Supplementary table 1: characteristics of individuals in linked and unlinked tests				
	Linked		Unlinked	
	n	%	n	%
Overall Percentage of Linked and Unlinked Tests	156,930	89.8%	17,801	10.2%
Characteristics of Dataset				
Test Result				
positive results	44,590	28.4%	5,514	31.0%
negative results	112,340	71.6%	12,287	69.0%
Gender				
female	87,066	55.5%	10,521	59.1%
male	69,864	44.5%	7,280	40.9%
Ethnicity				
African	684	0.4%	249	1.4%
Another Asian background	1,348	0.9%	311	1.7%
Another Black background	114	0.1%	34	0.2%
Another ethnic background	798	0.5%	195	1.1%
Arab	286	0.2%	103	0.6%
Bangladeshi	648	0.4%	128	0.7%
Caribbean	1,062	0.7%	206	1.2%
Chinese	313	0.2%	48	0.3%
Indian	5,045	3.2%	794	4.5%
Mixed or multiple ethnic groups	638	0.4%	124	0.7%
Pakistani	2,497	1.6%	523	2.9%
Prefer not to say	7,236	4.6%	1,606	9.0%
White	136,261	86.8%	13,480	75.7%
New variant status of positive tests				
Non-SGTF	5,348	12.0%	590	10.7%
SGTF	16,780	37.6%	2,085	37.8%
Not known (not one of labs using TaqPath assay)	22,462	50.4%	2,839	51.5%
Previous positive (Ab or PCR) prior to 8 Dec 2020 *				
No	155,661	99.2%	17,678	99.3%
Yes	1,269	0.8%	123	0.7%
Age Group				
70-74	77,363	49.3%	7,479	42.0%
75-79	40,658	25.9%	4,475	25.1%
80-84	20,555	13.1%	2,736	15.4%
85-89	11,248	7.2%	1,663	9.3%
>=90	7,106	4.5%	1,448	8.1%
NHS Region				
East of England	21,757	13.9%	2,317	13.0%
London	21,749	13.9%	3,357	18.9%
Midlands	29,495	18.8%	3,220	18.1%
North East	20,264	12.9%	2,141	12.0%
North West	20,686	13.2%	2,285	12.8%
South East	28,806	18.4%	3,113	17.5%
South West	14,173	9.0%	1,368	7.7%
SGTF= S-gene target failure				

Supplementary table 2: Adjusted odds ratios for confirmed case by interval after vaccination for BNT162b2, age >=70 years since 8th December

Interval (days)	Pfizer BioNTech			
	controls	cases	aOR (95% CI)	aOR vs day 4-9
unvacc	89,377	37,320	base	
d1:0-3	1624	817	1.18 (1.08-1.29)	
d1:4-6	1414	673	1.12 (1.02-1.24)	
d1:7-9	1387	748	1.23 (1.12-1.36)	
d1:10-13	1905	807	0.99 (0.91-1.08)	0.84 (0.76-0.94)
d1:14-20	2474	811	0.84 (0.77-0.91)	0.71 (0.64-0.79)
d1:21-27	1669	367	0.61 (0.54-0.69)	0.52 (0.46-0.60)
d1:28-34	1064	186	0.50 (0.42-0.59)	0.42 (0.35-0.50)
d1:35-41	534	105	0.57 (0.46-0.71)	0.49 (0.39-0.61)
d1:42+	460	65	0.44 (0.33-0.57)	0.37 (0.28-0.49)
d2:0-3	125	48	0.64 (0.46-0.90)	0.55 (0.39-0.77)
d2:4-6	88	34	0.67 (0.45-1.00)	0.57 (0.38-0.86)
d2:7-13	214	31	0.26 (0.18-0.39)	0.22 (0.15-0.33)
d2:14+	672	42	0.17 (0.12-0.23)	0.14 (0.10-0.20)

Supplementary table 3: Adjusted odds ratios for confirmed case by interval after vaccination for BNT162b2, vaccinations administered prior to 4th January 2021, age >=80 years, including previously positive cases

