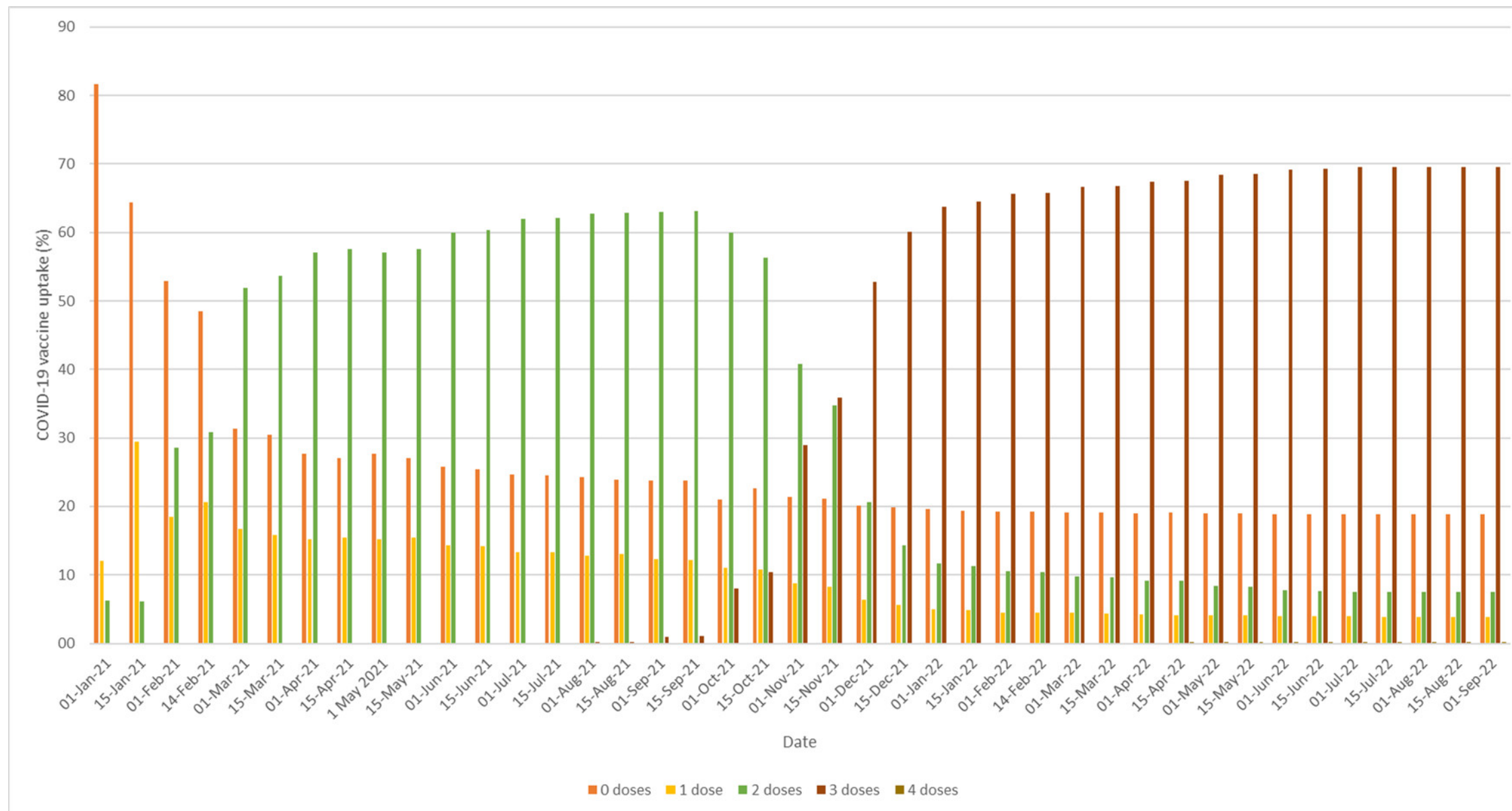


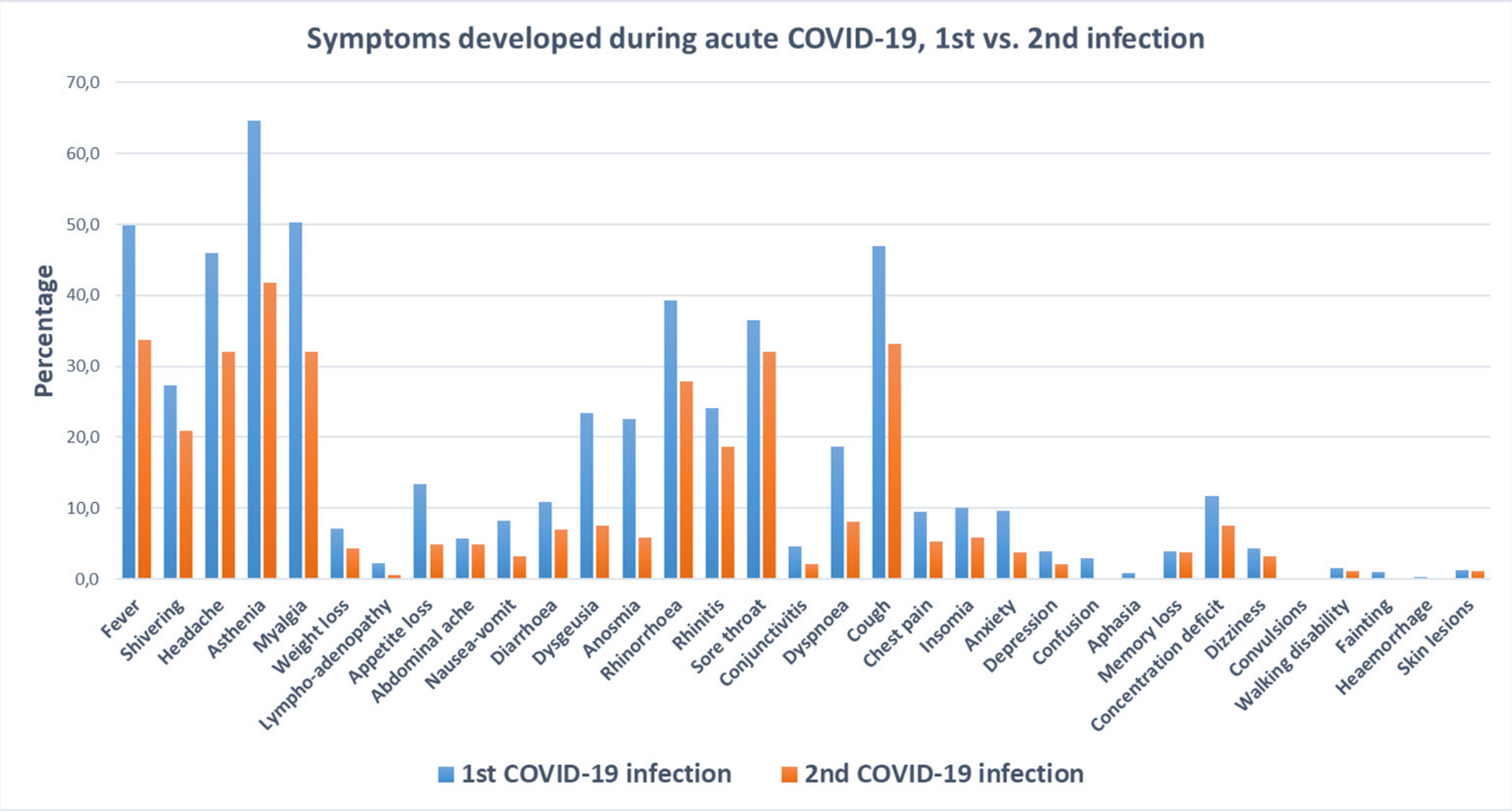
Supplementary Table S1. Socio-demographic profile of respondents by research centre. Number (N) and column percentage (%).

