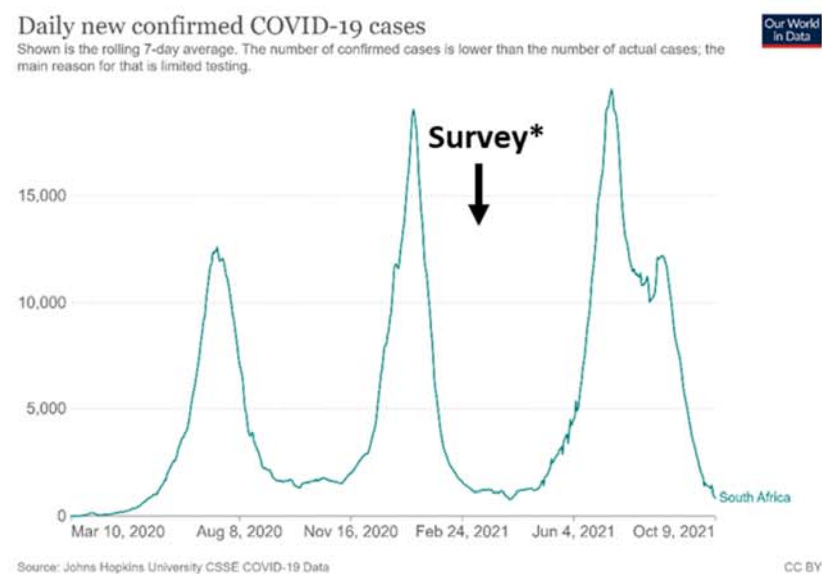
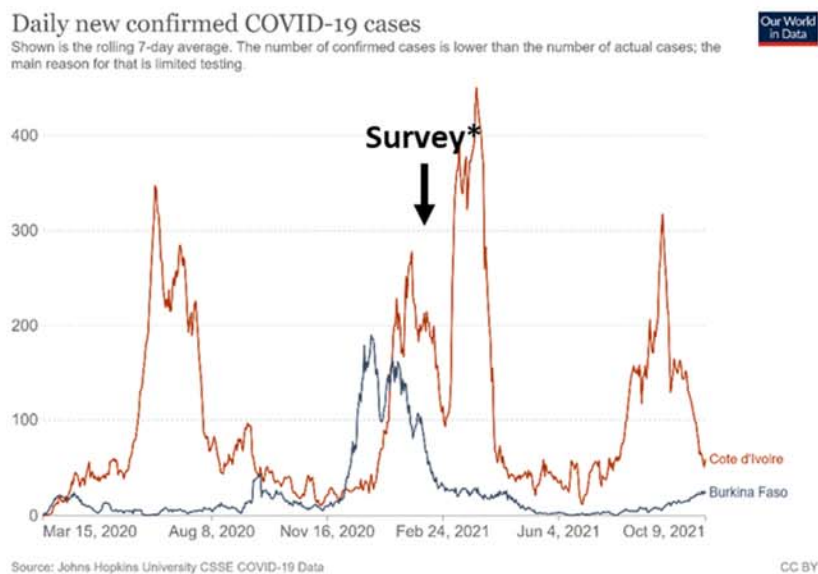


Supplementary Data

1. Reported COVID-19 cases from March 2020 to October 2021 in CIV, BF, and SA
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3. Tiered SARS-CoV-2 serological testing strategy
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Supplementary 1 Figure 1. Reported COVID-19 cases from March 2020 to October 2021 in CIV, BF, and SA



∞Data sourced from <https://ourworldindata.org/coronavirus>; Please note different y-axis ranges between CIV/BF and SA

*Survey conducted during or directly after respective second COVID-19 waves

Supplementary 2. Serological laboratory methods

Serological analyses for SARS-CoV-2 were performed using a four-tiered testing strategy (Figure a) in BF and CIV, and a two-tiered testing strategy in SA (Figure b):

- (1) BF and CIV: First, all samples were screened with the semiquantitative Euroimmun SARS-CoV-2 IgG antibody ELISA with S1 domain substrate (Euroimmun AG, Lübeck, Germany) according to manufacturer's instructions. However, single values were analysed and the following adapted cut-offs were applied: samples with ratios <0.5 were considered negative, while samples with ratios ≥ 0.5 were further evaluated (including $\geq 0.5-1.1$ as borderline and 1.1 as positive). For further evaluation, the Euroimmun Immunoglobulin G (IgG) ELISA was repeated in duplicate and the same cut-offs were applied. For those samples that were repeated in duplicate, mean ratios from the repeat testing were reported. Samples with mean ratios ≥ 0.5 were further evaluated using the WANTAI SARS-CoV-2 Ab ELISA (Beijing Wantai Biological Pharmacy Enterprise; Beijing, China) as a verification assay according to manufacturer's instructions with the exception that $50 \mu\text{l}$ of serum were used. In this case, the following manufacturer-recommended cutoffs were used: <0.9 (negative); ratio $\geq 0.9 - 1.1$ (borderline); ≥ 1.1 (positive). When both ELISA results matched, samples were considered positive or negative. In case of borderline results in the Euroimmune ELISA, the result from the Wantai ELISA was used. For positive results and those discordant (i.e. results did not match between Euroimmune and Wantai ELISAs), a biological neutralization test (NT) was performed. NT sera were mixed with heparin (1.5 % final concentration) and centrifuged at $1,000 \times g$ for 5 min. Only the presence of neutralizing antibodies, without determination of the exact titer, was analyzed. $50 \mu\text{L}$ of serum was diluted 1:10 in DMEM (10 % FCS, 2 mM L-glutamine). Dilutions were mixed 1:1 with SARS-CoV-2 (strain BetaCoV/Germany/BavPat1/2020, kindly provided by Dr. Roman Woelfel, Institute for Microbiology of the German armed forces; final virus concentration $1,000 \text{ TCID}_{50} / \text{mL}$) and incubated at room temperature for 1 h. Subsequently, $100 \mu\text{L}$ of diluted serum-virus mix were added to wells containing 2×10^4 Vero E6 cells per well (#85020206, European Collection of

