

Supplementary Table 1: Profile of participants in single-dose vaccine effectiveness analyses among health care workers in British Columbia, Canada, epi-weeks 3-30 (January 17 – July 31, 2021)

Characteristics	All Specimens		Distribution by Case Status				Specimens from vaccinated healthcare workers (HCWs)					
	N	%	Cases		Controls		Overall		Cases		Controls	
			N	%	N	%	N	%	N	%	N	%
Overall	8855		1265	(14)	7590	(86)	4671	(53)	404	(32)	4267	(56)
Age group (years)												
18-29	410	(5)	339	(27)	71	(1)	130	(32)	99	(29)	31	(44)
30-39	2163	(24)	376	(30)	1787	(24)	1221	(56)	117	(31)	1104	(62)
40-49	2858	(32)	304	(24)	2554	(34)	1551	(54)	106	(35)	1445	(57)
50-59	2410	(27)	171	(14)	2239	(29)	1237	(51)	57	(33)	1180	(53)
60+	1014	(11)	75	(6)	939	(12)	532	(52)	25	(33)	507	(54)
Median age (Interquartile range)	46	(38-54)	37	(29-47)	47	(40-55)	45	(39-54)	39	(30-47)	46	(39-55)
Sex												
Female	7742	(87)	1068	(84)	6674	(88)	4105	(53)	340	(32)	3765	(56)
Male	1113	(13)	197	(16)	916	(12)	566	(51)	64	(32)	502	(55)
Epidemiological week of testing, 2021												
3-6 (Jan 17-Feb 13)	2044	(23)	292	(23)	1752	(23)	399	(20)	10	(3)	389	(22)
7-10 (Feb 14-Mar 13)	1561	(18)	223	(18)	1338	(18)	449	(29)	19	(9)	430	(32)
11-14 (Mar 14-Apr 10)	1995	(23)	285	(23)	1710	(23)	1350	(68)	109	(38)	1241	(73)
15-18 (Apr 11-May 8)	2135	(24)	305	(24)	1830	(24)	1675	(78)	184	(60)	1491	(81)
19-22 (May 9-Jun 5)	805	(9)	115	(9)	690	(9)	641	(80)	67	(58)	574	(83)
23-26 (Jun 6-Jul 3)	126	(1)	18	(1)	108	(1)	79	(63)	6	(33)	73	(68)
27-30 (Jul 4-Jul 31)	189	(2)	27	(2)	162	(2)	78	(41)	9	(33)	69	(43)
Employee Health authority												
Fraser	4090	(46)	724	(57)	3366	(44)	2253	(55)	240	(33)	2013	(60)
Interior	1501	(17)	159	(13)	1342	(18)	716	(48)	35	(22)	681	(51)
Northern	301	(3)	75	(6)	226	(3)	126	(42)	12	(16)	114	(50)
Vancouver Coastal	1933	(22)	242	(19)	1691	(22)	1066	(55)	102	(42)	964	(57)
Vancouver Island	1030	(12)	65	(5)	965	(13)	510	(50)	15	(23)	495	(51)
Job category of first job												
Direct patient care (including nursing)	3856	(44)	461	(36)	3395	(45)	2210	(57)	176	(38)	2034	(60)
Service providers	335	(4)	101	(8)	234	(3)	144	(43)	27	(27)	117	(50)
Vaccine name												
Moderna mRNA-1273							384	(8)	22	(5)	362	(8)
Pfizer mRNA BNT162b2							4287	(92)	382	(95)	3905	(92)
Time since vaccination (days/weeks)												
21-27 days (3 weeks)							611	(13)	32	(8)	579	(14)
28-41 days (4-5 weeks)							1207	(26)	78	(19)	1129	(26)
42-55 days (6-7 weeks)							968	(21)	81	(20)	887	(21)
≥56 days (≥ 8 weeks)							1885	(40)	213	(53)	1672	(39)
Median (Interquartile range) (days) ^a							49	(34-69)	57	(40-76)	48	(34-68)
Range (days)								21-182		21-180		21-182

^aAmong health care worker (HCW) participants tested ≥21 days since the first dose and with test-negative controls matched in a 6:1 ratio. For single-dose vaccinated HCWs, tested and matched without regard to time since vaccination, the median time since vaccination was 38 days [interquartile range (IQR): 19-61, range: 0-182]; 41.5 days [IQR: 14-65, range: 0-180] for the single-dose vaccinated cases; and 38 days [IQR: 19-61, range: 0-182] for the single-dose vaccinated controls.

