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Supplementary appendix

This appendix formed part of the original submission and has been peer reviewed. We post it as supplied by the authors.

Supplement to: Lalwani P, Araujo-Castillo RV, Ganoza CA, et al. High anti-SARS-CoV-2 antibody seroconversion rates before the second wave in Manaus, Brazil, and the protective effect of social behaviour measures: results from the prospective DETECTCoV-19 cohort. *Lancet Glob Health* 2021; **9:** e1508–16.

Appendix contents

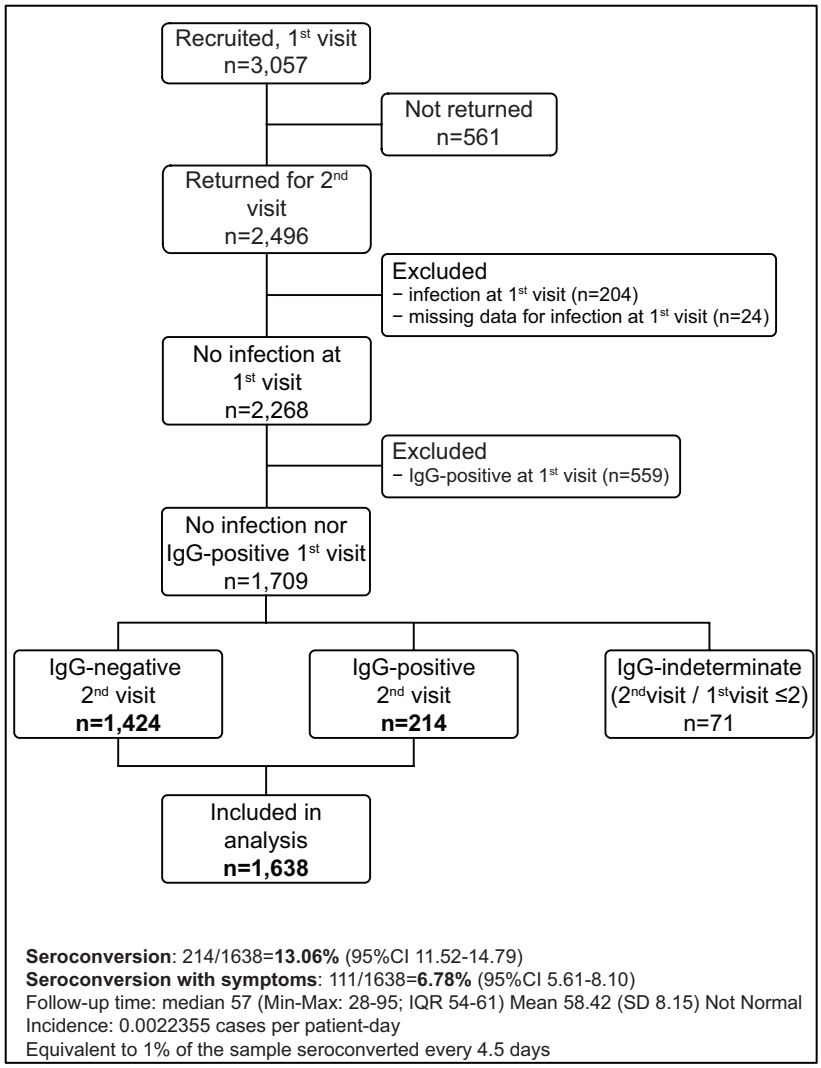
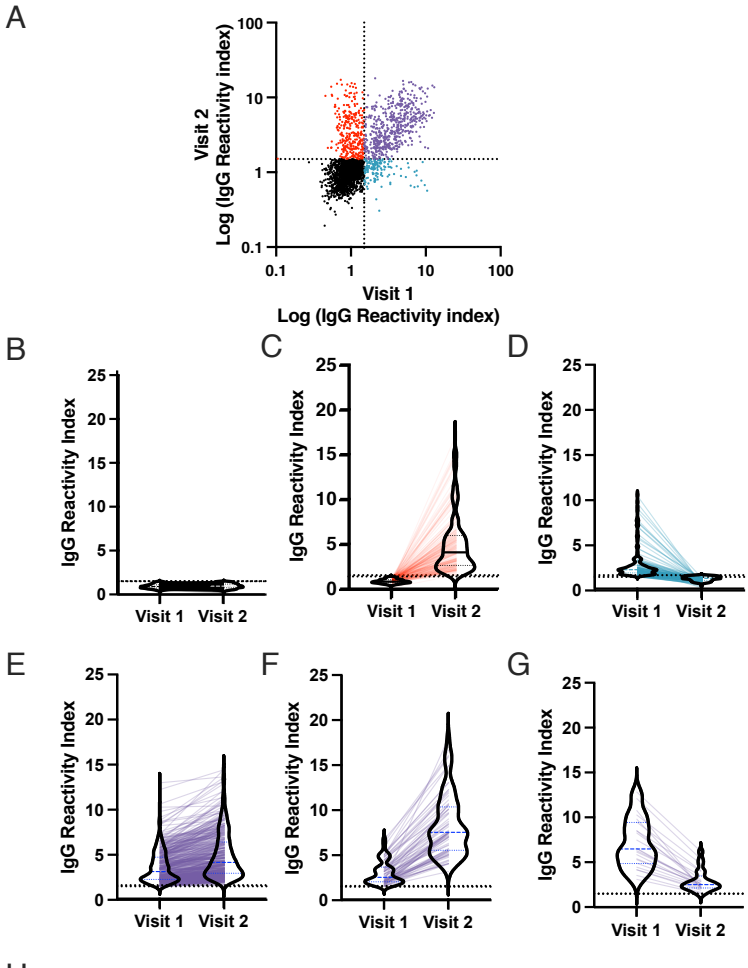


Figure S1: Flowchart for calculating incidence of SARS-CoV-2 seroconversion
The DETECTCoV-19 cohort recruited 3046 participants as previously described [6]. Eleven individuals recruited and tested at baseline declined to further participate in the longitudinal study, but later consented to participate at the 2nd visit, thus were included in this analysis. Among a total of 3057 participants, 2496 returned for the 2nd visit. Table S6 details reasons for the loss to follow-up for 561 individuals. At both visits participants filled out an electronic questionnaire and donated a blood sample for SARS-CoV-2 serological testing.



H

Figure	Visit 1	Visit 2	Group	N (n=2496)	Percentage of total
B	Negative	Negative	RI<1.5 at Visit 1 and Visit 2	1497	59.97
C	Negative	Positive	Seroconverters Visit 2 RI> 1.5	307	12.29
D	Positive	Negative	Antibody decay Visit 2 RI< 1.5	142	5.68
E	Positive	Positive	No change in RI between Visit 1 and Visit 2	454	18.18
F	Positive	Positive	Reexposition or reinfection Visit 2 RI> 2X Visit 1	73	2.92
G	Positive	Positive	Antibody decay Visit 2 RI< 2X Visit 1	46	1.84

Figure S2: Anti-SARS-CoV-2 nucleocapsid IgG reactivity profile of participants at visit 1 and 2.