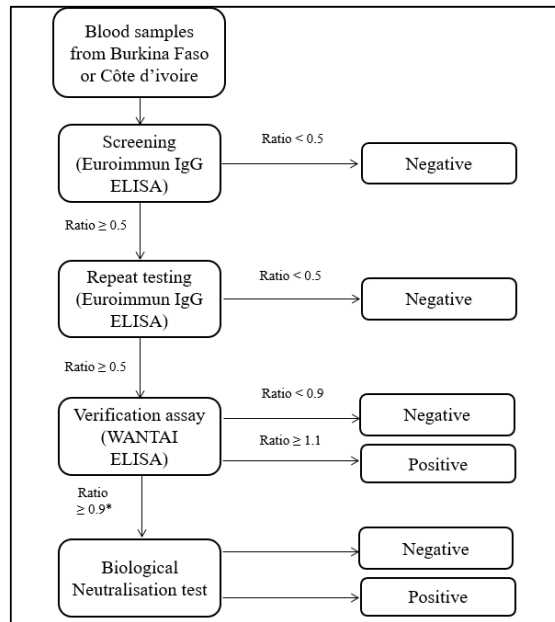
Authenticated Cell Cultures (ECACC), Porton Down, UK), in a 96-well plate. Each sample dilution was tested in eight replicates and cells were incubated for 5 days at 37 °C, 5 % CO₂. After 5 days each well was analysed by light microscopy for visible cytopathic effect (CPE), and the number of wells without CPE (neutralized wells) was counted. For quality control, a positive control with defined titre was analysed in parallel and back-titration of the virus stock was performed. Samples with at least one neutralized well were considered positive for neutralizing antibodies.

- (2) SA: All samples were screened with the semiquantitative Euroimmun SARS-CoV-2 IgG antibody ELISA targeting antibodies against the Nucleocapsid protein (Euroimmun AG, Lübeck, Germany) according to the manufacturer's instructions. Samples with ratios <0.5 were considered negative, ≥0.5-1.1 as borderline and >1.1 as positive. Borderline and positive samples were further analysed using a SARS-CoV-2 microneutralization assay. The sera were first heat-inactivated at 56°C for 30mins and then serially diluted from 1:10 to 1:1280 in PBS. The diluted sera were then mixed in a 1:1 ratio with 2000TCID₅₀ units/ml of wild-type (D614G) SARS-CoV-2 in a Biosafety level 3 (BSL3) facility and incubated for 1hr at room temperature. The serum-virus complex was then added to a confluent monolayer of H1299-hACE2-E3 cells in a 96-well format (provided courteously by Prof. Alex Segal²) for 1 hour at 37°C. After incubation, the serum-virus was removed and replaced with complete growth media (RPMI, 2,5% FBS, 1% NEAA) and the cells were left to incubate at 37°C 5% CO₂ for 3 days. Each set of duplicate wells, representing sequential dilutions of sera was scored for CPE and the neutralisation titre (NT) determined as the last dilution at which the cells were protected from CPE. Samples with an NT titre of 1:10 or greater were considered positive.

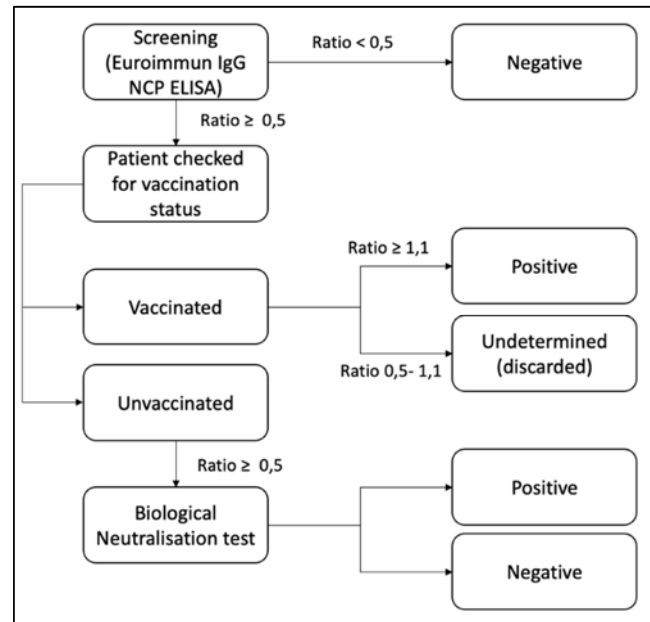
In a sensitivity analysis, the tired testing strategy was compared with the Euroimmun ELISA results adjusted for test performance according to values from the manufacturer's, including 94.4% sensitivity and 99.6% specificity for the tests used in Côte d'Ivoire and Burkina Faso and 94.6% sensitivity and 99.8% specificity in South Africa.

Supplementary 3. Figure 2. Tiered SARS-CoV-2 serological testing strategy

CIV and BF



SA



* For positive results and those discordant (i.e. results did not match between Euroimmune and Wantai ELISAs), a biological neutralization test (NT) was performed.

Supplementary 4. Table 1. Reported characteristics of participants by SARS-CoV-2 seropositivity and country, 2021 (N=719)

