SUPPLEMENTAL MATERIALS

SARS-CoV-2 vaccination and myocarditis or myopericarditis: A population based cohort study

Contents

Table S1. Description of study outcomes and covariates.	
Diagnostic categories[1]	**ICD-10 codes**
Myocarditis	I40.0, I40.1, I40.9, I41.1, I41.8, I51.4
Pericarditis	I30.0, I30.8, I30.9, I30.1E
Asthma	J45-J46
Chronic pulmonary disease (incl. COPD)	J40-J44, J47, J60–J67, J68.4, J70.1, J70.3, J84.1, J92.0, J96.1, J98.2, J98.3
Ischemic heart disease (myocardial infarction or angina pectoris)	I20-I23
Heart failure	I11.0, I13.0, I13.2, I42.0, I42.6, I42.7, I42.8, I42.9, I50.0, I50.1, I50.2, I50.3, I50.8, I50.9
Atrial fibrillation or flutter	I48
Diabetes mellitus	E10.0, E10.1, E10.2-E10.8, E10.9, E11.0, E11.1, E11.2-E11.8 ,E11.9
Inflammatory bowel disease	K50, K51
Malignancy	C00–C75, C76-C80, C81-C85, C88, C90, C91-95, C96
Moderate to severe renal disease	I12, I13, N00–N05, N07, N11, N14, N17–N19, Q61
Cardiac arrest	I46

[1] The lookback period for diagnoses of malignancy was five years. The remaining categories of comorbidities had a lookback period of ten years.

Table S2. Hazard ratio of myocarditis/myopericarditis within 28 days following vaccination in the cohort study, by vaccine type and age group.

	N	Person-yrs	HR (95% CI)*	aHR (95% CI)**
12-39 years				
Unvaccinated (ref.)	59	1,420,687	1	1
BNT162b2 (Pfizer-BioNTech)	17	149,192	2.38 (1.39-4.08)	1.48 (0.74-2.98)
mRNA-1273 (Moderna)	16	40,875	8.40 (4.74-14.89)	5.24 (2.47-11.12)
40-59 years				
Unvaccinated (ref.)	39	985,432	1	1
BNT162b2 (Pfizer-BioNTech)	10	172,888	1.50 (0.75-3.00)	1.08 (0.44-2.70)
mRNA-1273 (Moderna)	≤3	13,347	1.08 (0.26-13.92)	1.40 (0.17-11.16)
≥ 60 years				
Unvaccinated (ref.)	51	807,832	1	1
BNT162b2 (Pfizer-BioNTech)	21	187,510	1.76 (1.06-2.93)	1.41 (0.74-2.68)
mRNA-1273 (Moderna)	4	20,219	2.86 (1.01-8.08)	2.77 (0.90-8.50)

* Adjusted for age and sex.

** Adjusted for age, sex, vaccine priority group, season, and clinical comorbidities.

Table S3. Hazard ratio of myocarditis/myopericarditis within 28 days following vaccination in the cohort study, by vaccine type and sex.

	N	Person-yrs	HR (95% CI)*	aHR (95% CI)**
Male				
Unvaccinated (ref.)	122	1,628,595	1	1
BNT162b2 (Pfizer-BioNTech)	26	253,135	1.35 (0.88-2.07)	0.82 (0.50-1.34)
mRNA-1273 (Moderna)	16	38,088	5.31 (3.09-9.10)	3.22 (1.75-5.93)
Female				
Unvaccinated (ref.)	33	1,585,356	1	1
BNT162b2 (Pfizer-BioNTech)	22	256,455	3.79 (2.19-6.56)	3.73 (1.82-7.65)
mRNA-1273 (Moderna)	5	36,352	5.70 (2.17-14.97)	6.33 (2.11-18.96)

* Adjusted for age.

** Adjusted for age, vaccine priority group, season, and clinical comorbidities.

Table S4. Hazard ratio of myocarditis/myopericarditis within 28 days following vaccination in the cohort study, by vaccine type and vaccine dose number.

	N	Person-yrs	HR (95% CI)*	aHR (95% CI)**
Unvaccinated (ref.)	155	3,213,951	1	1
First dose				
BNT162b2 (Pfizer-BioNTech)	21	249,656	1.70 (1.08-2.69)	1.30 (0.79-2.14)
mRNA-1273 (Moderna)	≤3	38,034	1.52 (0.48-4.78)	1.17 (0.36-3.79)
Second dose				
BNT162b2 (Pfizer-BioNTech)	27	259,934	2.09 (1.38-3.15)	1.43 (0.88-2.33)
mRNA-1273 (Moderna)	18	36,406	9.52 (5.76-15.74)	6.99 (3.94-12.42)

* Adjusted for age and sex.

** Adjusted for age, sex, vaccine priority group, season, and clinical comorbidities.

Table S5. Hazard ratio and rate ratio of myocarditis/myopericarditis 29 days or more following vaccination in the cohort study and in the SCCS study by vaccine type.

	N	Person-yrs	HR (95% CI)*	aHR (95% CI)**
Cohort study				
Unvaccinated (ref.)	155	3,213,951	1	1
BNT162b2 (Pfizer-BioNTech)	38	796,280	0.89 (0.62-1.29)	0.47 (0.28-0.79)
mRNA-1273 (Moderna)	4	79,541	0.93 (0.34-2.54)	0.57 (0.20-1.66)
SCCS study			**RR (95% CI)*** **	**Firth RR (95% CI)**** **
Unvaccinated (ref.)	145		1	1
BNT162b2 (Pfizer-BioNTech)	37		0.46 (0.25-0.84)	0.47 (0.26-0.85)
mRNA-1273 (Moderna)	4		0.93 (0.26-3.39)	0.99 (0.28-3.55)

* Adjusted for age and sex.

