

## Supplementary Appendix

Supplement to: Muhsen K, Maimon N, Mizrahi A, et al. Effects of BNT162b2 Covid-19 vaccine booster in long-term care facilities in Israel. *N Engl J Med*. DOI: 10.1056/NEJMc2117385

This appendix has been provided by the authors to give readers additional information about the work.

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**Supplementary Table 1: Demographic characteristics of LTCF residents aged age 60 years or older**

	<b>Ever infected residents <sup>a</sup></b>	<b>Uninfected residents</b>	<b>Overall</b>
<b>Total</b>	N=2442	N=39,181	N=41,623
<b>Sex</b>			
Female	1701 (69.7%)	27,698 (70.7%)	29,399 (70.6%)
Males	740 (30.3%)	11,405 (29.1%)	12,145 (29.2%)
Missing	1 (0.0%)	78 (0.2%)	79 (0.2%)
<b>Age groups, years</b>			
60 to 69	262 (10.7%)	4260 (10.9%)	4522 (10.9%)
70 to 79	553 (22.6%)	10,012 (25.6%)	10,565 (25.4%)
80 to 89	1049 (43.0%)	16,688 (42.6%)	17,737 (42.6%)
90+	496 (20.3%)	6860 (17.5%)	7356 (17.7%)
Missing	82 (3.4%)	1361 (3.5%)	1443 (3.5%)
<b>Age, years</b>			
Mean (SD)	82.4 (9.3)	81.8 (9.1)	81.8 (9.1)
MEDIAN [IQR]	84.0 [13.0]	83.0 [13.0]	83.0 [14.0]
[MIN, MAX]	[60.0, 103]	[60.0, 121]	[60.0, 121]
<b>Socioeconomic status</b>			
Low	371 (15.2%)	5313 (13.6%)	5684 (13.7%)
Medium	714 (29.2%)	11,155 (28.5%)	11,869 (28.5%)
High	864 (35.4%)	14,487 (37.0%)	15,351 (36.9%)
Missing	493 (20.2%)	8226 (21.0%)	8719 (20.9%)
<b>Population group</b>			
Arabs	87 (3.6%)	713 (1.8%)	800 (1.9%)
General Jewish population	2112 (86.5%)	35,848 (91.5%)	37,960 (91.2%)
Ultraorthodox Jewish population	135 (5.5%)	1367 (3.5%)	1502 (3.6%)
Missing	108 (4.4%)	1253 (3.2%)	1361 (3.3%)
<b>Institution type</b>			
Geriatric institutions	1140 (46.7%)	11,104 (28.3%)	12,244 (29.4%)
Other geriatrics	556 (22.8%)	14,631 (37.3%)	15,187 (36.5%)
Social services- mental debilitation institutions	171 (7.0%)	1819 (4.6%)	1990 (4.8%)
Social services- assisted living houses (functionally independent persons)	526 (21.5%)	10,647 (27.2%)	11,173 (26.8%)
Other	49 (2.0%)	980 (2.5%)	1029 (2.5%)

Data presented are number and percentages in parenthesis unless otherwise specified

IQR: Interquartile range, LTCFs: long-term care facilities, Max: maximum, Min: minimum, SD standard deviation.

Residents who had ever having a positive SARS-CoV-2 RT-PCR test result were classified as infected residents, and those who did not were classified as uninfected residents

**Supplementary Table 2: Incidence rate ratio of RT-PCR confirmed SARS-CoV-2 infection among LTCF residents and the general population before and after the BNT162b2 booster introduction in Israel (calendar weeks 26-36, June 27-September 11, 2021)**