Interval (days)	Pfizer BioNTech			
	controls	cases	aOR (95% CI)	aOR vs day 4-9
unvacc	90,193	37,389	1.18 (1.08-1.28)	
d1:0-3	1666	818	1.12 (1.02-1.23)	
d1:4-6	1428	674	1.23 (1.12-1.35)	
d1:7-9	1404	748	0.99 (0.90-1.08)	
d1:10-13	1922	807	0.84 (0.77-0.91)	0.84 (0.75-0.94)
d1:14-20	2507	813	0.61 (0.54-0.69)	0.71 (0.64-0.79)
d1:21-27	1693	367	0.49 (0.42-0.58)	0.52 (0.46-0.60)
d1:28-34	1088	186	0.58 (0.46-0.72)	0.42 (0.35-0.50)
d1:35-41	545	106	0.44 (0.34-0.58)	0.49 (0.39-0.62)
d1:42+	474	66	0.64 (0.46-0.90)	0.38 (0.29-0.50)
d2:0-3	126	48	0.67 (0.45-1.00)	0.55 (0.39-0.77)
d2:4-6	88	34	0.26 (0.18-0.38)	0.57 (0.38-0.86)
d2:7-13	217	31	0.17 (0.12-0.23)	0.22 (0.15-0.33)
d2:14+	679	42	0.17 (0.12-0.23)	0.14 (0.10-0.20)

Supplementary table 4: Adjusted odds ratios for confirmed case by interval after vaccination for ChAdOx1, vaccinations administered since 4th January 2021, age >=70 years
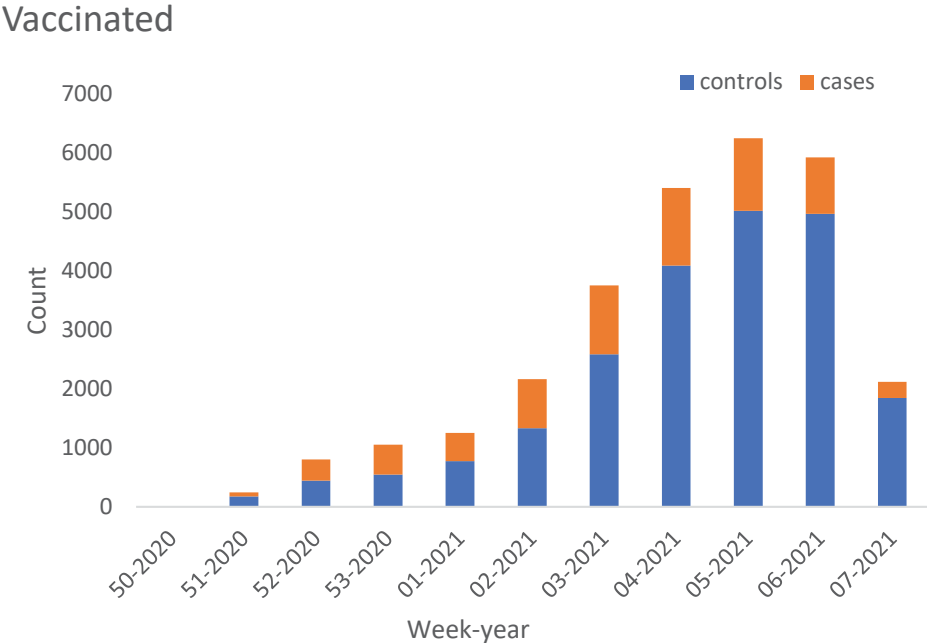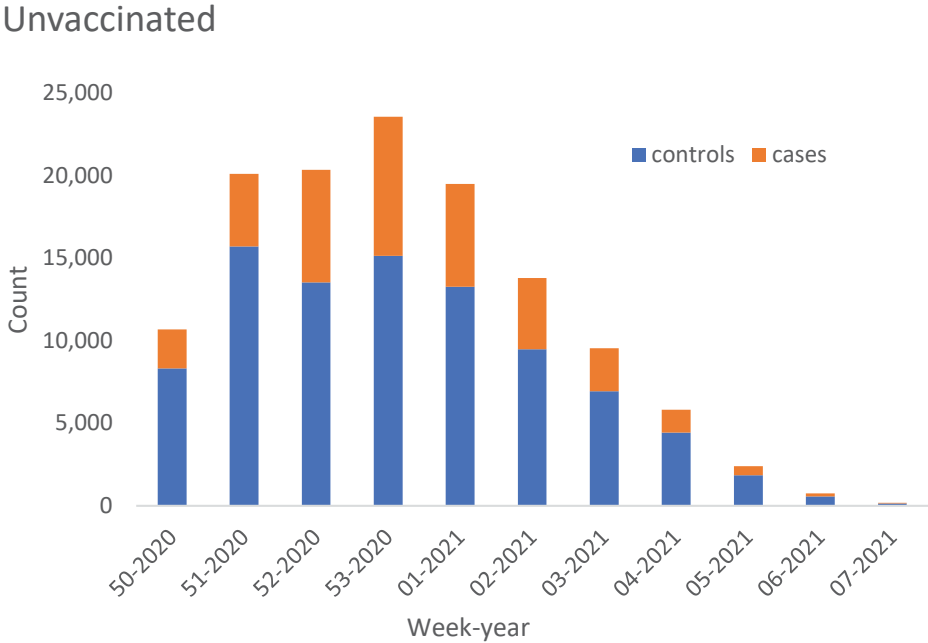
Interval (days)	Astrazeneca		
	controls	cases	aOR (95% CI)
unvacc	37,027	15,322	base
d1:0-3	2404	570	0.64 (0.58-0.71)
d1:4-6	1163	407	0.96 (0.85-1.09)
d1:7-9	1210	439	1.02 (0.90-1.16)
d1:10-13	1256	443	0.99 (0.87-1.12)
d1:14-20	1374	396	0.76 (0.66-0.87)
d1:21-27	639	148	0.54 (0.44-0.67)
d1:28-34	185	39	0.39 (0.27-0.57)
d1:35+	35	5	0.26 (0.10-0.68)