TERM	STRATA	VERONA (N=2.996)	PADUA (N=1,206)	TRIESTE (N=983)	MODENA- REGGIO EMILIA (N=247)
Sex	Males	716 (23.9)	227 (18.8)	271 (27.6)	96 (38.9)
	Females	2,280 (76.1)	979 (81.2)	712 (72.4)	151 (61.1)
Age	<40	932 (38.4)	307 (26.1)	262 (32.7)	215 (98.2)
	40-54	845 (34.8)	472 (41.0)	35 (41.8)	3 (1.4)
	55+	653 (26.9)	373 (32.4)	204 (25.5)	1 (0.5)
Country of birth	Italy	2,865 (96.4)	1,161 (96.4)	923 (94.3)	236 (95.9)
	Other EU country	57 (1.9)	24 (2.0)	21 (2.2)	4 (1.6)
	Extra-EU country	49 (1.7)	19 (1.6)	35 (3.6)	6 (2.4)
Ethnicity	Caucasian	2,421 (90.3)	848 (88.4)	791 (88.4)	235 (95.9)
	Non-Caucasian	260 (9.7)	160 (15.9)	104 (11.6)	10 (4.1)
Education	Junior secondary	176 (6.1)	101 (8.6)	49 (5.1)	0
	Secondary	932 (32.2)	349 (29.8)	231 (24.0)	0
	University	1,165 (40.2)	492 (42.0)	384 (39.9)	201 (81.7)
	Postgraduate	626 (21.6)	229 (19.6)	299 (31.1)	45 (18.3)
Marital status	Single	951 (32.7)	281 (24.0)	254 (26.3)	150 (62.5)
	Married	1,379 (47.5)	623 (53.3)	434 (44.9)	30 (12.5)
	Cohabitant	363 (12.5)	144 (12.3)	146 (15.1)	58 (24.2)
	Divorced / separated / widow	213 (7.3)	121 (10.4)	133 (13.8)	2 (0.8)
Job task	Medical consultant	330 (11.2)	159 (13.2)	186 (19.1)	6 (2.5)
	Medical trainee	233 (7.9)	53 (4.4)	16 (1.6)	234 (95.5)
	Nurse	958 (32.4)	583 (48.5)	348 (35.7)	0
	Laboratorist	108 (3.7)	35 (2.9)	15 (1.5)	0
	Nurse aid	277 (9.4)	160 (13.3)	90 (9.2)	0
	Administrative clerk	339 (11.5)	97 (8.1)	83 (8.5)	0
	Health technician	146 (4.9)	53 (4.4)	64 (6.6)	0
	Midwife	25 (0.9)	7 (0.6)	12 (1.2)	0
	Pharmacist	17 (0.6)	6 (0.5)	8 (0.8)	3 (1.2)
	Psychologist	15 (0.5)	8 (0.7)	30 (3.1)	0
	Physio-therapist	47 (1.6)	8 (0.7)	49 (5.0)	0
	Undergraduate student	228 (7.7)	0	0	0