	Residents of long-term care facilities age 60 years or older			General population age 60 years or older			General population age 20-59 years			General population age less than 20 years		
	Pre-BNT162b2 boost period			Pre-BNT162b2 boost period			Pre-BNT162b2 boost period			Pre-BNT162b2 boost period		
Calendar week	Number of cases	Incidence rate ratio (95% CI)	P value <sup>a</sup>	Number of cases	Incidence rate ratio (95% CI)	P value <sup>a</sup>	Number of cases	Incidence rate ratio (95% CI)	P value <sup>a</sup>	Number of cases	Incidence rate ratio (95% CI)	P value <sup>a</sup>
Week 26	6	1.00 (Ref.)	-	268	1.00 (Ref.)	-	654	1.00 (Ref.)	-	918	1.00 (Ref.)	-
Week 27	6	1.00 (0.32-3.10)	1.00	445	1.66 (1.42-1.93)	<0.001	1304	1.89 (1.81-2.19)	<0.001	1,392	1.51 (1.39-1.64)	<0.001
Week 28	12	2.00 (0.75-5.32)	0.29	698	2.60 (2.26-2.99)	<0.001	2309	3.53 (3.23-3.85)	<0.001	2,084	2.27 (2.10-2.45)	<0.001
Week 29	32	5.33 (2.23-12.75)	0.0003	1146	4.27 (3.74-4.88)	<0.001	3930	6.00 (5.53-6.52)	<0.001	3,486	3.79 (3.53-4.08)	<0.001
Week 30	47	7.83 (3.34-18.32)	<0.001	2194	8.18 (7.21-9.24)	<0.001	6753	10.32 (9.52-11.18)	<0.001	5,654	6.15 (5.74-6.60)	<0.001
	BNT12b2 boost period			BNT162b2 boost period			BNT162b2 boost period			BNT162b2 boost period		
Week 31	112	1.00 (Ref.)	-	3165	1.00 (Ref.)	-	11,014	1.00 (Ref.)	-	9096	1.00 (Ref.)	-
Week 32	113	1.00 (0.77-1.31)	1.00	4788	1.51 (1.44-1.58)	<0.001	18,852	1.71 (1.67-1.75)	<0.001	14,071	1.54 (1.50-1.58)	<0.001
Week 33	94	0.84 (0.64-1.10)	0.270	4563	1.44 (1.37-1.50)	<0.001	25,628	2.32 (2.27-2.37)	<0.001	20,556	2.26 (2.20-2.31)	<0.001
Week 34	60	0.54 (0.39-0.73)	0.0002	3618	1.14 (1.09-1.19)	<0.001	30,540	2.77 (2.71-2.83)	<0.001	26,492	2.91 (2.84-2.98)	<0.001
Week 35	34	0.30 (0.20-0.44)	<0.001	2891	0.91 (0.86-0.96)	<0.001	29,799	2.70 (2.64-2.76)	<0.001	32,903	3.61 (3.53-3.70)	<0.001
Week 36	33	0.29 (0.20-0.43)	<0.001	2030	0.64 (0.60-0.67)	<0.001	22803	2.07 (2.02-2.11)	<0.001	29,941	3.29 (3.21-3.37)	<0.001

CI: confidence intervals, LTCF: Long-term care facilities

<sup>a</sup> Adjusted P values: Benjamini-Hochberg method for false discovery rate was used to obtain adjusted p value for multiple comparisons.

**Supplementary Table 3: Incidence rate ratio of new hospitalizations for severe COVID-19 among LTCF residents and the general population before and after the BNT162b2 booster introduction in Israel, (calendar weeks 26-36, June 27-September 11, 2021)**