** Adjusted for age, sex, vaccine priority group, season, and clinical comorbidities.

*** Adjusted for season.

**** Adjusted for season and analysed using Firth's method for bias reduction.

Table S6. Hazard ratio of a myocarditis/myopericarditis within 28 days following vaccination in the cohort study, by vaccine type, in analyses with late start of follow-up (December 27, 2020).

	N	Person-years	HR (95% CI)*	aHR (95% CI)**
Unvaccinated (ref.)	111	2,062,220	1	1
BNT162b2 (Pfizer-BioNTech)	48	509,590	1.71 (1.21-2.41)	1.37 (0.92-2.04)
mRNA-1273 (Moderna)	21	74,441	4.67 (2.88-7.57)	3.92 (2.29-6.71)

* Adjusted for age and sex.

** Adjusted for age, sex, vaccine priority group, season, and clinical comorbidities.

Table S7. Hazard ratio of myocarditis/myopericarditis within 28 days following vaccination in the cohort study, by vaccine technology.

	N	Person-yrs	HR (95% CI)*	aHR (95% CI)**
Unvaccinated (ref.)	155	3,213,951	1	1
BNT162b2 + mRNA-1273 (mRNA)	69	584,031	2.39 (1.80-3.18)	1.64 (1.14-2.36)
ChAdOx1 nCoV-19 + Ad26.COV2.S (viral vector)	≤3	13,387	1.88 (0.26-13.47)	1.36 (0.18-10.02)

* Adjusted for age and sex.

** Adjusted for age, sex, vaccine priority group, season, and clinical comorbidities.

Table S8. Kaplan-Meier estimates of clinical outcomes among individuals with myocarditis/myopericarditis, by vaccination status, sex, and age.

	Unvaccinated	**BNT162b2***	**mRNA-1273***
All	**% (95% CI)**	**% (95% CI)**	**% (95% CI)**
In hospital 72 hours after admission (%)	47.7 (39.7 - 55.3)	58.3 (43.2 - 70.8)	40.0 (19.3 – 60.0)
Readmission within 28 days of discharge (%)	15.6 (10.7 - 22.4)	12.7 (5.9 - 26.1)	0 (0 - 0)
Heart failure within 28 days of outcome** (%)	4.5 (2.2 - 9.2)	2.1 (0.3 - 13.9)	0 (0 - 0)
Death within 28 days of outcome (%)	1.9 (0.6 - 5.9)	2.1 (0.3 - 13.9)	0 (0 - 0)
Women			
In hospital 72 hours after admission (%)	51.5 (33.5 - 66.9)	54.5 (32.1 - 72.4)	60.0 (12.6 - 88.2)
Readmission within 28 days of discharge (%)	33.3 (20 - 52.1)	28.2 (13.8 - 52.4)	0 (0 - 0)
Heart failure within 28 days of outcome** (%)	3.0 (0.4 - 19.6)	0 (0 - 0)	0 (0 - 0)
Death within 28 days of outcome (%)	3.0 (0.4 - 19.6)	0 (0 - 0)	0 (0 - 0)
Men			
In hospital 72 hours after admission (%)	46.7 (37.7 - 55.3)	61.5 (40.3 - 77.1)	33.3 (12.2 - 56.4)
Readmission within 28 days of discharge (%)	10.8 (6.4 - 17.8)	0 (0 - 0)	0 (0 - 0)
Heart failure within 28 days of outcome** (%)	4.9 (2.2 - 10.6)	3.8 (0.6 - 24.3)	0 (0 - 0)
Death within 28 days of outcome (%)	1.7 (0.4 - 6.4)	3.8 (0.6 - 24.3)	0 (0 - 0)
Younger individuals (12-39 years)			
In hospital 72 hours after admission (%)	44.6 (32.3 - 56.2)	58.8 (32.5 - 77.8)	40.0 (16.5 - 62.8)
Readmission within 28 days of discharge (%)	6.2 (2.4 - 15.7)	5.9 (0.9 - 35)	0 (0 - 0)
Heart failure within 28 days of outcome** (%)	3.1 (0.8 - 11.7)	0 (0 - 0)	0 (0 - 0)
Death within 28 days of outcome (%)	0 (0 - 0)	0 (0 - 0)	0 (0 - 0)
Older individuals (≥ 40 years)			
In hospital 72 hours after admission (%)	50.0 (39.3 - 59.8)	58.1 (39.0 - 73.1)	40.0 (5.2 - 75.3)
Readmission within 28 days of discharge (%)	22.5 (15.1 - 32.6)	16.5 (7.2 - 35.2)	0 (0 - 0)
Heart failure within 28 days of outcome** (%)	5.6 (2.4 - 12.9)	3.2 (0.5 - 20.8)	0 (0 - 0)
Death within 28 days of outcome (%)	3.4 (1.1 - 10.1)	3.2 (0.5 - 20.8)	0 (0 - 0)

* Cases included from only the 0-28 day time window following SARS-CoV-2 vaccination.

** Defined as a hospital diagnosis of heart failure (as defined in Table S1) within 28 days of outcome.

Table S9. Person-years of follow-up in the Danish nationwide population cohort by age group, sex, vaccine dose number, vaccine priority group, and comorbidities, for individuals receiving ChAdOx1 nCoV-19 (AstraZeneca) or Ad26.COV2.S (Johnson & Johnson) vaccines, based on follow-up from October 1, 2020.