	Other	235 (7.9)	33 (2.8)	73 (7.5)	2 (0.8)

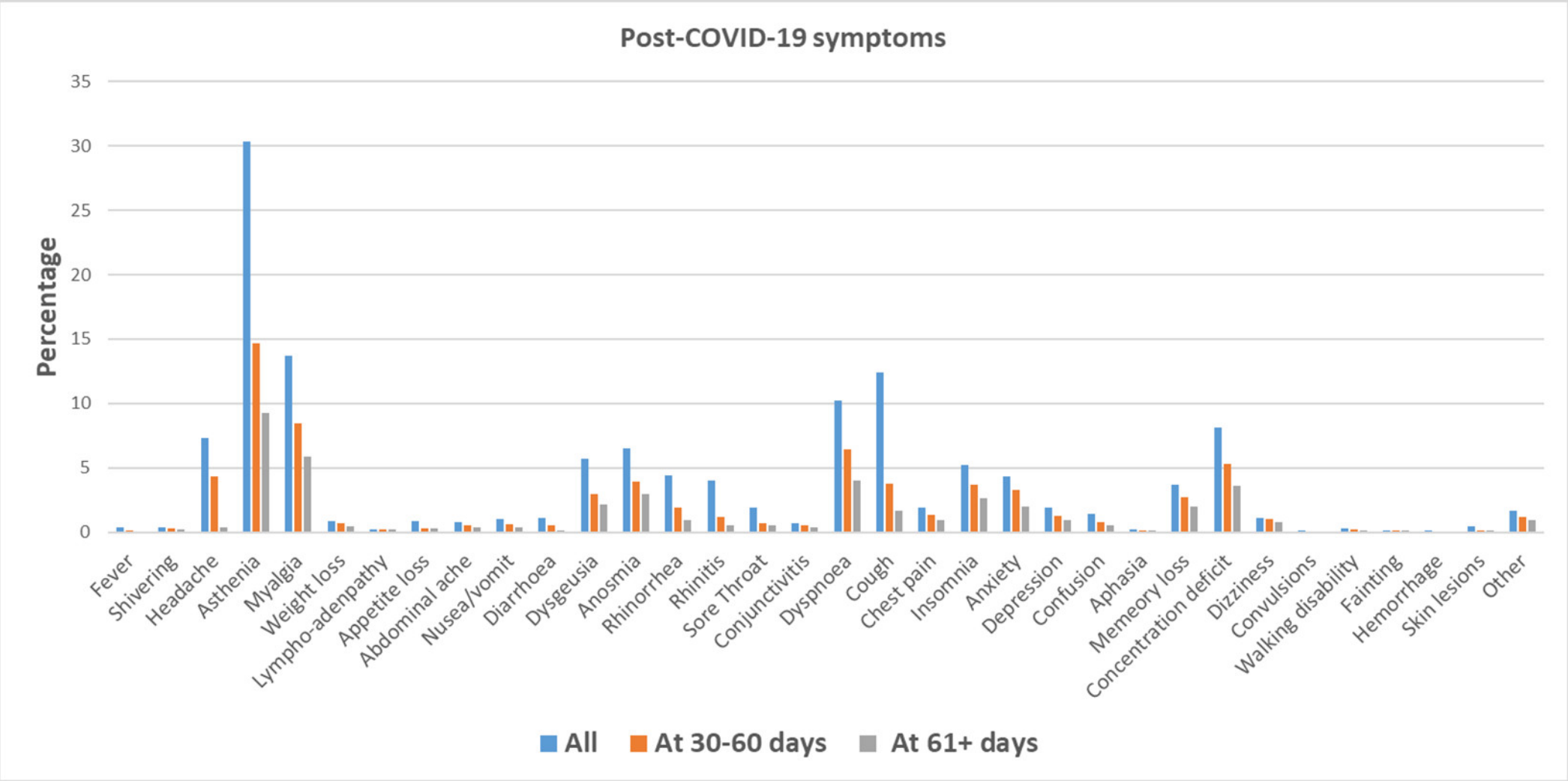
Supplementary Table S2. Number of doses of COVID-19 vaccine over time received by the study population (N=5,432).					
DATE	0 doses	1 dose	2 doses	3 doses	4 doses
1 Jan 2021	4439	656	337	0	0
15 Jan 2021	3498	1603	331	0	0
1 Feb 2021	2874	1003	1555	0	0
14 Feb 2021	2633	1122	1677	0	0
1 Mar 2021	1705	907	2820	0	0
15 Mar 2021	1657	859	2916	0	0
1 Apr 2021	1507	825	3100	0	0
15 Apr 2021	1470	836	3126	0	0
1 May 2021	1507	825	3100	0	0
15 May 2021	1470	836	3126	0	0
1 Jun 2021	1398	775	3259	0	0
15 Jun 2021	1380	772	3280	0	0
1 Jul 2021	1338	725	3369	0	0
15 Jul 2021	1334	721	3377	0	0
1 Aug 2021	1317	695	3410	10	0
15 Aug 2021	1298	711	3413	10	0
1 Sep 2021	1293	666	3422	51	0
15 Sep 2021	1289	659	3428	56	0
1 Oct 2021	1141	600	3258	433	0
15 Oct 2021	1229	583	3056	563	1
1 Nov 2021	1160	479	2219	1573	1
15 Nov 2021	1147	450	1886	1948	1
1 Dec 2021	1093	347	1123	2868	1
15 Dec 2021	1077	307	780	3267	1
1 Jan 2022	1064	272	631	3463	2
15 Jan 2022	1052	263	612	3502	3
1 Feb 2022	1047	245	571	3566	3
14Feb 2022	1046	241	567	3575	3
1 Mar 2022	1037	240	533	3618	4
15 Mar 2022	1037	234	526	3631	4
1 Apr 2022	1034	229	499	3664	6
15 Apr 2022	1035	224	497	3669	7
1 May 2022	1029	224	456	3715	8
15 May 2022	1028	224	451	3721	8
1 Jun 2022	1026	219	420	3758	9
15 Jun 2022	1025	217	417	3764	9
1 Jul 2022	1023	214	410	3775	10
15 Jul 2022	1022	212	410	3777	11
1 Aug 2022	1021	212	410	3777	12
15 Aug 2022	1021	212	410	3777	12
1 Sep 2022	1021	212	408	3779	12



Supplementary Figure S1. COVID-19 vaccine uptake over time in health care workers from all four centres combined (N=5,432), by number of doses received.