(A) Dot plot depicts the IgG anti-SARS-COV-2 nucleocapsid antibody reactivity index at visit 1 and visit 2. Each dot represents one patient and dotted line denotes assay cut-off. (B-G) Paired analysis of individual patient antibody reactivity index for each of the XY graph quadrant is depicted. (H) Summary of patient percentage and proportions for the different antibody trajectories as depicted in B.

Table S1: Comparison of SARS-CoV-2 seroconversion rates using different case definitions in an adult population cohort from Manaus, Amazonas state of Brazil (N=1,638).

Case Definition* between 1st and 2nd Visit n=1638	Symptomatic Only		Symptomatic and Asymptomatic	
	n	(%)	n	(%)
PCR only	48	(2·93)	48	(2·93)
PCR and/or Antigen Test	50	(3·05)	50	(3·05)
PCR and/or Antigen and/or Serological Test	80	(4·88)	91	(5·56)
Any Lab result and/or Clinical/Radiology Dx	89	(5·43)	99	(6·04)
Seroconversion as per Study	111	(6·78)	214	(13·06)

*Case definitions:

- PCR only: Patients meeting the selection criteria who had IgG ELISA reactivity index ≤1·5 at first visit, IgG ELISA reactivity index >1·5 at the second visit, and a reactivity index ratio (visit 2/visit 1) >2, plus having a positive RT-PCR test.
- PCR and/or Antigen Test: Patients meeting the selection criteria who had IgG ELISA reactivity index ≤1·5 at first visit, IgG ELISA reactivity index >1·5 at the second visit, and a reactivity index ratio (visit 2/visit 1) >2, plus having a positive RT-PCR test and/or a positive SARS-CoV-2 antigen test.
- PCR and/or Antigen and/or Serological Test: Patients meeting the selection criteria who had IgG ELISA reactivity index ≤1·5 at first visit, IgG ELISA reactivity index >1·5 at the second visit, and a reactivity index ratio (visit 2/visit 1) >2, plus a positive PCR and/or Antigen and/or Serological Test (performed in other laboratory).
- Any Lab result and/or Clinical/Radiology Dx: Patients meeting the selection criteria who had IgG ELISA reactivity index ≤1·5 at first visit, IgG ELISA reactivity index >1·5 at the second visit, and a reactivity index ratio (visit 2/visit 1) >2, plus any positive result (PCR, Antigen Test, external serological test) or a clinical/radiology assessment confirming COVID-19 infection.
- Seroconversion as per Study: Patients meeting the selection criteria who had IgG ELISA reactivity index ≤1·5 at first visit, IgG ELISA reactivity index >1·5 at the second visit, and a reactivity index ratio (visit 2/visit 1) >2.

Table S2: SARS-CoV-2 seroconversion according to demographics and health access characteristics of an adult population cohort from Manaus, Amazonas state of Brazil (n=1,638).

Characteristics[1]	Categories	Total	column %	IgG ELISA (-) -> (+)	Incidence row %	p value Chi2 test	RR*	95%CI	p value	IRR**	95%CI	p value
Total		**1,638**		**214**	**13·06**							
Demographics												
Age	18-29	372	22·71	48	12·90	0·915	Ref	-----	-----	Ref	-----	-----
	30-39	420	25·64	56	13·33		1·03	0·68-1·57	0·878	1·00	0·66-1·51	0·990
	40-49	354	21·61	48	13·56		1·05	0·81-1·36	0·703	1·02	0·80-1·31	0·865
	50-59	292	17·83	40	13·70		1·06	0·69-1·63	0·786	1·02	0·66-1·57	0·924
	>=60	200	12·21	22	11·00		0·85	0·37-1·99	0·712	0·82	0·36-1·90	0·648
Sex	F	1,031	62·94	130	12·61	0·476	Ref	-----	-----	Ref	-----	-----
	M	607	37·06	84	13·84		1·10	0·75-1·60	0·627	1·08	0·75-1·56	0·663
Race	Mestizo	885	54·03	125	14·12	0·290	Ref	-----	-----	Ref	-----	-----
	White	602	36·75	74	12·29		0·87	0·57-1·32	0·515	0·89	0·58-1·35	0·570
	Black	109	6·65	9	8·26		0·58	0·12-2·81	0·503	0·59	0·12-2·81	0·509
	Indigenous	7	0·43	0	0·00		NA			NA		
	East-Asian	35	2·14	6	17·14		1·21	0·51-2·90	0·663	1·25	0·52-3·02	0·622
Marital status	Married/Stable Union	748	45·86	97	12·97	0·593	Ref	-----	-----	Ref	-----	-----
	Divorced/Widow	151	9·26	16	10·61		0·82	0·52-1·28	0·378	0·82	0·54-1·26	0·368
	Single	732	44·88	100	13·66		1·05	0·80-1·38	0·708	1·08	0·83-1·41	0·568
Sexual Orientation	Heterosexual	1,441	89·78	182	12·63	0·167	Ref	-----	-----	Ref	-----	-----
	Homo-/Bi-/Transsexual	164	10·22	27	16·46		1·30	0·84-2·02	0·234	1·33	0·86-2·04	0·195
Occupation	Professional Higher	974	60·12	121	12·42	0·667	Ref	-----	-----	Ref	-----	-----
	Professional Middle	163	10·06	22	13·50		1·08	0·59-2·00	0·790	1·08	0·59-1·95	0·807
	Worker/Informal	296	18·27	45	15·20		1·22	0·94-1·60	0·136	1·21	0·91-1·60	0·198
	Unemployed	187	11·54	25	13·37		1·08	0·81-1·44	0·618	1·12	0·84-1·48	0·435
Healthcare Job	No	1,380	84·25	179	12·97	0·795	Ref	-----	-----	Ref	-----	-----
	Yes	258	15·75	35	13·57		1·05	0·73-1·50	0·807	1·00	0·69-1·45	1·000
Family Income	>6 minimum wages	731	45·57	96	13·13	0·713	Ref	-----	-----	Ref	-----	-----
	4-6 minimum wages	390	24·31	55	14·10		1·07	0·79-1·46	0·647	1·10	0·81-1·48	0·537
	0-3 minimum wages	483	30·11	59	12·22		0·93	0·77-1·13	0·466	0·95	0·78-1·16	0·603
Housing	Apartment	550	33·78	71	12·91	0·438	Ref	-----	-----	Ref	-----	-----
	Condo/Conjugated	303	18·61	46	15·18		1·18	0·98-1·42	0·089	1·17	0·97-1·40	0·098
	Detached house	775	47·60	95	12·26		0·95	0·71-1·27	0·724	0·95	0·71-1·27	0·717