	ChAdOx1 nCoV-19 (AstraZeneca) vaccination risk time	**Ad26.COV2.S (Johnson & Johnson) vaccination risk time**
Total person-years (%)	32,764 (100%)	10,898 (100%)
Age group		
12-39	11,997 (36.6%)	9,391 (86.2%)
40-59	16,889 (51.5%)	1,476 (13.5%)
≥ 60	3,878 (11.8%)	31 (0.3%)
Female	26,394 (80.6%)	1,992 (18.3%)
Male	6,370 (19.4%)	8,906 (81.7%)
Vaccinated with one dose	32,456 (99.1%)	10,897 (100%)
Vaccinated with two doses	309 (0.9%)	0 (0%)
Vaccine priority group[1]		
Vulnerable individuals[2]	8 (0.0%)	0 (0.0%)
Patients with increased risk of severe disease[3]	20 (0.1%)	2 (0.0%)
Health care workers or similar activity[4]	29,066 (88.7%)	192 (1.8%)
Individuals prioritized by age criteria alone	3,671 (11.2%)	10,704 (98.2%)
Follow-up time until to December 31, 2020	0 (0.0%)	0 (0.0%)
Comorbidities		
Any comorbidity listed below	3,458 (10.6%)	456 (4.2%)
Asthma	973 (3.0%)	190 (1.7%)
Chronic pulmonary disease	225 (0.7%)	13 (0.1%)
Ischemic heart disease	400 (1.2%)	16 (0.1%)
Heart failure	87 (0.3%)	4 (0.0%)
Atrial fibrillation or flutter	230 (0.7%)	18 (0.2%)
Diabetes mellitus	561 (1.7%)	68 (0.6%)
Inflammatory bowel disease	421 (1.3%)	84 (0.8%)
Malignancy	836 (2.6%)	53 (0.5%)
Moderate to severe renal disease	166 (0.5%)	30 (0.3%)

[1] Person-years by vaccine priority group from January 1, 2021 are in Table 1 assigned by vaccine priority assessed at February 22, 2021.

[2] Individuals living in care homes or similar facilities, or individuals aged 65 years or older and receiving in-home assistance with activities of daily life.

[3] Individuals clinically determined to be at increased risk of severe disease from SARS-CoV-2 infection.

[4] Individuals working within the health care and social care sectors, and relatives in close contact with individuals at increased risk of severe disease.

Table S10. Hazard ratio of myocarditis/myopericarditis within 28 days following vaccination in the cohort study, for vaccines not included in the national mass-vaccination program.

	N	Person-yrs	HR (95% CI)*	aHR (95% CI)**
Unvaccinated (ref.)	155	3,213,951	1	1
ChAdOx1 nCoV-19 (AstraZeneca)	0	10,703	0 (0 -)	0 (0 -)
Ad26.COV2.S (Johnson & Johnson)	≤3	2,684	5.66 (0.79-40.76)	5.11 (0.70-37.16)

* Adjusted for age and sex.

** Adjusted for age, sex, vaccine priority group, season, and clinical comorbidities.

Table S11. Hazard ratio of myocarditis/myopericarditis within 28 days following vaccination in the cohort study, by vaccine type, with follow-up until October 5, 2021, using Firth's bias reduction method.

	N	Person-yrs	HR (95% CI)*	aHR (95% CI)**
Unvaccinated (ref.)	155	3,213,951	1	1
BNT162b2 (Pfizer-BioNTech)	48	509,590	1.92 (1.38-2.66)	1.35 (0.91-2.00)
mRNA-1273 (Moderna)	21	74,441	5.46 (3.41-8.74)	3.98 (2.33-6.79)

* Adjusted for age and sex, using Firth's bias reduction method.

** Adjusted for age, sex, vaccine priority group, season, and clinical comorbidities, using Firth's bias reduction method.

Table S12. Hazard ratio of myocarditis/myopericarditis within 28 days following vaccination in the cohort study, by vaccine type, with follow-up until October 5, 2021, without exclusion of prior diagnosis of myocarditis or pericarditis prior to start of follow-up.

	N	Person-yrs	HR (95% CI)*	aHR (95% CI)**
Unvaccinated (ref.)	165	3,113,744	1	1
BNT162b2 (Pfizer-BioNTech)	48	388,735	1.78 (1.28-2.46)	1.22 (0.83-1.80)
mRNA-1273 (Moderna)	21	41,505	5.10 (3.20-8.15)	3.65 (2.15-6.18)

* Adjusted for age and sex.

** Adjusted for age, sex, vaccine priority group, season, and clinical comorbidities.

*** Among individuals who previously received a myocarditis or pericarditis diagnosis code during January 1, 2017 to September 30, 2020, none developed our primary outcome within 28 days following vaccination with either BNT162b2 (2,363 individuals) or mRNA-1273 (309 individuals), by the end of follow-up.

Table S13. Hazard ratio of myocarditis/myopericarditis within 28 days following vaccination in the cohort study, by vaccine type, with follow-up until October 5, 2021 and without censoring following a positive SARS-CoV-2 PCR-test.

	N	Person-yrs	HR (95% CI)*	aHR (95% CI)**
Unvaccinated (ref.)	161	3,333,229	1	1
BNT162b2 (Pfizer-BioNTech)	49	533,186	1.84 (1.33-2.54)	1.29 (0.88-1.91)
mRNA-1273 (Moderna)	23	78,034	5.64 (3.59-8.85)	4.12 (2.47-6.88)

* Adjusted for age and sex.