Supplementary table 5: Adjusted odds ratios for confirmed case by interval after vaccination for BNT162b2 by S-gene target failure status, age >=70 years since 8th December
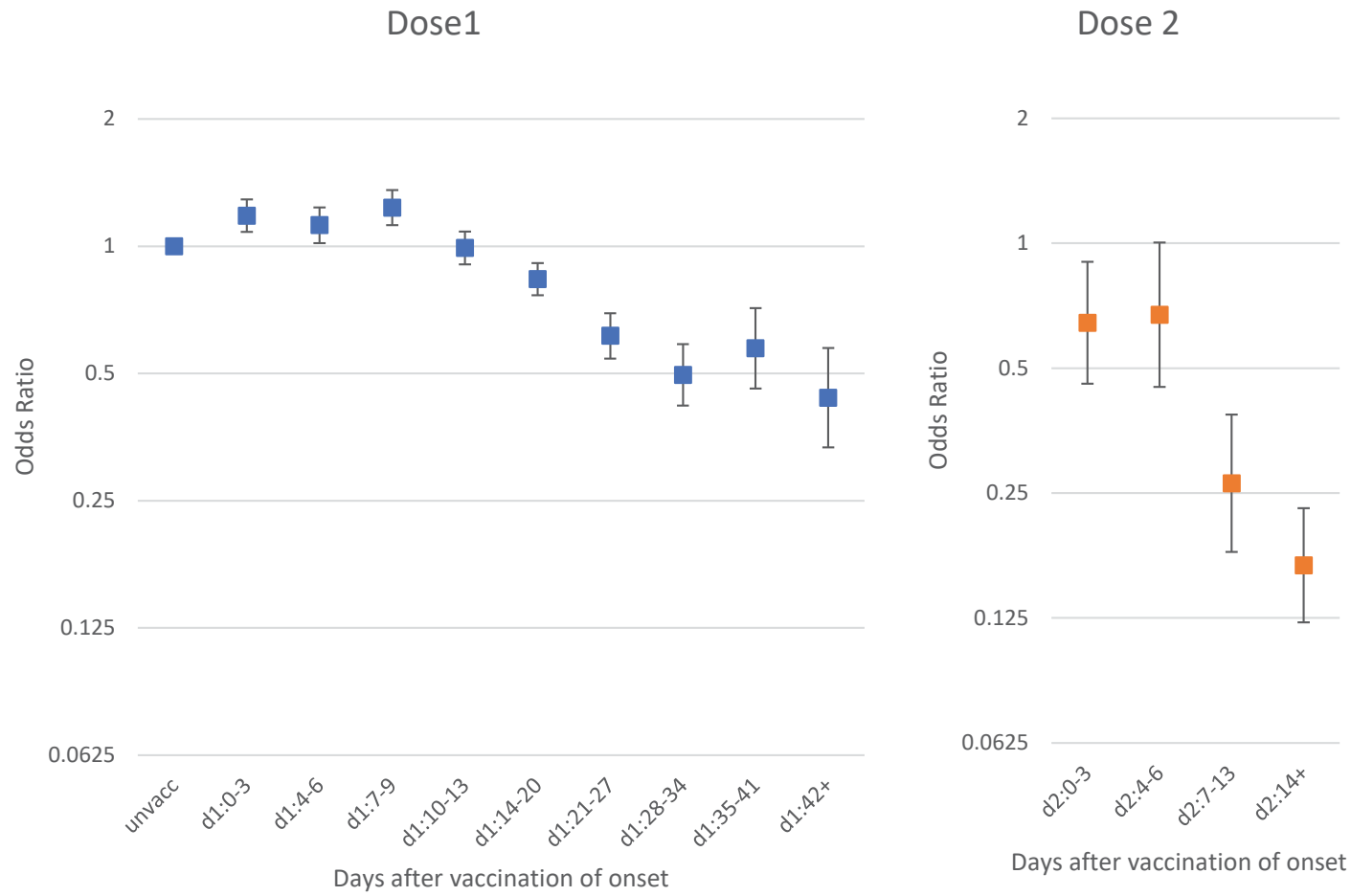
Interval (days)	SGTF				No SGTF			
	controls	cases	aOR (95% CI)	aOR vs day 4-9	controls	cases	aOR (95% CI)	aOR vs day 4-9
unvacc	8,080	2,742	base		8,080	1,199	base	
d1:0-3	134	53	1.36 (0.97-1.90)		134	18	0.92 (0.56-1.53)	
d1:4-6	120	46	1.30 (0.91-1.86)		120	24	1.23 (0.79-1.94)	
d1:7-9	125	79	1.55 (1.15-2.09)		125	23	1.05 (0.66-1.67)	
d1:10-13	181	88	1.13 (0.86-1.47)	0.78 (0.55-1.10)	181	37	1.24 (0.85-1.81)	1.09 (0.67-1.77)
d1:14-20	255	112	1.00 (0.79-1.26)	0.69 (0.50-0.96)	255	45	1.19 (0.85-1.66)	1.04 (0.66-1.66)
d1:21-27	180	61	0.74 (0.54-1.00)	0.51 (0.35-0.75)	180	11	0.69 (0.37-1.31)	0.61 (0.30-1.25)
d1:28-34	172	32	0.40 (0.27-0.60)	0.28 (0.18-0.44)	172	3	0.24 (0.07-0.78)	0.21 (0.06-0.72)
d1:35-41	158	38	0.56 (0.38-0.83)	0.39 (0.25-0.61)	158	1	0.13 (0.02-0.94)	0.11 (0.01-0.85)
d1:42+	247	33	0.32 (0.21-0.49)	0.22 (0.14-0.36)	247	3	0.28 (0.07-1.03)	0.24 (0.06-0.95)
d2:0-3	68	16	0.50 (0.28-0.87)	0.34 (0.19-0.63)	68	3	0.41 (0.13-1.32)	0.36 (0.11-1.21)
d2:4-6	51	10	0.39 (0.20-0.79)	0.27 (0.13-0.56)	51	4	0.77 (0.27-2.16)	0.67 (0.23-2.00)
d2:7-13	126	12	0.19 (0.10-0.34)	0.13 (0.07-0.25)	126	0		
d2:14+	395	16	0.10 (0.06-0.16)	0.07 (0.04-0.12)	395	0		
SGTF = S-gene target failure								