Number Adults in	1	156	9·59	22	14·10	0·883	Ref	-----	-----	Ref	-----	-----
residence	2	633	38·91	86	13·59		0·96	0·65-1·43	0·852	0·94	0·64-1·39	0·758
	3	419	25·75	53	12·65		0·90	0·59-1·37	0·614	0·90	0·60-1·36	0·623
	4+	419	25·75	51	12·17		0·86	0·64-1·16	0·336	0·87	0·64-1·19	0·390
Number Children in	0	1,006	62·37	129	12·82	0·970	Ref	-----	-----	Ref	-----	-----
residence	1	395	24·49	52	13·16		1·03	0·74-1·42	0·873	1·01	0·72-1·41	0·950
	2	173	10·73	23	13·29		1·04	0·59-1·81	0·899	1·01	0·59-1·73	0·969
	3+	39	2·42	6	15·38		1·20	0·43-3·35	0·728	1·20	0·42-3·42	0·737
Administrative	Center-South	581	35·47	61	10·50	**0·015**	NA			NA		
zones	Center-West	148	9·04	24	16·22		NA			NA		
	East	163	9·95	22	13·50		NA			NA		
	North	274	16·73	28	10·22		NA			NA		
	West	169	10·32	33	19·53		NA			NA		
	South	303	18·50	46	15·18		NA			NA		
HealthCare Access												
Private Insurance	No	609	37·20	89	14·61	0·154	Ref	-----	-----	Ref	-----	-----
	Yes	1,028	62·80	125	12·16		0·83	0·59-1·18	0·302	0·83	0·59-1·17	0·295
Influenza Vaccine	Last time 2020	806	49·21	96	11·91	0·128	Ref	-----	-----	Ref	-----	-----
	Last time 2019	371	22·65	62	16·71		1·40	0·98-2·01	0·065	1·41	0·98-2·01	0·064
	Prior to 2019	306	18·68	38	12·42		1·04	0·66-1·64	0·857	1·04	0·66-1·66	0·861
	Never	155	9·46	18	11·61		0·98	0·57-1·68	0·928	0·99	0·57-1·69	0·958

[1] Variables obtained at 1st Cohort Visit except when indicated.
* Relative Risk (RR) using Poisson Regression with robust variance corrected by clusters.
** Incidence Rate Ratio (IRR) using Poisson Regression considering follow-up time with robust variance corrected by clusters.

Table S3: SARS-CoV-2 seroconversion according to COVID-19 risk factors and exposures in an adult population cohort from Manaus, Amazonas state of Brazil (n=1,638).

Characteristics[1]	Variables	Total	Column %	IgG ELISA (-) -> (+)	Incidence %	p value Chi2 test	RR**	95%CI	p value	IRR***	95%CI	p value
Total		**1,638**		**214**	**13·06**							
Risk Factors												
Pregnancy	No	1,022	99·13	130	12·72	0·612*	NA			NA		
	Yes	9	0·87	0	0·00							
Comorbidities (any)	No	967	59·04	130	13·44	0·585	Ref	-----	-----	Ref	-----	-----
	Yes	671	40·96	84	12·52		0·93	0·66-1·31	0·683	0·94	0·66-1·33	0·723
Which Comorbidities	Chronic Respiratory	152	9·28	25	16·45		1·22	0·83-1·80	0·308	1·22	0·82-1·82	0·323
	Diabetes	91	5·56	14	15·38		1·14	0·75-1·74	0·528	1·13	0·73-1·75	0·589
	Obesity	112	6·84	19	16·96		1·26	0·80-2·00	0·320	1·24	0·76-2·02	0·384
	Hypertension	250	15·26	28	11·20		0·83	0·59-1·17	0·297	0·84	0·59-1·19	0·331
	Cardiopathy	105	6·41	11	10·48		0·80	0·48-1·26	0·308	0·79	0·49-1·29	0·352
	Chronic Renal	30	1·83	6	20·00		1·49	0·98-2·26	0·063	1·46	0·97-2·22	0·071
	Immunological	30	1·83	6	20·00		1·49	0·70-3·15	0·299	1·53	0·74-3·16	0·256
	Cancer	8	0·49	0	0·00		NA			NA		
Preventive Self	None/Vit/Homemade	1,359	82·97	168	12·36	0·140	Ref	-----	-----	Ref	-----	-----
medication (any)	Over the counter	110	6·72	20	18·18		1·47	0·90-2·40	0·122	1·47	0·89-2·44	0·132
	Prescription Meds	169	10·32	26	15·38		1·24	0·91-1·70	0·166	1·26	0·92-1·73	0·153
Which medication	Nitazoxanide	17	1·04	2	11·76		NA			NA		
	Azithromycin	53	3·24	10	18·87		NA			NA		
	Hydroxy/Chloroquine	4	0·24	1	25·00		NA			NA		
	Corticosteroids	14	0·85	2	14·29		NA			NA		
	Ivermectin	130	7·94	28	13·08		NA			NA		
COVID-19 Exposure												
Social Distancing	Never	29	1·79	7	24·14	0·183	Ref	-----	-----	Ref	-----	-----
before August	Sometimes	417	25·74	51	12·23		**0·51**	**0·36-0·72**	**<0·001**	**0·50**	**0·35-0·72**	**<0·001**
	Frequently	1,174	72·47	153	13·03		**0·54**	**0·33-0·88**	**0·014**	**0·54**	**0·32-0·91**	**0·022**
Flexibilization August	No	257	15·86	24	9·34	**0·056**	Ref	-----	-----	Ref	-----	-----
	Yes	1,363	84·14	187	13·72		**1·47**	**1·14-1·89**	**0·003**	**1·50**	**1·16-1·94**	**0·002**
Work before August	On-site	479	29·55	79	16·49	**0·014**	Ref	-----	-----	Ref	-----	-----
	Remote Only	780	48·12	96	12·31		**0·75**	**0·55-1·01**	**0·058**	**0·75**	**0·55-1·01**	**0·059**
	NA	362	22·33	36	9·94							

Work since August	On-site	765	47·25	105	13·73	0·161	Ref	-----	-----	Ref	-----	-----
	Only Remote	580	35·82	80	13·79		1·00	0·84-1·20	0·957	0·98	0·82-1·18	0·867
	NA	274	16·92	26	9·49							
Family members with	No	495	30·22	54	10·91	0·228	Ref	-----	-----	Ref	-----	-----
COVID-19 (at 2nd)	Yes, alive	892	54·46	126	14·13		**1·29**	**1·11-1·51**	**0·001**	**1·29**	**1·11-1·50**	**0·001**
	Yes, deaths	251	15·32	34	13·55		1·24	0·97-1·59	0·087	1·22	0·95-1·57	0·116
Household members	No	1,261	76·98	127	10·07	**<0·001***	Ref	-----	-----	Ref	-----	-----
COVID-19 (at 2nd)	Yes, alive	371	22·65	85	22·91		**2·27**	**1·78-2·91**	**<0·001**	**2·28**	**1·79-2·90**	**<0·001**
	Yes, deaths	6	0·37	2	33·33		3·31	0·86-12·7	0·081	3·39	0·83-13·8	0·089
COVID-19 Contacts	None	778	48·02	70	9·00	**<0·001**	Ref	-----	-----	Ref	-----	-----
Since August	Yes, with Mask	604	37·28	93	15·40		**1·71**	**1·36-2·16**	**<0·001**	**1·72**	**1·35-2·19**	**<0·001**
	Yes, without Mask	238	14·69	48	20·17		**2·24**	**1·93-2·61**	**<0·001**	**2·28**	**1·93-2·68**	**<0·001**

[1] Variables obtained at 1st Cohort Visit except when indicated.
* Fisher´s Exact Test.
** Relative Risk (RR) using Poisson Regression with robust variance corrected by clusters.
*** Incidence Rate Ratio (IRR) using Poisson Regression considering follow-up time with robust variance corrected by clusters.

