17 years proxy-reported through the ZOE COVID Symptom Study app. Data was reported after August 5, 2021, the day after the UK government introduced universal vaccination for individuals under 18, and before February 14, 2022. For much of this period, most children were only able to access a single dose of Pfizer vaccine. Currently, clinically [vulnerable children](#) aged 5–11 years and all 12–17 years can access two doses, with young people aged 16–17 able to get an additional booster dose. However, the current study was restricted only to assessing responses to a single dose.

"Our paper will provide useful information for parents considering vaccinating their children against SARS-CoV-2. Even a single dose of the Pfizer vaccine means children and young people are less likely to get COVID-19, and if infected post-vaccination they are likely to have a milder disease course—at least for delta and [omicron](#) variants. Our paper is also reassuring that omicron in children is usually mild, even in [unvaccinated children](#)," says senior author Emma Duncan.

Researchers found there was a significant and rapid reduction in infection risk after even a single dose of vaccine, reaching -80.4% and -53.7% at 14–30 days with delta and omicron variants respectively. This reduction in risk persisted, at -86.4% and -57.9% at 31–60 days, and -61.5% and -63.7% after 61–90 days.

Researchers also determined the probability of remaining free from SARS-CoV-2 infection in both vaccinated and unvaccinated children. Data showed divergence between vaccinated and unvaccinated children almost immediately after vaccination. Protection waned with time, particularly during omicron.

Vaccinated children who had previously reported a positive test for

SARS-CoV-2 maintained a reinfection risk close to zero until at least 100 days during the period of delta. The authors could not make a similar comment for omicron due to lack of data. These results suggest that children will benefit from vaccination even if they had been infected with COVID-19 before.

In this study, researchers again showed that COVID-19 was usually mild in unvaccinated children, though vaccinated children who contracted COVID-19 may have an even milder course. During the delta period, multiple symptoms were less common in younger vaccinated children, including headache, dizziness and eye soreness, while older vaccinated children also had lower odds for many symptoms, including fatigue, sore throat and fever.

During the omicron period, number of symptoms and duration of illness was generally milder than delta for vaccinated and unvaccinated children. Both vaccinated and unvaccinated children aged 16–17 had similar disease burden, without any significant differences in odds for any individual symptom. However, several individual symptoms were less common in the younger vaccinated children, with lower odds ratios for anosmia, fever, low appetite, abdominal pains, and muscle pain.

The data also showed that following vaccination, side-effects at the injection site were common, with arm tenderness and local pain the most reported symptoms. However, systemic [side-effects](#) that affected the whole body, such as headache and fatigue were less common (just 8.3% of 16–17-year-olds had a systemic side effect and 14.1% of 12–15-year-olds). In almost all cases symptoms post-vaccination settled down quickly. Lastly, very few children in the study population presented to hospital during either delta or omicron periods.

"Our paper has implications for future policies pertaining to health resource allocation and prioritization. Overall, a single dose of

vaccination reduces COVID-19 symptoms but offers time-limited protection against infection, especially for omicron. Our study also shows that infection acquired immunity is additionally protective. It is reassuring that children recover well post-SARS-CoV-2 infection with [delta](#) and omicron," says Dr. Michael Absoud.

More information: Erika Molteni et al, Vaccination against SARS-CoV-2 in UK school-aged children and young people decreases infection rates and reduces COVID-19 symptoms (2022). [DOI: 10.1101/2022.03.13.22272176](#)

Provided by King's College London

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