** Adjusted for age, sex, vaccine priority group, season, and clinical comorbidities.

Table S14. Hazard ratio of myocarditis/myopericarditis within 14- and 56-day risk window following vaccination in the cohort study, by vaccine type, with follow-up until October 5, 2021.

	N	Person-yrs	HR (95% CI)*	aHR (95% CI)**
Myocarditis/myopericarditis (14-day risk window)				
Unvaccinated (ref.)	155	3,213,951	1	1
BNT162b2 (Pfizer-BioNTech)	33	263,927	2.54 (1.74-3.71)	1.89 (1.23-2.90)
mRNA-1273 (Moderna)	14	37,497	7.13 (4.07-12.47)	5.46 (2.97-10.07)
Myocarditis/myopericarditis (56-day risk window)				
Unvaccinated (ref.)	155	3,213,951	1	1
BNT162b2 (Pfizer-BioNTech)	58	804,147	1.46 (1.07-1.98)	1.05 (0.71-1.56)
mRNA-1273 (Moderna)	23	112,000	3.90 (2.48-6.13)	3.00 (1.77-5.09)

* Adjusted for age and sex.

** Adjusted for age, sex, vaccine priority group, season, and clinical comorbidities.

Table S15. Hazard ratio of cardiac arrest or death within respectively 56-, 84-, and 112-day time windows following vaccination in the cohort study, by vaccine type, with follow-up until October 5, 2021.

	N	Person-yrs	HR (95% CI)*	aHR (95% CI)**
Cardiac arrest or death (56 days)				
Unvaccinated (ref.)	25,933	3,214,646	1	1
BNT162b2 (Pfizer-BioNTech)	8,239	804,179	0.83 (0.81-0.85)	0.58 (0.56-0.60)
mRNA-1273 (Moderna)	633	112,028	0.42 (0.39-0.46)	0.53 (0.49-0.58)
Cardiac arrest or death (84 days)				
Unvaccinated (ref.)	25,933	3,214,646	1	1
BNT162b2 (Pfizer-BioNTech)	11,496	997,788	0.87 (0.85-0.89)	0.59 (0.57-0.60)
mRNA-1273 (Moderna)	892	128,857	0.45 (0.42-0.48)	0.56 (0.52-0.60)
Cardiac arrest or death (112 days)				
Unvaccinated (ref.)	25,933	3,214,646	1	1
BNT162b2 (Pfizer-BioNTech)	14,779	1,118,511	0.91 (0.89-0.92)	0.59 (0.57-0.61)
mRNA-1273 (Moderna)	1,149	140,227	0.47 (0.44-0.50)	0.57 (0.54-0.61)

* Adjusted for age and sex.

** Adjusted for age, sex, vaccine priority group, season, and clinical comorbidities.

Table S16. Characteristics of individuals who died during follow-up by vaccination status.

	Unvaccinated	Vaccinated with BNT162b2	Vaccinated with mRNA-1273
Total deaths	25,641 (84.6%)	4,374 (14.4%)	290 (1.0%)
Sex			
Female	11,946 (83.5%)	2,236 (15.6%)	127 (0.9%)
Male	13,695 (85.6%)	2,138 (13.4%)	163 (1.0%)
Age group (years)			
12-39	473 (93.8%)	26 (5.2%)	5 (1.0%)
40-59	2,433 (90.0%)	241 (8.9%)	30 (1.1%)
≥ 60	22,735 (83.9%)	4,107 (15.2%)	255 (0.9%)
Place of death			
In-hospital	11,425 (86.0%)	1,702 (12.8%)	163 (1.2%)
Out-of-hospital	14,216 (83.5%)	2,672 (15.7%)	127 (0.7%)
Comorbidities			
Any of the following	16,922 (85.0%)	2,820 (14.2%)	173 (0.9%)
Asthma	862 (83.2%)	164 (15.8%)	10 (1.0%)
Chronic pulmonary disease	4,319 (83.1%)	830 (16.0%)	51 (1.0%)
Ischemic heart disease	2,770 (83.4%)	515 (15.5%)	37 (1.1%)
Heart failure	3,218 (83.0%)	631 (16.3%)	29 (0.7%)
Atrial fibrillation or flutter	5,305 (83.2%)	1,010 (15.8%)	60 (0.9%)
Diabetes mellitus	3,843 (85.0%)	639 (14.1%)	40 (0.9%)
Inflammatory bowel disease	307 (85.5%)	46 (12.8%)	6 (1.7%)
Malignancy	8,148 (87.6%)	1,088 (11.7%)	62 (0.7%)
Moderate to severe renal disease	2,518 (84.3%)	451 (15.1%)	19 (0.6%)

Table S17. Person-years of follow-up in the Danish nationwide population by SARS-CoV-2 status during follow-up, and by age group, sex, vaccine priority group, and comorbidities based on follow-up from October 1, 2020.[1]