Variable*	All (N = 719)	All		Côte d'Ivoire (N=286)		Burkina Faso (N=221)		South Africa (N=212)	
		Sero+ (N = 249)	Sero- (N = 470)	Sero+ (N = 55)	Sero- (N = 231)	Sero+ (N = 101)	Sero- (N = 120)	Sero+ (N = 93)	Sero- (N = 119)
Age median (IQR), in years	39 (31-47)	40 (33-49)	38 (31-46)	37 (31-42)	38 (31-44)	42 (36-50)	44 (35-50)	39 (29-50)	31 (26-46)
Age groups, in years									
16-29	135 (18.8%)	40 (16.1%)	95 (20.2%)	12 (21.8%)	38 (16.5%)	5 (5.0%)	8 (6.7%)	23 (24.7%)	49 (41.2%)
30-39	242 (33.7%)	82 (32.9%)	160 (34.0%)	25 (45.5%)	99 (42.9%)	34 (33.7%)	37 (30.8%)	23 (24.7%)	24 (20.2%)
40-49	189 (26.3%)	64 (25.7%)	125 (26.6%)	12 (21.8%)	66 (28.6%)	35 (34.7%)	44 (36.7%)	17 (18.3%)	15 (12.6%)
50-59	129 (17.9%)	55 (22.1%)	74 (15.7%)	6 (10.9%)	28 (12.1%)	25 (24.8%)	30 (25.0%)	24 (25.8%)	16 (13.4%)
60+	15 (2.1%)	4 (1.6%)	11 (2.3%)	0 (0%)	0 (0%)	2 (2.0%)	1 (0.8%)	2 (2.2%)	10 (8.4%)
Missing	9 (1.3%)	4 (1.6%)	5 (1.1%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	4 (4.3%)	5 (4.2%)
Gender									
Female	394 (54.8%)	166 (66.7%)	228 (48.5%)	31 (56.4%)	95 (41.1%)	51 (50.5%)	42 (35.0%)	84 (90.3%)	91 (76.5%)
Male	325 (45.2%)	83 (33.3%)	242 (51.5%)	24 (43.6%)	136 (58.9%)	50 (49.5%)	78 (65.0%)	9 (9.7%)	28 (23.5%)
COVID-like symptoms in the last 4 weeks									
Yes	352 (49.0%)	117 (47.0%)	235 (50.0%)	35 (63.6%)	132 (57.1%)	45 (44.6%)	47 (39.2%)	37 (39.8%)	56 (47.1%)
No/Unknown	362 (50.3%)	130 (52.2%)	232 (49.4%)	20 (36.4%)	99 (42.9%)	56 (55.4%)	73 (60.8%)	54 (58.1%)	60 (50.4%)
Past SARS-CoV-2 positive PCR test result									
Yes	70 (9.7%)	51 (20.5%)	19 (4.0%)	3 (5.5%)	3 (1.3%)	12 (11.9%)	5 (4.2%)	36 (38.7%)	11 (9.2%)
No/Unknown	387 (53.8%)	144 (57.8%)	243 (51.7%)	3 (5.5%)	27 (11.7%)	86 (85.1%)	111 (92.5%)	55 (59.1%)	105 (88.2%)
Missing	262 (36.4%)	54 (21.7%)	208 (44.3%)	49 (89.1%)	201 (87.0%)	3 (3.0%)	4 (3.3%)	2 (2.2%)	3 (2.5%)
Profession									
Nurses, assisted nurses, midwives	322 (44.8%)	120 (48.2%)	202 (43.0%)	26 (47.3%)	106 (45.9%)	50 (49.5%)	65 (54.2%)	44 (47.3%)	31 (26.1%)
Physicians	154 (21.4%)	38 (15.3%)	116 (24.7%)	4 (7.3%)	47 (20.3%)	14 (13.9%)	23 (19.2%)	20 (21.5%)	46 (38.7%)
Medical residents	57 (7.9%)	17 (6.8%)	40 (8.5%)	8 (14.5%)	19 (8.2%)	5 (5.0%)	2 (1.7%)	4 (4.3%)	19 (16.0%)
Other allied health professionals	51 (7.1%)	20 (8.0%)	31 (6.6%)	4 (7.3%)	16 (6.9%)	6 (5.9%)	8 (6.7%)	10 (10.8%)	7 (5.9%)
Other non-caregiver personnel	72 (10.0%)	29 (11.6%)	43 (9.1%)	5 (9.1%)	21 (9.1%)	14 (13.9%)	13 (10.8%)	10 (10.8%)	9 (7.6%)
Administration	63 (8.8%)	25 (10.0%)	38 (8.1%)	8 (14.5%)	22 (9.5%)	12 (11.9%)	9 (7.5%)	5 (5.4%)	7 (5.9%)
Department									
General medical department	121 (16.8%)	36 (14.5%)	85 (18.1%)	9 (16.4%)	46 (19.9%)	22 (21.8%)	27 (22.5%)	5 (5.4%)	12 (10.1%)
Internal medicine	44 (6.1%)	26 (10.4%)	18 (3.8%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	26 (28.0%)	18 (15.1%)
Intensive care unit	18 (2.5%)	5 (2.0%)	13 (2.8%)	0 (0%)	6 (2.6%)	5 (5.0%)	7 (5.8%)	0 (0%)	0 (0%)
Emergency department	26 (3.6%)	11 (4.4%)	15 (3.2%)	6 (10.9%)	7 (3.0%)	5 (5.0%)	8 (6.7%)	0 (0%)	0 (0%)
Surgery	88 (12.2%)	26 (10.4%)	62 (13.2%)	7 (12.7%)	27 (11.7%)	10 (9.9%)	22 (18.3%)	9 (9.7%)	13 (10.9%)
Emergency surgery	21 (2.9%)	6 (2.4%)	15 (3.2%)	0 (0%)	9 (3.9%)	6 (5.9%)	6 (5.0%)	0 (0%)	0 (0%)
Obstetrics and gynecology	83 (11.5%)	29 (11.6%)	54 (11.5%)	7 (12.7%)	36 (15.6%)	11 (10.9%)	13 (10.8%)	11 (11.8%)	5 (4.2%)

