

# THE LANCET

## Supplementary appendix

This appendix formed part of the original submission. We post it as supplied by the authors.

Supplement to: Amit S, Regev-Yochay G, Afek A, Kreiss Y, Leshem E. Early rate reductions of SARS-CoV-2 infection and COVID-19 in BNT162b2 vaccine recipients. *Lancet* 2021; published online Feb 18. [http://dx.doi.org/10.1016/S0140-6736\(21\)00448-7](http://dx.doi.org/10.1016/S0140-6736(21)00448-7).

## Statistical methods.

Periods were defined for each person as period zero before the date of the first vaccine dose, period one for days 1-14, and period two for days 15-28. We conducted additional analysis dividing period two into two sub periods for days 15-21 and days 22-28. All persons were followed for 28 days. The end of follow-up for PCR positive persons was the date of the first PCR positive test. For each period we summarized the number of detected positives and the total community exposure for each day in the period.

The community exposure of each date was calculated as the sum of multiplications of the number of national newly detected cases in each day in the previous 18 days by probability of COVID-19 positives getting infection in each of 18 days before day of detection. Namely,

$$\text{Community exposure} = \sum P_{eD-1} * NP_{D-1} + P_{eD-2} * NP_{D-2} + \dots + P_{eD-18} * NP_{D-18}$$

$P_{eD-1}, P_{eD-2}, \dots, P_{eD-18}$  – are the probability of acquiring SARS-CoV-2 infection on a given day (spanning days -1 to -18) preceding a positive SARS-CoV-2 test. The probability of acquiring SARS-CoV-2 was calculated using data extracted from the national database of SARS-CoV-2 which includes all positive tests by date and all contact-tracing investigations conducted by the Ministry of Health in Israel.

$NP_{D-1}, NP_{D-2}, \dots, NP_{D-18}$  – The national number of newly diagnosed SARS-CoV-2 cases by date, obtained from the Israel Ministry of Health daily reports.

The number of events in each period was assumed to be proportional to the community exposure in the corresponding period. The Rate ratios and 95% were estimated using Poisson regression with logarithm of the community exposure as offset.

Table: Rate reductions of SARS-CoV-2 infections and COVID-19 cases in healthcare workers, Sheba Medical Centre, Israel – December 2020 - January 2021

		<b>Unvaccinated</b>	<b>Days after Dose 1</b>		
		<b>NA</b>	<b>1-14</b>	<b>15-21</b>	<b>22-28</b>
<b>All SARS-CoV-2 PCR Positive</b>	<b>Number of cases</b>	89	55	19	7
	<b>Number of exposure days</b>	120,575	100,433	48,271	39,855
	<b>Rate per 10,000 person days</b>	7.4	5.5	3.9	1.8
	<b>Rate reduction compared with unvaccinated</b>	NA	26% (-4%-47%)	47% (12%-68%)	76% (49%-89%)
	<b>Adjusted rate reduction compared with unvaccinated<sup>1</sup></b>	NA	30% (2%-50%)	65% (43%-79%)	86% (70%-94%)
<b>Symptomatic COVID-19</b>	<b>Number of cases</b>	60	28	9	2
	<b>Number of exposure days</b>	120,575	100,433	48,271	39,855
	<b>Rate per 10,000 person days</b>	5.0	2.8	1.9	0.5
	<b>Rate reduction compared with unvaccinated</b>	NA	44% (12%-64%)	63% (25%-81%)	90% (59%-98%)
	<b>Adjusted rate reduction</b>	NA	47% (17%-66%)	76% (51%-88%)	94% (76%-99%)

	<b>compared with unvaccinated<sup>1</sup></b>				
<p>NA – not applicable          HCWs – healthcare workers  <sup>1</sup>Rate reductions of new cases in vaccinated compared with unvaccinated Sheba HCWs in each day were adjusted for community exposure rates using Poisson regression (Online appendix). The adjusted estimates were subtracted from 1 to obtain rate-reductions.</p>					