Supplemental Material

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Supplemental Methods

The SARS-CoV-2 vaccine monitoring protocol automatically deactivates after two consecutive months with SAb-IgG titer less than 1 Index. However, to avoid thereby selecting for patients with better seroresponse, subsequent monthly SAb-IgG levels among patients with consecutive months with SAb-IgG titer below 1 Index were adjudicated as 0 Index if the patient had not died, received transplantation, developed COVID-19, received an additional vaccine dose, or transferred out of the DCI system. This adjudication is consistent with the assumption behind the protocol's deactivation, specifically that patients who do not have seroimmunity for two consecutive months are unlikely to develop or re-develop it thereafter without exposure to SARS-CoV-2 or undocumented additional vaccine dose. There were 313 test results adjudicated this way.

In addition, if a patient had more than one titer assessed in a calendar month, only the first measurement was retained. Titers at the assay's upper limit of detection, 20 Index, were coded as values of 20 Index. Lab results were removed from the data set if they were captured after dates of transplantation, COVID-19 diagnosis, or additional vaccine dose; 1, 49, and 301 such results were excluded from analyses, respectively.

Supplemental Table 1. Baseline patient characteristics by maximum initial titer, among those without a history of COVID-19

	anti-spike IgG ≥20 Index	anti-spike IgG 1-19.99 Index	anti-spike IgG <1 Index
n	866	345	302
Age	62 ± 14	67 ± 14	65 ± 13
Male sex	531 (61)	187 (54)	166 (55)
Race			
Native American	74 (9)	30 (9)	4 (1)
Asian/Pacific Islander	62 (7)	18 (5)	11 (4)
Black	176 (20)	81 (24)	105 (35)
Unknown/Other	115 (13)	34 (10)	35 (12)
White	439 (51)	182 (53)	147 (49)
Hispanic ethnicity	158 (18)	39 (11)	19 (6)
Vintage, months	36.9 [16.4, 72.1]	37.0 [14.0, 67.8]	33.4 [13.5, 70.4]
Body mass index, kg/m^2	28.4 ± 6.9	27.8 ± 6.9	29.2 ± 7.9
Diabetes	489 (57)	199 (58)	184 (61)
Long-term care facility	90 (10)	47 (14)	36 (12)
Modality			
Home hemodialysis	25 (3)	6 (2)	0 (0)
In-center hemodialysis	736 (85)	290 (84)	263 (87)
Peritoneal dialysis	105 (12)	49 (14)	39 (13)
Inadequate dialysis	122 (14)	63 (18)	51 (17)
Albumin, g/dL	3.9 ± 0.4	3.8 ± 0.5	3.8 ± 0.4
HBsAb ≥10 mIU/mL	707 (82)	256 (74)	193 (64)
History of transplantation	49 (6)	16 (5)	26 (9)
Immunodeficiency	37 (4)	16 (5)	21 (7)
Immunomodulating medication	92 (11)	42 (12)	68 (23)
Congestive heart failure	146 (17)	58 (17)	66 (22)
Peripheral vascular disease	72 (8)	44 (13)	36 (12)
Cerebrovascular disease	52 (6)	28 (8)	23 (8)
Chronic obstructive pulmonary disease	91 (11)	56 (16)	52 (17)
History of cancer	67 (8)	35 (10)	35 (12)
Vaccine type			
Ad26.COV2.S/Janssen	36 (4)	87 (25)	217 (72)
mRNA-1273/Moderna	595 (69)	125 (36)	30 (10)
BNT162b2/Pfizer	235 (27)	133 (39)	55 (18)
Duration of follow-up, days	167 [140, 189]	163 [129, 185]	119 [95, 137]