Supplementary Figure S2. Any symptoms reported by health care workers during acute COVID-19, primary versus second infection.



Supplementary Figure S3. Percentage of symptoms (persisting or novel) reported by health care workers (HCWs) after first negative swab for primary COVID-19 episode. Overall symptoms, at 30-60 days or 61+ days since first negative swab following primary COVID-19 infection

Supplementary Table S3. Distribution of symptoms in health care workers (HCWs). Symptoms during acute disease, all post-COVID-19 symptoms, persisting or newly developed at 30-60 or 61+ days since first negative swab (primary vs. second infection). Number (N) and column percentage (%). ENT= Ear-Nose-Throat. NA= Not applicable. Symptoms not available on 432 HCWs for 1st COVID-19 infection and on 51 HCWs for second COVID-19 episode. M=missing information on symptoms

SYMPTOMS		STRATA	SYMPTOMS RELATED TO 1 st COVID-19 INFECTION (M=432))							SYMPTOMS RELATED TO 2 nd COVID-19 INFECTION (M=51)				
			ACUTE	All Post COVID-19	At 30-60 days (N=576)			At 61+ days (N=389)		ACUTE	All Post COVID-19	At 30-60 days (N=25)		
					ALL	PERSISTING	NOVEL	PERSISTING	NOVEL			ALL	PERSISTING	NOVEL
GENERAL INFECTIOUS	Fever	No	987 (50.1)	1,961 (99.6)	453 (99.6)	289 (99.3)	164 (100)	189 (99.5)	108 (100)	124 (66.3)	187 (100)	19 (100)	6 (100)	13 (100)
		Yes	982 (49.9)	8 (0.4)	2 (0.4)	2 (0.7)	0	1 (0.5)	0	63 (26.5)	0	0	0	0
	Shivering	No	1,431 (72.7)	1,862 (99.6)	449 (98.7)	164 (96.5)	285(100)	115 (95.8)	178 (100)	148 (79.1)	146 (78.1)	5 (26.3)	1 (25.0)	4 (26.7)
		Yes	538 (27.3)	7 (0.4)	6 (1.3)	6 (3.5)	0	5	0	39 (20.9)	41 (21.9)	14 (73.7)	3 75.0)	11 (73.3)
	Headache	No	1,064 (54.0)	1,826 (92.7)	370 (81.4)	210 (72.7)	160 (96.4)	142 (73.6)	102 (97.1)	127 (67.9)	182 (97.3)	17 (89.5)	7 (77.8)	10 (100)
		Yes	905 (46.0)	143 (7.3)	85 (18.6)	79 (27.3)	6 (3.6)	51 (26.4)	3 (2.9)	60 (32.1)	5 (2.7)	2 (10.5)	2 (2.2)	0
	Asthenia	No	696 (35.4)	1,373 (69.7)	166 (36.6)	119 (30.7)	47 (70.2)	86 (33.3)	29 (72.5)	109 (58.3)	162 (86.6)	11 (57.9)	8 (57.1)	3 (60.8)
		Yes	1,273 (64.7)	596 (30.3)	289 (63.4)	269 (69.3)	20 (27.5)	172 (66.7)	11 (27.5)	78 (41.7)	25 (13.4)	8 (42.1)	6 (42.9)	2 (40.0)
	Myalgia	No	980 (49.8)	1699 (86.3)	288 (63.4)	177 (54.1)	111 (86.7)	113 (52.1)	69 (85.2)	127 (67.9)	187 (100)	19 (100)	10 (100)	9 (100)