Table S4: SARS-CoV-2 seroconversion according to COVID-19 symptoms and diagnosis in an adult population cohort from Manaus, Amazonas state of Brazil (n=1,638).

Characteristics[1]	Variables	Total	Column %	IgG ELISA (-) -> (+)	Incidence %	p value Chi2 test	RR**	95%CI	p value	IRR***	95%CI	p value
Total		**1,638**		**214**	**13·06**							
Symptoms												
Symptoms	None	1,196	73·02	103	8·61	**<0·001**	Ref	-----	-----	Ref	-----	-----
(Between 1st 2nd visit)	Flu-like	393	23·99	104	26·46		**3·07**	**2·25-4·19**	**<0·001**	**3·05**	**2·23-4·18**	**<0·001**
	Others	49	2·99	7	14·29		1·66	0·67-4·14	0·277	1·68	0·67-4·23	0·271
COVID-19 Diagnosis												
PCR (Between	Not done	1,487	92·13	161	10·83	**<0·001**	Ref	-----	-----	Ref	-----	-----
1st 2nd visit)	Yes, Negative	79	4·89	11	13·92		1·29	0·85-1·96	0·240	1·27	0·83-1·95	0·269
	Yes, Positive	48	2·97	36	75·00		**6·93**	**5·54-8·66**	**<0·001**	**6·70**	**5·28-8·51**	**<0·001**
Serology (Between	Not done	1,030	63·74	116	11·26	**<0·001**	Ref	-----	-----	Ref	-----	-----
1st 2nd visit)	Yes, Negative	531	32·86	63	11·86		1·05	0·77-1·44	0·743	1·08	0·80-1·47	0·607
	Yes, Positive	55	3·40	32	58·18		**5·17**	**3·31-8·06**	**<0·001**	**5·02**	**3·25-7·75**	**<0·001**
Antigenic Test	Not done	1,088	98·64	124	11·40	**<0·001***	Ref	-----	-----	Ref	-----	-----
(Between 1st 2nd visit)	Yes, Negative	9	0·82	1	11·11		0·97	0·15-6·50	0·979	1·11	0·16-7·71	0·916
	Yes, Positive	6	0·54	6	100·00		**8·77**	**6·61-11·7**	**<0·001**	**8·90**	**6·60-12·0**	**<0·001**
COVID-19 (Between	No	1,538	93·95	151	9·82	**<0·001**	Ref	-----	-----	Ref	-----	-----
1st 2nd visit)	Yes	99	6·05	63	63·64		**6·48**	**4·24-9·90**	**<0·001**	**6·28**	**4·08-9·68**	**<0·001**

[1] Variables obtained at 1st Cohort Visit except when indicated.
* Fisher´s Exact Test.
** Relative Risk (RR) using Poisson Regression with robust variance corrected by clusters.
*** Incidence Rate Ratio (IRR) using Poisson Regression considering follow-up time with robust variance corrected by clusters.

Table S5: Multivariate regression model for SARS-CoV-2 seroconversion in an adult population cohort from Manaus, Amazonas state of Brazil (n=1,638).

Characteristics[1]	**Variables**	**IRR***	**95%CI**	**p value**
Age	18-29	Ref	-----	-----
	30-39	0·97	0·68-1·37	0·854
	40-49	1·05	0·81-1·36	0·725
	50-59	1·13	0·66-1·93	0·652
	>=60	1·17	0·55-2·51	0·683
Sex	F	Ref	-----	-----
	M	1·13	0·82-1·56	0·458
Social Distancing	Never	Ref	-----	-----
before August	Sometimes	0·80	0·53-1·21	0·285
	Frequently	1·11	0·57-2·18	0·758
SD Flexibilization	No	Ref	-----	-----
since August	**Yes**	**1·31**	**1·05-1·64**	**0·017**
Motives Work before August	On-site	Ref	-----	-----
	Remote Only	**0·74**	**0·56-0·97**	**0·030**
	NA			
Household members	No	Ref	-----	-----
with COVID-19 (2nd)	**Yes, alive**	**1·49**	**1·21-1·83**	**<0·001**
	Yes, deaths	2·22	0·68-7·27	0·186
COVID-19 Contacts	None	Ref	-----	-----
since August	Yes, with Mask	1·20	0·90-1·60	0·219
	Yes, without Mask	**1·25**	**1·09-1·45**	**0·002**
Symptoms since	None	Ref	-----	-----
August	**Flu-like**	**1·79**	**1·23-2·59**	**0·002**
	Others	1·20	0·60-2·40	0·616
COVID-19 Diagnosis	No	Ref	-----	-----
since August	**Yes**	**3·57**	**2·27-5·63**	**<0·001**

[1] Variables obtained at 1st Cohort Visit except when indicated.
* Incidence Rate Ratio (IRR) using Poisson Regression considering follow-up time with robust variance corrected by clusters, and adjusted per all model variables.

Table S6: Reasons for loss to follow-up at 2nd visit

Reason/Motive	n
Change of domicile Municipality	11
Financial problems with travel / transportation to the collection center	17
Not in Manaus during the collection period (travelling outside Manaus)	67
Illness	29
Work or family responsibilities	88
No reason	63
Personal reasons	66
Did not respond to follow-up request	144
Death from other causes (COVID-19 RT-PCR Negative)	2
Study withdrawal for personal reasons	6
Unreachable (E-mail, telephone, and phone messaging)	68
Total	**561**

Table S7: Missing percentage per each variable used in the seroconversion analysis (people who returned for a 2nd visit and did not have prior infection or seropositivity at 1st visit) in an adult population cohort from Manaus, Amazonas state of Brazil (n=1,638).