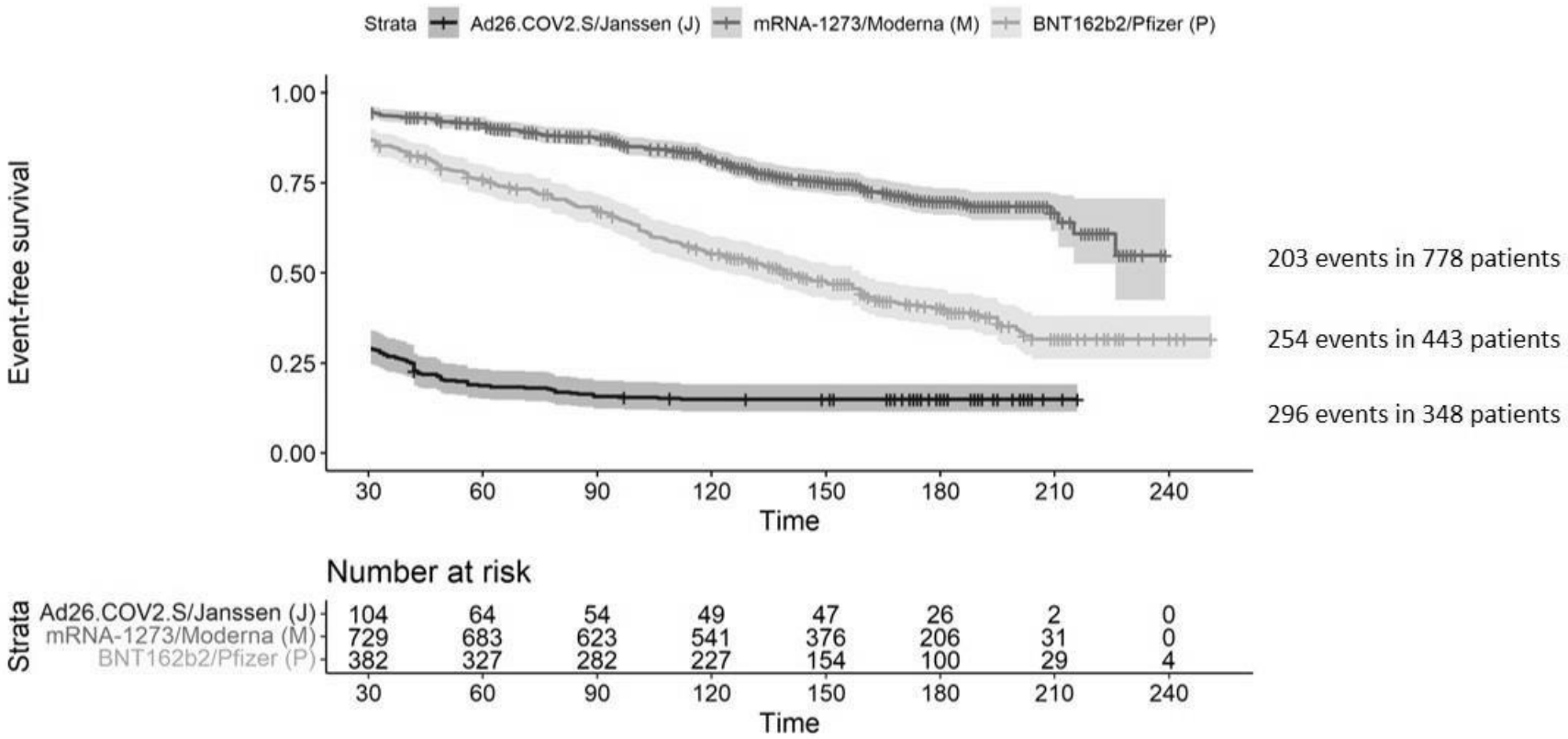
Vintage and duration of follow-up are reported as median [IQR]. All other data are reported as mean ± standard deviation or %.

Data on baseline patient characteristics were complete.