		Yes	989 (50.2)	270 (13.7)	167 (36.6)	150 (45.9)	17 (13.3)	104 (47.9)	12 (14.8)	60 (32.1)	0	0	0	0
	Weight loss	No	1,830 (92.9)	1,952 (99.1)	441 (96.9)	63 (84.0)	378 (99.5)	51 (87.9)	238 (99.2)	179 (95.7)	187 (100)	19 (100)	19 (100)	19 (100)
		Yes	139 (7.1)	17 (0.9)	14 (3.1)	12 (16.0)	2 (0.5)	7 (12.1)	2 (0.8)	8 (4.3)	0	0	0	0
GASTRO-ENETERIC	Lympho-adenopathy	No	1,924 (97.7)	1,964 (99.8)	451 (99.1)	14 (77.8)	437 (100)	11 (73.3)	283 (100)	186 (99.5)	187 (100)	19 (100)	19 (100)	19 (100)
		Yes	45 (2.3)	5 (0.2)	4 (0.9)	4 (22.2)	0	4 (26.7)	0	1 (0.5)	0	0	0	0
	Appetite loss	No	1,705 (86.6)	1,951 (99.1)	449 (98.7)	106 (95.5)	343 (99.7)	74 (93.7)	218 (99.5)	178 (95.2)	177 (94.7)	16 (84.2)	1 (50)	15 (88.2)
		Yes	264 (13.4)	18 (0.9)	6 (1.3)	5 (4.5)	1 (0.3)	5 (6.3)	1 (0.5)	9 (4.8)	10 (5.4)	3 (15.8)	1 (50)	2 (11.8)
	Abdominal ache	No	1,857 (94.3)	1,954 (99.2)	444 (97.6)	50 (83.3)	394 (99.8)	39 (83)	251 (100)	178 (95.2)	185 (98.9)	19 (100)	2 (100)	17 (100)
		Yes	112 (5.7)	15 (0.8)	11 (2.4)	10 (16.7)	1 (0.2)	8 (17)	0	9 (4.8)	2 (1.1)	0	0	0
	Nausea/vomit	No	1,807 (91.8)	1,950 (99.0)	443 (97.4)	56 (84.6)	387 (99.5)	39 (86.7)	251 (99.2)	181 (96.8)	185 (98.9)	18 (94.7)	0	18 (94.7)
		Yes	162 (8.2)	19 (1.0)	12 (2.6)	10 (15.2)	2 (0.5)	6 (13.3)	2 (0.8)	6 (3.2)	2 (1.1)	1 (5.3)	0	1 (5.3)
	Diarrhoea	No	1,755 (89.1)	1,948 (98.9)	445 (97.8)	81 (90.0)	364 (99.7)	62 (96.9)	233 (99.6)	174 (93.1)	184 (98.4)	19 (100)	1 (100)	18 (100)
		Yes	214 (10.9)	21 (1.1)	10 (2.2)	9 (10.0)	1 (0.3)	2 (3.1)	1 (0.4)	13 (7.0)	3 (1.6)	0	0	0
ENT	Dysgeusia	No	1,508 (76.6)	1,856 (94.3)	396 (87.0)	147 (73.5)	249 (97.7)	107 (74.3)	149 (96.8)	173 (92.5)	182 (97.3)	17 (89.5)	3 (75)	14 (93.3)
		Yes	461 (23.4)	113 (5.7)	59 (13.0)	53 (26.5)	6 (2.4)	37 (25.7)	5 (3.3)	14 (7.5)	5 (2.7)	2 (10.5)	1 (25)	1 (6.7)
	Anosmia	No	1,525 (77.5)	1,841 (93.5)	378 (83.1)	121 (62.1)	257 (98.6)	85 (60.3)	155 (98.7)	176 (94.1)	180 (96.3)	18 (94.7)	3 (100)	15 (93.8)
		Yes	444 (22.6)	128 (6.5)	77 (16.9)	74 (38.0)	3 (1.2)	56 (39.7)	2 (1.3)	11 (5.9)	7 (3.7)	1 (5.3)	0	1 (6.3)
	Rhinorrhoea	No	1,196 (60.7)	1,882 (95.6)	418 (91.9)	156 (83.0)	262 (98.1)	99 (86.1)	181 (98.9)	135 (72.2)	184 (98.4)	18 (94.7)	4 (80)	14 (100)
		Yes	773 (39.3)	87 (4.4)	37 (8.1)	32 (17.0)	5 (1.9)	16 (13.9)	2 (1.1)	52 (27.8)	3 (1.6)	2 (5.3)	1 (20)	0