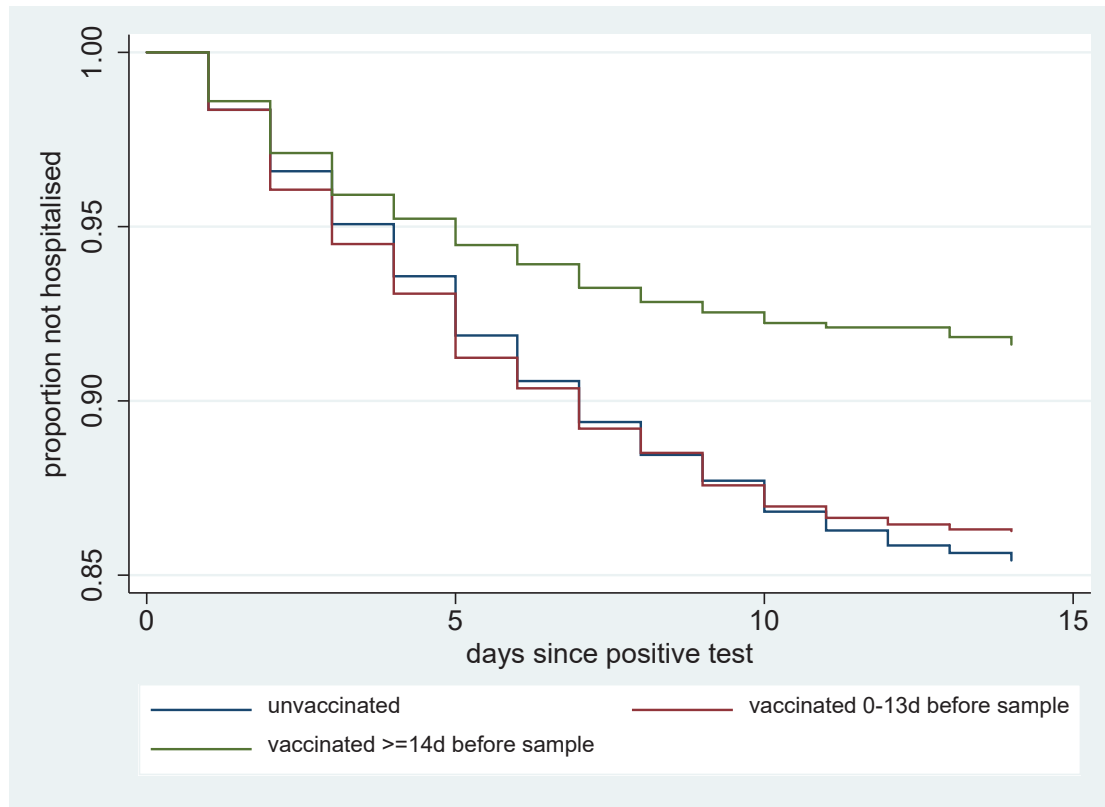# Supplementary fig 1: Cases and controls by week and vaccination status