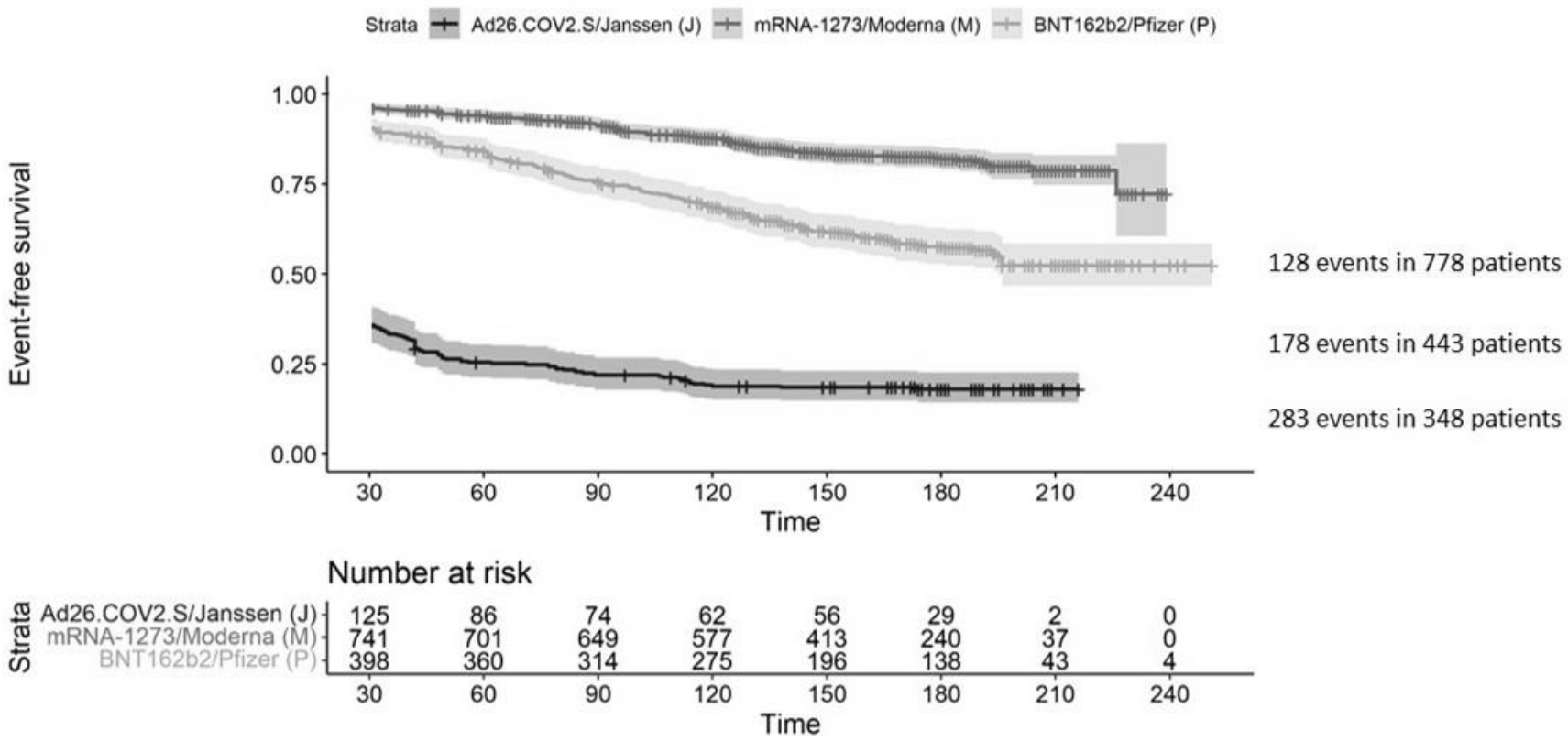
Inadequate dialysis defined by hemodialysis dose spKt/V<1.2 or peritoneal dialysis dose weekly Kt/V<1.7