Variables	Total	Missing %
Total	**1,638**	
Demographics		
Age	1,638	0·00%
Sex	1,638	0·00%
Race	1,638	0·00%
Marital status	1,631	0·43%
Sexual Orientation	1,605	2·01%
Occupation	1,620	1·10%
Healthcare Job	1,638	0·00%
Family Income	1,604	2·08%
Housing	1,628	0·61%
Number Adults at home	1,627	0·67%
Number Children at home	1,613	1·53%
Administrative Zone	1,638	0·00%
HealthCare Access		
Private Insurance	1,637	0·06%
Influenza Vaccine	1,638	0·00%
Risk Factors		
Pregnancy*	1,031	0·00%
Comorbidities (any)	1,638	0·00%
Preventive Self Medication	1,638	0·00%
COVID-19 Exposure		
Social Distancing	1,620	1·10%
Flexibilization August	1,620	1·10%

Work before August	1,621	1·04%
Work since August	1,619	1·16%
Family members with COVID	1,638	0·00%
Household members with COVID	1,638	0·00%
COVID-19 Contacts since August	1,620	1·10%
Symptoms		
Symptoms (1st to 2nd visit)	1,638	0·00%
COVID-19 Diagnosis		
PCR (Between 1st 2nd visit)	1,614	1·47%
Serology (Between 1st 2nd visit)	1,616	1·34%
Antigenic Test	1,103	32·66%
COVID-19 (Between	1,637	0·06%

* Only women (n=1031)

Table S8: STROBE statement

	Item No	Recommendation	Description and page number
Title and abstract	1	(*a*) Indicate the study's design with a commonly used term in the title or the abstract	01
		(*b*) Provide in the abstract an informative and balanced summary of what was done and what was found	03
Introduction			
Background/rationale	2	Explain the scientific background and rationale for the investigation being reported	05
Objectives	3	State specific objectives, including any prespecified hypotheses	05
Methods			
Study design	4	Present key elements of study design early in the paper	05
Setting	5	Describe the setting, locations, and relevant dates, including periods of recruitment, exposure, follow-up, and data collection	05
Participants	6	(*a*) Give the eligibility criteria, and the sources and methods of selection of participants. Describe methods of follow-up	05
		(*b*) For matched studies, give matching criteria and number of exposed and unexposed	NA
Variables	7	Clearly define all outcomes, exposures, predictors, potential confounders, and effect modifiers. Give diagnostic criteria, if applicable	Methodology
Data sources/ measurement	8*	For each variable of interest, give sources of data and details of methods of assessment (measurement). Describe comparability of assessment methods if there is more than one group	Methodology
Bias	9	Describe any efforts to address potential sources of bias	Methodology
Study size	10	Explain how the study size was arrived at	Methodology
Quantitative variables	11	Explain how quantitative variables were handled in the analyses. If applicable, describe which groupings were chosen and why	Methodology
Statistical methods	12	(*a*) Describe all statistical methods, including those used to control for confounding	Methodology
		(*b*) Describe any methods used to examine subgroups and interactions	Methodology
		(*c*) Explain how missing data were addressed	Methodology
		(*d*) If applicable, explain how loss to follow-up was addressed	Methodology
		(*e*) Describe any sensitivity analyses	7
Results			
Participants	13*	(a) Report numbers of individuals at each stage of study—eg numbers potentially eligible, examined for eligibility, confirmed eligible, included in the study, completing follow-up, and analysed	07
		(b) Give reasons for non-participation at each stage	29
		(c) Consider use of a flow diagram	19
Descriptive data	14*	(a) Give characteristics of study participants (eg demographic, clinical, social) and information on exposures and potential confounders	22-27
		(b) Indicate number of participants with missing data for each variable of interest	22-27

		(c) Summarise follow-up time (eg, average and total amount)	19, 22-27
Outcome data	15*	Report numbers of outcome events or summary measures over time	22-27
Main results	16	(*a*) Give unadjusted estimates and, if applicable, confounder-adjusted estimates and their precision (eg, 95% confidence interval). Make clear which confounders were adjusted for and why they were included	22-29
		(*b*) Report category boundaries when continuous variables were categorized	22-29
		(*c*) If relevant, consider translating estimates of relative risk into absolute risk for a meaningful time period	34-44
Other analyses	17	Report other analyses done—eg analyses of subgroups and interactions, and sensitivity analyses	
Discussion			
Key results	18	Summarise key results with reference to study objectives	08
Limitations	19	Discuss limitations of the study, taking into account sources of potential bias or imprecision. Discuss both direction and magnitude of any potential bias	10
Interpretation	20	Give a cautious overall interpretation of results considering objectives, limitations, multiplicity of analyses, results from similar studies, and other relevant evidence	Discussion
Generalisability	21	Discuss the generalisability (external validity) of the study results	Discussion
Other information			
Funding	22	Give the source of funding and the role of the funders for the present study and, if applicable, for the original study on which the present article is based	03

*Give information separately for exposed and unexposed groups.

Note: An Explanation and Elaboration article discusses each checklist item and gives methodological background and published examples of transparent reporting. The STROBE checklist is best used in conjunction with this article (freely available on the Web sites of PLoS Medicine at http://www.plosmedicine.org/, Annals of Internal Medicine at http://www.annals.org/, and Epidemiology at http://www.epidem.com/). Information on the STROBE Initiative is available at http://www.strobe-statement.org.

Sensitivity Analysis Table 1: Demographic distribution comparing the sub-group used in the principal analysis (N = 1638), the same sub-group after the whole sample was weighted by "Administrative zone" and "Family Income", and the available Manaus city census data.

Characteristics[1]	Categories	Sample Absolute Frequencies (n)	Sample Percentages (%)	Weighted Sample Percentages (w%)	Manaus City Census Percentages (%)
Demographics					
Age	**18-29**	372	**22·71**	**29·27**	36·59
	30-39	420	25·64	23·52	25·89
	40-49	354	21·61	20·47	17·55
	50-59	292	17·83	15·60	10·87
	>=60	200	12·21	11·13	9·10
Sex	F	1,031	62·94	63·86	52·07
	M	607	37·06	36·14	47·93
Race	**Mestizo**	885	**54·03**	**59·49**	**67·98**
	White	602	**36·75**	**30·48**	**26·41**
	Black	109	6·65	7·55	4·18
	Indigenous	7	0·43	0·52	0·24
	East-Asian	35	2·14	1·96	1·18
Marital status	**Married/Stable Union**	748	**45·86**	**40·49**	27·05
	Divorced/Widow	151	9·26	8·80	6·40
	Single	732	**44·88**	**50·71**	66·55
Sexual Orientation	Heterosexual	1,441	89·78	88·58	---
	Homo-/Bi-/Transsexual	164	10·22	11·42	---
Administrative	**Center-South**	581	**35·47**	**11·48**	**9·54**
zones	Center-West	148	9·04	10·23	8·89
	East	163	**9·95**	**18·83**	**23·33**
	North	274	**16·73**	**26·29**	**26·73**
	West	169	10·32	13·46	14·42
	South	303	18·50	19·71	17·10
Family Income (FI)	**>6 minimum wages**	731	**45·57**	**26·63**	**22·06**
	4-6 minimum wages	390	24·31	27·67	25·69
	0-3 minimum wages	483	**30·11**	**45·70**	**52·25**
FI Center-South	**>6 minimum wages**	371	**65·32**	**57·16**	**52·0**
	4-6 minimum wages	113	19·89	17·41	18·0