	Risk time of individuals who did not test positive for SARS-CoV-2	Risk time of individuals who tested positive for SARS-CoV-2 within 0-28 days of test	Risk time of individuals who tested positive for SARS-CoV-2 from 29 days of test
Total person-years	3,213,951 (100%)	18,532 (100%)	100,746 (100%)
Age group			
12-39	1,420,687 (44.2%)	10,541 (56.9%)	61,144 (60.7%)
40-59	985,432 (30.7%)	5,576 (30.1%)	29,609 (29.4%)
≥ 60	807,832 (25.1%)	2,415 (13.0%)	9,993 (9.9%)
Female	1,585,356 (49.3%)	9,275 (50.0%)	50,040 (49.7%)
Male	1,628,595 (50.7%)	9,257 (50.0%)	50,706 (50.3%)
Vaccine priority group			
Vulnerable individuals[1]	10,166 (0.3%)	141 (0.8%)	442 (0.4%)
Patients with increased risk of severe disease[2]	18,000 (0.6%)	131 (0.7%)	730 (0.7%)
Health care workers or similar activity[3]	95,185 (3.0%)	1,045 (5.6%)	7,988 (7.9%)
Individuals prioritized by age criteria alone	1,874,027 (58.3%)	10,088 (54.4%)	82,188 (81.6%)
Comorbidities	1,216,573 (37.9%)	7,128 (38.5%)	9,399 (9.3%)
Any comorbidity listed below			
Asthma	462,660 (14.4%)	2,143 (11.6%)	10,269 (10.2%)
Chronic pulmonary disease	88,902 (2.8%)	594 (3.2%)	3,246 (3.2%)
Ischemic heart disease	57,931 (1.8%)	222 (1.2%)	909 (0.9%)
Heart failure	80,173 (2.5%)	322 (1.7%)	1,462 (1.5%)
Atrial fibrillation or flutter	33,433 (1.0%)	132 (0.7%)	497 (0.5%)
Diabetes mellitus	76,690 (2.4%)	293 (1.6%)	1,158 (1.1%)
Inflammatory bowel disease	90,096 (2.8%)	439 (2.4%)	2,060 (2.0%)
Malignancy	32,506 (1.0%)	171 (0.9%)	871 (0.9%)
Moderate to severe renal disease	118,298 (3.7%)	446 (2.4%)	1,897 (1.9%)

[1] Individuals living in care homes or similar facilities, or individuals aged 65 years or older and receiving in-home assistance with activities of daily life.

[2] Individuals clinically determined to be at increased risk of severe disease from SARS-CoV-2 infection.

[3] Individuals working within the health care and social care sectors, and relatives in close contact with individuals at increased risk of severe disease.

Table S18. Hazard ratio of myocarditis/myopericarditis by SARS-CoV-2 status in the cohort study, with follow-up until October 5, 2021.

	N	Person-yrs	HR (95% CI)*	aHR (95% CI)**
Uninfected (ref.)	155	3,213,951	1	1
SARS-CoV-2 PCR-positive***	≤3	18,532	2.27 (0.56-9.15)	2.09 (0.52-8.47)

* Adjusted for age and sex.

** Adjusted for age, sex, vaccine priority group, season, and clinical comorbidities.

*** Within 0-28 days of positive SARS-CoV-2 PCR-test.

Table S19. Hazard ratio of cardiac arrest or death by SARS-CoV-2 status in the cohort study, with follow-up until October 5, 2021.

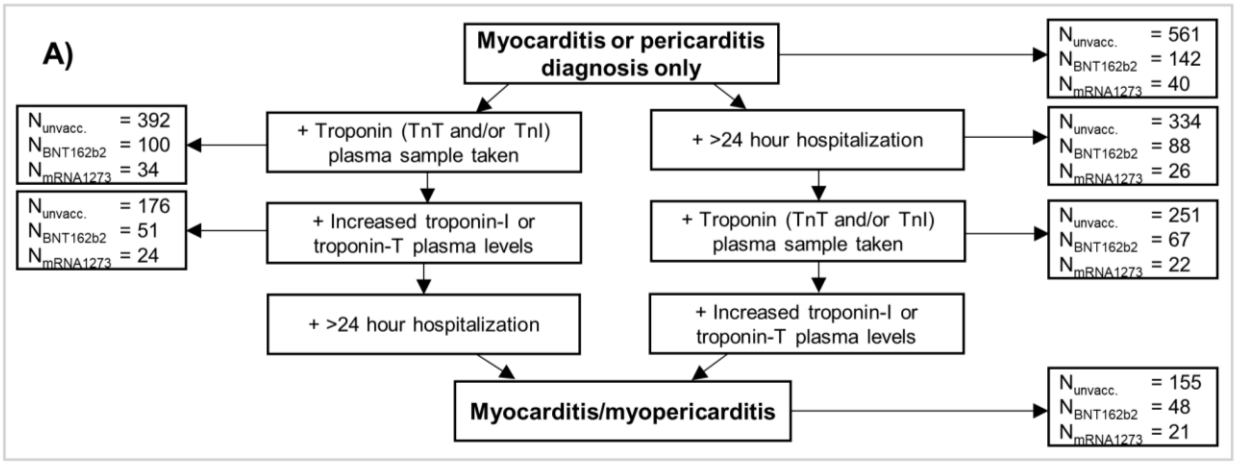
	N	Person-yrs	HR (95% CI)*	aHR (95% CI)**
Uninfected (ref.)	25,933	3,214,646	1	1
SARS-CoV-2 PCR-positive***	1,532	18,538	17.53 (16.64-18.46)	13.64 (12.94-14.38)