Variable*	All (N = 719)	All		Côte d'Ivoire (N=286)		Burkina Faso (N=221)		South Africa (N=212)	
		Sero+ (N = 249)	Sero- (N = 470)	Sero+ (N = 55)	Sero- (N = 231)	Sero+ (N = 101)	Sero- (N = 120)	Sero+ (N = 93)	Sero- (N = 119)
Paediatric	68 (9.5%)	30 (12.0%)	38 (8.1%)	3 (5.5%)	14 (6.1%)	12 (11.9%)	8 (6.7%)	15 (16.1%)	16 (13.4%)
Ophthalmology/ENT/Stomatology	30 (4.2%)	5 (2.0%)	25 (5.3%)	2 (3.6%)	22 (9.5%)	3 (3.0%)	3 (2.5%)	0 (0%)	0 (0%)
Pharmacy	10 (1.4%)	4 (1.6%)	6 (1.3%)	3 (5.5%)	4 (1.7%)	1 (1.0%)	2 (1.7%)	0 (0%)	0 (0%)
Radiology	25 (3.5%)	7 (2.8%)	18 (3.8%)	3 (5.5%)	3 (1.3%)	3 (3.0%)	5 (4.2%)	1 (1.1%)	10 (8.4%)
Rehabilitation	10 (1.4%)	2 (0.8%)	8 (1.7%)	0 (0%)	6 (2.6%)	2 (2.0%)	1 (0.8%)	0 (0%)	1 (0.8%)
Rotational/float	33 (4.6%)	7 (2.8%)	26 (5.5%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	7 (7.5%)	26 (21.8%)
Laboratory	48 (6.7%)	20 (8.0%)	28 (6.0%)	5 (9.1%)	15 (6.5%)	4 (4.0%)	5 (4.2%)	11 (11.8%)	8 (6.7%)
Administration	54 (7.5%)	20 (8.0%)	34 (7.2%)	8 (14.5%)	19 (8.2%)	10 (9.9%)	10 (8.3%)	2 (2.2%)	5 (4.2%)
Other	40 (5.6%)	15 (6.0%)	25 (5.3%)	2 (3.6%)	17 (7.4%)	7 (6.9%)	3 (2.5%)	6 (6.5%)	5 (4.2%)
SARS-CoV-2 occupational risk									
High risk	134 (18.6%)	51 (20.5%)	83 (17.7%)	6 (10.9%)	21 (9.1%)	12 (11.9%)	19 (15.8%)	33 (35.5%)	43 (36.1%)
Moderate risk	435 (60.5%)	139 (55.8%)	296 (63.0%)	33 (60.0%)	161 (69.7%)	61 (60.4%)	76 (63.3%)	45 (48.4%)	59 (49.6%)
Low risk	150 (20.9%)	59 (23.7%)	91 (19.4%)	16 (29.1%)	49 (21.2%)	28 (27.7%)	25 (20.8%)	15 (16.1%)	17 (14.3%)
Comorbidities									
Yes	197 (27.4%)	82 (32.9%)	115 (24.5%)	15 (27.3%)	55 (23.8%)	32 (31.7%)	26 (21.7%)	35 (37.6%)	34 (28.6%)
No/Unknown	511 (71.1%)	163 (65.5%)	348 (74.0%)	40 (72.7%)	176 (76.2%)	69 (68.3%)	94 (78.3%)	54 (58.1%)	78 (65.5%)
COVID-19 vaccination status									
Vaccinated	99 (13.8%)	29 (11.6%)	70 (14.9%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	29 (31.2%)	70 (58.8%)
Unvaccinated	113 (15.7%)	64 (25.7%)	49 (10.4%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	64 (68.8%)	49 (41.2%)
Missing	507 (70.5%)	156 (62.7%)	351 (74.7%)	55 (100%)	231 (100%)	101 (100%)	120 (100%)	0 (0%)	0 (0%)
Did you have close contact to a confirmed COVID-19 case outside of the hospital in the last 14 days?									
Yes, very often (>8 days)	19 (2.6%)	12 (4.8%)	7 (1.5%)	0 (0%)	1 (0.4%)	6 (5.9%)	2 (1.7%)	6 (6.5%)	4 (3.4%)
Yes, often (4-7 days)	9 (1.3%)	3 (1.2%)	6 (1.3%)	0 (0%)	1 (0.4%)	0 (0%)	2 (1.7%)	3 (3.2%)	3 (2.5%)
Yes, rarely (>3 days)	17 (2.4%)	10 (4.0%)	7 (1.5%)	2 (3.6%)	2 (0.9%)	2 (2.0%)	1 (0.8%)	6 (6.5%)	4 (3.4%)
Yes, unknown frequency	7 (1.0%)	2 (0.8%)	5 (1.1%)	1 (1.8%)	2 (0.9%)	1 (1.0%)	2 (1.7%)	0 (0.0%)	1 (0.8%)
No	552 (76.8%)	185 (74.3%)	367 (78.1%)	46 (83.6%)	176 (76.2%)	81 (80.2%)	104 (86.7%)	58 (62.4%)	87 (73.1%)
I don't know	110 (15.3%)	35 (14.1%)	75 (16.0%)	6 (10.9%)	48 (20.8%)	11 (10.9%)	9 (7.5%)	18 (19.4%)	18 (15.1%)
Have you had close contact (<1 meter) with a COVID-19 patient(s) inside the hospital?									
Yes, >20 times	74 (10.3%)	33 (13.3%)	41 (8.7%)	1 (1.8%)	8 (3.5%)	8 (7.9%)	7 (5.8%)	24 (25.8%)	26 (21.8%)
Yes, 10-20 times	42 (5.8%)	15 (6.0%)	27 (5.7%)	4 (7.3%)	11 (4.8%)	5 (5.0%)	10 (8.3%)	6 (6.5%)	6 (5.0%)
Yes, <10 times	80 (11.1%)	38 (15.3%)	42 (8.9%)	0 (0%)	1 (0.4%)	21 (20.8%)	17 (14.2%)	17 (18.3%)	24 (20.2%)
Yes, unknown frequency	100 (13.9%)	20 (8%)	80 (17%)	14 (25.5%)	70 (30.3%)	0 (0%)	1 (0.8%)	6 (6.5%)	9 (7.6%)
No	310 (43.1%)	99 (39.8%)	211 (44.9%)	22 (40.0%)	101 (43.7%)	59 (58.4%)	73 (60.8%)	18 (19.4%)	37 (31.1%)
I don't know	111 (15.4%)	43 (17.3%)	68 (14.5%)	14 (25.5%)	40 (17.3%)	8 (7.9%)	12 (10.0%)	21 (22.6%)	16 (13.4%)
Have you had prolonged face-to-face exposure to a COVID-19 patient (>15 minutes)?									