	0-3 minimum wages	84	**14·79**	**25·42**	**30·0**
FI Center-West	**>6 minimum wages**	54	**37·76**	**30·91**	**30·0**
	4-6 minimum wages	46	32·17	30·52	27·0
	0-3 minimum wages	43	**30·07**	**38·57**	**43·0**
FI East	**>6 minimum wages**	55	**34·38**	**12·67**	**9·0**
	4-6 minimum wages	36	**22·50**	**30·50**	**26·0**
	0-3 minimum wages	69	**43·13**	**56·83**	**65·0**
FI North	>6 minimum wages	62	23·13	22·21	20·0
	4-6 minimum wages	78	29·10	31·08	28·0
	0-3 minimum wages	128	47·76	46·72	52·0
FI West	**>6 minimum wages**	76	**46·63**	**26·89**	**20·0**
	4-6 minimum wages	37	**22·70**	**27·85**	**26·0**
	0-3 minimum wages	50	**30·67**	**45·26**	**54·0**
FI South	**>6 minimum wages**	113	**37·42**	**25·77**	**24·0**
	4-6 minimum wages	80	26·49	24·85	25·0
	0-3 minimum wages	109	**36·09**	**49·38**	**51·0**
Healthcare Job	No	1,380	84·25	87·43	---
	Yes	258	15·75	12·57	---
Occupation	**Professional Higher**	974	**60·12**	**50·28**	**12·46**
	Professional Middle	163	10·06	12·04	56·21
	Worker/Informal	296	18·27	22·21	18·87
	Unemployed	187	11·54	15·47	10·70
Housing	**Apartment**	**550**	**33·78**	**23·23**	10·42
	Condo/Conjugated	303	18·61	19·34	3·95
	Detached house	**775**	**47·60**	**57·42**	84·21
Number Adults in residence	1	156	9·59	9·16	---
	2	633	38·91	35·66	---
	3	419	25·75	26·30	---
	4+	419	25·75	28·88	---
HealthCare Access					
Private Insurance	**No**	**609**	**37·20**	**46·77**	**75·87**
	Yes	**1,028**	**62·80**	**53·23**	**24·13**
Influenza Vaccine	Last time 2020	806	49·21	46·22	---
	Last time 2019	371	22·65	24·00	---
	Prior to 2019	306	18·68	20·23	---
	Never	155	9·46	9·55	---

[1] Variables obtained at 1st Cohort Visit except when indicated.

Distribution changes higher than 5% between unweighted and weighted samples are **showed in Bold**.

Sensitivity Analysis Table 2: Health and COVID-19 related characteristics comparing the sub-group used in the principal analysis (N = 1638), with the same sub-group after the whole sample was weighted by "Administrative zone" and "Family Income"

Characteristics[1]	Categories	Sample Absolute Frequencies (n)	Sample Percentages (%)	Weighted Sample Percentages (w%)
Risk Factors				
Comorbidities (any)	No	967	59·04	59·86
	Yes	671	40·96	40·14
Which Comorbidities	Chronic Respiratory	152	9·28	8·83
	Diabetes	91	5·56	5·22
	Obesity	112	6·84	7·17
	Hypertension	250	15·26	14·47
	Cardiopathy	105	6·41	5·87
	Chronic Renal	30	1·83	2·00
	Immunological	30	1·83	1·69
	Cancer	8	0·49	0·32
Preventive Self	None/Vit/Homemade	1,359	82·97	81·52
medication (any)	Over the counter	110	6·72	7·97
	Prescription Meds	169	10·32	10·52
COVID-19 Exposure				
Social Distancing	Never	29	1·79	1·82
before August	Sometimes	417	25·74	26·96
	Frequently	1,174	72·47	71·22
Flexibilization after	No	257	15·86	15·07
August	Yes	1,363	84·14	84·93
Work before August	On-site	479	29·55	30·79
	Remote Only	780	**48·12**	**41·45**
	NA	362	**22·33**	**27·76**
Work since August	On-site	765	47·25	51·15
	Only Remote	580	**35·82**	**28·81**
	NA	274	16·92	20·04
Family members with	No	495	30·22	30·05
COVID-19 (until 2nd)	Yes, alive	892	54·46	53·89
	Yes, deaths	251	15·32	16·06

Household members	No	1,261	76·98	77·60
COVID-19 (until 2nd)	Yes, alive	371	22·65	22·03
	Yes, deaths	6	0·37	0·37
COVID-19 Contacts	None	778	48·02	48·86
(Between 1st - 2nd visit)	Yes, with Mask	604	37·28	36·57
	Yes, without Mask	238	14·69	14·57
COVID-19 Diagnosis				
Symptoms	None	1,196	73·02	72·45
(Between 1st - 2nd visit)	Flu-like	393	23·99	24·43
	Others	49	2·99	3·12
PCR (Between	Not done	1,487	92·13	93·87
1st - 2nd visit)	Yes, Negative	79	4·89	3·59
	Yes, Positive	48	2·97	2·54
Serology (Between	Not done	1,030	63·74	66·46
1st - 2nd visit)	Yes, Negative	531	32·86	29·91
	Yes, Positive	55	3·40	3·63
Antigenic Test	Not done	1,088	98·64	98·83
(Between 1st - 2nd visit)	Yes, Negative	9	0·82	0·69
	Yes, Positive	6	0·54	0·48
COVID-19 Diagnosis	No	1,538	93·95	93·92
(Between 1st - 2nd visit)	Yes	99	6·05	6·08

[1] Variables obtained at 1st Cohort Visit except when indicated.
Vit: Vitamins· NA: Not applicable· PCR: Polymerase Chain Reaction Test.

Distribution changes higher than 5% between unweighted and weighted samples are **showed in Bold.**

Sensitivity Analysis Table 3: SARS-CoV-2 seroconversion incidence and crude Poisson regression models according to demographics comparing the sub-group used in the principal analysis, and the same sub-group after the whole sample was weighted by "Administrative zone" and "Family Income"

