

# Capsule Summary

## Real world Effectiveness of the Pfizer COVID-19 Vaccine

- A vaccine effectiveness is the measure of how well a vaccine performs in the real world. It is measured by how well the vaccines work to protect communities as a whole (1).
- Vaccine effectiveness is analysed using observational studies where unlike a clinical trial, the participants are not randomly assigned to treatment and a placebo group. A case-control study is commonly used to analyse vaccine effectiveness.
- In a case control study, the vaccination status of the individuals who develop the disease (cases) is compared with the individuals who do not develop the disease (controls) (2).
- A study recently published in the lancet analysed the effectiveness of the BNT162b2 (Pfizer–BioNTech) vaccine in individuals 12 years or older. We have summarized the study findings below. You can access the entire study here

[https://www.thelancet.com/journals/lancet/article/PIIS0140-6736\(21\)02183-8/fulltext](https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(21)02183-8/fulltext)

### Study Population:

The electronic health records of individuals ( $\geq 12$  years) who were members of the health-care organization Kaiser Permanente Southern California (CA, USA) were assessed. This study included 3436957 females and 1 637394 males.

### Study Endpoints:

BNT162b2 vaccine effectiveness against SARS-CoV-2 infections and COVID-19-related hospital admissions was assessed for up to 6 months. The study outcomes included SARS-CoV-2 PCR-positive tests and COVID-19-related hospital admissions. Effectiveness calculations were based on hazard ratios from adjusted Cox models.

### Findings:Study

Effectiveness against SARS-COV-2 infection in fully vaccinated individuals	73%
Aston MartinEffectiveness against COVID-19 related hospital admissions	90%
Effectiveness against delta variants	93% during the 1st month after full vaccination but declined to 53% after 4 months
Efectiveness against other variants	For first month after full vaccination it was 97% but waned to 67% at 4–5 months
Vaccine effectiveness against hospital admissions for infections with the delta variant for all ages	93% up to 6 months

### References:

<https://www.who.int/news-room/feature-stories/detail/vaccine-efficacy-effectiveness-and-protection>

<https://www.gavi.org/vaccineswork/what-difference-between-efficacy-and-effectiveness>

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