Variable*	All (N = 719)	All		Côte d'Ivoire (N=286)		Burkina Faso (N=221)		South Africa (N=212)	
		Sero+ (N = 249)	Sero- (N = 470)	Sero+ (N = 55)	Sero- (N = 231)	Sero+ (N = 101)	Sero- (N = 120)	Sero+ (N = 93)	Sero- (N = 119)
Yes	183 (25.5%)	73 (29.3%)	110 (23.4%)	11 (20.0%)	50 (21.6%)	21 (20.8%)	19 (15.8%)	41 (44.1%)	41 (34.5%)
No	142 (19.7%)	41 (16.5%)	101 (21.5%)	8 (14.5%)	38 (16.5%)	12 (11.9%)	13 (10.8%)	21 (22.6%)	50 (42.0%)
Unknown	54 (7.5%)	28 (11.2%)	26 (5.5%)	0 (0%)	3 (1.3%)	1 (1.0%)	3 (2.5%)	27 (29.0%)	20 (16.8%)
Missing	340 (47.3%)	107 (43.0%)	233 (49.6%)	36 (65.5%)	140 (60.6%)	67 (66.3%)	85 (70.8%)	4 (4.3%)	8 (6.7%)
Were you present for any aerosol generating procedures (AGPs) performed on COVID-19 patients?									
Yes	114 (15.9%)	42 (16.9%)	72 (15.3%)	9 (16.4%)	28 (12.1%)	11 (10.9%)	8 (6.7%)	22 (23.7%)	36 (30.3%)
No	551 (76.6%)	182 (73.1%)	369 (78.5%)	45 (81.8%)	195 (84.4%)	84 (83.2%)	108 (90.0%)	53 (57.0%)	66 (55.5%)
Unknown	39 (5.4%)	19 (7.6%)	20 (4.3%)	1 (1.8%)	8 (3.5%)	6 (5.9%)	4 (3.3%)	12 (12.9%)	8 (6.7%)
If yes, during the aerosol generating procedures (AGPs) performed on COVID-19 patients, did you:									
Wear a medical mask	82 (71.9%)	31 (73.8%)	51 (70.8%)	9 (100%)	23 (82.1%)	8 (72.7%)	6 (75.0%)	14 (63.6%)	22 (61.1%)
Wear a FFP2/FFP3 or equivalent respirator	64 (56.1%)	25 (59.5%)	39 (54.2%)	0 (0%)	1 (3.6%)	8 (72.7%)	7 (87.5%)	17 (77.3%)	31 (86.1%)
Put on disposable gloves	90 (78.9%)	35 (83.3%)	55 (76.4%)	8 (88.9%)	15 (53.6%)	7 (63.6%)	7 (87.5%)	20 (90.9%)	33 (91.7%)
Remove gloves after patient contact	48 (42.1%)	19 (45.2%)	29 (40.3%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	19 (86.4%)	29 (80.6%)
Put on protective glasses/face shield	44 (38.6%)	17 (40.5%)	27 (37.5%)	1 (11.1%)	3 (10.7%)	7 (63.6%)	4 (50.0%)	9 (40.9%)	20 (55.6%)
Put on protective gown	60 (52.6%)	26 (61.9%)	34 (47.2%)	2 (22.2%)	4 (14.3%)	6 (54.5%)	5 (62.5%)	18 (81.8%)	25 (69.4%)
Put on a headcover	30 (26.3%)	12 (28.6%)	18 (25.0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	12 (54.5%)	18 (50.0%)
Have you come into contact with a COVID-19 patient's body fluid?									
Yes	118 (16.4%)	53 (21.3%)	65 (13.8%)	4 (7.3%)	16 (6.9%)	13 (12.9%)	8 (6.7%)	36 (38.7%)	41 (34.5%)
No	521 (72.5%)	174 (69.9%)	347 (73.8%)	44 (80.0%)	187 (81.0%)	84 (83.2%)	100 (83.3%)	46 (49.5%)	60 (50.4%)
Unknown	64 (8.9%)	15 (6.0%)	49 (10.4%)	7 (12.7%)	28 (12.1%)	4 (4.0%)	11 (9.2%)	4 (4.3%)	10 (8.4%)
If yes, during the contact with a COVID-19 patient's body fluid, did you:									
Wear a medical mask	103 (87.3%)	46 (86.8%)	57 (87.7%)	4 (100%)	16 (100%)	11 (84.6%)	6 (75.0%)	31 (86.1%)	35 (85.4%)
Wear respirator (e.g. N95, FFP2/3)	59 (50.0%)	25 (47.2%)	34 (52.3%)	0 (0%)	1 (6.2%)	8 (61.5%)	7 (87.5%)	17 (47.2%)	26 (63.4%)
Put on disposable gloves	107 (90.7%)	50 (94.3%)	57 (87.7%)	4 (100%)	11 (68.8%)	11 (84.6%)	6 (75.0%)	35 (97.2%)	40 (97.6%)
Remove gloves after patient contact	65 (55.1%)	30 (56.6%)	35 (53.8%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	30 (83.3%)	35 (85.4%)
Put on protective glasses/face shield	27 (22.9%)	12 (22.6%)	15 (23.1%)	0 (0%)	0 (0%)	2 (15.4%)	1 (12.5%)	10 (27.8%)	14 (34.1%)
Put on protective gown	64 (54.2%)	33 (62.3%)	31 (47.7%)	2 (50.0%)	2 (12.5%)	5 (38.5%)	4 (50.0%)	26 (72.2%)	25 (61.0%)
Put on a headcover	26 (22.0%)	9 (17.0%)	17 (26.2%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	9 (25.0%)	17 (41.5%)
Have you had contact with a COVID-19 patient's materials?									
Yes	168 (23.4%)	64 (25.7%)	104 (22.1%)	7 (12.7%)	37 (16.0%)	12 (11.9%)	10 (8.3%)	45 (48.4%)	57 (47.9%)
No	458 (63.7%)	150 (60.2%)	308 (65.5%)	41 (74.5%)	171 (74.0%)	80 (79.2%)	98 (81.7%)	29 (31.2%)	39 (32.8%)
Unknown	77 (10.7%)	28 (11.2%)	49 (10.4%)	6 (10.9%)	23 (10.0%)	9 (8.9%)	12 (10.0%)	13 (14.0%)	14 (11.8%)
If yes, during the contact with a COVID-19 patient's materials, did you:									
Wear a medical mask	135 (80.4%)	54 (84.4%)	81 (77.9%)	7 (100%)	29 (78.4%)	8 (66.7%)	5 (50.0%)	39 (86.7%)	47 (82.5%)