Supplementary fig 2: Adjusted odds ratios for confirmed case by interval after vaccination for BNT162b2, age >=70 years since 8th December
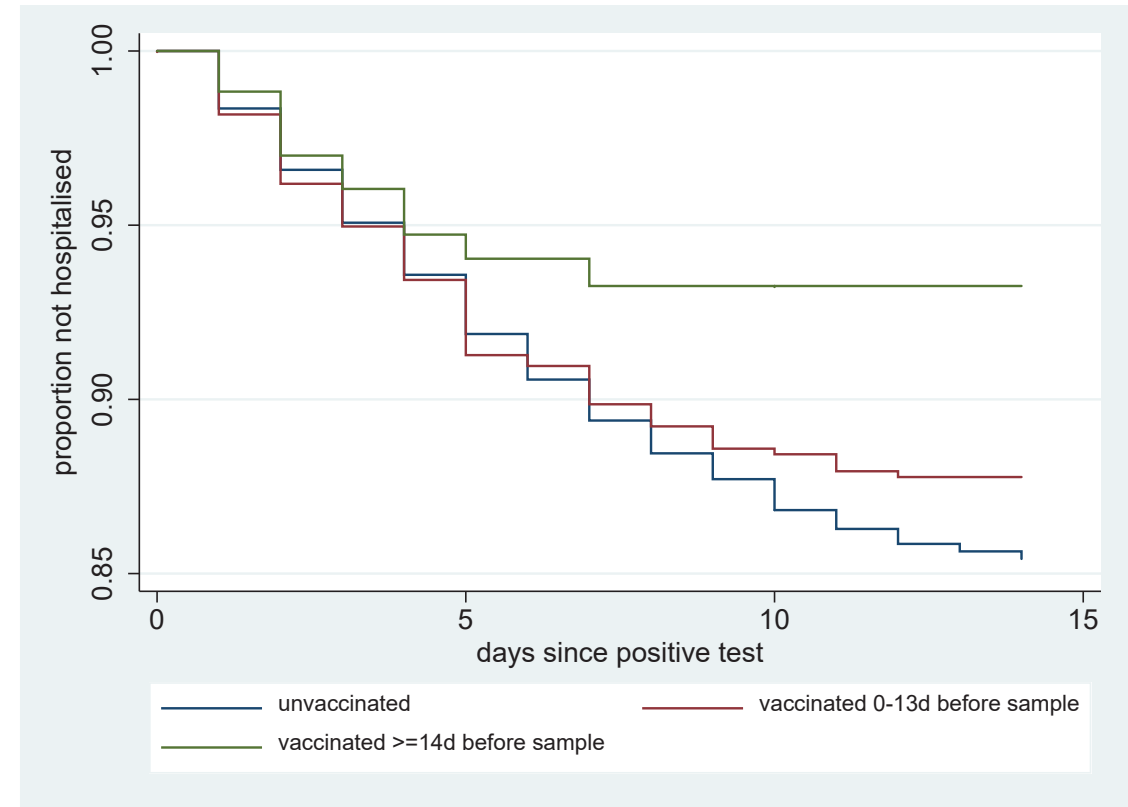
Supplementary fig 3: Kaplan-Meier curves for hospitalisations by vaccination