Supplementary Table 2: Adjusted one and two-dose mRNA vaccine effectiveness against any SARS-CoV-2 infection by days since vaccination among health care workers, British Columbia, Canada

Days since vaccination	Study period (epidemiological weeks)	Cases		Controls		Adjusted (conditioned) for Matching Week		Fully Adjusted ^a	
		All	Vaccinated	All	Vaccinated	VE %	(95% CI)	VE %	(95% CI)
Single-dose VE									
0-13 days (0-1 week)	3-30	1004	143	6024	1297	41	(29,51)	36	(21,47)
14-20 days (2 weeks)	3-30	902	41	5412	864	76	(67,83)	75	(64,82)
21-27 days (3 weeks)	3-30	893	32	5358	793	80	(72,86)	79	(69,85)
28-41 days (4-5 weeks)	3-30	939	78	5634	1421	76	(70,82)	75	(67,81)
42-55 days (6-7 weeks)	3-30	942	81	5652	1162	72	(63,78)	69	(59,76)
≥56 days (≥8 weeks)	3-30	1074	213	6444	2017	64	(56,71)	61	(52,69)
Two-dose VE									
0-6 days	9-30	483	11	2898	178	71	(43,85)	69	(41,84)
7-13 days (1 week)	9-30	475	3	2850	253	95	(84,98)	95	(84,98)
14-20 days (2 weeks)	9-30	473	1	2838	278	99	(90,100)	99	(90,100)
21-27 days (3 weeks)	9-30	474	2	2844	237	96	(86,99)	96	(85,99)
28-34 days (4 weeks)	9-30	475	3	2850	256	95	(84,98)	96	(86,99)
35-41 days (5 weeks)	9-30	477	5	2862	311	93	(83,97)	94	(85,98)
42-55 days (6-7 weeks)	9-35	626	16	3130	807	95	(91,97)	95	(91,97)
56-83 days (8-11 weeks)	11-39	733	119	4398	2234	89	(87,92)	89	(85,91)
84-111 days (12-15 weeks) ^b	15-39	552	114	2760	1626	93	(90,94)	91	(88,93)
112-195 days (16-27 weeks)	20-39	444	151	2664	2073	89	(85,91)	86	(83,89)
≥196 days (≥28 weeks)	35-39	224	96	1344	1075	83	(77,88)	82	(75,87)

VE = vaccine effectiveness; CI = confidence interval

^a Conditional logistic regression model adjusted for age group (18-29, 30-39, 40-49, 50-59, 60+ years), sex (male or female), and health authority of HCW's residence (Fraser Health Authority, Interior Health Authority, Northern Health Authority, Vancouver Island Health Authority, and Vancouver Coastal Health Authority) using the matching epidemiological week of testing as strata.

^b Ratio of matched controls to cases reduced to 5:1 per epidemiological week of testing due insufficient number of controls in some weeks for 6:1 matching.

Supplementary Table 3: Adjusted two-dose mRNA vaccine effectiveness against any SARS-CoV-2 infection, by interval between doses and days since vaccination, among healthcare workers in British Columbia, Canada

Two-dose VE by interval between doses and time since vaccination	Study period (epidemiological weeks)	Cases		Controls		Adjusted (conditioned) for matching week		Fully adjusted ^a		
		All	Vaccinated	All	Vaccinated	VE %	(95% CI)	VE %	(95% CI)	
3-5 week interval										
14-41 days (2-5 weeks)	9-30	475	3	2850	159	90	(68,97)	88	(62,96)	
42-69 days (6-9 weeks)	9-30	478	6	2868	223	86	(67,94)	86	(68,94)	
70-111 days (10-15 weeks)	9-30	477	5	2862	172	85	(63,94)	85	(63,94)	
112-195 days (16-27 weeks)	9-30	476	4	2856	112	85	(57,95)	86	(58,95)	
≥196 days (≥ 28 weeks) ^b	35-39	149	21	596	312	86	(77,91)	87	(79,93)	
6 week interval										
14-41 days (2-5 weeks)	9-30	474	2	2844	442	98	(93,100)	98	(93,100)	
42-69 days (6-9 weeks)	9-30	484	12	2904	550	92	(85,96)	93	(87,96)	
70-111 days (10-15 weeks)	9-30	490	18	2940	380	84	(74,91)	85	(74,91)	
112-195 days (16-27 weeks)	9-39	759	48	4280	884	86	(80,90)	87	(81,90)	
≥196 days (≥ 28 weeks) ^b	35-39	200	72	800	591	83	(76,88)	79	(69,85)	
≥7 week interval										
14-41 days (2-5 weeks)	9-30	478	6	2868	251	95	(87,98)	95	(87,98)	
42-69 days (6-9 weeks)	9-35	649	39	3894	932	93	(89,95)	92	(88,94)	
70-111 days (10-15 weeks)	9-39	875	164	5250	2188	92	(90,94)	91	(88,93)	
112-195 days (16-27 weeks) ^c	35-39	204	76	1020	867	92	(89,95)	91	(86,94)	
≥196 days (≥ 28 weeks) ^d										

VE = vaccine effectiveness; CI = confidence interval

^aConditional logistic regression model adjusted for age group (18-29, 30-39, 40-49, 50-59, 60+ years), sex (male or female), and health authority of HCW's residence (Fraser Health Authority, Interior Health Authority, Northern Health Authority, Vancouver Island Health Authority, and Vancouver Coastal Health Authority) using the matching epidemiological week of testing as strata.

^bRatio of matched controls to cases reduced to 4:1 per epidemiological week of testing due to less sufficient number of controls in some weeks.

^cRatio of matched controls to cases reduced to 5:1 per epidemiological week of testing due to less sufficient number of controls in some weeks.

^dInsufficient time and observations to present estimates in this duration and interval.