Variable*	All (N = 719)	All		Côte d'Ivoire (N=286)		Burkina Faso (N=221)		South Africa (N=212)	
		Sero+ (N = 249)	Sero- (N = 470)	Sero+ (N = 55)	Sero- (N = 231)	Sero+ (N = 101)	Sero- (N = 120)	Sero+ (N = 93)	Sero- (N = 119)
Wear respirator (e.g. N95, FFP2/3)	74 (44.0%)	33 (51.6%)	41 (39.4%)	1 (14.3%)	2 (5.4%)	7 (58.3%)	7 (70.0%)	25 (55.6%)	32 (56.1%)
Put on disposable gloves	124 (73.8%)	53 (82.8%)	71 (68.3%)	6 (85.7%)	17 (45.9%)	8 (66.7%)	7 (70.0%)	39 (86.7%)	47 (82.5%)
Remove gloves after patient contact	73 (43.5%)	34 (53.1%)	39 (37.5%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	34 (75.6%)	39 (68.4%)
Put on protective glasses/face shield	36 (21.4%)	20 (31.2%)	16 (15.4%)	1 (14.3%)	2 (5.4%)	4 (33.3%)	1 (10.0%)	15 (33.3%)	13 (22.8%)
Put on protective gown	67 (39.9%)	33 (51.6%)	34 (32.7%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	33 (73.3%)	34 (59.6%)
Put on a headcover	42 (25.0%)	18 (28.1%)	24 (23.1%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	18 (40.0%)	24 (42.1%)
Have you had direct contact with the surfaces around a COVID-19 patient?									
Yes	104 (14.5%)	29 (11.6%)	75 (16.0%)	10 (18.2%)	53 (22.9%)	19 (18.8%)	22 (18.3%)	0 (0%)	0 (0%)
No	344 (47.8%)	108 (43.4%)	236 (50.2%)	37 (67.3%)	153 (66.2%)	71 (70.3%)	83 (69.2%)	0 (0%)	0 (0%)
Unknown	55 (7.6%)	18 (7.2%)	37 (7.9%)	8 (14.5%)	22 (9.5%)	10 (9.9%)	15 (12.5%)	0 (0%)	0 (0%)
Missing	216 (30.0%)	94 (37.8%)	122 (26.0%)	0 (0%)	3 (1.3%)	1 (1.0%)	0 (0%)	93 (100%)	119 (100%)
If yes, which type of surfaces?									
Patient's bed	89 (85.6%)	26 (89.7%)	63 (84.0%)	9 (90.0%)	43 (81.1%)	17 (89.5%)	20 (90.9%)	0 (0%)	0 (0%)
Bathroom	10 (9.6%)	5 (17.2%)	5 (6.7%)	3 (30.0%)	3 (5.7%)	2 (10.5%)	2 (9.1%)	0 (0%)	0 (0%)
Patient's table	7 (6.7%)	2 (6.9%)	5 (6.7%)	1 (10.0%)	3 (5.7%)	1 (5.3%)	2 (9.1%)	0 (0%)	0 (0%)
Medical gas panel	28 (26.9%)	7 (24.1%)	21 (28.0%)	3 (30.0%)	16 (30.2%)	4 (21.1%)	5 (22.7%)	0 (0%)	0 (0%)
Other	8 (7.7%)	1 (3.4%)	7 (9.3%)	1 (10.0%)	6 (11.3%)	0 (0%)	1 (4.5%)	0 (0%)	0 (0%)
Is there at least one alcohol-based hand sanitizer/rub in the department(s) where you work?									
Yes	661 (91.9%)	231 (92.8%)	430 (91.5%)	50 (90.9%)	204 (88.3%)	95 (94.1%)	110 (91.7%)	86 (92.5%)	116 (97.5%)
Sometimes	25 (3.5%)	11 (4.4%)	14 (3.0%)	5 (9.1%)	11 (4.8%)	2 (2.0%)	2 (1.7%)	4 (4.3%)	1 (0.8%)
No	26 (3.6%)	6 (2.4%)	20 (4.3%)	0 (0%)	12 (5.2%)	4 (4.0%)	7 (5.8%)	2 (2.2%)	1 (0.8%)
When was your last training in infection control for health care workers in your health care facility?									
Less than 30 days ago	21 (2.9%)	11 (4.4%)	10 (2.1%)	0 (0.0%)	0 (0.0%)	2 (2.0%)	1 (0.8%)	9 (9.7%)	9 (7.6%)
1 to 6 months ago	117 (16.3%)	36 (14.5%)	81 (17.2%)	6 (10.9%)	32 (13.9%)	16 (15.8%)	16 (13.3%)	14 (15.1%)	33 (27.7%)
Sometime in 2020	68 (9.5%)	27 (10.8%)	41 (8.7%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	27 (29.0%)	41 (34.5%)
In 2019	95 (13.2%)	18 (7.2%)	77 (16.4%)	14 (25.5%)	62 (26.8%)	2 (2.0%)	9 (7.5%)	2 (2.2%)	6 (5.0%)
Before 2019	28 (3.9%)	16 (6.4%)	12 (2.6%)	1 (1.8%)	3 (1.3%)	5 (5.0%)	7 (5.8%)	10 (10.8%)	2 (1.7%)
I can't remember	89 (12.4%)	46 (18.5%)	43 (9.1%)	0 (0.0%)	0 (0.0%)	24 (23.8%)	26 (21.7%)	22 (23.7%)	17 (14.3%)
No training	285 (39.6%)	91 (36.5%)	194 (41.3%)	33 (60.0%)	125 (54.1%)	52 (51.5%)	60 (50.0%)	6 (6.5%)	9 (7.6%)
Missing	16 (2.2%)	4 (1.6%)	12 (2.6%)	1 (1.8%)	9 (3.9%)	0 (0.0%)	1 (0.8%)	3 (3.2%)	2 (1.7%)
If you had a training, how long was it?									
Less than 2 hours	140 (33.5%)	60 (39.0%)	80 (30.3%)	2 (9.5%)	10 (10.3%)	2 (4.1%)	2 (3.4%)	56 (66.7%)	68 (63.0%)
More than 2 hours	227 (54.3%)	73 (47.4%)	154 (58.3%)	19 (90.5%)	87 (89.7%)	29 (59.2%)	33 (55.9%)	25 (29.8%)	34 (31.5%)
Missing	51 (12.2%)	21 (13.6%)	30 (11.4%)	0 (0.0%)	0 (0.0%)	18 (36.7%)	24 (40.7%)	3 (3.6%)	6 (5.6%)
Do you know the recommended moments for hand hygiene in health care?									