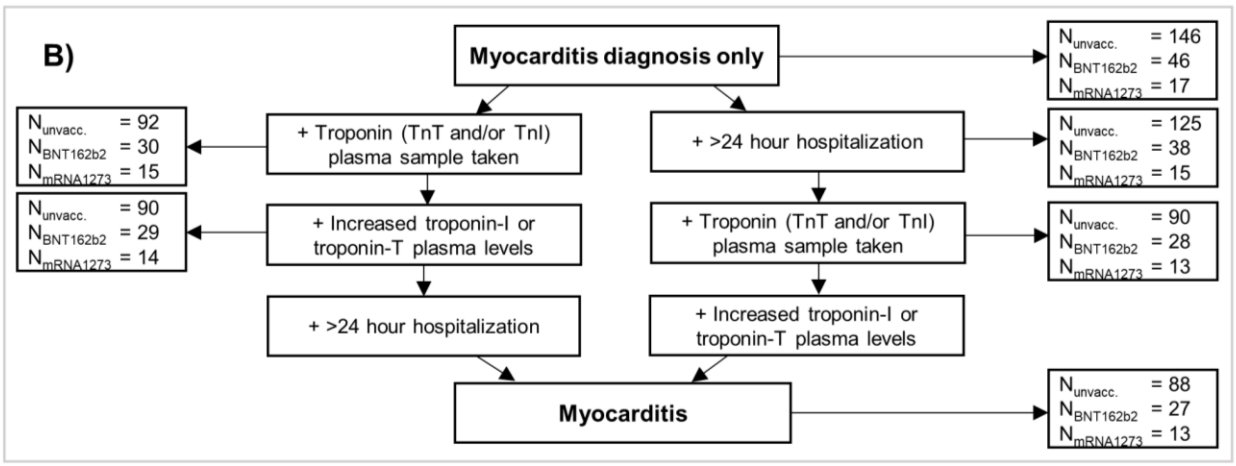
* Adjusted for age and sex.

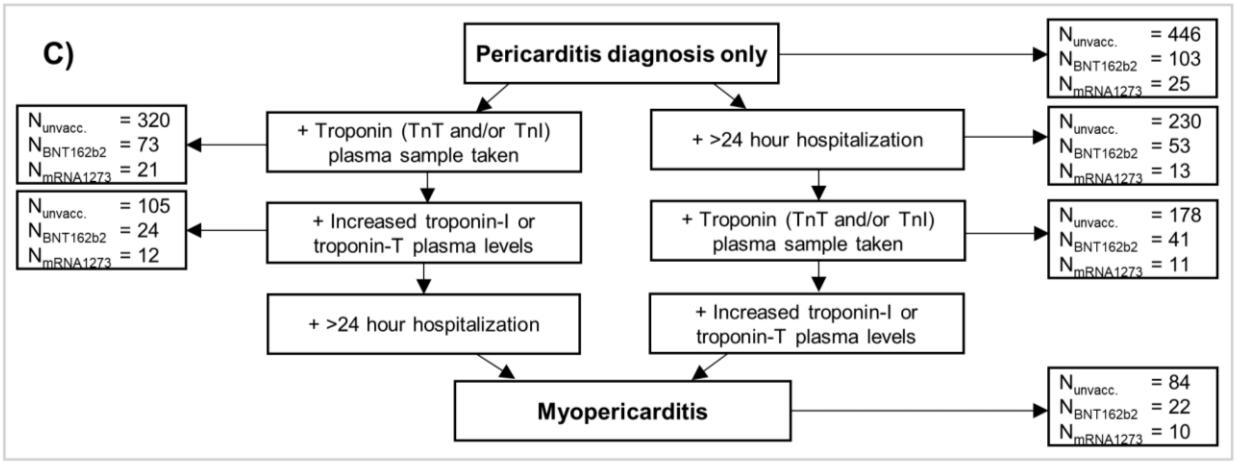
** Adjusted for age, sex, vaccine priority group, season, and clinical comorbidities.

*** Within 0-28 days of a positive SARS-CoV-2 PCR-test.

Figure S1. Flowchart of inclusion in 'myocarditis/myopericarditis' outcome definition. By A) myocarditis or pericarditis diagnosis only, B) myocarditis diagnosis only, and C) pericarditis diagnosis only*. Only cases within 0-28 days of vaccination are included among SARS-CoV-2 mRNA vaccinated.