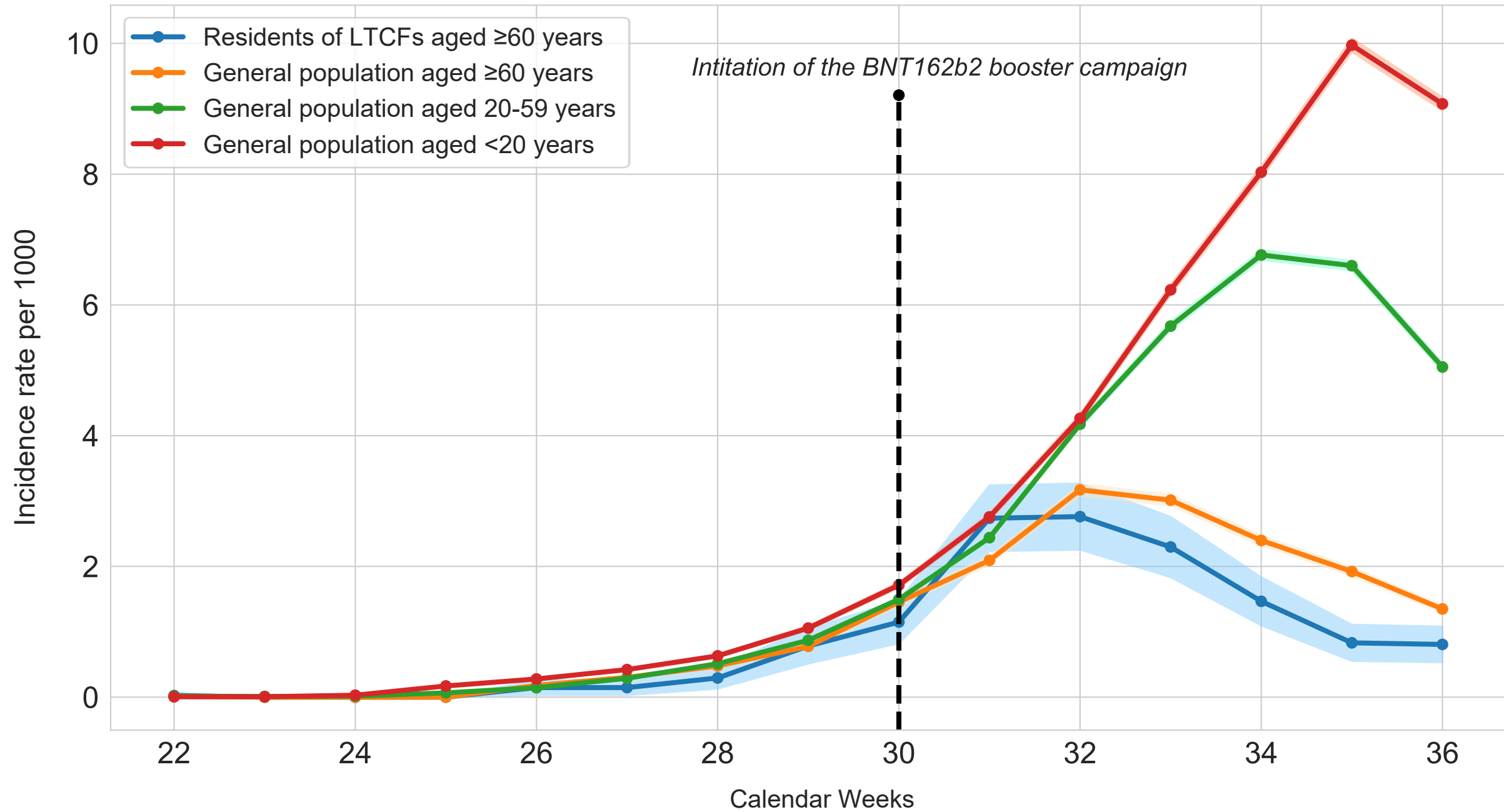
	Residents of long-term care facilities age 60 years or older			General population age 60 years or older			General population age less than 60 years		
	Pre-BNT162b2 boost period			Pre-BNT162b2 boost period			Pre-BNT162b2 boost period		
Calendar week	Number of cases	Incidence rate ratio (95% CI)	P value <sup>a</sup>	Number of cases	Incidence rate ratio (95% CI)	P value <sup>a</sup>	Number of cases	Incidence rate ratio (95% CI)	P value <sup>a</sup>
Week 26	1	1.00 (Ref.)	-	12	1.00 (Ref.)	-	5	1.00 (Ref.)	-
Week 27 <sup>b</sup>	-	-	-	37	3.08 (1.60-5.91)	<0.001	10	2.00 (0.68-5.85)	0.206
Week 28	4	4.00 (0.47-35.78)	0.286	51	4.25 (2.26-7.97)	<0.001	14	2.80 (1.00-7.77)	0.054
Week 29	6	6.00 (0.72-49.83)	0.155	72	6.00 (3.25-11.05)	<0.001	31	6.20 (2.41-15.94)	<0.001
Week 30	14	14.00 (1.64-106.46)	0.022	208	17.33 (9.68-31.01)	0.001	44	8.80 (3.49-22.19)	<0.001
	BNT162b2 boost period			BNT162b2 boost period			BNT162b2 boost period		
Week 31	24	1.00 (Ref.)	-	300	1.00 (Ref.)	-	82	1.00 (Ref.)	-
Week 32	21	0.87 (0.48-1.57)	0.655	432	1.44 (1.24-1.69)	<0.001	120	1.46 (1.10-1.93)	0.010
Week 33	18	0.75 (0.40-1.38)	0.306	427	1.42 (1.22-1.65)	<0.001	188	2.29 (1.76-2.97)	<0.001
Week 34	8	0.33 (0.15-0.74)	0.018	447	1.49 (1.29-1.72)	<0.001	212	2.58 (2.00-3.33)	<0.001
Week 35	4	0.16 (0.05-0.48)	0.004	369	1.23 (1.05-1.43)	0.009	198	2.41 (1.86-3.12)	<0.001
Week 36	5	0.20 (0.07-0.54)	0.004	279	0.93 (0.79-1.09)	0.383	193	2.35 (1.81-3.04)	<0.001