HBsAb ≥10 mIU/mL signifies hepatitis B seroimmunity

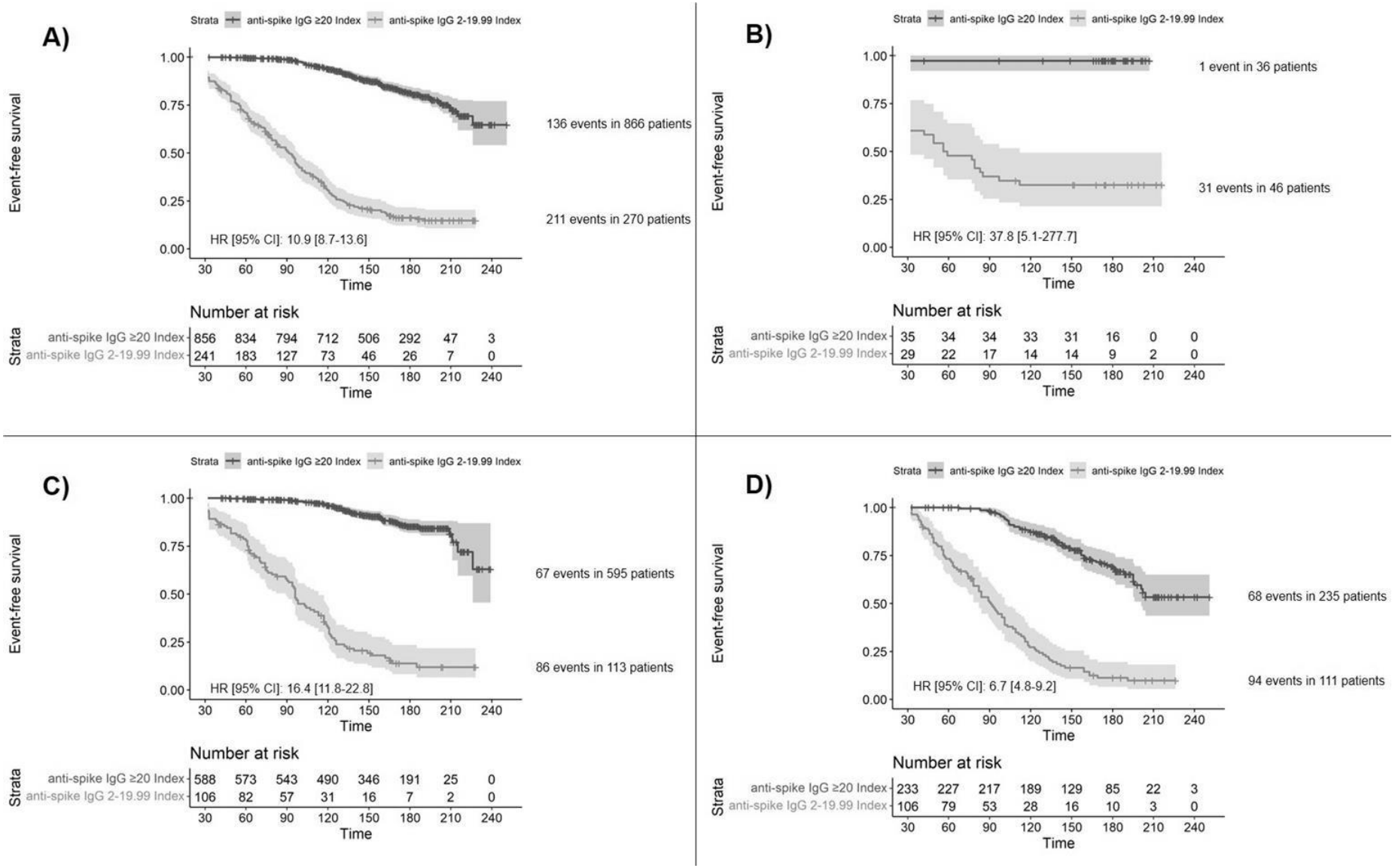
Immunomodulating medications include anti-inflammatory medications, anti-neoplastic agents, corticosteroids, and certain anti-infective medications



Supplemental Figure 1. Kaplan-Meier time-to-event curves for the outcome of Ab titer <2 or diagnosis of COVID-19, among those without a history of COVID-19, by vaccine type. Data are shown beginning at Day 30, at which time all patients have had at least one opportunity for assessment of the outcome of Ab titer < 2 Index via monthly labs. The curves, therefore, start at the proportion of patients who had not experienced the outcome as of Day 30. Patients were censored at death, transplantation, administration of an additional vaccine dose (third dose or booster dose), or last available titer assessment.



