

OpenSAFELY: Effectiveness of COVID-19 Vaccination in Children and Adolescents

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Abstract

Background: We assessed the safety and effectiveness of the first- and second-dose BNT162b2 COVID-19 vaccination, offered as part of the national COVID-19 vaccine roll-out from September 2021, in children and adolescents in England.

Methods: Our observational study using OpenSAFELY-TPP, included adolescents aged 12-15 years and children aged 5-11 years. It compared individuals receiving (1) the first vaccination to unvaccinated controls and (2) the second vaccination to single-vaccinated controls. We matched vaccinated individuals with controls on age, sex, and other important characteristics. Outcomes were positive SARS-CoV-2 test (adolescents only), COVID-19 accident and emergency (A&E) attendance, COVID-19 hospitalization, COVID-19 critical care admission, and COVID-19 death; with safety outcomes, A&E attendance, unplanned hospitalization, pericarditis, and myocarditis.

Results: Among 820,926 previously unvaccinated adolescents, 20-week incidence rate ratios (IRRs) comparing vaccination with no vaccination were 0.74 for positive SARS-CoV-2 test, 0.60 for COVID-19 A&E attendance, and 0.58 for COVID-19 hospitalization. Among 441,858 adolescents who had received the first vaccination, IRRs comparing second dose with single-vaccination were 0.67 for positive SARS-CoV-2 test, 1.00 for COVID-19 A&E attendance, and 0.60 for COVID-19 hospitalization. In both children groups, COVID-19-related outcomes were too rare to allow IRRs to be estimated precisely. Across all analyses, there were no COVID-19-related deaths, and fewer than seven COVID-19-related critical care admissions. **Myocarditis and pericarditis were documented only in the vaccinated groups, with rates of 27 and 10 cases/million after the first and second doses, respectively.**

Ergebnisse: Unter 820.926 zuvor nicht geimpften Jugendlichen betrug die 20-Wochen-Inzidenzratenverhältnisse (IRRs) beim Vergleich von geimpften und nicht geimpften Personen 0,74 für positive SARS-CoV-2-Tests, 0,60 für COVID-19-Notaufnahmen und 0,58 für COVID-19-Krankenhausaufenthalte. Unter 441.858 Jugendlichen, die die erste Impfung erhalten hatten, betrug die IRRs beim Vergleich der zweiten Dosis mit einer Einzeldosis 0,67 für einen positiven SARS-CoV-2-Test, 1,00 für COVID-19-Notaufnahmen und 0,60 für COVID-19-Krankenhausaufenthalte. In beiden Kindergruppen waren COVID-19-bezogene Ergebnisse zu selten, um die IRRs genau schätzen zu können. In allen Analysen gab es keine COVID-19-bedingten Todesfälle und weniger als sieben COVID-19-bedingte Einweisungen in die Intensivstation. Myokarditis und Perikarditis wurden nur in den geimpften Gruppen dokumentiert, mit Raten von 27 bzw. 10 Fällen pro Million nach der ersten und zweiten Dosis.

Conclusions: BNT162b2 vaccination in adolescents reduced COVID-19 A&E attendance and hospitalization, although these outcomes were rare. Protection against positive SARS-CoV-2 tests was transient.

Keywords: COVID; Coronavirus; Epidemiology; Pandemics; Pediatrics; Vaccines.

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Conflict of interest statement

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Figures

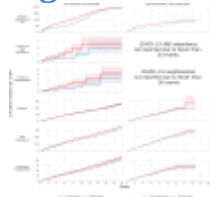


FIGURE 1.

Kaplan–Meier estimates of cumulative incidence...

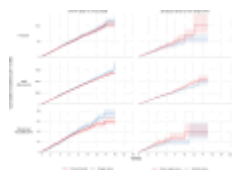


FIGURE 2.

Kaplan–Meier estimates of cumulative incidence...

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