

Effectiveness of COVID-19 vaccines against hospitalisation with the Omicron variant in adults aged 75 years and older

Background

Early evidence suggests that the effectiveness of COVID-19 vaccines against mild disease with the Omicron variant is lower than effectiveness against the previous variant (Delta), however, after three doses, high levels of protection are seen against hospitalisation with the Omicron variant. Further doses of vaccine are being considered for the most vulnerable groups. In this updated analysis we estimate effectiveness of COVID-19 vaccines against hospitalisation in adults aged 75 years or older.

Methods

A test negative case control design was used to estimate vaccine effectiveness (VE) against hospitalisation with the Omicron variant. Adults aged 75 years or older who reported symptoms and were PCR tested in Pillar 2 (community testing) between 29th November 2021 and 20th January 2022 were included in the analysis. Tested individuals were linked to the Emergency Care Dataset (ECDS) to identify admissions via emergency care 0 to 14 days after the positive test (excluding admissions due to injuries). Cases were defined as those who were PCR positive and hospitalised, controls were any individuals who tested PCR negative. Vaccination status was divided into intervals after each dose based on date of symptom onset. All vaccine brands were combined. Analysis was by logistic regression and adjustments were made for age, sex, period (week of sample), ethnicity, region, clinically extremely vulnerable status, previous positive test and index of multiple deprivation quintile.

Results

Results are shown in Table 1. After 2 doses VE against hospitalisation was around 74% 2-24 weeks after vaccination, dropping to around 45% from 25 weeks onwards. 2-4 weeks after a 3rd dose VE increased to around 93%, dropping to around 88% by 10+ weeks after vaccination.

These results suggest that 3 doses of vaccine offers high levels of protection against hospitalisation with the Omicron variant with minimal waning up to 2-3 months after vaccination in adults aged 75 years or older. Further follow-up is needed to evaluate waning in protection over longer periods.

Table 1. Vaccine effectiveness against hospitalisation for Omicron (all vaccine brands combined). (CI=Confidence interval).

Dose	Interval after dose (weeks)	Vaccine effectiveness (%; 95%CI)
1	4+	79.4 (29.2 to 94)
2	2-24	73.6 (39.8 to 88.4)
	25+	44.5 (11.1 to 65.3)
3	1	90.2 (67 to 97.1)
	2-4	93.2 (86.9 to 96.5)
	5-9	89.9 (84.5 to 93.4)
	10+	88.1 (82.2 to 92.1)