status for BNT162b2 and ChAdOx1
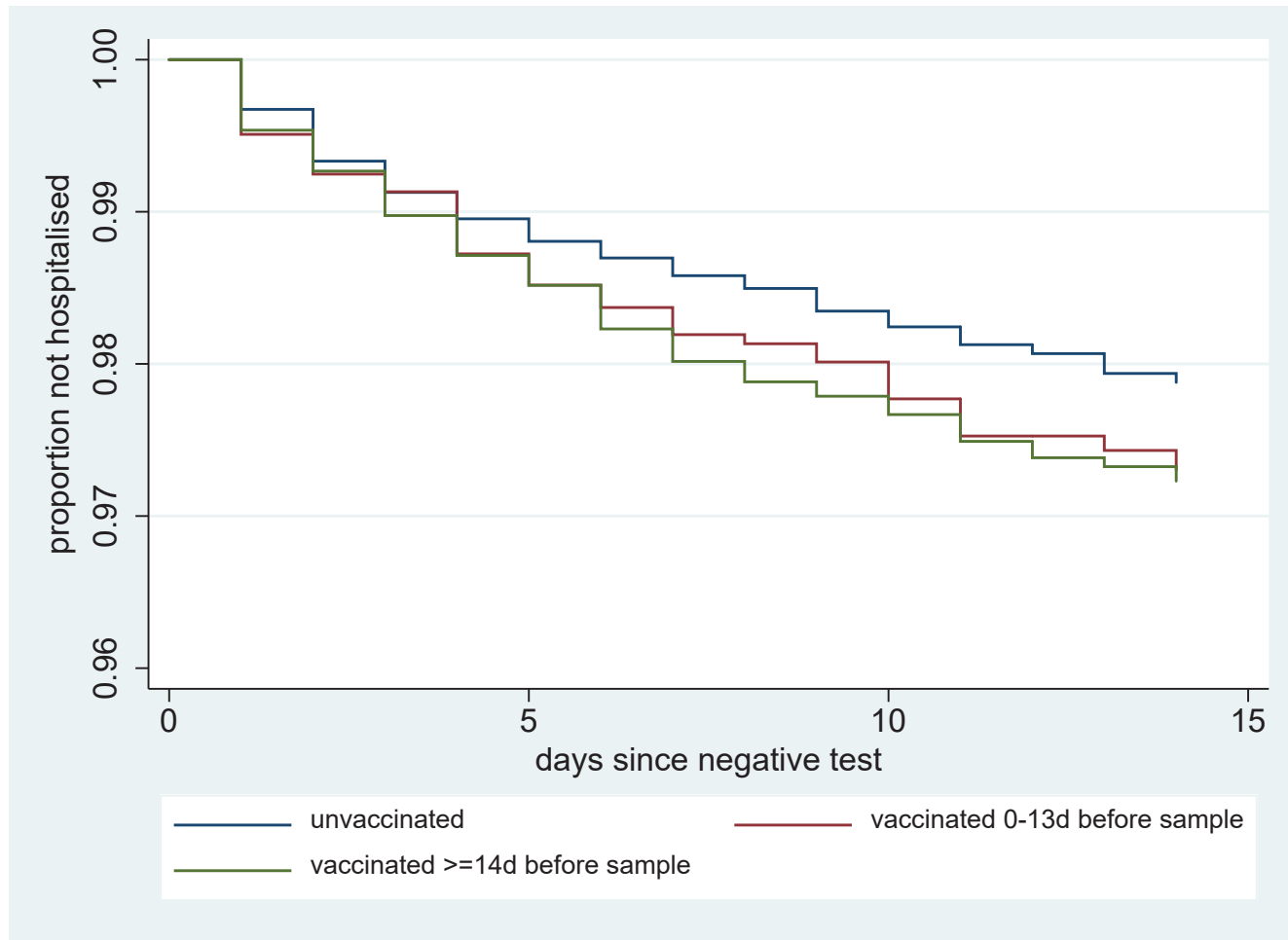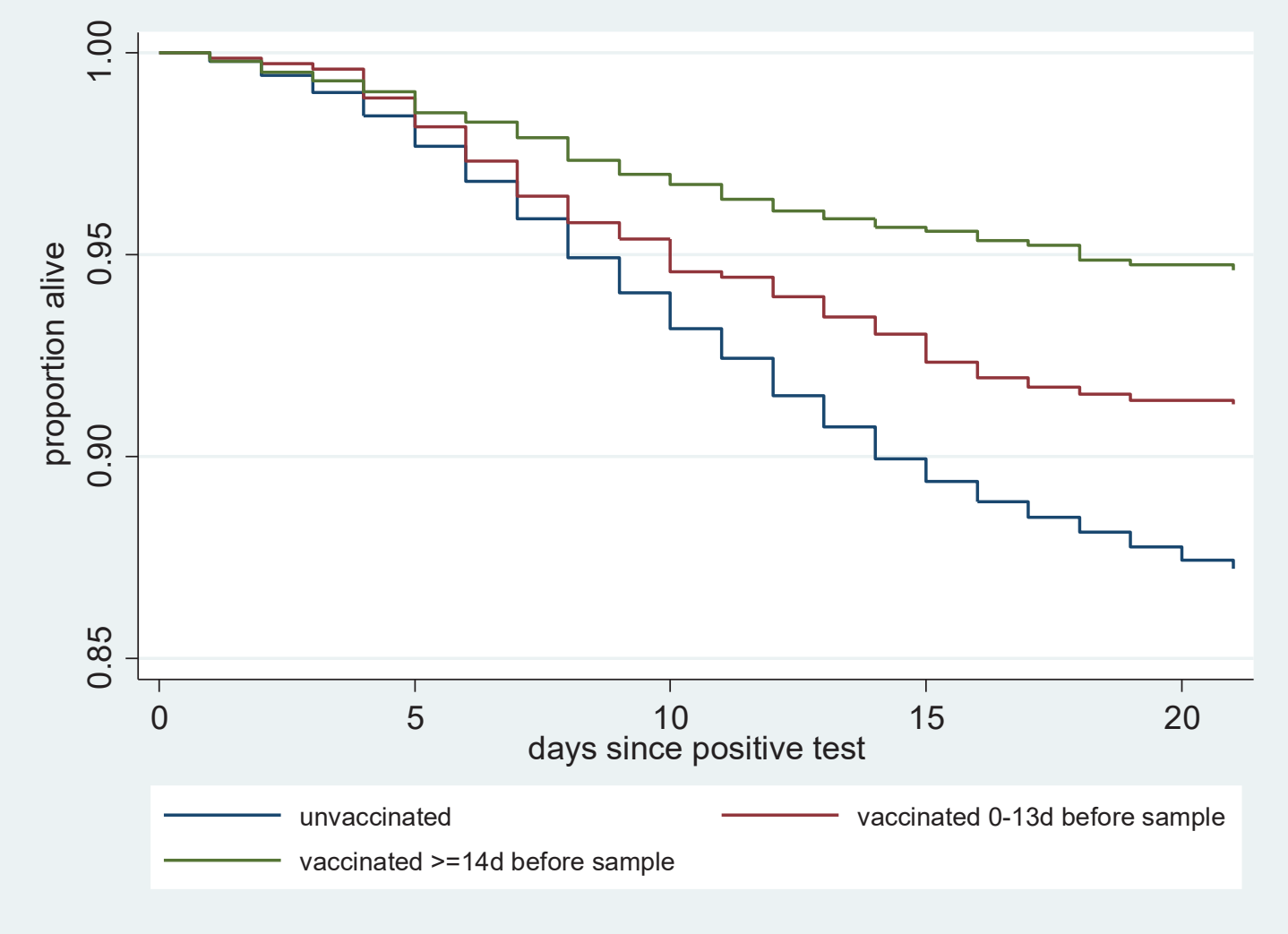
(a) BNT162b2