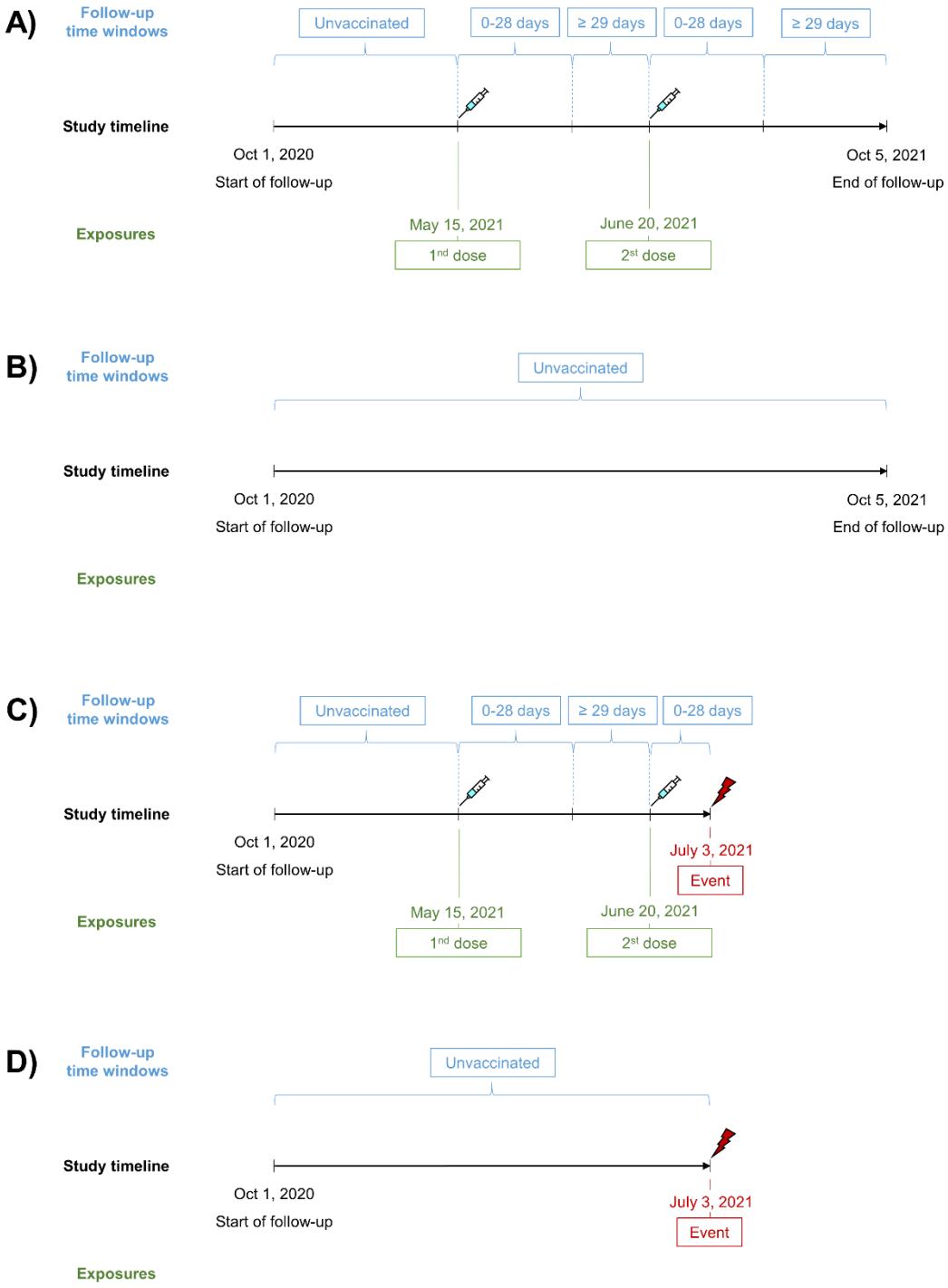






* The number of 'myocarditis/myopericarditis' events by ICD-10 code were: I40.0 (≤3), I40.1 (≤3), I40.9 (68), I41.1 (≤3), I41.8 (≤3), I51.4 (40), I30.0 (57), I30.8 (≤3), I30.9 (47), and I30.1E (≤3). Minor differences between the events described in flowchart and in statistical analyses are attributable to readmissions and differential censoring in different analyses.

Figure S2. Schematic illustration of follow-up time windows in the cohort study. For an individual who was A) vaccinated with a first dose on May 15, 2021, a second dose on June 20, 2021, and was followed until end of follow-up on October 5, 2021; B) not vaccinated and followed until end of follow-up; C) vaccinated with a first dose on May 15, 2021, a second dose on June 20, 2021, and experienced an event on July 3, 2021; and D) not vaccinated and experienced an event on July 3, 2021.*



*The 28-day time window following the first dose was shortened if the second vaccine dose was received within the 28 days, when the 28-day time window of the second dose would start. In this case, the '0-28 days' follow-up time windows following both doses would consist of less than 56 days in total.

Figure S3. Temporal timing of myocarditis/myopericarditis events relative to vaccination for the assessment of the self-controlled cases series (SCCS) analysis. Frequency of 'myocarditis/myopericarditis' events in each week relative to the day of vaccination (the week of vaccination starts from day 0, the day of vaccination, a day 6 following vaccination), by vaccine type and dose. In total, 3,482,295 were vaccinated a first dose of BNT162b2 and 3,417,744 with a second dose of BNT162b2, while 498,814 were vaccinated with a first dose of mRNA-1273 and 483,270 were vaccinated with a second dose of mRNA-1273.