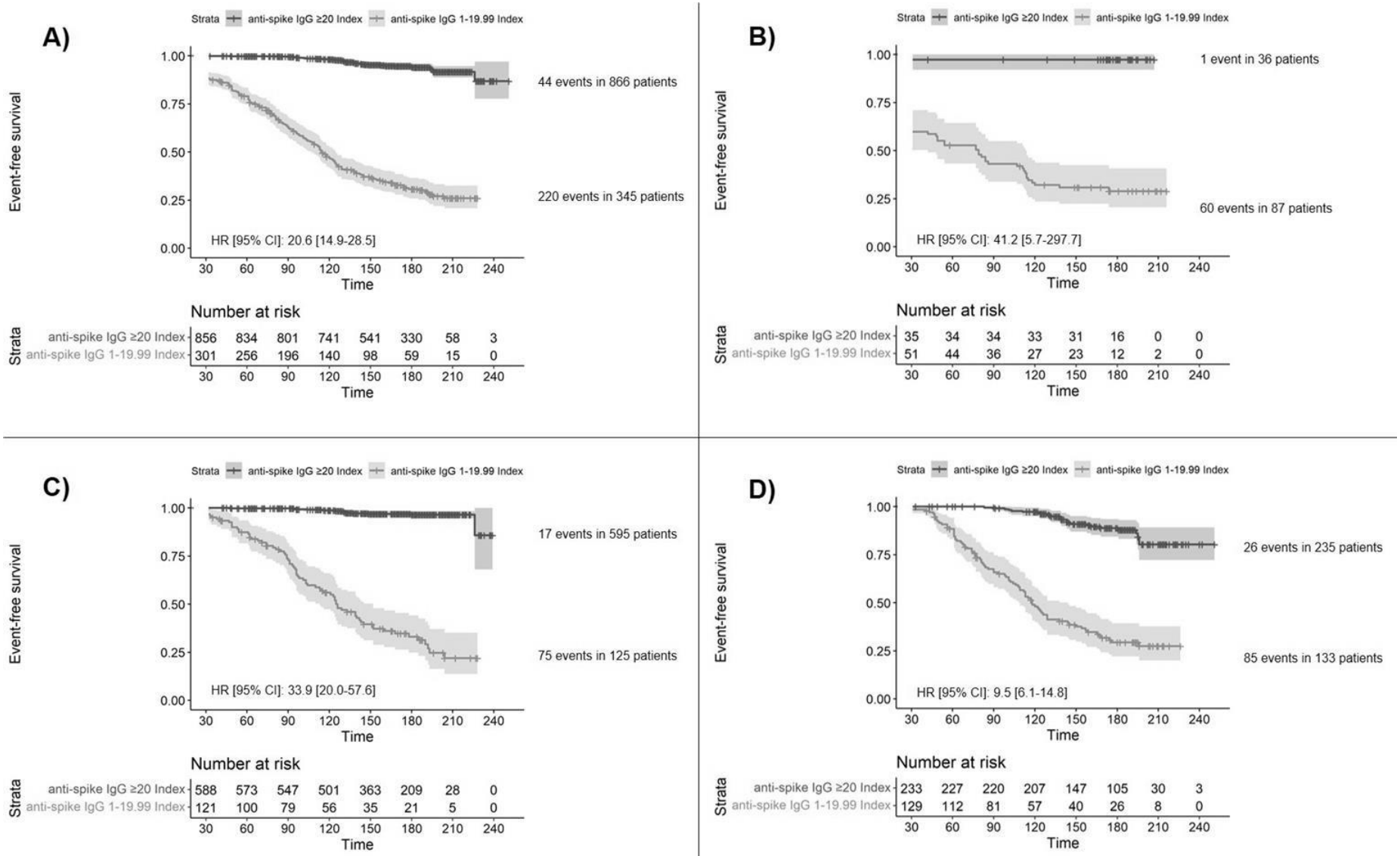
Supplemental Figure 2. Kaplan-Meier time-to-event curves for the outcome of Ab titer <1 only, among those without a history of COVID-19, by vaccine type. Data are shown beginning at Day 30, at which time all patients have had at least one opportunity for assessment of the outcome of Ab titer < 1 Index via monthly labs. The curves, therefore, start at the proportion of patients who had not experienced the outcome as of Day 30. Patients were censored at death, transplantation, administration of an additional vaccine dose (third dose or booster dose), diagnosis of COVID- 19, or last available titer assessment.