	Rhinitis	No	1,496 (76.0)	1,890 (96.0)	431 (94.7)	89 (84.8)	342 (97.7)	56 (91.8)	231 (97.5)	152 (81.2)	173 (92.5)	16 (84.2)	2 (66.7)	14 (87.5)
		Yes	473 (24.0)	79 (4.0)	24 (5.3)	16 (15.2)	8 (2.3)	5 (8.2)	6 (2.5)	35 (18.7)	14 (5.9)	3 (15.8)	1 (33.3)	2 (12.5)
	Sore throat	No	1,251 (63.5)	1,931 (98.1)	441 (96.9)	175 (93.6)	266 (99.3)	105 (92.1)	182 (98.9)	127 (67.9)	186 (99.5)	19 (100)	3 (100)	16 (84.2)
		Yes	718 (36.5)	38 (1.9)	14 (3.1)	12 (6.4)	2 (0.7)	9 (7.9)	2 (1.1)	60 (32.1)	1 (0.5)	0	0	3 (15.8)
	Conjunctivitis	No	1,879 (95.4)	1,955 (99.3)	445 (97.8)	27 (73.0)	418 (100)	15 (68.2)	276 (100)	183 (97.9)	187 (100)	19 (100)	1 (100)	18 (100)
		Yes	90 (4.6)	14 (0.7)	10 (2.2)	10 (27.0)	0	7 (31.8)	0	4 (2.1)	0	0	0	0

PULMONARY	Dyspnoea	No	1,601 (81.3)	1,769 (89.8)	328 (72.2)	88 (44.7)	240 (93.0)	68 (49.6)	151 (93.8)	172 (92.0)	169 (90.4)	16 (84.2)	2 (50)	14 (93.3)
		Yes	368 (18.7)	200 (10.2)	127 (27.9)	109 (55.3)	18 (7.0)	69 (5.4)	10 (6.2)	15 (8.0)	18 (9.6)	3 (15.8)	2 (50)	1 (6.7)
	Cough	No	1,046 (53.1)	1,725 (87.6)	381 (83.8)	180 (71.7)	201 (98.5)	137 (80.6)	128 (100)	125 (66.8)	185 (98.9)	18 (94.7)	5 (83.3)	13 (100)
		Yes	923 (46.9)	244 (12.4)	74 (16.2)	71 (28.3)	3 (1.5)	33 (19.4)	0	62 (33.2)	2 (1.1)	1 (5.3)	1 (16.7)	0
	Chest pain	No	1,782 (90.5)	1,931 (98.1)	429 (94.3)	70 (75.3)	359 (99.2)	51 (75)	229 (99.6)	177 (94.7)	175 (93.6)	15 (79.9)	2 (50)	13 (86.7)
		Yes	187 (9.5)	38 (1.9)	26 (5.7)	23 (24.7)	3 (0.8)	17 (25)	1 (0.4)	10 (5.3)	12 (5.0)	4 (21.1)	2 (50)	2 (13.3)
PSYCHOLOGICAL	Insomnia	No	1,771 (89.9)	1,867 (94.8)	382 (84.0)	49 (46.7)	333 (95.1)	36 (46.7)	210 (95.0)	176 (94.1)	182 (97.3)	17 (89.5)	3 (75)	14 (93.3)
		Yes	198 (10.1)	102 (5.2)	73 (16.0)	56 (53.3)	17 (4.9)	41 (53.2)	11 (5.0)	11 (5.9)	5 (2.7)	2 (10.5)	1 (25)	1 (6.7)
	Anxiety	No	1,781 (90.5)	1,885 (95.7)	391 (86.0)	58 (52.3)	333 (96.4)	44 (57.1)	214 (96.8)	180 (96.3)	184 (98.4)	19 (100)	3 (100)	16 (100)
		Yes	188 (9.5)	84 (4.3)	64 (14.0)	53 (47.3)	11 (3.2)	33 (42.9)	7 (3.2)	7 (3.7)	3 (1.6)	0	0	0
	Depression	No	1,893 (96.1)	1,932 (98.1)	430 (94.5)	28 (63.6)	523 (97.8)	23 (63.9)	256 (97.7)	183 (97.9)	187 (100)	19 (100)	0	19 (100)
		Yes	76 (3.9)	38 (1.9)	25 (5.5)	16 (36.4)	9 (2.2)	13 (36.1)	6 (2.3)	4 (2.1)	0	0	0	0