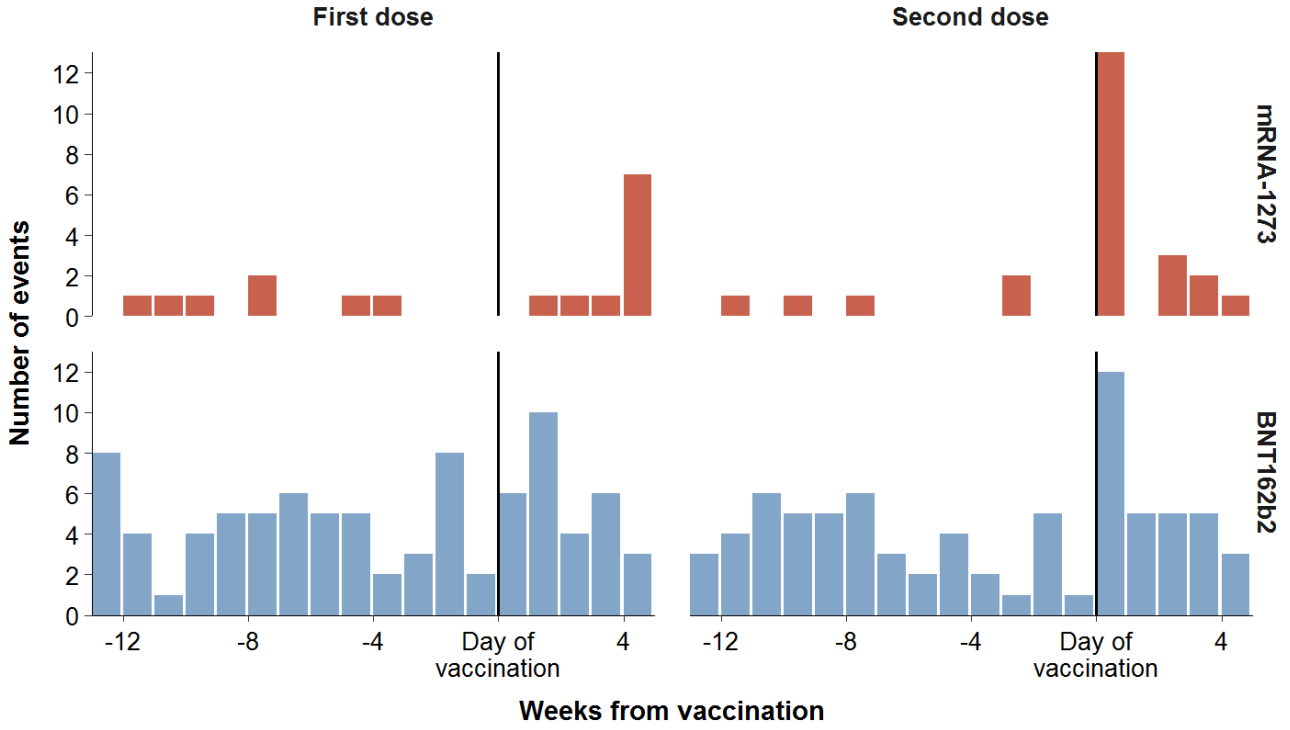


Figure S4. Boxplot of maximum troponin levels among myocarditis/myopericarditis cases by vaccination status. Only cases within 0-28 days of vaccination are included among SARS-CoV-2 mRNA vaccinated. The assay-specific upper normal limits were used as cut-offs for defining increased troponin-I and troponin-T levels.

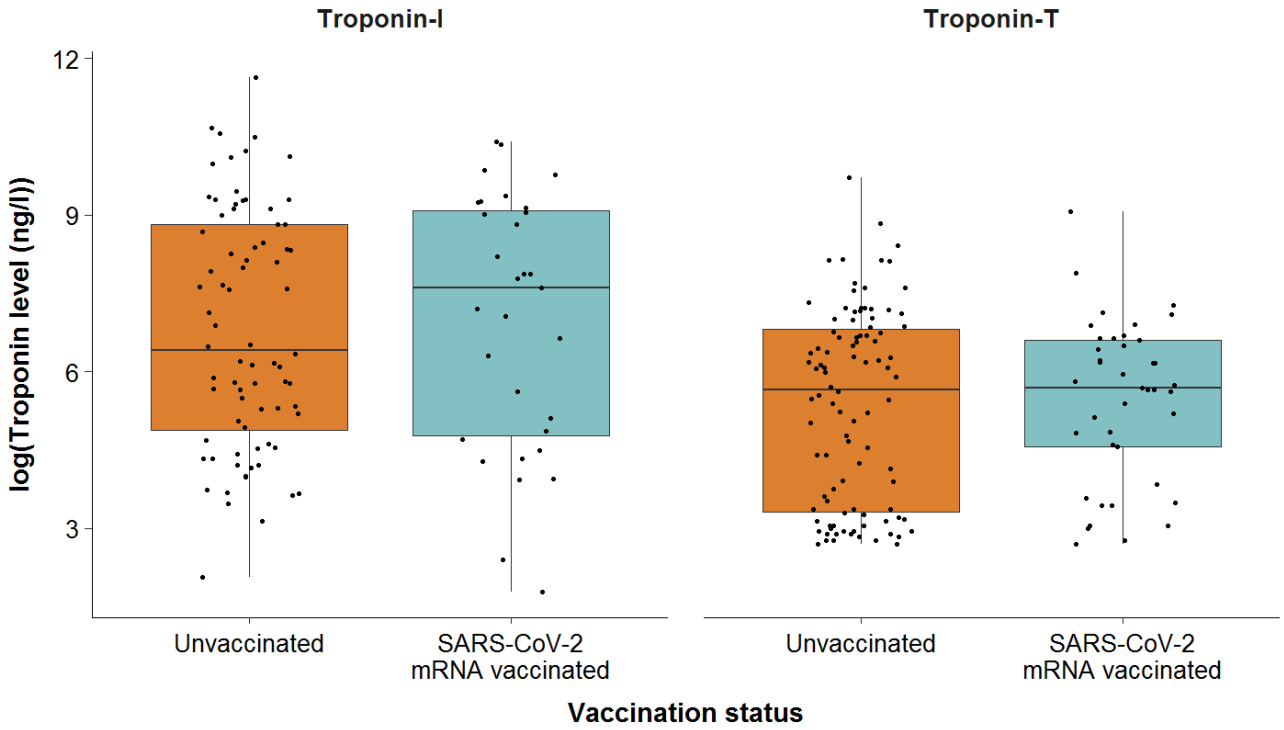


Figure S5. Frequency of myocarditis/myopericarditis events relative to SARS-CoV-2 infection. Events relative to the week of a positive SARS-CoV-2 PCR-test (day 1-7 following a positive SARS-CoV-2 PCR-test).