Variable*	All (N = 719)	All		Côte d'Ivoire (N=286)		Burkina Faso (N=221)		South Africa (N=212)	
		Sero+ (N = 249)	Sero- (N = 470)	Sero+ (N = 55)	Sero- (N = 231)	Sero+ (N = 101)	Sero- (N = 120)	Sero+ (N = 93)	Sero- (N = 119)
No	70 (9.7%)	20 (8.0%)	50 (10.6%)	8 (14.5%)	38 (16.5%)	12 (11.9%)	12 (10.0%)	0 (0%)	0 (0%)
Yes, all 3	147 (20.4%)	43 (17.3%)	104 (22.1%)	19 (34.5%)	81 (35.1%)	24 (23.8%)	23 (19.2%)	0 (0%)	0 (0%)
Yes, all 4	84 (11.7%)	32 (12.9%)	52 (11.1%)	11 (20.0%)	29 (12.6%)	21 (20.8%)	23 (19.2%)	0 (0%)	0 (0%)
Yes, all 5	49 (6.8%)	11 (4.4%)	38 (8.1%)	5 (9.1%)	23 (10.0%)	6 (5.9%)	15 (12.5%)	0 (0%)	0 (0%)
Yes, all 6	157 (21.8%)	50 (20.1%)	107 (22.8%)	12 (21.8%)	60 (26.0%)	38 (37.6%)	47 (39.2%)	0 (0%)	0 (0%)
Missing	212 (29.5%)	93 (37.3%)	119 (25.3%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	93 (100%)	119 (100%)
Are you familiar with types of Infection Prevention and Control (IPC) measures?									
Yes	540 (75.1%)	195 (78.3%)	345 (73.4%)	36 (65.5%)	154 (66.7%)	82 (81.2%)	99 (82.5%)	77 (82.8%)	92 (77.3%)
Not sure	63 (8.8%)	16 (6.4%)	47 (10.0%)	3 (5.5%)	23 (10.0%)	4 (4.0%)	4 (3.3%)	9 (9.7%)	20 (16.8%)
No	107 (14.9%)	33 (13.3%)	74 (15.7%)	16 (29.1%)	54 (23.4%)	13 (12.9%)	14 (11.7%)	4 (4.3%)	6 (5.0%)
Following Personal Protective Equipment (PPE) reported always being available in sufficient quantity for the care of COVID-19 patients:									
Medical mask	461 (64.1%)	187 (75.1%)	274 (58.3%)	22 (40.0%)	77 (33.3%)	79 (78.2%)	92 (76.7%)	86 (92.5%)	105 (88.2%)
Respirator (N95, FFP2/3 or equivalent)	278 (38.7%)	117 (47.0%)	161 (34.3%)	5 (9.1%)	14 (6.1%)	61 (60.4%)	79 (65.8%)	51 (54.8%)	68 (57.1%)
Gloves	422 (58.7%)	165 (66.3%)	257 (54.7%)	21 (38.2%)	70 (30.3%)	62 (61.4%)	77 (64.2%)	82 (88.2%)	110 (92.4%)
Goggles/glasses	114 (15.9%)	53 (21.3%)	61 (13.0%)	4 (7.3%)	8 (3.5%)	15 (14.9%)	14 (11.7%)	34 (36.6%)	39 (32.8%)
Face shield	146 (20.3%)	69 (27.7%)	77 (16.4%)	4 (7.3%)	8 (3.5%)	22 (21.8%)	15 (12.5%)	43 (46.2%)	54 (45.4%)
Gown	187 (26.0%)	85 (34.1%)	102 (21.7%)	4 (7.3%)	15 (6.5%)	14 (13.9%)	15 (12.5%)	67 (72.0%)	72 (60.5%)
Other (Shoe or hair cover)	11 (1.5%)	7 (2.8%)	4 (0.9%)	0 (0%)	0 (0%)	1 (1.0%)	0 (0%)	6 (6.5%)	4 (3.4%)
No PPE available	221 (30.7%)	47 (18.9%)	174 (37.0%)	30 (54.5%)	149 (64.5%)	17 (16.8%)	25 (20.8%)	0	0
Do you use alcohol-based hand rub or soap and water before touching a patient?									
Always (95% of the time)	294 (40.9%)	103 (41.4%)	191 (40.6%)	17 (30.9%)	78 (33.8%)	34 (33.7%)	49 (40.8%)	52 (55.9%)	64 (53.8%)
Often (50 - 95%)	244 (33.9%)	82 (32.9%)	162 (34.5%)	20 (36.4%)	80 (34.6%)	36 (35.6%)	43 (35.8%)	26 (28.0%)	39 (32.8%)
Rarely (20 - 50%)	40 (5.6%)	9 (3.6%)	31 (6.6%)	3 (5.5%)	24 (10.4%)	4 (4.0%)	6 (5.0%)	2 (2.2%)	1 (0.8%)
Never (less than 20%)	15 (2.1%)	1 (0.4%)	14 (3.0%)	0 (0.0%)	11 (4.8%)	1 (1.0%)	0 (0.0%)	0 (0.0%)	3 (2.5%)
I do not have contact with patients	115 (16.0%)	48 (19.3%)	67 (14.3%)	14 (25.5%)	37 (16.0%)	26 (25.7%)	22 (18.3%)	8 (8.6%)	8 (6.7%)
Do you use alcohol-based hand rub or soap and water after touching a patient?									
Always (95% of the time)	418 (58.1%)	135 (54.2%)	283 (60.2%)	28 (50.9%)	132 (57.1%)	47 (46.5%)	71 (59.2%)	60 (64.5%)	80 (67.2%)
Often (50 - 95%)	156 (21.7%)	55 (22.1%)	101 (21.5%)	11 (20.0%)	54 (23.4%)	27 (26.7%)	25 (20.8%)	17 (18.3%)	22 (18.5%)
Rarely (20 - 50%)	10 (1.4%)	2 (0.8%)	8 (1.7%)	2 (3.6%)	5 (2.2%)	0 (0.0%)	1 (0.8%)	0 (0.0%)	2 (1.7%)
Never (less than 20%)	1 (0.1%)	0 (0.0%)	1 (0.2%)	0 (0.0%)	1 (0.4%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
I do not have contact with patients	21 (2.9%)	7 (2.8%)	14 (3.0%)	0 (0.0%)	8 (3.5%)	0 (0.0%)	0 (0.0%)	7 (7.5%)	6 (5.0%)
Missing	113 (15.7%)	50 (20.1%)	63 (13.4%)	14 (25.5%)	31 (13.4%)	27 (26.7%)	23 (19.2%)	9 (9.7%)	9 (7.6%)
Do you use alcohol-based hand rub or soap and water before cleaning/aseptic procedures?									
Always (95% of the time)	409 (56.9%)	146 (58.6%)	263 (56.0%)	24 (43.6%)	105 (45.5%)	51 (50.5%)	66 (55.0%)	71 (76.3%)	92 (77.3%)