LTCF: Long-term care facilities

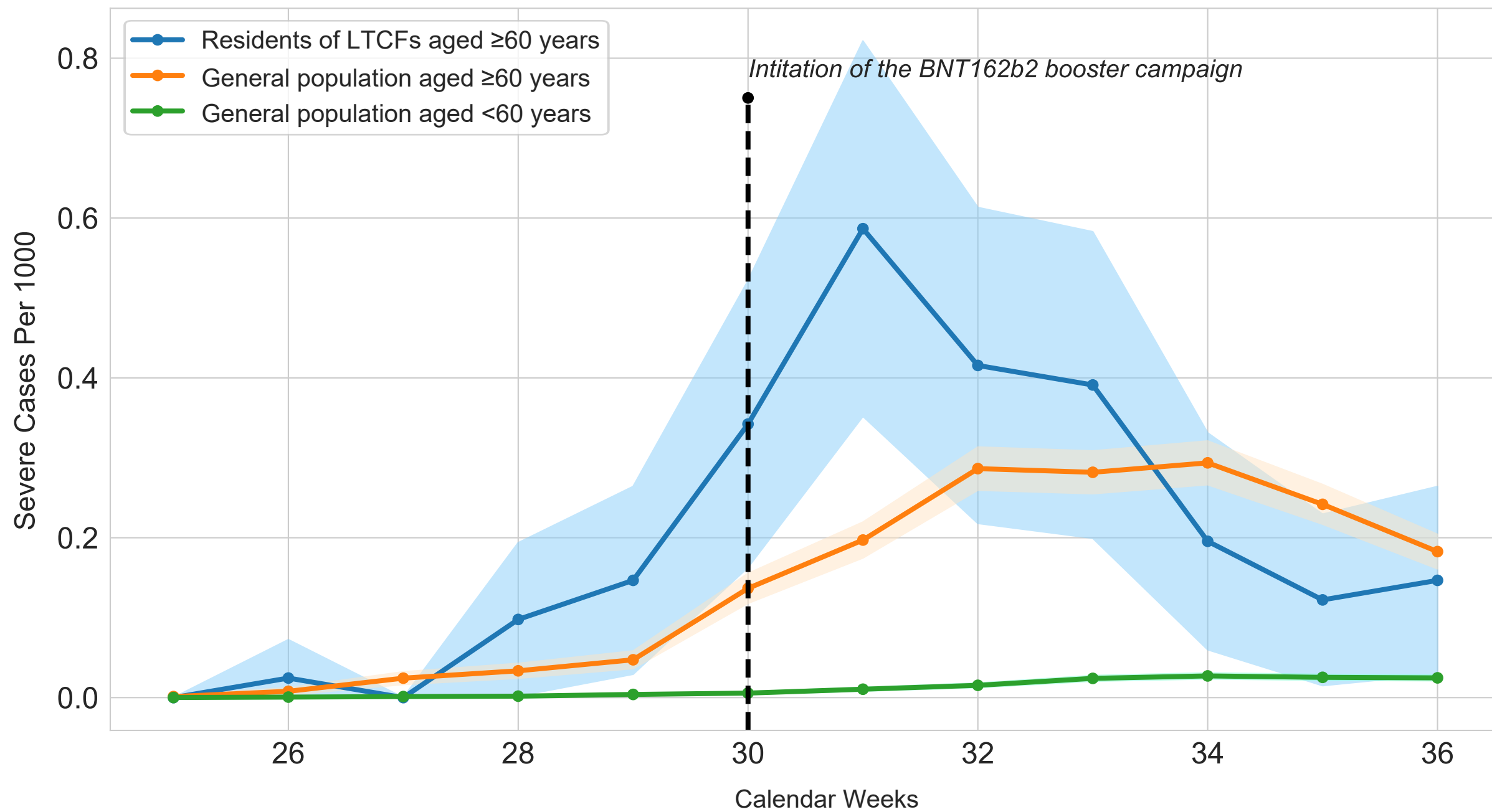
<sup>a</sup> Adjusted P values: Benjamini-Hochberg method for false discovery rate was used to obtain adjusted p value for multiple comparisons.

<sup>b</sup> No new hospitalizations for severe COVID-19 cases occurred at week 27 among residents of LTCFs

**Supplementary figure 1A:** Weekly incidence rates and 95% confidence intervals (per1000 ) of RT-PCR confirmed SARS-CoV-2 infection by study group, calendar weeks 22-36, 2021, Israel



Supplementary figure 1B: Weekly incidence rates and 95% confidence intervals of hospitalizations for severe COVID-19 by study group, calendar weeks 22-36, 2021, Israel



Supplementary figure 1C: Weekly COVID-19-related mortality rates and 95% confidence intervals by study group, calendar weeks 22-36, 2021, Israel