NEUROLOGICAL	Confusion	No	1,912 (97.1)	1,942 (98.6)	439 (96.5)	22 (75.9)	417 (97.8)	18 (78.3)	269 (97.8)	185 (98.9)	187 (100)	19 (100)	0	19 (100)
		Yes	57 (2.9)	27 (1.4)	16 (3.5)	7 (24.1)	9 (2.1)	5 (21.7)	6 (2.2)	2 (1.1)	0	0	0	0
	Aphasia	No	1,953 (99.2)	1,965 (99.8)	453 (99.6)	4 (80.0)	449 (99.8)	2 (66.7)	294 (99.7)	187 (100)	179 (95.7)	17 (89.5)	0	17 (89.5)
		Yes	16 (0.8)	4 (0.2)	2 (0.4)	1 (20.0)	1 (0.2)	1 (33.3)	1 (0.3)	0	8 (4.3)	2 (1.5)	0	2 (10.5)
	Memory loss	No	1,892 (96.1)	1,897 (96.3)	401 (88.2)	26 (44.8)	375 (94.5)	19 (44.2)	240 (94.1)	180 (96.3)	170 (90.9)	13 (58.4)	1 (100)	12 (66.7)
		Yes	77 (3.9)	72 (3.7)	54 (11.8)	32 (55.2)	22 (5.5)	24 (55.8)	15 (5.9)	7 (3.7)	17 (9.1)	6 (31.6)	0	6 (33.3)
	Concentration deficit	No	1,740 (88.4)	1,809 (91.9)	351 (77.2)	52 (39.1)	299 (92.9)	35 (37.6)	192 (93.7)	173 (92.5)	185 (98.9)	19 (100)	4 (100)	15 (100)
		Yes	229 (11.6)	160 (8.1)	104 (22.8)	81 (60.9)	23 (7.1)	58 (62.4)	13 (6.3)	14 (7.5)	2 (1.1)	0	0	0
	Dizziness	No	1,883 (95.6)	1,947 (98.9)	435 (95.6)	34 (68.0)	401 (99.0)	26 (66.7)	256 (98.8)	181 (96.8)	187 (100)	19 (100)	0	19 (100)
		Yes	86 (4.4)	22 (1.1)	20 (4.4)	16 (32.0)	4 (1.0)	13 (33.3)	3 (1.2)	6 (3.2)	0	0	0	0
	Convulsions	No	1,968 (100)	1,968 (99.9)	454 (99.8)	0	454 (99.8)	0	297 (99.7)	187 (100)	186 (99.5)	19 (100)	0	19 (100)
		Yes	1	1 (0.1)	1 (0.2)	0	1 (0.2)	0	1 (0.3)	0	1 (0.5)	0	0	0
	Walking disability	No	1,940 (98.5)	1,963 (99.7)	451 (99.1)	18 (94.7)	433 (99.3)	14 (93.3)	281 (99.3)	185 (98.9)	187 (100)	19 (100)	1 (100)	18 (100)
		Yes	29 (1.5)	6 (0.3)	4 (0.9)	1 (5.3)	3 (0.7)	1 (6.7)	2 (0.7)	2 (1.1)	0	0	0	0
	Fainting	No	1,949 (99)	1,966 (99.9)	452 (99.3)	12 (100)	440 (99.3)	10 (100)	286 (99.3)	187 (100)	187 (100)	19 (100)	0	19 (100)
		Yes	20 (1)	3 (0.1)	3 (0.7)	0	3 (0.7)	0	2 (0.7)	0	0	0	0	0
OTHER	Haemorrhage	No	1,964 (99.7)	1,968 (99.9)	454 (99.8)	2 (66.7)	452 (100)	2 (100)	296 (100)	187 (100)	186 (99.5)	19 (100)	0	19 (100)
		Yes	5 (0.3)	1 (0.1)	1 (0.2)	1 (33.3)	0	0	0	0	1 (0.5)	0	0	0
	Skin lesions	No	1,943 (98.7)	1,960 (99.5)	452 (99.3)	7 (70.0)	445 (100)	6 (66.7)	289 (100)	185 (98.9)	186 (99.5)	19 (100)	0	19 (100)
		Yes	26 (1.3)	9 (0.5)	3 (0.7)	3 (30.0)	0	3 (33.3)	0	2 (1.1)	1 (0.5)	0	0	0
	Other	No	NA	1,935 (98.3)	431 (94.7)	NA	431 (94.7)	NA	279 (93.6)	NA	187 (100)	19 (100)	NA	19 (100)
		Yes	NA	34 (1.7)	24 (5.3)	NA	24 (5.3)	NA	19 (6.4)	NA	0	0	NA	0