Variable*	All (N = 719)	All		Côte d'Ivoire (N=286)		Burkina Faso (N=221)		South Africa (N=212)	
		Sero+ (N = 249)	Sero- (N = 470)	Sero+ (N = 55)	Sero- (N = 231)	Sero+ (N = 101)	Sero- (N = 120)	Sero+ (N = 93)	Sero- (N = 119)
Often (50 - 95%)	150 (20.9%)	48 (19.3%)	102 (21.7%)	17 (30.9%)	56 (24.2%)	25 (24.8%)	31 (25.8%)	6 (6.5%)	15 (12.6%)
Rarely (20 - 50%)	15 (2.1%)	3 (1.2%)	12 (2.6%)	1 (1.8%)	10 (4.3%)	2 (2.0%)	0 (0.0%)	0 (0.0%)	2 (1.7%)
Never (less than 20%)	5 (0.7%)	1 (0.4%)	4 (0.9%)	1 (1.8%)	3 (1.3%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	1 (0.8%)
I do not clean or carry out aseptic procedures	131 (18.2%)	44 (17.7%)	87 (18.5%)	12 (21.8%)	57 (24.7%)	23 (22.8%)	23 (19.2%)	9 (9.7%)	7 (5.9%)
Do you use alcohol-based hand rub or soap and water after cleaning/aseptic procedures?									
Always (95% of the time)	354 (49.2%)	128 (51.4%)	226 (48.1%)	13 (23.6%)	73 (31.6%)	48 (47.5%)	65 (54.2%)	67 (72.0%)	88 (73.9%)
Often (50 - 95%)	158 (22.0%)	52 (20.9%)	106 (22.6%)	20 (36.4%)	63 (27.3%)	25 (24.8%)	27 (22.5%)	7 (7.5%)	16 (13.4%)
Rarely (20 - 50%)	52 (7.2%)	13 (5.2%)	39 (8.3%)	10 (18.2%)	33 (14.3%)	3 (3.0%)	5 (4.2%)	0 (0.0%)	1 (0.8%)
Never (less than 20%)	7 (1.0%)	1 (0.4%)	6 (1.3%)	0 (0.0%)	5 (2.2%)	1 (1.0%)	0 (0.0%)	0 (0.0%)	1 (0.8%)
I do not clean or carry out aseptic procedures	20 (2.8%)	9 (3.6%)	11 (2.3%)	0 (0.0%)	4 (1.7%)	1 (1.0%)	0 (0.0%)	8 (8.6%)	7 (5.9%)
Missing	128 (17.8%)	46 (18.5%)	82 (17.4%)	12 (21.8%)	53 (22.9%)	23 (22.8%)	23 (19.2%)	11 (11.8%)	6 (5.0%)
Do you use alcohol-based hand rub or soap and water after (risk of) body fluid exposure?									
Always (95% of the time)	538 (74.8%)	171 (68.7%)	367 (78.1%)	37 (67.3%)	181 (78.4%)	58 (57.4%)	82 (68.3%)	76 (81.7%)	104 (87.4%)
Often (50 - 95%)	68 (9.5%)	31 (12.4%)	37 (7.9%)	6 (10.9%)	22 (9.5%)	18 (17.8%)	8 (6.7%)	7 (7.5%)	7 (5.9%)
Rarely (20 - 50%)	5 (0.7%)	3 (1.2%)	2 (0.4%)	1 (1.8%)	2 (0.9%)	0 (0.0%)	0 (0.0%)	2 (2.2%)	0 (0.0%)
Never (less than 20%)	3 (0.4%)	0 (0.0%)	3 (0.6%)	0 (0.0%)	3 (1.3%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
I have not been exposed or do not manipulate body fluid	99 (13.8%)	41 (16.5%)	58 (12.3%)	11 (20.0%)	23 (10.0%)	25 (24.8%)	29 (24.2%)	5 (5.4%)	6 (5.0%)

ENT: Ears Nose and Throat; FFP: Filtering Facepiece; IPC: Infection Prevention and Control; IQR: Interquartile Range; PCR: Polymerase Chain Reaction; PPE: Personal Protective Equipment; Sero+: Seropositive; Sero-: Seronegative.

*missing category reported for variables with $\geq 10\%$ missing data

Supplementary 5. Table 2 Self-reported symptoms of participants by SARS-CoV-2 sero-/positivity, 2021

Symptoms	Seropositive (N =249)	Seronegative (N =470)	RT-qPCR Positive (N =20)	RT-qPCR Negative (N =503)
Fatigue	63 (25.3%)	123 (26.2%)	8 (40%)	149 (29.6%)
Rhinorrhea	48 (19.3%)	74 (15.7%)	5 (25%)	86 (17.1%)
Headache	44 (17.7%)	91 (19.4%)	7 (35%)	80 (15.9%)

Symptoms	Seropositive (N =249)	Seronegative (N =470)	RT-qPCR Positive (N =20)	RT-qPCR Negative (N =503)
Cough	41 (16.5%)	56 (11.9%)	1 (5%)	65 (12.9%)
Sore throat	37 (14.9%)	37 (7.9%)	1 (5%)	45 (8.9%)
Muscle and/or joint pain	36 (14.5%)	91 (19.4%)	6 (30%)	97 (19.3%)
Fever >38 Celsius/Chills	31 (12.4%)	49 (10.4%)	4 (20%)	62 (12.3%)
Loss of appetite	18 (7.2%)	21 (4.5%)	4 (20%)	28 (5.6%)
Loss of smell and/or taste	15 (6%)	14 (3%)	2 (10%)	21 (4.2%)
Nausea/vomiting/diarrhea	15 (6%)	43 (9.1%)	5 (25%)	26 (5.2%)
Shortness of breath	12 (4.8%)	6 (1.3%)	0 (0%)	10 (2%)
Conjunctivitis	6 (2.4%)	2 (0.4%)	0 (0%)	5 (1%)
Rash	2 (0.8%)	3 (0.6%)	0 (0%)	2 (0.4%)
Seizures or altered consciousness	1 (0.4%)	0 (0%)	0 (0%)	1 (0.2%)

References

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