(b) ChAdOx1

(a) BNT162b2 Adjusting for age, care home, period and gender the hazard ratios compared to unvaccinated were 0.98 (95% CI 0.86-1.11) for days 0-13 and 0.56 (0.47-0.67) for days 14+.

(b) ChAdOx1 Adjusting for age, care home, period and gender the hazard ratios compared to unvaccinated were 0.97 (95% CI 0.76-1.23) for days 0-13 and 0.58 (0.36-0.94) for days 14+.

Supplementary fig 4: control analysis - Kaplan-Meier curves for hospitalisation among test negatives
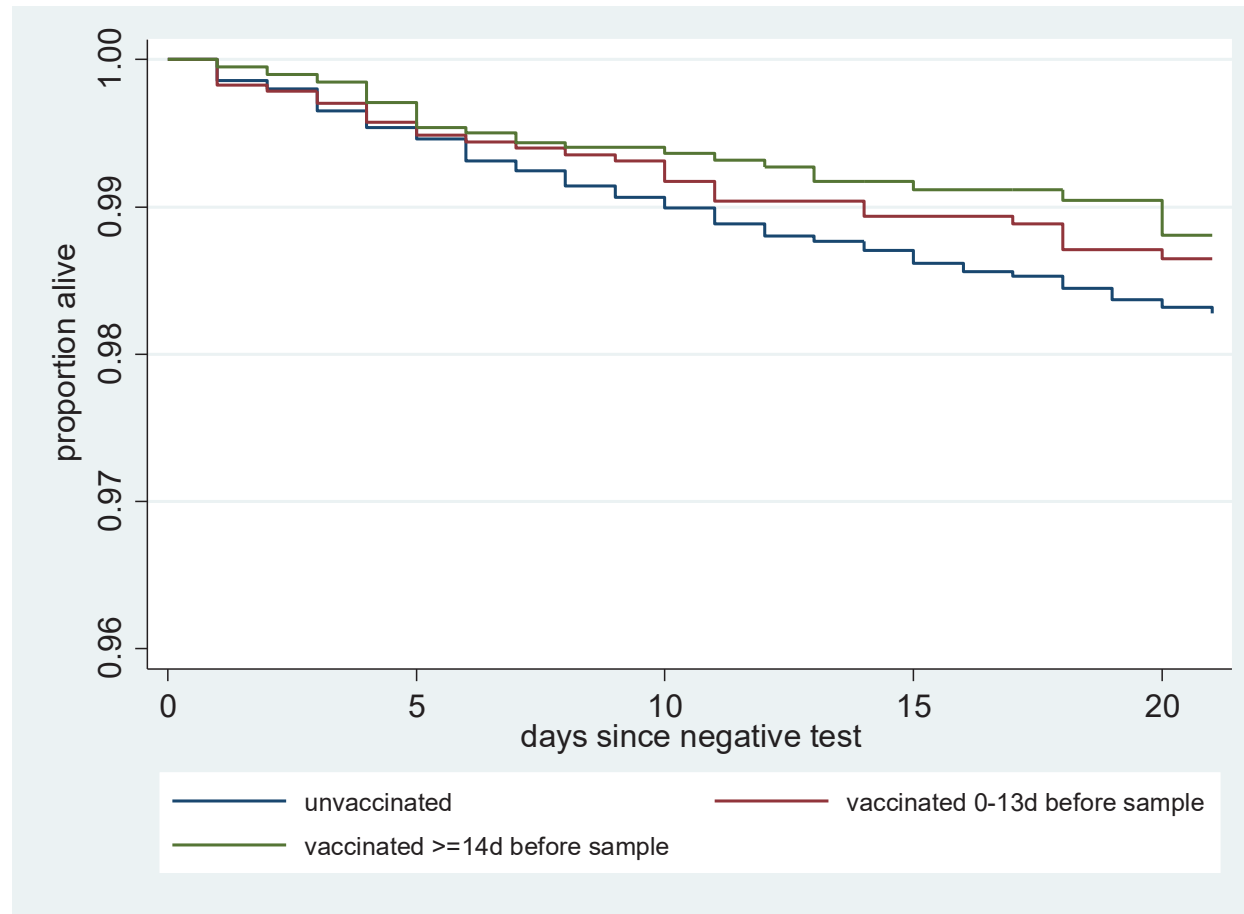

Adjusting for age, care home, period and gender the hazard ratios compared to unvaccinated were 1.24 (95% CI 0.98-1.56) for days 0-13 and 1.12 (0.89-1.41) for days 14+.

Supplementary fig 5: Kaplan-Meier curves for deaths by vaccination status for BNT162b2

Adjusting for age, care home, period and gender the hazard ratios compared to unvaccinated were 0.74 (95% CI 0.62-0.90) for days 0-13 and 0.49 (0.38-0.63) for days 14+.

Supplementary fig 6: control analysis - Kaplan-Meier curves for deaths among test negatives BNT162b2

The Hazard ratios are 0.92 (0.62-1.35) and 0.81 (0.54-1.21) for intervals of 0-13 and 14+ from dose 1.

Supplementary fig 7 completeness of vaccination data by days after vaccination

completeness compared to 14 days later for vaccinations from Jan 15-31