Characteristics[1]	Categories	IgG ELISA (-) -> (+)	Sample Incidence row %	Chi2 test p value	Weighted Incidence row %	Chi2 test p value	IRR*	95%CI	p value	Weight IRR*	95%CI	p value
Total		214	13·06		13·39							
Demographics												
Age	18-29	48	12·90	0·915	13·21	0·784	Ref	-----	-----			
	30-39	56	**13·33**		**15·22**		**1·03**	**0·68-1·57**	**0·878**	**1·12**	**0·75-1·68**	**0·584**
	40-49	48	13·56		12·66		1·05	0·81-1·36	0·703	0·94	0·63-1·40	0·752
	50-59	40	13·70		13·38		1·06	0·69-1·63	0·786	0·99	0·53-1·84	0·969
	>=60	22	11·00		11·32		0·85	0·37-1·99	0·712	0·82	0·29-2·36	0·713
Sex	F	130	12·61	0·476	12·06	0·339	Ref	-----	-----			
	M	84	**13·84**		**15·73**		**1·10**	**0·75-1·60**	**0·627**	**1·28**	**0·79-2·07**	**0·323**
Race	Mestizo	125	14·12	0·290	13·12	0·119	Ref	-----	-----			
	White	74	**12·29**		**15·44**		**0·87**	**0·57-1·32**	**0·515**	**1·21**	**0·90-1·61**	**0·205**
	Black	9	**8·26**		**4·29**		**0·58**	**0·12-2·81**	**0·503**	**0·33**	**0·07-1·55**	**0·162**
	Indigenous	0	0·00		0·00		NA			NA		
	East-Asian	6	**17·14**		**28·18**		**1·21**	**0·51-2·90**	**0·663**	**2·22**	**0·94-5·24**	**0·069**
Marital status	Married/Stable Union	97	12·97	0·593	13·73	0·731	Ref	-----	-----			
	Divorced/Widow	16	10·61		10·64		0·82	0·52-1·28	0·378	0·79	0·46-1·37	0·396
	Single	100	13·66		13·57		1·05	0·80-1·38	0·708	1·01	0·70-1·45	0·952
Sexual Orientation	Heterosexual	182	12·63	0·167	12·63	0·282	Ref	-----	-----			
	Homo-/Bi-/Transsexual	27	16·46		18·87		1·30	0·84-2·02	0·234	1·52	0·81-2·86	0·197
Occupation	Professional Higher	121	12·42	0·667	12·38	0·518	Ref	-----	-----			
	Professional Middle	22	13·50		13·84		1·08	0·59-2·00	0·790	1·09	0·60-1·98	0·769
	Worker/Informal	45	15·20		15·74		1·22	0·94-1·60	0·136	1·24	0·91-1·68	0·180
	Unemployed	25	13·37		13·37		1·08	0·81-1·44	0·618	1·11	0·79-1·57	0·550
Healthcare Job	No	179	12·97	0·795	13·25	0·520	Ref	-----	-----			
	Yes	35	13·57		14·32		1·05	0·73-1·50	0·807	1·05	0·83-1·32	0·696
Family Income	>6 minimum wages	96	13·13	0·713	13·61	0·646	Ref	-----	-----			
	4-6 minimum wages	55	14·10		14·39		1·07	0·79-1·46	0·647	1·08	0·71-1·64	0·724
	0-3 minimum wages	59	12·22		12·77		0·93	0·77-1·13	0·466	0·95	0·82-1·10	0·486
Housing	Apartment	71	12·91	0·438	14·08	0·305	Ref	-----	-----			
	Condo/Conjugated	46	15·18		16·32		1·18	0·98-1·42	0·089	1·13	0·90-1·40	0·290

	Detached house	95	12·26		12·18		0·95	0·71-1·27	0·724	0·85	0·57-1·26	0·410
Number Adults in	1	22	14·10	0·883	14·13	0·621	Ref	-----	-----			
residence	2	86	13·59		14·35		0·96	0·65-1·43	0·852	1·00	0·66-1·51	0·997
	3	53	12·65		14·18		0·90	0·59-1·37	0·614	1·00	0·59-1·70	0·992
	4+	51	12·17		11·32		0·86	0·64-1·16	0·336	0·81	0·50-1·33	0·411
Administrative	Center-South	61	10·50	0·015	10·40	<0·001	NA			NA		
zones	Center-West	24	16·22		16·38		NA			NA		
	East	22	13·50		13·05		NA			NA		
	North	28	10·22		10·36		NA			NA		
	West	33	19·53		18·07		NA			NA		
	South	46	15·18		14·75		NA			NA		
HealthCare Access												
Private Insurance	No	89	14·61	0·154	14·16	0·546	Ref	-----	-----			
	Yes	125	12·16		12·74		0·83	0·59-1·18	0·302	0·90	0·66-1·23	0·512
Influenza Vaccine	Last time 2020	96	11·91	0·128	12·54	0·644	Ref	-----	-----			
	Last time 2019	62	16·71		15·75		1·40	0·98-2·01	0·065	1·25	0·90-1·72	0·185
	Prior to 2019	38	12·42		12·20		1·04	0·66-1·64	0·857	0·96	0·66-1·38	0·810
	Never	**18**	**11·61**		**14·10**		**0·98**	**0·57-1·68**	**0·928**	**1·13**	**0·52-2·48**	**0·755**

[1] Variables obtained at 1st Cohort Visit except when indicated.
***** Incidence Rate Ratio (IRR) using Poisson Regression considering follow-up time with robust variance corrected by clusters.

Incidence changes higher than one standard error between unweighted and weighted samples are **showed in Bold.**

Sensitivity Analysis Table 4: SARS-CoV-2 seroconversion incidence and crude Poisson regression models according to health and COVID-19 related characteristics comparing the sub-group used in the principal analysis, and the same sub-group after the whole sample was weighted by "Administrative zone" and "Family Income"

Characteristics[1]	**Variables**	**IgG ELISA (-) -> (+)**	**Sample Incidence row %**	**Chi2 test p value**	**Weighted Incidence row %**	**Chi2 test p value**	**IRR***	**95%CI**	**p value**	**Weight IRR***	**95%CI**	**p value**
Total		214	13·06		13·39							
Risk Factors												
Comorbidities (any)	No	130	13·44	0·585	13·39	0·998	Ref	-----	-----			
	Yes	84	**12·52**		**13·39**		**0·93**	**0·66-1·31**	**0·683**	**1·01**	**0·72-1·41**	**0·968**
Which Comorbidities	Chronic Respiratory	25	16·45		16·97		NA			NA		
	Diabetes	14	15·38		15·79		NA			NA		
	Obesity	19	16·96		19·35		NA			NA		
	Hypertension	28	11·20		11·85		NA			NA		
	Cardiopathy	11	10·48		12·57		NA			NA		
	Chronic Renal	6	20·00		19·66		NA			NA		
	Immunological	6	20·00		18·24		NA			NA		
	Cancer	0	0·00		0·00		NA			NA		
Preventive Self	None/Vit/Homemade	168	12·36	0·140	12·06	0·111	Ref	-----	-----			
medication (any)	**Over the counter**	20	**18·18**		**21·94**		**1·47**	**0·90-2·40**	**0·122**	**1·83**	**0·95-3·55**	**0·071**
	Prescription Meds	26	15·38		17·20		1·24	0·91-1·70	0·166	1·45	1·16-1·81	0·001
COVID-19 Exposure												
Social Distancing	Never	7	24·14	0·183	25·13	0·357	Ref	-----	-----			
before August	Sometimes	51	12·23		12·16		0·51	0·36-0·72	<0·001	0·48	0·30-0·77	0·002
	Frequently	153	13·03		13·54		0·54	0·33-0·88	0·014	0·54	0·27-1·08	0·083
Flexibilization August	No	24	9·34	0·056	9·64	0·027	Ref	-----	-----			
	Yes	187	13·72		14·04		1·47	1·14-1·89	0·003	1·48	1·16-1·90	0·002
Work before August	On-site	79	16·49	0·014	17·34	0·106	Ref	-----	-----			
	Remote Only	96	12·31		12·20		0·75	0·55-1·01	0·058	0·71	0·46-1·10	0·123
	NA	36	9·94		10·72							
Work since August	On-site	105	13·73	0·161	14·75	0·049	Ref	-----	-----			
	Only Remote	80	13·79		13·40		1·00	0·84-1·20	0·957	0·89	0·70-1·13	0·347
	NA	26	9·49		9·86							
Family members with	No	54	10·91	0·228	12·14	0·402	Ref	-----	-----			
COVID-19 (at 2nd)	Yes, alive	126	14·13		14·28		1·29	1·11-1·51	0·001	1·18	0·89-1·56	0·256
	Yes, deaths	34	13·55		12·74		1·24	0·97-1·59	0·087	1·04	0·68-1·58	0·856