Supplemental Figure 3. Kaplan-Meier time-to-event curves for the outcome of anti-spike IgG titer <2 or diagnosis of COVID-19, among those without a history of COVID-19, by maximum initial anti-spike IgG titer. Data are shown beginning at Day 30, at which time all patients have had at least one opportunity for assessment of the outcome of anti-spike IgG titer

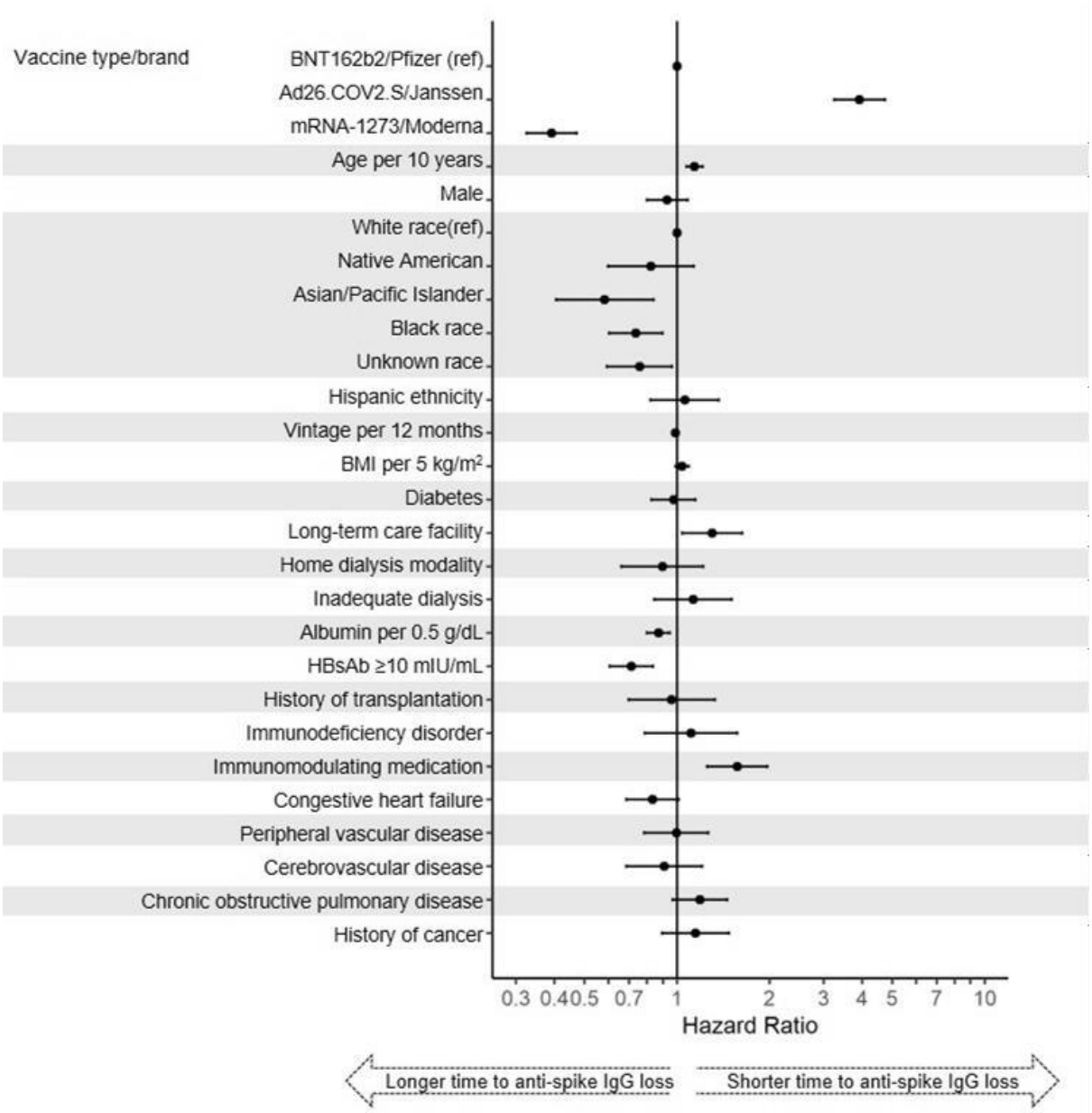
< 2 Index via monthly labs. The curves, therefore, start at the proportion of patients who had not experienced the outcome as of Day 30. Patients were censored at death, transplantation, administration of an additional vaccine dose (third dose or booster dose), or last available titer assessment. Patients with maximum initial anti-spike IgG titer <2 are not shown since, given our definition of maximum initial titer, all had experienced the outcome by the end of month 2.

A) All patients
B) Ad26.COV2.S/Janssen recipients only
C) mRNA-1273/Moderna recipients only
D) BNT162b2/Pfizer recipients only



Supplemental Figure 4. Kaplan-Meier time-to-event curves for the outcome of anti-spike IgG titer <1 only, among those without a history of COVID-19, by maximum initial anti-spike IgG titer. Data are shown beginning at Day 30, at which time all patients have had at least one opportunity for assessment of the outcome of anti-spike IgG titer < 1 Index via monthly labs. The curves, therefore, start at the proportion of patients who had not experienced the outcome as of Day 30. Patients were censored at death, transplantation, administration of an additional vaccine dose (third dose or booster dose), diagnosis of COVID-19, or last available titer assessment. Patients with maximum initial anti-spike IgG titer <1 are not shown since, given our definition of maximum initial titer, all had experienced the outcome by the end of month 2.

A) All patients
B) Ad26.COV2.S/Janssen recipients only
C) mRNA-1273/Moderna recipients only
D) BNT162b2/Pfizer recipients only

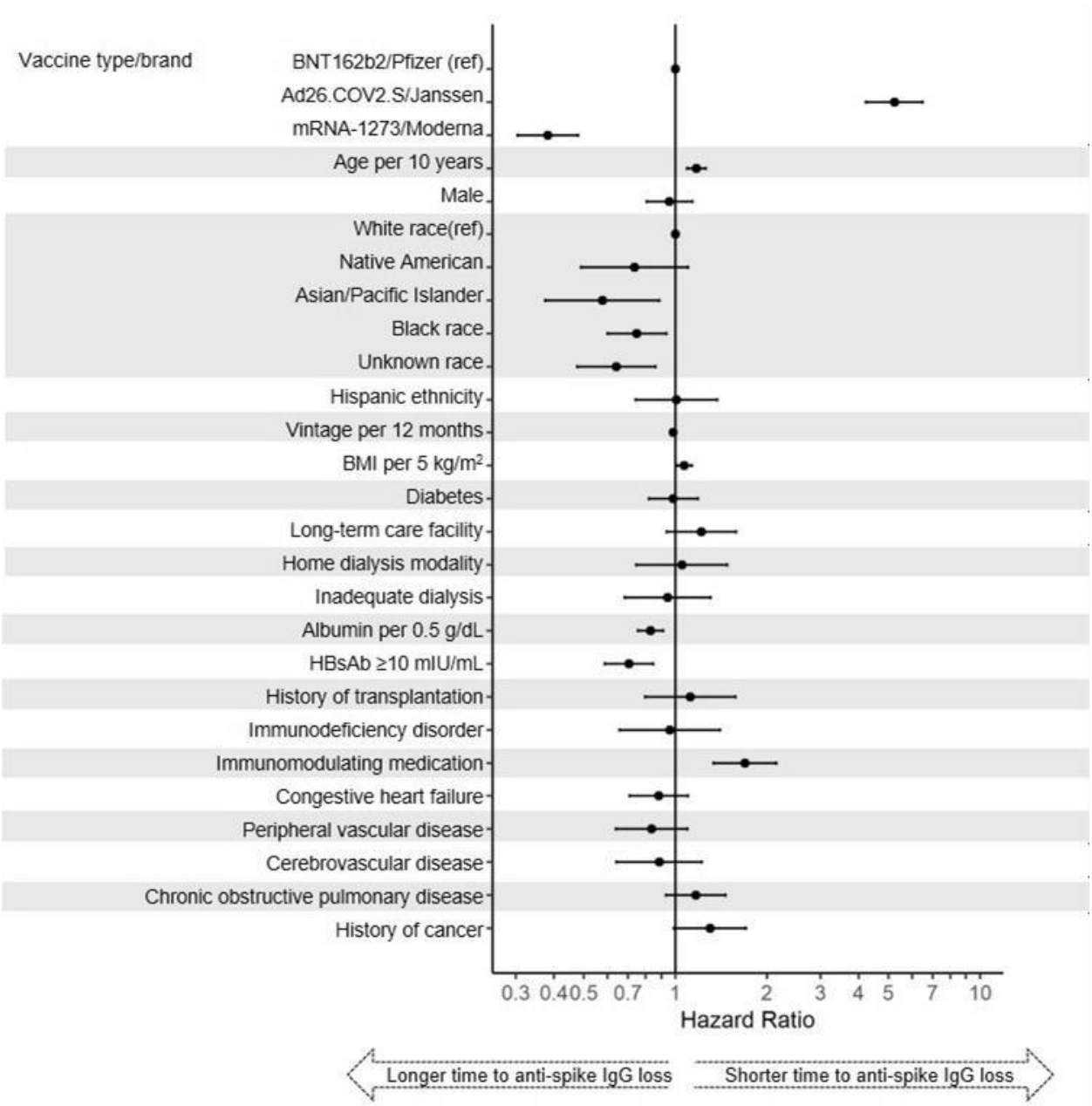


Supplemental Figure 5. Multivariable Cox proportional hazards regression of clinical characteristics associated with the outcome of anti-spike IgG titer < 2 or development of COVID-19

Inadequate dialysis defined by hemodialysis dose spKt/V<1.2 or peritoneal dialysis dose weekly Kt/V<1.7

HBsAb ≥10 mIU/mL signifies hepatitis B seroimmunity

Immunomodulating medications include anti-inflammatory medications, anti-neoplastic agents, corticosteroids, and certain anti-infective medications



Supplemental Figure 6. Multivariable Cox proportional hazards regression of clinical characteristics associated with the outcome of anti-spike IgG titer < 1 only

Inadequate dialysis defined by hemodialysis dose spKt/V<1.2 or peritoneal dialysis dose weekly Kt/V<1.7

HBsAb ≥10 mIU/mL signifies hepatitis B seroimmunity

Immunomodulating medications include anti-inflammatory medications, anti-neoplastic agents, corticosteroids, and certain anti-infective medications