Household members	No	127	10·07	<0·001*	10·91	0·003	Ref	-----	-----			
COVID-19 (at 2nd)	Yes, alive	85	22·91		21·79		2·27	1·78-2·91	<0·001	2·01	1·60-2·52	<0·001
	Yes, deaths	2	33·33		32·39		3·31	0·86-12·7	0·081	3·07	0·92-10·3	0·069
COVID-19 Contacts	None	70	9·00	<0·001	8·99	<0·001	Ref	-----	-----			
Since August	**Yes, with Mask**	93	**15·40**		**17·00**		**1·71**	**1·36-2·16**	**<0·001**	**1·91**	**1·64-2·22**	**<0·001**
	Yes, without Mask	48	20·17		18·99		2·24	1·93-2·61	<0·001	2·17	1·71-2·75	<0·001
COVID-19 Diagnosis												
Symptoms	None	103	8·61	<0·001	9·03	<0·001	Ref	-----	-----			
(Between 1st 2nd visit)	Flu-like	104	26·46		26·76		3·07	2·25-4·19	<0·001	2·97	2·00-4·39	<0·001
	Others	7	**14·29**		**9·86**		**1·66**	**0·67-4·14**	**0·277**	**1·09**	**0·42-2·84**	**0·861**
PCR (Between	Not done	161	10·83	<0·001	11·35	<0·001	Ref	-----	-----			
1st 2nd visit)	**Yes, Negative**	11	**13·92**		**17·97**		**1·29**	**0·85-1·96**	**0·240**	**1·59**	**0·88-2·86**	**0·121**
	Yes, Positive	36	75·00		72·92		6·93	5·54-8·66	<0·001	6·30	4·92-8·07	<0·001
Serology (Between	Not done	116	11·26	<0·001	11·52	<0·001	Ref	-----	-----			
1st 2nd visit)	**Yes, Negative**	63	**11·86**		**13·38**		**1·05**	**0·77-1·44**	**0·743**	**1·19**	**0·85-1·67**	**0·301**
	Yes, Positive	32	**58·18**		**48·20**		**5·17**	**3·31-8·06**	**<0·001**	**4·12**	**2·17-7·81**	**<0·001**
Antigenic Test	Not done	124	11·40	<0·001†	11·57	<0·001†	Ref	-----	-----			
(Between 1st 2nd visit)	Yes, Negative	1	11·11		17·35		0·97	0·15-6·50	0·979	1·75	0·31-9·88	0·527
	Yes, Positive	6	100·00		100·00		8·77	6·61-11·7	<0·001	8·91	6·43-12·3	<0·001
COVID-19 (Between	**No**	151	**9·82**	<0·001	**10·60**	<0·001	**Ref**	**-----**	**-----**			
1st 2nd visit)	**Yes**	63	**63·64**		**56·61**		**6·48**	**4·24-9·90**	**<0·001**	**5·19**	**3·46-7·77**	**<0·001**

[1] Variables obtained at 1st Cohort Visit except when indicated.
***** Incidence Rate Ratio (IRR) using Poisson Regression considering follow-up time with robust variance corrected by clusters·
† Fisher´s Exact Test.

Incidence changes higher than one standard error between unweighted and weighted samples are **showed in Bold.**

Sensitivity Analysis Table 5: SARS-CoV-2 seroconversion Multivariate Poisson regression models comparing the sub-group used in the principal analysis, and the same sub-group after the whole sample was weighted by "Administrative zone" and "Family Income"

Characteristics[1]	Variables	IRR*	95%CI	p value	Weighted IRR*	Weighted 95%CI	p value	Wald test † Between Coefficients p value
Age	18-29	Ref	-----	-----				
	30-39	0·97	0·68-1·37	0·854	1·05	0·74-1·50	0·770	0·736
	40-49	1·05	0·81-1·36	0·725	0·91	0·63-1·32	0·623	0·546
	50-59	1·13	0·66-1·93	0·652	1·18	0·57-2·41	0·658	0·931
	>=60	1·17	0·55-2·51	0·683	1·13	0·39-3·24	0·821	0·955
Sex	F	Ref	-----	-----				
	M	1·13	0·82-1·56	0·458	1·36	0·80-2·31	0·254	0·556
Social Distancing	Never	Ref	-----	-----				
before August	Sometimes	0·80	0·53-1·21	0·285	0·83	0·48-1·44	0·502	0·922
	Frequently	1·11	0·57-2·18	0·758	1·20	0·52-2·74	0·673	0·895
SD Flexibilization	No	Ref	-----	-----				
	Yes	**1·31**	**1·05-1·64**	**0·017**	**1·32**	**0·97-1·81**	**0·078**	**0·963**
Motives Work before	On-site	Ref	-----	-----				
August	**Remote Only**	**0·74**	**0·56-0·97**	**0·030**	**0·72**	**0·49-1·06**	**0·098**	**0·927**
	NA							
Household members	No	Ref	-----	-----				
with COVID-19 (2nd)	Yes, alive	1·49	1·21-1·83	<0·001	1·41	1·12-1·78	0·003	0·739
	Yes, deaths	2·22	0·68-7·27	0·186	1·82	0·86-3·88	0·120	0·781
COVID-19 Contacts	None	Ref	-----	-----				
since August	**Yes, with Mask**	**1·20**	**0·90-1·60**	**0·219**	**1·39**	**1·15-1·69**	**0·001**	**0·402**
	Yes, without Mask	**1·25**	**1·09-1·45**	**0·002**	**1·30**	**0·95-1·76**	**0·096**	**0·851**
Symptoms since	None	Ref	-----	-----				
August	Flu-like	1·79	1·23-2·59	0·002	1·98	1·20-3·27	0·008	0·752
	Others	1·20	0·60-2·40	0·616	0·85	0·28-2·61	0·776	0·613
COVID-19 Diagnosis	No	Ref	-----	-----				
since August	Yes	3·57	2·27-5·63	<0·001	2·94	2·12-4·10	<0·001	0·499

[1] Variables obtained at 1st Cohort Visit except when indicated.
* Incidence Rate Ratio (IRR) using Poisson Regression considering follow-up time with robust variance corrected by clusters, and adjusted per all model variables.
† Wald test comparing regression coefficients for each category of the unweighted and weighted models.

Variables and categories who lost statistical significance after weighting are **showed in Bold.**